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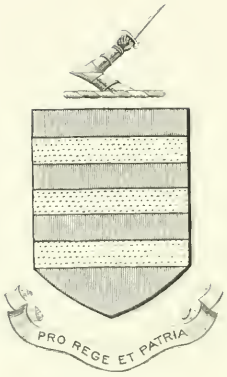

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EDITED BY

THOMAS L. STEDMAN, A.M., M.D.

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Original Articles.

SURGERY AS A SCIENCE AND ART IN THE CITY OF NEW YORK IN THE MIDDLE OF THE LAST CENTURY.*

By STEPHEN SMITH, M.D., LL.D.

NEW YORK.

Surgery as a science and an art in New York in the middle of the last century can be most thoroughly understood and critically estimated by a knowledge of the surgeons of that period, the methods and success of hospital practice, the character of the instruction imparted in the medical schools, and the contributions to current surgical literature.

The representative surgeons of New York in 1850, or those who were most prominent as teachers, hospital surgeons, and authors, were nine in number and may be properly classified according to their respective ages, as follows:

Over 50, Valentine Mott, 65; John Kearney Rogers, 57; Willard Parker, 50.

Over 40, Alfred Charles Post, 45; John Watson, 43; Gurdon Buck, 43.

Over 30, James Rushmore Wood, 34; John Murray Carnochan, 33; William Holme Van Buren, 31.

Of these three groups of surgeons whose names are now historical in the annals of American surgery, the first represented in teaching and practice the new era in the science and art of surgery created by the school of Hunter. The preceptors of some of these surgeons had been pupils of that great pioneer in rational surgery and had imparted to their students the scientific spirit with which they had been inspired by the master.

Conspicuous in this class was Mott, the senior surgeon of the three groups, whose brilliant career was now drawing to its close. By natural endowments, preparatory training, and fitting opportunity, he was eminently adapted for the work which he so successfully accomplished. In reviewing his life-work it is apparent that the conditions which conspired to win success were, *Aptitude—Training—Opportunity.*

Physically, Mott was of large stature. Throughout his professional career his imposing personality, dignified by a conscious sense of its superiority, attracted the attention of even the passer-by. Mentally, his special endowment was the gift or faculty for the most painstaking attention to details. This was noticeable in his study of any subject before he would reach a conclusion; in his careful preparation for the simplest operation, and especially in the actual manual procedure when his conclusion was put to a practical test.

*Address delivered at the semi-centennial anniversary of the New York Academy of Medicine.

Mott's training for his future work was of the highest order. The son of a physician resident on Long Island, he early became a pupil of Dr. Valentine Seaman, a relative, then a prominent surgeon of New York. Later he came under the instruction of Dr. Wright Post, professor of surgery in the medical school of Columbia College. No person could have been selected better adapted to develop into full and vigorous activity the native attributes of the mind of his pupil for his future achievements than Post. Mott thus speaks of his preceptor:

"He was unrivaled as an anatomist, a most beautiful dissector, and one of the most luminous and perspicuous teachers I have ever listened to, either at home or abroad. His manners were grave and dignified; he seldom smiled, and never trifled with the serious and responsible duties in which he was engaged, and which no man ever more solemnly respected. . . . As an operator he was careful, slow, and elegant, and competent to any emergency contemplated by the then existing state of surgical science."

To these important qualifications as a teacher Post added that of an ardent student of the school of Hunter. He was probably present when Hunter performed the crucial operation of ligation of the femoral artery for popliteal aneurysm, in 1785, by placing the ligature at a distance from the tumor on its proximal side. The explanation of that operation by the operator, its novelty, and its successful issue must have inspired Post with that zeal for operative surgery which characterized his subsequent career. While Mott was his pupil Post performed the Hunterian operation for aneurysm several times with success. On his graduation Mott visited London and for two years was the private pupil and assistant of Sir Astley Cooper, then the foremost operating surgeon of Europe. During that period he assisted Sir Astley in a large number of the most difficult operations, of some of which he has given graphic accounts showing his intense interest in operative surgery. While in London he attended the clinics of the two Clines, Abernethy, the two Blizards, and Sir Everard Home, the brother-in-law of Hunter. Subsequently he attended lectures at the Edinburgh School, made famous by the Munroes.

On his return to New York in 1809 Mott was fully equipped for the great opportunities which awaited him. Nor did he fail to improve them. The field of operative surgery was occupied by Post, his preceptor and friend, who was about to retire from the more active duties in school and hospital. By patient and persistent effort Mott succeeded to the positions thus made vacant, first as a teacher of surgery, and second, as an operator and in both he more than maintained the reputation of his predecessor.

A critical study of Mott's practical methods re-

veals the special feature on which his remarkable success depended. His operative wounds rarely suppurated. Healing by first intention was the rule. This was a result sought for by Hunter, but at that period never so completely obtained by operators as by Mott. We now discover that his very habits of personal cleanliness and attention to every detail however minute secured in a large measure asepsis of the operated wounds. His personal neatness and precision in dress attracted the notice of the public to the extent that persons often gathered in front of his house to see him enter his carriage, which was always at the moment fixed for his morning visits. It was stated by a domestic that the floor of his dressing room would be found strewn with linen on which he had discovered a "fly-speck." The late Prof. Joseph M. Smith, who was a medical student when Mott began his first course of lectures, said, "When Dr. Mott appeared in the lecture room of the College of Physicians and Surgeons, soon after his return from Europe, in company with the professor, his appearance made a marked and most favorable impression on the class. His dress was scrupulously neat, his hair powdered, and his bearing courtly and dignified. All of us regarded him with a feeling of deference amounting to awe."

His attention to details was of the most exhaustive kind. Order prevailed wherever he had control in office, clinic, and hospital. He prepared for operations even of an unimportant kind by dissections and a review of its simplest feature. He invariably cleaned his instruments immediately before as well as after an operation. As an illustration of his personal cleanliness one of his students states that on going to the office one morning he found the doctor examining an abscess. He requested the student to open the abscess, which he proceeded to do, and meantime the doctor, rolling up his sleeves, placed his hands behind him and, stooping over the part, watched the process. When the pus began to flow he expressed his satisfaction with the operation and went to the bowl and washed his hands.

The crowning event in Mott's many great achievements was placing a ligature around the innominate artery. It was the most brilliant operation ever undertaken by any surgeon to that date. Nor has it been excelled in genius of conception and skill of execution if we give due consideration to the conditions under which it was performed. It was the ripe fruit of years of study and preparation. He says: "Since the publication of Allan Burns's invaluable work on the 'Surgical Anatomy of the Head and Neck,' I have been in the habit of showing, in my surgical lectures, the practicability of securing in a ligature, the arteria innominata, and I had no hesitation in remarking that it was my opinion that this artery might be taken up for some condition of aneurysms, and that a surgeon with a steady hand and a correct knowledge of the parts would be justified in doing it." Mott always spoke of his excision of the clavicle as his "Waterloo operation," partly because it was performed on the day preceding that battle and partly because he thought it his greatest operation.

In 1851 Mott appeared in a new position. Owing to changes in the faculty of the University Medical College which he did not approve he resigned his professorship in that school and was elected professor of "operative surgery" in the College of Physicians and Surgeons, in which he began teaching surgery forty years before. He delivered his introductory lecture to the course November 7, 1851, before a large audience of medical men, his subject being "Reminiscences of Medical Teaching and Teachers of New York."

Mott was now at the zenith of his greatness, not only as regards his fame as a surgeon, but as to his imposing personality. He had just returned from a tour of the European capitals, where he was universally received with the most distinguished honors. On the occasion of the delivery of his lecture his dress was faultless, his manners courtly, and his bearing that of one who is conscious of his superior rank. While he alluded to his contemporaries in terms of measured respect and deference, and reviewed the work of the surgeons of the past half century in terms of praise, he adroitly quoted the famous passage of Virgil,

Et quorum pars magna fui,

which brought a smile to the faces of the older surgeons on the platform.

A familiar acquaintance with Mott in the later years of his life revealed traits of character altogether admirable. The breadth of his studies embraced a large range of the physical sciences; he was a devoted lover of truth as it was developed in every department of research; his humanity was shown in his address on the condition of the tenement population of the city; his ideas of right citizenship appeared in his efforts to secure our present Health Department; his patriotism was conspicuous during the Civil War. Underlying these mental and moral endowments, as an abiding foundation, was a profound religious faith. Heroic men often epitomize the distinctive features of their lives in their dying words. Napoleon's last words were, "Tête d'armée." Mott's last words were, "Order, truth, punctuality."

Rogers, a native of New York, was also a student of Wright Post and a surgeon to the New York Hospital. He was tall and lean with strong features and spoke with apparent diffidence. He was seen and heard only at occasional clinics and operations at the New York Hospital. In operating he was very precise and rapid, two features of an operation regarded in the preanesthetic period, in which he performed his most notable operations, of the first importance. Rogers' reputation rested upon the single operation of placing a ligature around the left subclavian artery, within the scalenı muscles. This operation was scarcely second to that of ligation of the innominate, especially in the dissection necessary to expose the artery. It is an interesting fact that Mott, who was one of the consultants, opposed the operation, though he admitted that it might possibly "be tied by a careful and well informed surgeon," but he "considered it improper to do so." Sir Astley Cooper had failed in an attempt to ligate this artery, and that circumstance doubtless stimulated Rogers to make thorough preparation for the great undertaking. He said, "I had always considered it as a perfectly justifiable operation, and one that a careful surgeon conversant with anatomy could accomplish if the tumor were of moderate size."

The final consultation of the surgeons resulted in committing the question of operation entirely to the discretion of Rogers. He accepted the responsibility and proceeded with the operation. It proved to be as formidable as was anticipated, but he succeeded, and for several days there was a fair promise of recovery of the patient, but a fatal hemorrhage occurred on the thirteenth day. Rogers'

comment on the operation was: "From the knowledge thence derived we shall be able to enlarge our sphere of usefulness and be the means of preserving human life."

Parker was professor of surgery in the College of Physicians and Surgeons, a position which he had held for ten years. He was a native of New Hampshire, a graduate of Harvard College, and a pupil of Dr. John C. Warren of Boston. In 1850, and at the age of 50, Parker was a splendid specimen of mature manhood; his large, muscular frame was crowned with a well-poised head; his features indicated energy, earnestness and activity; his speech had the tone of command and authority. He was not a student, nor an investigator, but an intensely practical surgeon. His mental attributes and temperament rendered his teaching practical rather than theoretical. This peculiarity of his teaching, with a plain but forcible style of address, was very attractive to students, and especially to practitioners. His contribution to practical surgery which has attracted most attention was an operation in suppurative appendicitis, which has been regarded as the origin of the method of treating appendicitis by excision in the early stages of that disease. Although Parker's operation may have been a step in that direction, it was not his purpose to operate before pus had formed and could be detected. At the time of that operation two opinions were held in regard to the time when an abscess should be opened, viz., whether it should be opened as soon as pus is detected, or after the abscess had "ripened"—"come to a head." Parker taught that it should be opened when pus is detected and accordingly he opened an abscess caused by appendicitis at this early stage and the patient made a good recovery. Hancock of London had previously operated in a similar manner and with success. These operations for abscess of appendicitis led to the exploration of the wound and removal of the diseased appendix, and finally to the operation for the removal of the appendix before an abscess formed, or as soon as appendicitis is diagnosticated.

The second group of surgeons—Post, Buck, Watson—were all surgeons of the New York Hospital, the scene of Mott's and Rogers' great achievements. No one in this group made any pretensions to a reputation in the field of operative surgery. They held clinics during their terms of service, but these were conducted in a manner to attract but few students. Post's clinics were of interest chiefly owing to his accuracy of statement in explaining the disease of the patient, but his personal manners and style of speaking were entirely without the vigor and enthusiasm with which Parker inspired students in his college clinics. Buck was a laborious and painstaking surgeon whose clinics were entirely wanting in everything like glamor, and students were attracted to them by the instructive methods which characterized his treatment of every case and the patient attention which he gave to every detail. He described the case in a few words, spoken in a low tone, and performed operations in the most leisurely manner. Throughout the clinic he impressed the student with his conscientious devotion to the welfare of the patients quite regardless of the impression which he might make on his audience. On one occasion it was advertised that he would remove a urinary calculus by crushing the stone, a novel operation at that time which attracted the leading surgeons, and a crowd of students. Buck explained the operation in a few words, exhibited the instruments with which it was to be performed, stated that the stone had been readily detected with an instrument the day previous, and proceeded with the operation. After a brief search he withdrew the instrument, remarking with evident embarrassment that he had failed to discover the stone, and that it was necessary to allow the bladder to rest before making farther search. His second effort proved a failure, as did a third, whereupon he announced to the intensely disappointed audience that the patient's bladder had been irritated as much as was safe and he would adjourn farther proceedings to his next clinic. There were mutterings of disgust at his want of tact and skill, but Mott and Parker complimented him on his conservatism.

Buck was evidently much embarrassed in his operations by an extreme myopia, but though there was no brilliancy in his methods he had the reputation of being one of the most successful surgeons in the city as regards the recovery of his patients. This success was due to his extreme care of the patient before and after an operation. It was said by a house surgeon of the hospital that he was often aroused at a late hour of the night by a visit of Buck to patients on whom he had operated during the day, an incident quite unusual in the practice of other surgeons.

Watson was generally regarded as a very scholarly surgeon, and the courses of lectures which he occasionally gave in the hospital attracted a select class of students. But as a practical teacher in clinics, and as an operator he failed to interest either the students or the profession. His reputation as a scholar rests on an address before the Academy of Medicine on the "Medical Profession in Ancient Times," delivered in 1856. Watson was a native of Ireland but came to this country at the age of three years and was a graduate of the College of Physicians and Surgeons.

The third group of surgeons—Wood, Carnochan, Van Buren—was a reversion to the first type, in this, that each one was an operator and a teacher. They were not connected with the New York Hospital, but represented an ambitious class of thoroughly equipped young surgeons who were compelled to seek hospital privileges and opportunities elsewhere than in this quite exclusive institution. Wood and Van Buren became surgeons to the recently created Bellevue Hospital and Carnochan was made surgeon-in-chief to the Emigrant Hospital on Ward's Island.

Wood's great service to the profession of the city and to the cause of medical education in this country was the conversion of Bellevue from a disreputable almshouse to a well-organized modern hospital, and, finally, in inaugurating in its wards clinical instruction as a necessary part of a medical education. This change he effected—1844-1861—after a prolonged and intense struggle with the civil authorities. The opening of a new hospital was a great benefit to aspiring young surgeons, for the opportunities to enter the New York Hospital were so few and far between that appointments to its surgical staff were remarkable events.

The new Bellevue Hospital became, and remained during his lifetime, the theater of Wood's achievements in surgery. His clinics, the details of which were carefully prepared, were very attractive to the students in the medical schools on account of the variety of operations performed, the brilliant display

of instruments, and the frequent dramatic incidents which occurred during the operation. Wood was a good speaker, and while his lectures lacked breadth and scope, and his diminutive stature detracted from his personality, the intensity of his convictions and the energy with which he enforced his opinions never failed to interest the student. But it was in the manual part of the operation that he was at his best.

Carnochan, a native of Savannah, Georgia, was of Scotch descent by his father, but his mother was a grand-niece of Gen. Israel Putnam, of Revolutionary fame. He received his academic education in the schools of Edinburgh and London. He was a brilliant scholar and took the first rank in high-grade schools. While resident in Edinburgh he was brought into close relations with Professor Wilson, in philosophy, Hope in chemistry, and Knox in anatomy, and these associations are believed to have influenced him in the choice of his profession. On returning to this country he became a pupil of Dr. Valentine Mott, and was graduated from the College of Physicians and Surgeons. He then went abroad and studied at the École de Médecine, Paris, and for six years devoted himself to the practice of the hospitals in that city, becoming thereby intimately acquainted with the leading surgeons of the French capital. He then visited London and attended the lectures and hospital practice of Cooper, Brodie, Liston and others. In 1847 he began practice in New York and was appointed surgeon-in-chief to the Emigrant Hospital on Ward's Island in 1850, and in 1851 he was elected to the Professorship of Surgery in the New York Medical College.

Carnochan was by nature and education thoroughly equipped for a successful career, both as a teacher of the science and a practiser of the art of surgery. He was of large stature, courtly manners, deliberate and precise in speech, and very dextrous in operations. He did not, however, secure the position in the profession of the city to which his abilities and achievements entitled him owing to his failure to be in accord with the prevailing ethical sentiments that at this period governed membership of medical societies.

Van Buren, the junior surgeon of the three groups, was regarded as giving promise of a career in surgical teaching and practice only second to that of his father-in-law, Valentine Mott. He descended from a long line of eminent physicians, was educated at Yale College, and took his degree in medicine from the Medical Department of the University of Pennsylvania, had studied in the hospitals of Europe, had been a surgeon in the army, and was associated with Mott in practice. No surgeon in the entire list combined so many personal and acquired qualities making for success, whether as a teacher, author, or practiser. In personal appearance he was faultless, being above the medium height, his features classical, his manners affable, his style of speech deliberate and precise, but never self-assertive, and his method of operating very exact in every detail without the slightest effort to create a sensation. These qualities united to make him a favorite of students, and his clinics at Bellevue, to which he was a surgeon from its reorganization, were always well attended.

From this sketch of the *personnel* of the surgeons who, in 1850 were the acknowledged representatives of surgery as a science and an art in New York, we pass to consider the quality and character of the didactic teaching in the medical schools.

The professors of surgery in the two schools were Prof. Willard Parker in the College of Physicians and Surgeons, and Prof. Samuel D. Gross in the University Medical College. As Dr. Gross came from Louisville, Kentucky, to give a single course of lectures, he did not represent the profession of New York in any respect. Parker's lectures were almost entirely devoted to practical subjects.

As a practical teacher Parker appeared to the best advantage in the college clinics. Here he explained, in a familiar, conversational manner, the diseases of the patients and the methods of treatment, as they were brought before the class. This clinic was very popular, as it illustrated the daily practice of the physician in the succession of cases which he was likely to meet, and the prompt method of diagnosis and treatment required. Parker was a very careful and deliberate, ambidextrous operator, without any effort to attract attention by an exhibition of dexterity.

It should be stated of Professor Gross that he had been invited to give the course of lectures on surgery in the University Medical College with a view to occupying the position permanently. He was a personal friend of Parker and was ambitious to settle in New York. Parker's experience on coming to New York from Cincinnati, ten years before, to accept the Professorship of Surgery in the College of Physicians and Surgeons, was attended with so many discouragements that he strongly advised him against his contemplated change. Gross declined the position, but afterwards accepted an invitation to the Chair of Surgery in Jefferson Medical College, Philadelphia, and made his future residence in that city.

Whatever defect there may have been in the systematic teaching of surgery in the colleges, there was no deficiency in the quality and quantity of clinical instruction in the hospitals. The New York and Bellevue Hospitals were rival centers of surgical instruction and practice in 1850. They were, however, very unlike in organization and management. The New York Hospital had been established three-quarters of a century and was modeled after the London hospitals of that period. Everything about it had the air of age and respectability. Its visiting staff was composed of the elder physicians and surgeons, some of whom visited the wards in evening dress. They as well as the chief officers performed their duties with a stately precision that impressed with awe the class of students. There was a solemnity about the public clinics which reached its climax when the visiting surgeons and invited guests came slowly in with measured tread. The lecture of the operator was given in a subdued tone and throughout the operation an oppressive silence prevailed.

The practice of surgery at the New York Hospital was along the conservative lines established by Wright Post, Mott, Stevens, and Rodgers. The most scrupulous attention was given to every detail of diagnosis, prognosis, and treatment. Formal consultations were held on all operative cases. In the wards interest centered in fractures, especially compound fractures of the leg and fractures of the thigh, and neck of the femur. The former was treated in boxes partly filled with bran, as an absorbent of the abundant flow of pus, which was regarded as a great improvement. The question in fractures of the femur was, the kind of splint and method of traction, and many varieties were submitted for criticism—a question finally settled by

Buck's employment of adhesive plaster, weight, and pulley. Whether a fracture of the neck of the femur was within or without the capsule afforded infinite speculation as it involved the question of union by bone. The use of anesthetics—whether ether or chloroform should be preferred—was a living question. Deaths had occurred from both, but more suddenly and mysteriously from chloroform, and the latter was rarely given, and the former was employed only in major operations. Of operations amputations attracted the largest attendance of students and was the chief major operation.

At Bellevue the conditions were entirely changed. The hospital was in the first stage of evolution from an almshouse, and many of the vices of its former management still prevailed. Most of its nurses and attendants, and many of its subordinate officers, had once been inmates as paupers, owing to their previous habits of intemperance. But its visiting medical staff was composed of ambitious young physicians and surgeons, of a high grade of qualification, who were animated by the common purpose of making Bellevue popular with students and the profession by a well-organized system of clinical instruction.

The surgical practice of Bellevue was largely confined to chronic diseases, an inheritance of the almshouse. Ulcers, caries of the bones and joints, syphilis in every form and stage, and pus-generating affections filled the wards. Pus abounded, and scarcely a clean, healthy wound was known. While a junior in the resident surgical staff it was my duty to carry the dressings from bed to bed, twice and three times daily, while the house surgeon, Dr. John Moore, afterwards Surgeon-General of the United States Army, removed with long forceps from the dripping wounds the offensive, saturated materials. Healing of wounds by "first intention" was unthought of, and was, indeed, unthinkable.

But this abundance of chronic, suppurating diseases, the accumulation of years, proved to be invaluable to the surgeons, for they furnished large opportunities for amputations and excisions of bones—the major operations of that time. Thus the surgical clinics at Bellevue early assumed a special interest to students. There was also in the atmosphere of the hospital that social familiarity between the visiting and resident staffs and the students which the latter so highly and justly appreciate. This freedom and familiarity was due in part to the former almshouse character of the hospital, but more largely to the fact that the medical officers were young men ambitious to excel as teachers, several of whom had been trained at the clinics in the hospitals of Paris. They appeared in the wards, not in evening dress, but in a ward garb, and greeted the students as fellow workmen. Every possible attention was given to the students who were freely admitted to the wards and were not only allowed, but frequently were required, to examine the patients, a great privilege at that time.

But the public clinic at which an operation was to be performed was most attractive to students and to the profession. These were often most spectacular affairs, and aroused the greatest enthusiasm in the audience. This was especially true of Wood's clinics. Amputation of limbs was Wood's star operation, and care was taken to make it impressive. On entering the operating room the student, dazzled by the array of instruments covering the tables, was impressed with the gravity of the operation. At the appointed moment the operator appeared, faultlessly dressed, a boutonnière in the lapel of his coat, and followed by a retinue of invited guests. The students applauded with genuine delight. The operation was described briefly, and the instruments to be used were displayed and fully explained. The operator donned his operating suit and the preliminaries were arranged. There was a momentary hush, as each assistant took his position, and the operator, grasping the limb, called for the first instrument. The nervous tension of the students increased as they witnessed the gleam of the catlin, the flinging away of useless instruments, the sharp commands of the operator, the rapid action of the saw, and, as the severed parts fell, there was a tremendous outburst of applause.

It is not surprising that Bellevue, though at that time very inaccessible, soon became the favorite resort of students. Under the leadership of Wood, and infinitely to his credit, the clinical instruction of the hospital increased in systematized form, until courses of clinically illustrated lectures assumed a post-graduate character. The necessary result was that within a decade a fully equipped medical college was established within the precincts of the hospital, which has borne an honorable record among similar institutions in this country.

The contributions of the surgeons of New York to surgical literature in 1850 were in the form of cases with critical remarks. That they did not produce elaborate treatises was not from any want of ability as writers, but because bookmaking was not as to-day the popular method.

Looking backward from the viewpoint of more than half a century, the surgeons of 1850 appear physically and mentally of heroic mould. Their achievements under conditions now regarded as absolutely preventing success were even more remarkable than the marvelous deeds of the surgeons of the twentieth century. It is true that objects appear larger in the dawn than at midday, but, making all due allowance, several of the surgeons mentioned in this review have no peers in these latter days. They were pioneers blazing the pathway of future progress in the dim twilight of the day now made luminous by the sun of science at the zenith.

SUPERFICIAL AND DEEP SENSORY DISTURBANCES IN THEIR RELATION TO ASTEREOGNOSIS AND ASYMBOLIA.*

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THE study of sensory disorders has been the subject of considerable literature. Sufficient material has already accumulated on the question of special sensations. A careful review of all published observations concerning the question of astereognosis leads to the deduction that it is highly important from a scientific and practical standpoint to make a discrimination between a loss of the faculty of recognizing the form and shape of an object and a loss of the faculty of recognizing the nature of an object. It has been the custom with many writers to confound these

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two different functions and to describe them under one name, (astereognosis). In face of all the cases observed and recorded such a tendency must be abandoned, as it is at variance with clinical facts. Cases with preservation of stereognostic perception and loss of symbolic perception and *vice versa* are well known. There are sufficient evidences showing that one may exist without the other and that they are therefore independent cerebral phenomena. Apart from general sensations which will be considered later, an idea of an object can be formed principally in two ways. One is what Wernicke calls primary or simple identification and consists of identification or recognition of the form of an object. This is the genuine stereognostic sense. But the knowledge of the form of an object does not constitute the knowledge of its nature. The latter is a complicated perception of a higher order and has been aptly called secondary identification, or for want of a better term, symbolia. (Claparède). Astereognosis, therefore, is an inability to recognize the form and asymbolia—an inability to understand the nature of an object and to name it. The contention has been that the recognition of form and nature of objects is dependent upon the integrity of all elementary sensibilities, such as touch, pain, temperature, pressure, movements, posture, etc., etc. *A priori* one must concede that a perception of a high intellectual order such as form and nature of an object is the result of association of all individual senses, also of impressions produced by visual images. But when we attempt to analyze carefully the cases that come under our observation, we find that this exclusive view does not altogether solve the problem, and that the subject under discussion is more difficult than one may presume. In the present essay facts will be brought forward showing that the generally accepted contention cannot be maintained. It corroborates the view of the few writers who believe in separate perceptions for form and nature of objects. Moreover, it shows that stereognostic sense may be totally preserved in spite of pronounced alterations in the deep sensibilities, which, according to many writers, are essential in preservation of that particular perception. The cases are as follows:

Case I.—M. M., aged forty-five, tailor by occupation, after a brief period of dizziness and nausea was suddenly stricken with an apoplectic seizure in March, 1909. He lost consciousness, and when he regained it at the end of fifteen minutes he was unable to speak and lost power in the right upper limb. The loss of speech lasted but forty-eight hours. During the following six weeks his arm kept on improving and finally recovered. Two months later he came under my observation and the following notes were taken: There was a slight asymmetry of the face. When he laughed the left nasolabial fold was more marked than the right. The power of the right arm and forearm was good. The grip of the right hand was weaker than that of the left. This hand showed some ataxia which could be demonstrated by asking the patient, while his eyes were closed, to put individual fingers on the nose, ear, chin, or buttons of the coat. There was some difficulty in abducting and adducting the fingers. The little finger was in constant abduction. When the right hand was stretched out and the fingers were extended, there was immediately an involuntary attempt to flex the fingers; extension could not be kept up for longer than a few seconds. When the fingers were extended, the middle finger was always above the level of all other fingers. There was a considerable amount of awkwardness in his right hand and particularly in the thumb and forefinger. While there was a great deal of power, he, nevertheless, could not get a good hold of objects. He had great difficulty in buttoning or unbuttoning, or tying and untying his necktie; he spent much time on his toilet; threading a needle was an impossibility; holding a penholder or pencil was difficult.

The skin of the right hand and fingers was cyanosed and smooth. There was some wasting in the muscles of the hand. The sensory disturbances which constituted the most conspicuous feature of the case will be discussed in detail later. Station and gait were good. The patellar reflexes were increased equally on both sides. No other abnormal tendon or cutaneous reflex was present. The patient's previous medical history was practically negative. Specific infection was denied. He drank whiskey for a number of years but only one or two wineglassfuls a day. He smoked excessively, about twenty-five cigarettes a day. He complained of continuous severe headache and vertigo. The heart sounds at the apex were normal but at the aortic orifice the second sound was much accentuated. The pulse was of high tension and the peripheral arteries were somewhat hard. The urinary examination was negative. The pupils reacted promptly to light, accommodation, and convergence. The fundi were normal. There was a slight obscuration of disc margins in both eyes (report by Dr. S. H. Brown).

Examination for sensations revealed the following interesting phenomena: The sense of touch, pain, and temperature was well preserved on the entire hand, dorsum, and palm, also on both surfaces of each individual finger. The tactile sense was investigated with VonFrey's method—a camel's hair and absorbent cotton were used. As a matter of detail it may be mentioned that when the middle finger was touched he pointed to the ring finger and *vice versa*. This occurred several times but not every time during the examination. Another abnormality was that when the palm was very gently touched with cotton, the touch was not always perceived. The remainder of the hand and fingers was normal to touch. Pain sense was tested with a pin and my precision esthesiometer (*Journal of the American Medical Association*, April 17, 1909), and was found to be normal. Some deviation from normal was revealed by an accurate test for temperature. Extreme heat and cold being used, there was a diminution of heat sense on the palmar surface of the thumb, forefinger, and middle finger, and the palm of the hand, but on other parts of the hand heat was correctly perceived. Cold was normally felt over the entire hand and fingers. Pressure sense was tested by placing different weights and by exerting direct pressure with the finger of the examiner. With the latter method great care was exercised to produce the same degree of compression. The test being applied to the palm, dorsum, and both surfaces of each individual finger; everywhere the sense was found to be normal. Localization sense of the right hand was determined by the naming, looking, and spacing tests. The naming test, which consists of having the patient tell the spot touched while his eyes are closed, was found in this case to be positive over the entire hand and fingers except over a small area in the

center of the palm where occasional mistakes would be made. The looking procedure (Volkmann's and Spearmann's) which consists of pointing out the touched spot by the patient after his eyes have been closed during the touching, and after the impress made on the skin has disappeared, presented here no alterations over the entire hand and each finger on all their aspects. The spacing test, which consists of touching with two points of the compass or with one point after another, presented in my case marked changes in the perception of the number of points. Thus on the palmar and dorsal surfaces of the thumb and forefinger two points separated from each other at a distance of a half of an inch were taken for one and on the palm the same was observed even at a distance of three inches between the points. When one point of a pin was applied immediately after another, no error was discovered in their recognition over the entire hand and fingers. An effort was also made to determine whether the points touched were nearer the shoulder or the tip of the finger. The result of such an accurate test was positive; no error could be detected.

The next examination was made with regard to perception of movements of individual fingers. The patient's eyes being closed, extension, flexion, and rotation of each segment of the fingers were performed. With the exception of the forefinger, the entire hand was found to be normal. Mistakes were made in flexion of the forefinger—a slight flexion was taken for rotation, forced flexion for slight flexion—extension movements were perceived normally. Similar movements were given the entire hand at the wrist. Their appreciation was correct.

I then proceeded to the test for form (stereognosis) of objects, their consistence, also the material of which they were made. An eraser, glass stopper, small glass bottle, small scissors, steel pen, lemon, small button, and a silver half dollar were the objects tested. The form, angularity, consistence, and material of which they were made were all recognized correctly and promptly. But when the nature of the objects and their names (symbolia) were tested, some errors were committed by the patient. Scissors, bottle, lemon, eraser, and the half dollar could not be recognized, and were taken for something else, while the other objects were detected. The latter were recognized only when they were held between the thumb and forefinger, but when placed on the palm and palpated with the last three fingers, the patient was unable to tell their nature and name them. The patient was kept on iodides for a period of four months. During that time a systematic reeducation of the use of his fingers and recognition of objects were kept up regularly and persistently. At first he improved—a number of objects were repeatedly placed in his hand and he gradually learned their nature. While the motor power of his hand and individual fingers was almost normal and the grip was very good, although he could find with the thumb and forefinger the button of his coat and the corresponding buttonhole, he nevertheless was unable to insert the button into the hole; a numbness, he said, in the two fingers preventing him from directing the button to the hole and finishing the act.

The treatment was discontinued by the patient and a month later he presented the following condition: The just mentioned numbness of thumb and forefinger remained the same. Patient was unable to feed himself, write, dress himself with the right hand—objects dropped out of his hand. The power, however, of each finger and hand tested by squeezing, pressing, and resisting proved to be normal. As to sensations, touch, pain, and temperature were normal. With the naming test we found that while on the first examination there was no involvement of the hand except the palm, now the patient made mistakes in recognizing spots touched on the palmar surface of the middle finger. The same can be said about Volkman's looking procedure except that here slight mistakes were made, not only on the forefinger, but also on other fingers (palmar surface). The perception of movements was now also somewhat more involved than before; in addition to the forefinger, the middle finger was equally affected, namely, a slight flexion was taken for rotation and forced flexion for slight flexion. Recognition of form (stereognosis) and nature (symbolia) of objects was somewhat more affected than upon the first examination. Among the objects used the first time a pen was taken for a pin; every other object was appreciated precisely in the same manner as described above.

To sum up the various sensory phenomena in my patient we must say that the first and last examinations differed slightly, that the superficial sensations, viz., touch, pain, and temperature were totally preserved, that the deep sensations were altered. The latter consisted of the following phenomena: The pressure sense was normal. The localization sense was only slightly altered for the fingers when tested with the naming and looking procedures, but the spacing of two points on the thumb and forefinger was decidedly altered. The localization sense of the palm was much altered. Perception of movements was slightly involved for the forefinger. Stereognostic sense (form) was intact, but the recognition of the nature of objects (symbolia) while not entirely lost, was, nevertheless, deficient. Before going further into the subject one can draw this inference, that deficiency in appreciation of the nature of certain objects is not dependable in this case upon the appreciation of their form and shape, but is apparently in relation with other forms of sensations.

Case II.—Mrs. S., middle aged, complained of difficulty in appreciating the nature of objects when held between the thumb and forefinger of the right hand. The condition existed three months before she consulted me. The onset of the disorder was not preceded by any special symptom that could attract the patient's attention. One day while at her housework she observed the phenomenon. Her previous health was good. She is a mother of several children, and has had no miscarriages. Hysteria was absolutely eliminated. A close examination showed total absence of patellar tendon and Achilles' tendon reflexes. The eye examination showed a distinct Argyl-Robertson pupil on both sides. The condition was, therefore, highly presumptive of tabes, although there was no pain, ataxia, sphincter disorder, or any other symptom of tabes. Bernacki sign, however, was present on both sides. Examination of the affected hand showed good motor power and no ataxia. The test for various sensations was made precisely according to the plan given in the first case. The following result was obtained: Touch with cotton over the palmar and dorsal surfaces of the thumb and forefinger was not perceived, but touch with a heavier object was well recognized. When the middle finger was touched, she said it was the ring finger. The middle of the palm was anesthetic. The re-

mainder of the hand on both surfaces was normal to touch. Pain and temperature senses, position of the fingers, and perception of movements were normal over the entire hand and individual fingers. Pressure sense was somewhat altered. Different weights were placed successively on the thumb and forefinger and results compared with those of the opposite side. Light weights were hardly or not at all noticed on the right. Localization sense determined with the looking procedure was intact, but with the naming and spacing tests proved to be faulty. Thus naming was erroneous on both surfaces of the last phalanges of the thumb and forefinger, but not on the other phalanges of the same digits. One point of the compass was felt instead of two when applied at a separating distance of an inch on the thumb and forefinger. The remainder of the hand was normal. Further examination revealed that when a thimble, small bottle, paper box, and a cork were placed between the thumb and forefinger, the patient could well distinguish the shape, form (stereognosis), material of which they were made, but could not in a single instant determine the nature of the objects and name them. When very small objects, such as shirt button, a pebble, were put between the affected digits, the patient was unable to recognize their shape (astereognosis) as well as their nature (asymbolia). On the other hand when she was allowed to manipulate the objects with all the five fingers of her hand, she could promptly name every quality of objects and name them whether they were very small or large in size. Because of the presumption of tabes in this case the patient was placed on iodides in gradually increasing doses. Four months later she was reexamined and her condition found totally unaltered in every detail.

Case III.—Man, thirty-three years old, cigarmaker by occupation, gave the following history: For the last five months he had had a numbness in the fingers of his left hand which would come and disappear. Five weeks ago he suddenly felt dizzy, had nausea, and rapidly a paralysis of the left hand developed. Four days later he suddenly lost his speech and the lower half of the left side of the face became drawn towards the right. Two hours later the speech returned. On the day of the examination he complained of severe headache especially in both temporal regions. The left arm and forearm had preserved their power, but the grip of the hand considerably weakened. When the patient was told to stretch out his left hand, he could not do it in a straight line—the fingers had a tendency to flex and the forefinger remained on a higher plane than the other fingers. There was a distinct ataxia in the left hand—when he was asked with eyes closed to place his forefinger or any other finger on his nose, he was unable to find the place, and when accidentally he found it, he did not know whether he was correct or not.

The patient's previous history presented nothing special worth mentioning. His heart showed a slight presystolic murmur at the apex. The eyes showed a low grade choroiditis at the periphery of both fundi, otherwise the latter were normal; the pupils reacted promptly and freely to light, accommodation, and convergence.

An examination for superficial and deep sensations of the left hand gave the following results: Touch with cotton was completely lost on the palm and dorsum of the hand and on the fingers. Above the wrist on the forearm the touch sense was preserved except on the ulnar side where it was lost. Pain sense was felt on the hand, wrist, and forearm. Temperature sense was totally abolished. The localization sense tested by the naming, looking, and spacing procedures was markedly deficient. Thus when the thumb was touched, he indicated the palm, etc. The pressure sense was impaired; objects placed in the left hand appeared to him much lighter in weight than in the right hand. Position and perception of movements were equally deficient in the hand and fingers. For example flexion or extension of the fingers was interpreted by him erroneously. When various objects were placed in his hand, all he could tell was whether they were hard or soft, but he had absolutely no knowledge of their form (astereognosis), dimensions, or material of which they were made. He possessed absolutely no knowledge of the nature of the object and could not name them (asymbolia). An energetic course of treatment with iodides during a period of two months failed to improve the patient's condition.

A careful analysis of the sensory phenomena in each of the three cases leads naturally to the consideration of the following questions: Is there a relationship between the superficial and deep sensations on one hand, stereognosis and asymbolia on the other? Also are the two latter phenomena related to each other or else are they independent functions and represented in the brain by isolated centers? In the first of our cases the superficial or elementary sensations were totally intact, if under this name we understand only touch, temperature, and pain. The deep sensations which are complicated and comprise pressure, muscular sense, localization, spacing, recognition of form (stereognosis), and movements, were affected in our patients. Perceptible alterations we found only in regard to spacing of two points in the thumb and forefinger, but very slight changes were seen with regard to localization by all the fingers through the naming and looking procedures; perception of movements was also slightly altered for the forefinger. The stereognostic perception which consists of recognition of the form of objects (*στέρεον*) is a complex cerebral phenomenon and to its proper and normal manifestation several sensory elements must contribute. We know now it is not based exclusively upon the elementary senses (touch, pain, and temperature), but mainly upon deep and complex sensations, such as pressure, movements, and spacial sense. Clinical observation shows that touch, pain, and temperature may be totally preserved, and still the form, shape, consistence of an object may be entirely unrecognized. Wundt ("Grundzüge der physiologischen Psychologie," 1893) makes the sense of innervation play an important rôle, which means the sense of degree of muscular contraction just necessary for a movement or for an attitude. To all these elements may be added sense of resistance and perception of position. While certain writers include all these senses as indispensable in formation of ideas of form of objects, others attribute to pressure alone, others to movements, and still others to spacial perception the most important rôle. There are cases in the literature in which loss of impairment of knowledge of form is in direct relation to the loss or impairment of any one of several or else of all the above deep and complex sensations.

Applying this information to our first case we find that the primary identification of an object (astereognosis) is not at all dependent upon the superficial sensations (touch, pain, and temperature) as

they are here perfectly preserved, neither it is in direct relation to the deep sensations. Among the latter the spacial sense particularly was emphasized by some writers, such as Hoffman, by Bonhoffer and others. In my case while the perception of movements and localization sense were only slightly altered the spacing sense was particularly affected. And yet the perception of form of objects was absolutely intact. In the second of my cases, touch was the only superficial sensation that was very slightly affected. Pain and temperature were normal. Among the deep sensations position and movements were unaltered, but pressure sense was somewhat changed, localization by means of the naming and spacing tests was deficient, one point of the compass was felt instead of two when the separating distance was an inch. These errors concerned only the thumb and forefinger. The spacing test upon which many authors lay so much stress for appreciation of form of objects (stereognosis) was similar to the first case, especially affected, and still the stereognostic sense was perfectly preserved. The patient was able to recognize the shape, consistence, and material of which the objects were made. One must, however, add that the ability to recognize form was good only for objects of more or less large size, such as small bottles, paper box, thimble, cork. The form of very small objects, such as shirt buttons, pebbles, and the like could not be appreciated by the patient.

It is therefore evident from the two cases that stereognosis is not always dependent upon the other sensory perceptions, deep or superficial. In the third case the perception of form of objects was, if not in a direct relationship to the condition of the deep and superficial sensation, at least equally involved. The latter were markedly affected, except the pain sense, which was, however, increased. Touch and temperature were totally abolished on the dorsal and palmar surfaces of the entire hand and all the fingers. Localization, pressure, position, and perception of movements were all decidedly deficient. The primary identification of objects was totally abolished. Astereognosis was absolute. Patient had no knowledge of form, or dimensions of objects placed in his left hand. If we admit that stereognosis is dependent upon other sensations, its involvement was to be expected here. If, however, it is an independent phenomenon, all that can be said is that in the third case above reported all sensations were deeply affected.

Let us turn our attention to the other important part of our thesis, viz., recognition of the nature of objects and the naming (symbolia). In the first of my cases, as we have seen, the spacing sense of the thumb and forefinger was markedly altered and only very slight changes were observed in the other deep sensations. The stereognostic sense was totally preserved, but recognition of certain objects placed in the affected hand was deficient. In the second case also the spacing sense was markedly affected, other deep sensations were more or less deficient, stereognostic sense perfectly preserved for objects of certain size, but the patient was absolutely unable to name them when placed between the thumb and forefinger. In the third case all the sensations were deeply affected, astereognosis was present, and the patient was unable to recognize the nature of objects as well as to name them. From the first two cases we must conclude that symbolia is certainly not dependent upon stereognosis. A patient may appreciate form, shape, dimensions of an object, and still not be able to recognize it. But here the asymbolia is present alongside of other deep sensory disturbances, such as spacing, pressure, localization. Can one say that the former is dependable upon the latter?

There are cases in the literature in which gross changes in the deep and superficial sensations existed together with asymbolia, there are others in which asymbolia was absent and still others in which asymbolia coincided with extremely slight changes in other sensations.

Among the most recent observations can be mentioned that of Raymond and Egger (*Revue Neurologique*, 1906, p. 371) and of Rose and Egger (*Semaine Médicale*, 1908, p. 517). In the first of these cases the superficial sensibility was intact, the deep sensibility was only very slightly involved, viz., pressure, vibration, position; the compass measurements was also very slightly involved. The patient could perfectly well recognize form and consistence, and could tell whether an object was smooth or rough. But asymbolia was complete. A number of objects were placed in the patient's hand and she could not tell the nature of any of them. Two years later the above sensory disturbances were still present, but asymbolia disappeared completely; the patient was then able to recognize objects.

In the case reported by Rose and Egger a man of 33 presented a slight motor weakness with a very slight ataxia in the left arm. All forms of sensations, deep and superficial, as well as stereognosis, were perfectly well preserved, and still the patient was unable to name objects placed in his hand. These two cases with my first two cases prove, I believe, conclusively that neither the stereognostic perception nor the faculty of recognizing objects (symbolia) are always dependent upon other forms of sensations. As to stereognosis, it was intact in Raymond and Egger's case in spite of slight changes in other forms of sensibility; it was intact in my first two cases in spite of pronounced alterations in other forms of sensibility. Asymbolia was present in Rose and Egger's case in spite of complete integrity of all possible forms of sensibility. It was present in Raymond and Egger's case when very slight changes occurred in some of the forms of sensations. The latter was so slight that they could be considered negligible, but then two years later asymbolia disappeared when the slight sensory disturbances still remained the same. In my first two cases asymbolia was present together with changes in the deep sensations, except stereognosis. That asymbolia is in no relationship with astereognosis can be seen from the two cases reported by the French authors above mentioned and also from my two observations.

A priori one may admit that recognition of form and dimensions of objects as well the idea or the concept of objects are based upon the harmonious association of all sensory images. All individual sensations, such as touch, pain, temperature, pressure, movements, position, attitude, etc., must be combined in order to give the proper idea of form and of nature of objects. Clinical experience, however, demonstrates, as seen from the present study, that stereognosis and symbolia are independent phenomena and that their relation to the elementary sensations is meager, that they consist of complex associative processes of the highest order, processes in which the well-known sensibilities play only a minor rôle.

ESOPHAGEAL DIVERTICULA*

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ADJUNCT ATTENDING LARYNGOLOGIST, MT. SINAI HOSPITAL, CHIEF OF CLINIC EAR AND THROAT DEPARTMENT, MT. SINAI HOSPITAL DISPENSARY, CORRESPONDING FELLOW BERLIN LARYNGOLOGICAL SOCIETY, FELLOW AMERICAN LARYNGOLOGICAL ASSOCIATION, ETC.

This subject is presented for your consideration because of the difficulties that offer themselves in its diagnosis and appropriate treatment. A pouch or hernia of the esophagus at its posterior junction with the pharynx, called a diverticulum, may be due to pressure from within (over distension) or to pulling from without. The distension or pulsion diverticulum occurs most frequently; usually in males over forty years of age and in the following manner: In consequence of some local influence the muscular fibers of the esophagus became weakened, the constant pressure of the act of swallowing now distends the tube, a sac is formed in which food may remain after deglutition. The weight of these masses distends the sac, and it is dragged down behind the esophagus between it and the vertebral column.

Traction on the anterior wall due to an inflammatory swelling of the parts immediately adjoining the esophagus causes the form known as pressure diverticulum. The symptoms are those of obstruction to the swallowing of food, and upon the severity of this condition depends the amount of emaciation that may be present. As illustrating the difficulties in the way of diagnosis, the recent report of an "Iconoclastic revision of a classical case of diverticulum of the esophagus," by C. D. Spivak, of Denver, Colorado (*New York Medical Journal*, March, 1910, page 543), may be cited. This case is quoted as classical in all the text-books on surgery, was originally recorded by Bychowsky, and was claimed to be unique in that the diverticulum was not at the junction of the pharynx and esophagus, but at its lower end. The writer then marveled frequently upon the continued vitality of the patient in spite of the serious nature and locality of his obstruction. The trouble began when the patient was twelve years old, and it came on suddenly; at first all food came back as soon as ingested, later he could eat in comparative comfort, but would vomit a quantity of food after meals. For six years he lived on tea and large quantities of sugar. A piece of meat that he then ate stuck in his throat, being vomited out at the end of the third day. A celebrated gastroenterologist now treated him for over a year, unsuccessfully. He was then under Bychowsky's care for a year and a half, the latter presenting his findings based upon these observations. The patient declined the offers of celebrated surgeons to have an operation performed. Because of the unique character of his condition the freedom of the clinics of various cities was freely offered him. In Paris he found himself better able to swallow by drinking wine and water with his meals. Coming to the United States, beer took the place of wine and finally necessity drove him to water, and he soon found that water of a proper temperature, slowly sipped, enabled him to swallow many different foods. Fourteen years after the commencement of his trouble, this patient came to Colorado on account of lung trouble, entering the Sanatorium of the Jewish Consumptive Relief Society, at Edgewater, Colorado, where he came under the observation of Spivak, whose examination showed that tubes introduced came to a standstill at the same distance from the incisors, finally, however, when a cable was inserted to which a small olive point was soldered, it readily glided into the stomach. The diagnosis of a stenosis on the functional basis of cardiospasm was now made. The patient died and no diverticulum was found at autopsy. Commenting upon this, the writer says that this case became the basis for a new classification of the pathology of the esophagus and is quoted and referred to in all text-books and monographs on the subject. It is, in short, a case which became classic and is found fourteen years after to belong to the category of "such stuff as dreams are made of," and now offers ample excuse for reporting.

With the difficulty of deglutition, the patient notices that the boluses of food seem to lodge in the throat and occasionally firmer portions of food appear in the mouth many hours after eating, without any eructation or vomiting. This condition may continue for years possibly undiagnosed, and, as happened in my own case, the patient was told "not to bother; it was merely a nervous or hysterical manifestation." When the pouch is large, the food not only remains in it, producing a fetid breath, but emaciation which may lead to starvation occurs, and ulceration or inflammatory disturbances exist in the pouch consequent upon the presence of decaying food. The duration of the symptoms may be of valuable aid in the differential diagnosis between cancer and diverticulum, but it must be borne in mind that a carcinoma may develop in the pouch.

In an article on the routine examination of the esophagus, Charles M. Cooper of San Francisco (*American Journal of Medical Sciences*, February, 1910, page 221) presents many valuable points. "Given a history of disturbance of deglutition, we must bear in mind the various conditions which may be causal factors, a diverticulum, a tumor from within or without, an aneurysm, a cicatrix from swallowing a caustic, etc., hence the examination should be conducted in a routine manner and the esophagoscope used last of all. The history is carefully noted, the larynx examined for any cord paralysis or abnormality in position of the larynx, the throat massaged from below upward to see if the saliva which does not pass the constriction remains in the pharyngeal slit, and the patient is given fluid to swallow and later some bread. If in shaking the throat of a patient who has a diverticulum, we can produce a succussion sound, or if by giving the patient two or three bismuth capsules, they can be massaged from the lower part of the neck into the pharynx, a diverticulum may be discovered. The laryngeal picture may now have changed after deglutition and hence a second examination must be made. The pulse should be examined also, as the distended pouch may compress the deep vessels. The *x*-ray examination should now be made. This should be done anteroposteriorly. A mixture of two or three teaspoonfuls of equal parts of bismuth subcarbonate or oxychloride and sugar of milk made into a paste with water is now given and a radiograph taken. If the pouch is below the level of the aortic arch, the patient is placed in the right anteroöblique position. If a carcinoma is suspected, bismuth capsules are given and these may be readily

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seen lying above the growth." The writer feeling that the retention of bismuth in the pouch may act as an irritant subsequently, as it is not so readily removed, used the following expedient: A soft rubber tube firmly tied, was filled with shot and introduced warm and oiled gently to the point of constriction, and an excellent plate was the result, one which required no interpreter. If our examination shows an aneurysm to be present, no esophageal tube should be inserted; if a cancer of the esophagus exists, the esophagoscope may be used with removal of such portion of the growth as may help to make the diagnosis clear. The sound or bougie should precede the esophagoscope, which should be the last method. The stomach should be empty; the dilated esophagus washed out, one-quarter grain morphine with 1/100 grain of atropine given a half-hour previously, no sound passed for twenty-four hours, and the structures well anesthetized with 10 per cent. solution of beta-eucaine in adrenalin and the examination made with the patient sitting or in the left lateral or dorsal postion. Cooper uses the Einhorn instrument, watches its passage over the epiglottis and into the pharyngeal slit; the mandrin is then introduced and the instrument carried past the inferior constriction when the mandrin is withdrawn and the passage of the instrument carefully watched.

H. S. Plummer (*North Western Lancet,* June 15, 1909) reports six cases of diverticula occurring in the practice of Dr. C. H. Mayo. For diagnosis he gives much credit to the method of using a silk thread as a guide as first proposed by Mixter.

Ballooning the esophagus should be mentioned when referring to diagnostic methods. S. Kelen (*New York Medical Journal,* February 23, 1907, page 345) introduces a sound with an airless bladder into the esophagus, this is distended until the patient feels the distension; by means of connecting tubes the exhaust air is measured. H. P. Mosher (*Transactions of the American Laryngological Association,* 1909, page 363) introduces an oval tube with transparent plug, pressure on the bulb distends the pouch, whose walls thus stand out clearly.

The need of careful routine examination cannot be too strongly emphasized, the one method should follow the other in the manner aboe described for undue haste and forcible methods might readily lead to disastrous results, as in the case of aneurysm, and by following this plan the patient becomes gradually trained to the method finally used.

Treatment.—Where the diverticulum has not occasioned any symptoms beyond that of mild distress, we may content ourselves with occasional washing out of the diverticulum and care as to diet. Where, however, emaciation exists, the diagnosis having been firmly established, radical operation may be performed with success. DeWitt Stetten, New York City, has recently presented a monograph on the radical extirpation of pharyngo-esophageal pressure diverticula (*Annals of Surgery,* March, 1910, page 301). Whether a previous gastrostomy should be done or not, must be decided for the individual case, but enough information is at hand to show that the operation for pharyngoesophageal diverticulum is readily performed and reasonably safe. Stetten has collected statistics of 60 radically operated cases; of these 50 were cured and 10 died, a mortality of only 16.6 per cent. In Stetten's own case, that of a man aged sixty-five, the patient, who had a history of interference with deglutition of over two years' standing, was much emaciated and cancer of the esophagus was diagnosed. Gastrostomy was performed. The patient did so very well after this operation, tubes at times entering the stomach, that the diagnosis of cancer was questioned and an x-ray examination was then made, using bismuth paste, and the obstruction shown to be a diverticulum. This was successfully operated upon and the gastrostomy wound was allowed to heal. These recent articles contain such full references to the literature of this subject that the writer deems it unnecessary to present them here.

The following case, mentioned in discussion of the symposium on diseases of the esophagus at the annual meeting of this Association in 1909, is here recorded with its subsequent history. On April 1, 1909, a clergyman, aged fifty-six, consulted me because of a feeling of obstruction in his esophagus, which had existed for over three years. He could recall that a long time previous to that, upon bending over he could bring up grapes swallowed hours previously, without any eructation or vomiting. More recently he noticed that while there was no obstruction to part of his food, he found thorough mastication advisable, and from time to time would find food to appear in his mouth that he had ingested some hours before. There was no pain, no sense of fullness, no vomiting, and no emaciation. Slight hoarseness at times was always relieved by appropriate laryngeal treatment. An examination showed the right middle turbinate to be hypertrophied, mucous membrane of the larynx slightly engorged, cords functionating properly, liquid was readily swallowed. A large soft stomach tube was arrested eight inches from the mouth and as it was withdrawn a piece of bacon that had been swallowed four hours before was found in the mouth. An x-ray examination subsequently undertaken in the manner above described, showed the obstruction to exist at the junction of the pharynx and esophagus. A soft stomach tube passed the constriction easily, solid bougies were carefully passed and no blood followed, no discomfort, and no vomiting. A diverticulum was diagnosed which was washed out; this was repeated a few times, but nothing further was done. A year has elapsed since this examination was first made and the patient reports that he is able to avoid trouble with his throat by constant care in keeping his diverticulum free from accumulations. He is very careful to evacuate this diverticulum upward after eating or drinking anything so as to alleviate the unpleasant sense of fullness in that locality. He can then go out and use his voice without distress or any unpleasant results. He has not been compelled to cease from his usual vocation at any time during this year. Unless other symptoms arise, further interference is not deemed advisable.

From a consideration of this subject the writer presents the following conclusions:

1. The examinations should be conducted in a routine manner, the esophagoscope being used last, bearing in mind always the danger of a rupture of a possible aneurysm.

2. In making the examination with the x-ray, the introduction of a soft tube filled with shot may take the place of bismuth.

3. Esophageal diverticula may be readily diagnosed.

It may be of interest before presenting the final conclusion to quote from that model text-book of Von Ziemssen (Disease of the Esophagus, page 51, American Edition, 1878), "The radical cure of diverticula by operative procedure from without is at present one of our vain wishes; yet we should hope that even this operation conducted on Lister's plan might at some future day be performed without danger." It is, therefore, with the greatest gratification that we can now say that that wish is fully realized and gladly present the final conclusion:

4. Modern surgery offers much hope for these patients.

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NASAL OSTEOMA.

REPORT OF CASE; OPERATION.*

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Nasal osteomata are less frequent than the osteomata of the accessory sinuses. Of the face skeletal osteomata, those of the nose only make up about 33 1-3 per cent. according to Haas[1], who has collected sixty-three cases affecting the nose and the accessory sinuses, of which twenty-one were nasal.

Nothing is known of a definite etiology, only hypotheses having been advanced for the causation of these osteomata. Trauma probably plays a less important part in their causation than was formerly believed, Bornhaupt[2] finding only six cases with traumatism as a causal factor in fifty-seven cases. Usually slow in growth, their beginning, very likely, dates to early life, since 54 per cent. occurred before puberty and 87 per cent. before the thirtieth year. The ages of the reported cases of osteomata ranged from thirteen to sixty-five years. As to sex the cases seem almost evenly divided, a few more in the male than in the female.

The histopathological origin of these bone tumors is still *sub judice;* Virchow[3] says that an osteoma of the accessory cavities of the nose which is covered by mucous membrane must originate from bone itself. Rokitansky[4] claims they originate from an enchondroma. Cloquet mentioned by Haas thought "the osteoma a direct ossification of mucous polypi, having found a polyp-like mass contained in a bony shell, and in another case he observed directly the opposite, viz.: ossification in the center of a mucous polypus." Tillmanns[5] reasons "that in all the accessory nasal cavities, respectively, in their ramifications, remains of the chondrocranium are found for a relatively long time, and he assumes that these cartilagenous remains may be the point of origin of the osteoma, and that the nasal osteomata and those of the accessory sinuses are probably developed from an enchondroma and later became ossified: the periosteal development is probably an exception, and this condition is favored by the slow development and the clinical course, since these osteomata form at an early age and grow for 10, 20, and 30 years; in a few cases quick growth was noted, viz., 1, 2, and 3 years or even in 4 to 7 months an osteoma had reached visible growth.

Osteomata are grouped by Ziegler[6] with the chondromata, angiomata, fibromata (nerve and skin fibromata), sarcomata, and adenomata, tumors which arise from some localized predisposition of the tissues of a distinctly congenital nature, and these have the distinguishing characteristics that they may be inherited.

While there is great variance in the views here cited, it may be assumed, owing to the fact that no osteoma in this region has as yet been found containing any trace of cartilage, that an osteoma of the nose or accessory sinuses is not an ossified enchondroma, but rather a new formation from the periosteum and probably of a congenital nature.

The frontal sinus seems to be the place of predilection for the osteomata of the accessory sinuses. Bornhaupt tabulates their situation in forty-nine cases, as follows: Frontal sinus in 23 cases, ethmoid labyrinth in 11 cases, antrum of Highmore in 10 cases, and the ethmoid and sphenoid sinuses in 5 cases, and of these forty-nine cases, thirty-four originated in the ethmoid, although an osteoma may arise from the frontal, lacrymal, or nasal bones, the nasal process of the superior maxilla, the turbinates, etc. In most instances the point of origin of these bone tumors is difficult to demonstrate, the weak connection with the nasal skeleton is so easily destroyed in operative manipulation, or, by pressure atrophy or pus formation the pedicle may be destroyed and the osteoma become sessile or entirely free; and when free they have been termed by the Germans "dead" osteomata. In Tillmanns' case two "dead" osteomata were found in the left frontal sinus and a "dead" osteoma in the right nasal cavity. Fenger[7] described a large osteoma arising from the right ethmoid, mixed in characer, being to a minor extent of the "dead" variety, while the major portion was active or growing.

These osteomata may be single or double in one cavity and may be double and symmetrical, one on either side in the various sinuses or in the nasal cavities as in Stein's[8] case. Frequently they are multiple distinctive growths, being often found in more than one of the accessory sinuses. In some cases the osteoma sends off prolongations from its place of origin, one tumor occupying two or more of the accessory nasal cavities, as in the case related by Heymann[9] where the tumor extended above into the orbit, below into the antrum, laterally and behind into the ethmoid labyrinth. At times after the removal of an osteoma from a nasal cavity or sinus, with the lapse of a few years new osteoma formation may take place in some other accessory sinus; Haenel[10] reported such an occurrence. In Coakley's[11] case of osteoma both the right and left nasal fossa were occluded and the tumor seemed to arise from the inferior turbinate. Kammerer[12] removed an eburnated osteoma weighing about 72 grams from the right nasal fossa; it was attached to the frontal and ethmoid bones, involving the orbit and antrum and caused prominence of the zygoma. Helfrich[13] removed a nasal osteoma weighing 60 grams. Heymann reported one from the nose the size of a small walnut, and in another case a larger one, as described above, but gives no dimensions or weight. Tillmanns' two, from the frontal sinus weighed respectively, 24.85 grams and 7.6 grams, and the nasal osteoma weighed 47.1 grams. Fridenberg[14] reported an orbital osteoma of ethmoid origin weighing 100 grams. In Habermaas'[15] case the nasal osteoma weighed 60 grams and measured 8.5 x 4.0 x 3.5 cms. Sprengel[16] also reported an ethmoid osteoma which was 2½ cm. in length and 1¾ cm. in thickness, but gives no

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weight. Haas gives the weight of a nasal osteoma removed by him at from 70-80 grams and measured 93 x 48 x 40 mm.

We have in the structure of these bone tumors the two usual forms, the hard or eburneoid and the softer or spongy form. In the hard variety the place of attachment is usually soft or cancellous. Their size and shape vary, sometimes being a distinct cast of the nasal cavity or of the affected sinus. The surface is marked with rugæ, irregular, and nodular, mostly covered with periosteum and mucous membrane. That oesteomata may grow to an enormous size was shown by Hilton's[17] case, a bony growth invading the antrum, which weighed 440 grams; others of great size have been reported involving the various accessory sinuses which will not be mentioned here, enough of a descriptive character about osteomata has been included in the foregoing general review.

Concerned particularly with the nasal asteomata, further discourse will be limited to these. The clinical history of a nasal osteoma is inconstant, this depending almost entirely upon the symptoms, which in turn are mainly contingent upon the size of the growth and the amount of pressure exerted on the neighboring parts. The most prominent symptom complained of is nasal obstruction, which may be partial or complete, unilateral or bilateral. The osteoma may entirely occlude the nasal cavity so that the smallest probe cannot pass between it and the septum. Both nasal cavities may be occluded with an osteoma in each or, where only one nasal cavity is occluded, in course of time the other side may become obstructed, due to deviation of the septum resulting from the growth of the tumor. Difficulty in breathing may be marked and in some cases it is impossible for the patient to assume a reclining position, and he is compelled to sleep in a chair.

The tumor has been known to fill up the nasopharynx, causing middle ear disturbances. Obstruction to the olfactory cleft may cause partial or complete anosmia. The voice may be nasal and one may have nasal discharge or stoppage. Epistaxis is common. Suppuration and ozena have been observed. The glands of the neck and beneath the jaw may be enlarged. Itching of the nose is a frequent symptom, Heymann claiming that every case of nasal osteoma has it. Pain is often complained of, its situation depending upon the site of the tumor and upon the parts undergoing compression, but usually located in the course of the trigeminal nerve. Vomiting and asthma may be reflex symptoms. Vertigo is sometimes annoying. Ocular disturbances, as photophobia, diplopia, exophthalmus, and epiphora are usually due to the pressure and encroachment of the tumor on the orbit. Externally we may have nasal deformity, displacement of the tip of the nose, boadening of the nose, tenderness, and swelling. Displacement of the nasal bones outward takes place and if marked may cause the appearance known as "frog-face". Perforations through the nasal bones or orbital walls have been recorded. Bulging downward of the hard palate has been noticed and some parts of the skeletal face may disappear by pressure atrophy.

The diagnosis of a nasal osteoma is not always easy, often being made only at the time of operative interference. In a nasal fossa occluded by a tumor, to try the consistence of the same by attempting to pierce it with a needle or trocar may help to differentiate an osteoma from a cystic turbinate or chondroma. Osteomata are usually immovable; this may distinguish them from calculi or concretions, which, as a rule, lie free and are yielding. Where the swelling is large and we have external deformity of the nose we must remember the malignant conditions; but this may also be caused by a benign condition. Transillumination may or may not show a shadow. In the *x*-ray we have a means of demonstrating the extent of the tumor, its situation, as well as its contour, and by this means can also secure a more rational operation or plan of treatment.

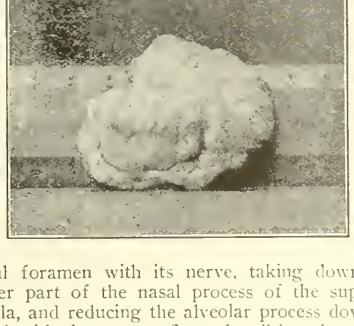
The prognosis is good in most cases unless the nasal osteoma invades the frontal or sphenoidal sinus from where it may extend into the cranial cavity and by pressure over the dura or by perforation of the same may cause a meningitis or brain abscess and so increase the gravity of prognosis.

The treatment consists in removal of the tumor *in toto;* the operative procedure advocated in all the reported cases embraces the laying open of the nasal cavity by an incision on the cheek along the side of the nose from the root down to the nasal wings, separating the nasal bones and the nasal process of the superior maxilla and a second incision outward on the cheek below the orbit, thus giving a wide aperture through which to deliver the osteoma. It is readily seen that this causes much scarring and may possibly lead to much disfigurement. The method followed by the writer in the case reported below is not original, it having been suggested more than half a century ago by Fergusson of England for partial excision of the upper jaw, yet its adaptation is new in the removal of a nasal tumor, and can be recommended in these cases on account of the small unnoticeable scar left after the operation, a not unimportant cosmetic consideration, and since by this method any amount of space can be gained without displacement of the nasal bones and without unnecessary incisions about the cheek or nose with their resultant disfigurement. The bone removed from the anterior antral and lateral nasal walls leaves no facial disfigurement.

Case Report.—Mrs. Bertha G., married, aged 37 years, came to the clinic of Dr. Jonathan Wright, at the Manhattan Eye, Ear, and Throat Hospital on June 19, 1908. She complained only of nasal obstruction on the right side and had neither pain nor discharge. The patient was robust and had always enjoyed good health. The right eye had been blind since childhood, due to an accidental knife thrust. The voice was flat. The face appeared somewhat broadened across the nasal bridge and malar region, but not to the extent of the so-called "frog-face". The right nasal cavity was found occluded by a large red mass resembling a cystic degenerated middle turbinate; posterior rhinoscopy revealed the mass filling up almost the entire right choana; the left nasal cavity was free but somewhat narrowed above by the septal deflection toward this side.

Under local anesthesia it was neither possible to make any impression upon the tumor with cutting forceps nor could a snare be engaged about the tumor mass. A fine probe could not be passed between the tumor and septum; the tumor was immovable. The patient was admitted to the ward on June 22, in order to break up and remove the tumor under general anesthesia. June 23, nitrous oxide gas and ether were administered and an attempt made to open with the chisel what was still thought to be a cystic turbinate with a thick wall.

After some work with the chisel and rongeur without effect, its ivory hardness became apparent and only at this time was a diagnosis of osteoma established. Attempts to move the tumor were unavailing. The operative procedure advised above was then adopted as follows: An incision was made through the upper lip in the medial line, the knife being carried alongside of the columna into the right nostril. Under the lip on the right side the first incision was extended backward through the gingivobuccal furrow for about two inches and the soft parts with the periosteum were elevated from the anterior surface of the superior maxilla and retracted upward and outward, raising the right half of the nose at the same time. With rongeur the junction of the anterior antral and the lateral nasal wall was ablated, partly preserving the inferior turbinate tissue and nasal mucous membrane, and so the antrum of Highmore was perforated and exposed. Penetration into the antrum was followed by a free gush of foul smelling greenish pus. Part of the anterior antral wall was removed and enough of the lateral nasal wall to expose the tumor to about one-half of its extent. The tumor could now be rocked slightly upward and downward, but was still wedged laterally. It could only be delivered after removing more of the anterior antral wall up to the orbital floor, necessarily sacrificing the infra-



orbital foramen with its nerve, taking down the greater part of the nasal process of the superior maxilla, and reducing the alveolar process down to a level with the antrum floor; by tilting the tumor upward, grasping it well posteriorly, and applying gentle force downward and laterally to the right, the tumor was delivered after considerable manipulation. The operation, lasting nearly three hours, was greatly hampered by free hemorrhage. It was now found that the middle turbinate, the ethmoid, and part of the sphenoid bone were absorbed by pressure atrophy and the floor of the orbit as well as the upper nasal septum (perpendicular plate of the ethmoid) in contact with the tumor were reduced to a mere tissue-paper thickness and in some places absorbed.

The mucous membrane of the antrum of Highmore had been converted into a brownish, thick, soggy, moss-like membrane, which was entirely excised. The nasal cavity and antrum were douched with a hot saline solution, the postnasal plug removed, iodoform gauze packing introduced into operative cavity, and the retracted parts brought down and sutured, silk being used for the lip and catgut for the gingivobuccal incision. The sutures on the upper lip were removed on the fourth day; primary union occurred. On the sixth day the patient was out of bed and feeling comfortable, except for some slight numbness of the right cheek. She was discharged from the hospital July 6, 1908.

The osteoma was 5.75 cm. long, 4.5 cm. wide, 3 cm. in thickness, 16 cm. in circumference, and weighed 53 grams. It was ivory hard in consistence, irregularly oval in outline, and covered by an investing mucous membrane closely adherent to the surface rugæ. A whorl-like indenture at one place probably indicated the point for a pedicle, its attachment to some part of the nasal cavity possibly having been destroyed during operative manipulation. (See the illustration.) A decalcified portion of the tumor showed the usual bone (Haversian system) construction.

In conclusion the following discursive points may be noted:

1. Had a diagnosis of osteoma been made prior to operation the *x*-ray would have been a valuable means of ascertaining the extent, location, and contour of the tumor.

2. To limit the amount of hemorrhage during an extensive operation about the face, a very vascular field, ligation of the external carotid artery may or may not control the bleeding. The complaint of not a few operators is that the hemorrhage in some of the cases is not always controlled by this ligation and that the ligation of the external carotid may be a risky procedure and be followed by formidable consequences, as was reported by Hertle[18], who cites a case where the external carotid was tied, with later formation of a thrombus of the internal carotid and multiple cerebral emboli as a result of which the patient died.

3. It is remarkable that an osteoma of the nose may grow to so large a size and exercise enough pressure to produce bone atrophy and absorption without causing any discomfort or particular clinical symptoms during an extended period of growth, and that the antrum of Highmore may be filled with pus and lined by deeply degenerated membrane without creating annoyance or symptoms.

4. That for the removal of intranasal or antral growths the operative procedure, as described in the removal of this nasal osteoma, gives a maximum of room for extirpation with a minimum amount of scarring and no facial deformity.

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THE TREATMENT OF CHOREA WITH LARGE DOSES OF ARSENIC

(METHOD OF COMBY-FILATOV).

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Of the numerous remedies offered for the treatment of chorea, the most popular is arsenic in the form of Fowler's solution (liquor potassi arsenici). Despite the frequent objections to the use of this remedy, it still remains the favorite and most effective method of treatment of chorea, provided it be given in large doses. The possibility of grave complications, especially on the part of the gastro-intestinal tract and nervous system, renders this method of treatment in many cases inapplicable. Therefore, many entirely abstain from arsenical treatment of chorea, resorting to antipyrine, salicylates, aspirin, bromides, etc. (Burnet, Lees, J. Allan).

In order to give the patient the benefit of large doses of arsenic without its unpleasant by-effects, Prof. Comby of Paris, France, advocated in 1896 the use, instead of Fowler's solution, the arsenious acid, (acidum arsenicosum As_2O_3) and in such enormous doses that almost seem incredible.[1] Comby's method consists in the following: He prescribes a solution of arsenious acid 1 : 1000, each teaspoonful of which contains just 4 milligrams or gr. 1/15 of arsenic. He takes 2½ teaspoonfuls, (℥ii ss) of this 1 : 000 solution, dilutes it with 6 tablespoonfuls of water and gives of the same a tablespoonful every 2 hours in a little milk. On the second day he takes 15 grams of the solution to 6 tablespoonfuls of water, on the third day 20 grams; on the fourth, 25; fifth, 30; sixth, 35; and on the seventh day, 40 grams, or 10 teaspoonfuls to a dose. Beginning with the eighth day, he progressively reduces the dose, by 5 grams, so that the entire treatment takes just two weeks, during which the patient takes about 6 grains of arsenious acid.

"If similar or equal doses of arsenic were given in the form of Fowler's solution," says Prof. Filatov, "we would have to start with 16 drops on the first day and give 64 drops on the seventh, while children rarely bear larger doses than 10 to 12 drops. Therefore, we must admit that arsenious acid is really better borne than potassium arsenite."

Comby's doses are too enormous, indeed, and in one of his cases, a girl of seven years old, he gave in eleven days 4 grains of arsenious acid. Comby himself says, that it is a formidable dose, which, however, all his patients were bearing admirably well.[2] This patient recovered from the chorea in twelve days, but four weeks after the treatment was completed and two months after the disease began, a paraplegia developed, accompanied five days later by incontinence of urine and feces, incomplete paralysis of the upper extremities, loss of tendon reflexes, complete reaction of degeneration of the muscles and nerves, and loss of sensibility. Comby diagnosed arsenical myelitis and confessed that "it is not wise to give such big doses of arsenic to small children, though many can stand such treatment without injury." The child recovered completely in three weeks.

In view of such serious complications, some authors, as Weill (Lyons) entirely abandoned Comby's method, some as Porot[3] reserve it only for very grave cases and exclusively for hospital patients, and some, as Filatov, Hutinel, and Babonneix, modified it to render this method of arsenical treatment safer.

Hutinel and Babonneix[4] begin with a teaspoonful of the 1 : 1000 solution of arsenious acid, increasing the daily dose only by 1 gram. They do not give this treatment to children below six years of age, and the maximal dose is only 18 grams, or 4½ teaspoonfuls. With such treatment they never had any disagreeable complications. Filatov's method[5] occupies the middle position between these two French methods. He gives to small children, four to six years old, half of a teaspoonful of the 1 : 1000 solution on the first day and to older children, Prof. Filatov gives a full teaspoon daily, increasing the initial dose by a half teaspoonful in younger, and a full teaspoon in older children. The dose is increased until the seventh day, after which it is decreased in the same proportion. The highest single dose will be for small children 3½ teaspoonfuls, and for older ones, seven teaspoonfuls or one-half of a grain of arsenic. Prof. Filatov treated, according to Comby and his modification, several cases of which he reported four.

In the first case, Comby's method was used and improvement was noticed on the fifth day, followed by recovery on the fourteenth day. In the second case, of two month's duration, Fowler's solution was first given and no results after twenty-five days of treatment. Then antipyrin (1 gram to a dose) was tried, also without results and was discontinued, followed by 1 : 1000 solution of arsenious acid according to Comby's method. The first dose was a teaspoonful and it was daily increased by a full teaspoon until the fifth day, when vomiting set in. For two days the treatment was discontinued and renewed on the eighth day with 4 teaspoonfuls as a single dose. On the following days the dose was gradually decreased and recovery followed on the second week.

In the third case, of ten days' duration, sulphonal was unsuccessfully used for four days and 1 : 1000 solution of arsenious acid started to be given on the fifth day, half a teaspoon as the initial dose, which was by the same amount increased until the eighth day, when 4 teaspoonfuls were administered. Improvement was noticed at the end of two weeks, and recovery after three weeks of the treatment.

In the fourth case marked improvement occurred at the end of the third week with a 1 : 1000 solution of arsenious acid. Prof. Filatov remarks that the results were the better, the earlier the treatment was begun, that all his patients gained in weight and that in old, protracted cases the solution could be given in smaller doses, half of a teaspoon to a dose, with the increase of the dose in the same amount up to 1 or 2 teaspoonfuls as a maximal dose, according to the patient's age. The treatment in such cases must not be conducted longer than two or two and a half weeks.

Despite the great authority of Comby and Filatov, the described method of treatment of chorea did

not meet with success, and in the literature and text books (Wollenberg, Oppenheim, Sachs) it is not even mentioned. Oppenheim[6] only points out that arsenious acid proved to be an effective preparation in the treatment of minor chorea, that it must be given in gradually increasing doses, beginning with gr. 1/60, and that Comby considers this drug very effective. Thiemich in Pfaundler-Schlossman's[7] voluminous text book describes Comby's method, but adds that it did not find any imitators in Germany. So far as we are aware, in this country Comby's method of arsenical treatment of minor chorea is entirely unknown, as the latest articles on this subject, Allan's for instance,[8] do not even mention it. Therefore, we deemed it necessary to describe this method *in extenso* and to report our experience with it in our private and dispensary practice.

Comby and Filatov had to deal with hospital cases, which, as is well known, may improve under the influence of rest and isolation, even without any medicinal treatment, while our patients have been treated with Comby-Filatov's method under ordinary circumstances.

Case I.—I. G., nine years of age, sick for three and one-half months. Twitchings in the left arm, face, and partly in the left leg. She could not use the left arm and things would drop from her hands. She had been treated for three and one-half months in various colleges of Chicago and by private physicians with Fowler's solution, 7 drops, as the maximal dose. I (Dr. Hassin) administered a solution of arsenious acid, 1:1000, half a teaspoonful for the first dose, gradually increasing this dose by a full teaspoonful daily. Vomiting appeared on the fifth day, but the child took the next day 5 teaspoonfuls and vomited again. The medicine was abruptly discontinued by the mother and the improvement which was marked on the fourth day, after 3½ teaspoonfuls of medicine, was almost complete after the fifth teaspoonful.

Case II.—Ch. R., seven years of age. A severe case of limp chorea. Very extensive twitchings in the shoulders, arms, and lower limbs. They were particularly extensive and severe during sleep, and the mother had to sit two nights near the boy lest he might fall out of bed. He could neither eat nor drink, as the food could not reach the mouth because of the twitchings. The disturbed sleep and lack of nourishment caused great emaciation in the boy, who became peevish and irritable. As he was getting worse from day to day, he was brought by the mother to the College dispensary on the fourth week of the disease. We gave him arsenious acid in 1:1000 solution (Rp. Acidi arsenicosi 0,12, Aq. destil. 120,0 S. ½ teaspoonful to a dose, gradually increasing by the same amount till 5 teaspoonfuls are taken). Marked improvement was noticed on the fourth day of treatment. The jerkings during sleep stopped entirely, and during the day they became very rare and noticed only upon voluntary exertions. The improvement was very marked and noticed also by the students. We purposely allowed the boy to play outside and at the same time we ordered the dose decreased in the same proportion as it was increased. In a few days the condition became aggravated and we administered the second course of arsenical treatment, with a teaspoonful as the initial dose, which we ordered to increase daily by one full teaspoon and instructed the mother to keep the boy as quiet as possible, taking him outside for short walks only. Again marked improvement, and as soon as we decreased the dose of arsenic the twitchings and jerkings would become more manifest. We, accordingly, had to renew the treatment with each aggravation of symptoms and altogether gave him four courses of treatment with 5 teaspoonfuls as the highest dose. After four weeks of treatment, the recovery was complete. We kept the boy home for six weeks longer without any arsenic having been given, and allowed him to go to school at the end of ten weeks since the beginning of the treatment. Now it is about ten weeks since we stopped the treatment and the condition of the patient is splendid. There were, so far, no relapses, no albumen in the urine, no cardiac disorders. On the fourth week of treatment, there appeared puffiness under the lower lids and a slight herpes zoster on the right side of the chest. Both disappeared within two days after the dose of arsenic was decreased.

Case III.—This was a case of general tic (Gilles de la Tourette's disease) complicated with chorea. B., aged eight years. Blepharoclonus, various choretic twitchings in upper limbs and in the muscles of the body. He would often emit a strange bark-like noise and would frequently repeat one word, "what." The mother claimed that, when on the street, he would swear at the boys, call them names, would get licked for that, and when asked why does he swear at the boys, he would say that he could not help it. The mother also reported that he frequently would bend himself on the street and touch the sidewalk, that when in the street car he would grasp her hat every other while. While the barking could be looked upon as a manifestation of laryngeal chorea, in combination with the regular, always of the same character and type, movements, as touching the sidewalk or the mother's hat in the car, with the echolalia, (repeating the same word "what"), and coprolalia, (swearing at the boys), it must be looked upon as manifestation of general tic, known as Gilles de la Tourette's disease. Besides, he also showed irregular, purposeless movements in the arms and other parts of the body, could not be kept quiet in school, where the teacher complained he "would touch everything and was nervous," which movements we had to refer to chorea and assume that the boy had a combination of Gilles de la Tourette's disease (general tic) with minor chorea. Therefore, we placed him on arsenical treatment according to Filatov's modification of Comby's method. We gave him as the initial dose ½ teaspoonful of 1:1000 solution of arsenious acid and ordered the dose increased daily by ½ teaspoonful until 5 teaspoonfuls were taken. The choreic movements and the laryngeal manifestations (the barking) considerably subsided after the fourth teaspoon and gradually disappeared entirely after four weeks of treatment. The blepharoclonus was not influenced, but the echolalia and coprolalia were no more complained of. The mother showed great satisfaction with the results of the treatment, which were also apparent to the students, and we permitted the boy to go to school, where they have had no more trouble with him so far. When the boy was improved we placed him on Fowler's solution, began with 1 drop a day and daily were increasing the dose by 1 drop until he had been taking 9 drops. Vomiting set in with the ninth drop and Fowler's solution was discontinued.

Case IV.—Aged eight years, typical chorea for

two weeks. Arsenious acid in 1 : 1000 solution, with ½ teaspoonful as the initial dose, increasing the dose daily by a full teaspoon. The treatment was carried out by a nurse of the Nurses Visiting Association that brought the boy to the College dispensary. Improvement set in on the fourth day, but the boy had to be placed in a hospital on account of his mother's severe illness. Here an ordinary treatment was used, the condition having become worse.

One of us (Hassin) has been using Comby-Filatov's method in the treatment of minor chorea for the last three years in his private practice, the treatment having been left in the hands of poorly trained mothers, and never was there any occasion to regret having used this method of treatment. No serious complications occurred, except vomiting in the Case I, or edema of the eyelids and herpes in the Case II, and we came to the conclusion that arsenious acid in the solution 1 : 1000 given in smaller doses than advocated by Comby are safer than Fowler's solution. This can be seen from the Case III, where a boy, eight years of age, could safely bear 5 teaspoonfuls of 1 : 1000 solution of arsenious acid, *i.e.* gr. ⅓ of arsenious acid, but showed symptoms of intolerance from 9 drops of Fowler's solution and this after his system has been somewhat used to the drug. The time of treatment is considerably shortened by using the acid, the improvement sets in very early, within a few days of treatment, and that it is due, exclusively, to the use of arsenic may be gathered from Case II, where the decrease of the dose would inevitably bring forth aggravation of symptoms and the increased dose an amelioration. How does arsenic work? By inducing poisoning of the central nervous system, as some think, or in some other way, we would not attempt to explain. The fact is that arsenical treatment of chorea with arsenious acid is a much safer method of treatment of minor chorea than with different arsenical solutions commonly used. It is true that complications are apt to occur, but complications are also possible with other drugs offered as substitutes for arsenical treatment. We do not consider it excusable to deprive chorea patients of the benefits of arsenical treatment on account of possible complications, just as we would not consider it wise to deprive syphilitic and other patients of the benefit of mercurial or iodide preparations only because complications are liable to occur. The by-effects of arsenical treatment can be greatly mitigated by using arsenious acid and can be avoided if attention be paid to the condition of the gastrointestinal and renal apparatuses.

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THE ABSTRACTION OF CALCIUM SALTS FROM THE MOTHER'S BLOOD BY THE FETUS A CAUSE OF LARGE WHITE KIDNEY IN THE FORMER.

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Glomerulotubular nephritis, one of the saddest and most hopeless conditions in renal medicine has been considered when occurring during pregnancy, to be due to toxemia of obscure causation. Since the calcium salts are being shown to exert such an important influence in the metabolism of the body, it has occurred to me that this condition may be induced by such an abstraction of these salts from the blood of the mother by the fetus that a sufficient amount is not left in her blood for her own use. One of the functions of these salts in the animal body appears to be a union with neutral fat for the formation of lipoids or soluble fats. In this way fat may be kept in a state of continual solution, somewhat unlikely, or it may be deposited in certain tissues—its normal depots—and then by a process of dissociation the calcium may be reabsorbed and the fat remain as neutral fat. This fat is largely deposited in the subcutaneous tissues and in other situations where it may serve as a packing substance, as around the kidneys themselves, which, when imbedded in fat are held in position and protected from injury. Fat, so deposited, may, by a later combination with calcium salts, be conveyed to other parts of the body to serve, perhaps, as a food in a time of need—the case of the hibernating bear or the very sick patient who, unable to partake of much nutriment, comes through a severe illness. It would be most interesting to know if the patient, who survives a long and severe illness, has more available calcium salts to unite with the fat in these depots, which fat conveyed to the centers of metabolism may serve as food, and also to unite with the fat formed in organs and remove it from them, thus relieving their cells of a mass of useless material.

The kidneys normally contain no neutral fat; but by chemical examination about 23 per cent. of their solid matter is found to consist of fat, which has been there in a combined state. Now is it beyond comprehension that the epithelial cells of the glomeruli and tubules undergo normally a certain degree of fatty degeneration, the outcome of their work, and that normally this fat is combined with calcium and either cast off as an excretion or absorbed as a secretion and carried to other parts of the body? If the blood is poor in calcium salts this union cannot take place and consequently the fatty matter will remain in the cells as a fatty infiltration. In large white kidneys the epithelial cells are granular, opaque, swollen, and fatty, and fatty casts may be found in the urine. The latter is small in amount and acid in reaction, no doubt due to a lack of alkaline material. The fat, which should have been united with calcium to form soluble fats to be carried from the kidneys, remains in the cells uncombined, and by its presence prevents the regeneration and continuance of functions of their cells. These patients have less neutral fat in other parts of the body. By some this has been said to be due to a transposition of fat from its normal depots, viz., the subcutaneous tissue, etc., to the liver and other organs in the tissues of which it may be

found; but I am inclined to think that this explanation is a case of putting the cart before the horse, and that its presence in these organs, and its absence from the subcutaneous and other like tissues is due to the fact that calcium salts are not present in sufficient amount to unite and form lipoids of the fat, the result of degenerative and other changes. Metabolism other than a degenerative process may form fat in the tissues and may be the means of conveyance from these tissues of this fat, which should be ultimately deposited as neutral fat in its normal depots. A patient with fatty infiltration of her cells cannot perform the functions of her body, and consequently a train of symptoms is established which is toxic in nature; toxemia being rather the result than the cause of the condition. The great deposition of fat in the elderly may be due to the increased fatty degeneration of cellular tissue, and to a free supply of calcium salts—not so much calcium being necessary for the growth of bones—and by the union of this fat with calcium salts, the resulting lipoids are formed and conveyed to the subcutaneous tissues, where the calcium is abstracted and the fat deposited as neutral fat. It is a fact that stout, elderly people are not usually those who have the greatest amount of fatty infiltration or degeneration of their organs, and this may be the reason. Absence of calcium salts due either to an insufficient amount in the blood, or due to an increased accumulation in the various tissues—the very brittle bones of elderly thin people—prevents a union of these salts with the neutral fat and, therefore, prevents the deposition of the latter in the subcutaneous or other tissues outside of these organs. The embedding of an organ in fat need not interfere with its function, but may rather maintain it in its normal position and prevent a ptosis with its aggravating symptoms and interference of function; but an organ whose tissues are themselves the seat of fatty changes is one which cannot properly functionate. There is a tendency in old age for calcium to be deposited in lesions and this may be another source of the scarcity of calcium salts in the blood for union with the fat produced in the cells of the organs.

During pregnancy the kidneys are doing an extra amount of work, for the mother must excrete the waste material of the fetus as well as her own. Under normal conditions she is perfectly able to do this, but under conditions of malnutrition, due either to poverty or an inability to partake of proper nutriment, she does not consume the necessary amount of calcium salts for the developing needs of the fetus, for her own various tissues and for the formation of lipoids and for possibly other combinations of which as yet nothing is known, as this study is only in its infancy. Under this interpretation calcium salts are fat carriers. A moderate degree of fatty infiltration during pregnancy may possibly exist without causing any marked symptoms, but if more than moderate in amount it is a source of great danger at the time to the patient and may be the cause of an incurable condition later on. Finally, the epithelium being completely degenerated, anuria will result with its attendant symptoms and death.

SUMMARY.

1. Normally, cells undergo some fatty degeneration.

2. Normally, calcium salts unite with this fat to form lipoids in which form it is conveyed from the organs to other situations, and after the abstraction of its salts is deposited there as neutral fat.

3. In pregnancy there is an increased production of fat due to the increased work on the part of the renal epithelium.

4. In pregnancy there may be a decreased amount of calcium in the mother's blood due to its abstraction by the fetus.

5. Therefore, the fat in the renal epithelium is not combined with calcium to form lipoids and consequently remains there as neutral fat, causing an interference with the function of the cells.

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PRECAUTIONS IN LABORATORY AND MORGUE THAT LESSEN THE DANGER WHEN DEALING WITH PLAGUE.

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The precautions recommended in this article are those that we have been accustomed to observe while dealing with plague.

Precautions Recommended for the Necropsy Room.—This room should be fly-proof; the floor should be made of concrete and slope to the center, at which point there should be located a concrete-lined well, having connection with the sewer, but so arranged as to permit of the opening or closure of this connection from without. Before performing the necropsy the sewer connection of this well should be closed, and a pound of commercial lye placed in the latter. The necropsy table should slope to the center, where there should be an opening to permit the body fluids to pass into a gutter beneath the table, and from thence into a bucket.

On receiving the body the lid of the coffin should be raised and several ounces of chloroform poured on the body; the lid should then be replaced, and the chloroform allowed to act for thirty minutes to destroy any insects that may be present.

With his hands protected by gloves the attendant should then open the coffin and remove the clothing from the body. The nude body should then be placed on the necropsy table and sprinkled with a solution of bichloride of mercury (1 to 500) in order to render innocuous any discharges that may have soiled the body surface.

During the necropsy the surgeon should wear rubber overshoes, a long sleeved gown, and heavy rubber gauntlets, the latter having a canvas inner lining. The sleeves of the gown should be drawn down to the wrist and tied to the upper part of the gauntlet.

In performing the necropsy the surgeon's motions should be slow and careful to avoid the splashing of body-fluids as well as the danger of wounding himself. Should body-fluids be splashed upon any one present a compress of gauze soaked in a strong solution of bichloride of mercury should be applied to the point that received the infectious fluid—on no account should any attempt be made to remove such infectious matter by wiping, lest the contained bacilli be rubbed into the hair follicles.

At the end of the necropsy the surgeon should immerse the gloves in 1-500 bichloride solution, and then remove them without touching the soiled sides. After this the hands and face should be mopped over with some antiseptic solution, but all rubbing motions should be avoided.

Should the surgeon wound himself during the necropsy every effort should be made to encourage the injured tissues to bleed freely, after this the wound should be immersed in a solution of formaldehyde (1-100) and an immunizing doze of Yersin's serum should be administered as soon as practical. After the necropsy the body should be placed in a zinc-lined coffin, the latter filled with quicklime and closed.

The gauntlets, gown, and overshoes worn by the surgeon should be immersed in bichloride solution (1-500). All instruments employed during the necropsy should be boiled; the necropsy table and floor of the necropsy room should be sprinkled with quicklime, and several hours later the room should be washed down with a 5 per cent. solution of commercial lye. This solution of lye will drain into the central well where it should stand for twelve hours, and then be allowed to flow into the sewer.

Precautions to Be Observed in the Laboratory.—The laboratory should be insect- and rat-proof. The employees should receive definite instructions as to the precautions to be observed. One attendant should be made responsible for the absence of flies within the laboratory. If dead rats are being received for examination the trappers should bring them to the laboratory in covered buckets, each of which should have a small hole in the lid; this hole should be corked.

A laboratory attendant should receive the bucket from the trapper, remove the cork and place a funnel through the opening in the lid of the bucket, and fill the latter with an emulsion of kerosine and soap containing 5 per cent. of crude phenol. The cork should be replaced and the filled bucket allowed to sit for twenty minutes. At the end of this time the animals may be taken out of the bucket by means of long-handled forceps and placed in a solution of bichloride; this serves to wash off the emulsion and complete the destruction of the insect parasites of the rat.

When the emulsion has been washed off in the bichloride solution the animal is lifted out of the latter fluid by means of a pair of long-handled forceps, placed on a convenient-sized board and necropsied.

If the necropsy demonstrates that the animal is probably infected with plague its body, together with the board it was necropsied on, should be burned. If the crematory is outside of the laboratory, the animal before being taken from the laboratory should be covered with enough absorbent cotton to take up the fluids that issue from its incised body.

In inoculating laboratory animals with plague it is safer to employ the platinum loop than the hypodermic syringe; the latter instrument is only necessary in intravenous or intraperitoneal inoculations, and these latter methods are rarely necessary in the routine diagnosis of plague.

After inoculation a glass jar should be chosen, several inches of sawdust placed in the bottom of it, and enough food supplied to last ten or twelve days (one large cabbage will suffice in the case of a guinea-pig). The animal should then be placed in this jar, and the latter covered with a double thickness of cheese cloth which should be bound to the jar by means of a strip of adhesive plaster to prevent the escape of small insects. This cage should not be reopened during the life of the animal. If the animal is still alive after the twelfth day it should be killed with chloroform.

Attendants should be instructed to listen for a peculiar sound which the guinea-pig utters when suffering from pneumonic plague (this sound has more the character of a sneeze than of a cough) and which is more apt to be noted in animals in which the illness is prolonged beyond the tenth day. It has been our policy to destroy such animals as soon as this symptom was noted.

After the death of the animal chloroform is poured through the cheese cloth cover and allowed to act for twenty minutes. A small hole is then made in the cheese cloth cover, a funnel inserted, and the jar nearly filled with a solution of commercial lye (one pound of lye to three gallons of water). After this solution has acted for five minutes the cheese cloth cover should be removed and placed in the Arnold's steam sterilizer. The animal is then removed from the jar, by means of forceps, and placed in a strongly acidulated solution of bichloride of mercury.

The lye solution should be allowed to remain in the jar for twenty-four hours to permit this chemical to penetrate the sawdust, feces and unconsumed food of the animal. The jar should then be emptied of its contents.

The precautions to be observed in the necropsy of rabbits and guinea-pigs are identical with those described in the case of rats.

Weak Foot.—Steinhardt does not apologize for presenting such an apparently small matter. He defines weak foot as a state of weakness or partial or complete lengthening of the ligaments and the muscles that effect the union and support of the tarsal bones. The etiology is extensive; excessive use of the feet and badly shaped shoes are the principal factors. He makes the following classification: simple weak foot, weak foot with eversion and rigidity, deformed weak foot, flat foot with eversion and rigidity, traumatic flat foot, and paralytic flat foot. Complications are varicose veins and exostoses or chronic inflammation of the inferior epiphysis of the tibia. He divides the symptoms into subjective and objective. Prognosis is always good if properly treated. The chief prophylactic measure is the manufacturing of proper shoes. The treatment should be directed to the restoration of the arch of the foot.—*Crónica Médico-Quirurgica de la Habana.*

Hypothyroidism and Disthyroidism in Children.—Luigi Concetti describes a new form of hypothyroidism and disthyroidism, occurring in infants who are born of or nursed by mothers or nurses who have changes in the thyroid glands. The mothers show signs of hypothyroidism such as obesity, transitory edemas, disturbances in the heat sense and circulation, easy chilling, thinness of hair, vasomotor disturbances, instability of nervous system, vomiting, and slight resistance of toxemias. In the children we occasionally find the marked form of myxedema, but in general see slight and abortive forms. These children are retarded in growth, suffer from attacks of asthma, headache, eczema, general atrophy, or asthenia. When treated with thyroid therapy we find the conditions relieved, showing that the absence of thyroid secretion was in direct relation with the conditions found.—*Rivista di Clinica Pediatrica.*

Treatment of Extrauterine Pregnancy.—Elis Essen-Möller advocates an immediate operation in every case of extrauterine pregnancy that is diagnosticated. He bases his opinion on forty-eight cases of extrauterine pregnancy operated on by him with but one death. Immediate operation will save most of these patients, while the expectant treatment will result in many deaths from uncontrollable hemorrhage. There is never a moment when the patient is not risking her life from hemorrhage. The expectant treatment necessitates a later operation for hematocele or other complications in many cases, and this is done at a time when success is less likely than in the beginning. A convalescence which is long, and during which the patient must remain in bed, is the result. The statistics which are given to demonstrate the advantages of the expectant treatment are misleading because they contain many cases of false diagnosis. Immediate operation has no more risks than the later one, and no more than any other abdominal operation.—*L'Obstétrique.*

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HOSPITAL INFECTION OF TUBERCULOSIS.

IT would seem to be a somewhat natural sequence that those in constant contact with individuals suffering from pulmonary tuberculosis should become infected with the germs of the disease more frequently than those who are not continually exposed to risk of infection. Among the medical men, nurses, and attendants in a hospital there are likely to be, if not more likely to be, as many predisposed to infection as in the outside world. This is a question which has, however, not yet been thoroughly investigated. At a meeting of the Royal Society of Medicine held in London on April 26, Edward Squire read a paper on hospital infection of tuberculosis, as exemplified by the records of the resident staff of the Mount Vernon Hospital, one of the largest hospitals for the treatment of the disease in England, for the past fifteen years. After referring to the fact that up to the present time this phase of the matter had been little considered, Squire stated that the inquiry, though supporting the view that the risk of infection in a well-regulated chest hospital was very small, showed a larger proportion of cases of probable infection than has been shown in the statistics hitherto published in England. It showed also that a certain proportion of cases of tuberculous infection would be overlooked if the individuals' accounts of themselves were relied upon solely, several unsuspected cases having been detected as a consequence of routine examination of the chest. It was, likewise, demonstrated that a comparatively large proportion of applicants for posts, especially on the nursing staff, exhibited signs of previous infection of tuberculosis, and it seemed probable that residence in general hospitals might be responsible for such infection, or, at least, for the diminished resistance which made infection possible. The inquiry was divided into two main divisions dealing with (1) the incidence of previous tuberculosis in those applying for posts at Mount Vernon, and (2) the evidence pointing to infection during residence there. Fourteen per cent. of the nurses and 8 per cent. of the maid servants, showed evidence on entry of previous infection. This was chiefly found among those who had previously resided in hospitals whether general or special; for while of those who had previously resided in hospitals nearly 20 per cent. showed signs of former tuberculosis, less than 10 per cent. of those who had never resided in hospitals showed such signs. The cases of infection which occurred while in residence were eight in number, being 2.5 per cent. of all who remained for longer than three months.

In the discussion that followed the reading of the paper, the fact was emphasized that infection of tuberculosis occurred not infrequently in the porters at chest hospitals who assisted in the postmortem room, and the general conclusion reached by the members at the meeting was that physicians, medical students, nurses, and attendants in hospitals were more liable to infection by tuberculosis than were individuals belonging to the general community. These findings, although based on limited figures, are as might be expected. It stands to reason that nurses, at any rate, and in England in particular, should be more subject to infection of tuberculosis than ordinary individuals. Nurses in England are women who, as a rule, first join a hospital when they are quite young. The work is mentally and physically trying and arduous. Their hours are long and rest is, in the nature of things, irregular. It can, therefore, be no cause for wonder that if not constitutionally strong, their powers of resistance become diminished. This statement applies to a lesser extent to the medical staff, medical students, and attendants. Furthermore, it is only reasonable to suppose that those who are constantly in the near neighborhood of consumptives should run more risk of infection than those who are not placed in such circumstances. It would be interesting if statistics bearing upon this matter could be obtained from the various large institutions for the treatment of tuberculosis in this country.

THE VALUE OF ATHLETICS.

THE rapid increase in the prominence of the part played by athletics in the life of the American and English schools and colleges during the past generation has been a fruitful source of polemics in newspapers, magazines, and comic papers, and has occasioned many serious discussions on the part of those whose duty it is to care for boys and girls during the formative periods of their lives. From reading the average newspaper account of college life, one would be inclined to consider that a modern university is merely an overdeveloped gymnasium, wherein the body is developed at the expense of the mind and the studies are sacrificed for the sake of the sports. Not infrequently, too, we are informed not only that the mentality of the student suffers, but also that in the present day enthusiasm for bodily prowess the physique is also injured; that the oarsman and the distance runner are developed to a high state of temporary efficiency, but that the strain thereby entailed results in their being more or less crippled and rendered less capable for the battle of life; that in a great number of cases the overwork of training is evidenced in later years by a weakened heart, and that more harm than good results from school and college athletics.

Within the past few weeks two important articles bearing upon this subject have appeared. In the *Edinburgh Medical Journal* for May, 1910, Burn-Murdoch, the medical officer of the Merchester Castle School, speaks strongly in favor of athletics in the life of the school and college student. Drawing extensively from published records, and from his own statistical studies, he shows that injury from systematic athletic exercises among school boys is rare indeed. Occasionally accidents occur, but these are no more common in athletic contests than in the irregular skylarking in which every healthy boy is bound to indulge. As to overstrain, this he found to be practically unknown in the schools in which athletics is prescribed as a part of the regular course, where the boys are examined by a competent medical advisor, and the work is graded according to each boy's physical ability. In the few cases in which there is a record of overstrain of the heart, it was found, in practically every instance, to have happened in a boy who had not received the preliminary examination and thus a pre-existing heart lesion had been overlooked. Harking back many years the author refers to Morgan's classical study of the later history of university oarsmen in which he showed that the longevity of this class of men was considerably greater than that of the average human being.

The other article by F. J. Born, medical examiner of the Yale gymnasium, appears in the *Yale News* for May 6, 1910. In this a comparative study is made of the size of the present senior student of Yale, as compared to Gould's statistics of the senior classes of Yale and Harvard made in 1864, when athletics was of less importance in both school and college life than it is to-day. From these it is shown that though the height of the present student is practically equal to that of the college boy of fifty years ago, his weight averages over sixteen pounds greater, his chest is 1.6 inches larger, and his expansion is distinctly increased.

These are but a few of the many interesting facts contained in the two articles showing the advantage of systematic athletics. The chief lessons to be drawn from them are that the increase in athletics during the past half century has tended to produce a larger, stronger, and more capable type of college man, that in order to obtain the best results the training should be begun early in life in the preparatory schools, that if proper medical supervision exists, and the boys, and the girls as well, are put through a systematic course of athletics, graded according to their size, strength, and physical fitness, the danger is negligible, that the healthy, strong body so produced tends to make a man more capable both mentally and physically to win the fight of the world, and finally that the physical training of the boy in school should be as much the care of his teachers as is the development of his mind or his character.

The Parasitic Origin of Pellagra.

Louis Sambon, the well-known Italian investigator, who is attached to the London School of Tropical Medicine, was the first, publicly, to throw doubt upon corn as the sole etiological factor in the causation of pellagra. In 1905 at the meeting of the British Medical Association, he stated his belief that the disease was caused by a protozoan parasite, transmitted, probably, by a blood-sucking insect. In view of the increase of the disease in various parts of the wold, including America, and because of the obscurity which hangs about its origin, a British commission, with Sambon at its head, has been formed and is now studying the question in those parts of Italy in which the malady is most common. So far as the work of the commission has gone, the theory of Sambon has been greatly strengthened from the epidemiological standpoint, and he has personally communicated to C. H. Lavinder of the United States Public Health and Marine Hospital Service, one of our most earnest investigators into the subject, that he feels confident that he will ultimately be proved correct. Lavinder, writing in *Public Health Reports*, June 3, 1910, sets forth Sambon's theory in detail. These are, in brief, that pellagra is not due to maize because it is found in places in which maize is neither cultivated nor eaten, and is absent from many places in which maize is the staple food. Pellagra is a parasitic disease, because for years the person affected may present some seasonal recurrences, which can be explained only by the action of a parasitic agent with alternating periods of activity and latency, and its symptoms, course, duration, and morbid anatomy, as well as its therapy, are similar to those of parasitic diseases. It is insect borne, because like malaria, sleeping sickness, etc., it is limited to rural places, and more especially to the vicinity of certain water bodies. It has a definite seasonal incidence—spring and autumn, it is not contagious, and neither food not water can account for its peculiar epidemiology. Sambon claims to have detected the particular insect which conveys the disease, which he said is *Simulium reptans*. The chief reasons for this conclusion are it is the only blood-sucking insect which the British field commission has found in its visits to numerous pellagrous districts in Italy. *Simulium reptans*, like *Anopheles maculipennis*, has a world-wide distribution and explains the wide distribution of pellagra. It is found wherever pellagra is found and causes epizootics in animals in America and in Europe, and finally Mesnil has found a protozoan organism in *Simulium*. As Lavinder remarks in commenting on Sambon's theory, the judicial mental attitude of American investigators with regard to the etiology of pellagra is to be commended, for its origin is still an open question. The evidence in support of corn as the causative agent has appeared to be so overwhelming that until this evidence has been clearly controverted it cannot be wholly disregarded. However, the theory of Sambon appears to have strong points in its favor and is worthy of the serious attention of American students. Of course, further and convincing proofs must be forthcoming ere it is accepted. There would seem to be no reason why American investigators should not make researches on the lines indicated by the British Commission for we have the material here in abundance.

Peritoneal Patching of the Aorta.

The advances which have been made during the past few years in the surgery of the blood vessels in the experimental laboratories have been so great and the various steps have followed each other in

such rapid succession, that it is impossible to predict from month to month what the next number of the scientific journals may produce. The transplantation of arteries and veins, and the substitution of one for the other, had hardly become known as a surgical possibility, when Carrel announced that not only could fresh vessels be used for this purpose, but that arteries kept on ice for weeks and months might be used for implantations, and that they would regain their vitality and functionate quite as well as the fresh material. In *The Journal of Experimental Medicine* for March 14, 1910, the same author publishes the results of some experiments perhaps even more startling than those which he has given before in that he has demonstrated that in order to mend a hole in an aorta it is not even necessary to use a blood vessel for the patch. Instead he has taken a piece of the abdominal wall with its attached peritoneum, has smeared it well with vaseline, and has fitted it carefully into the opening made in the aorta, the peritoneum being flush with the interior. The two animals which survived the operation lived and appeared to be healthy. In one case five months and in the other ten months later, the abdomens were opened and the vessels examined. While the blood was flowing it was almost impossible to tell the patch from the original vessel. On excision, however, the location of the patch immediately showed itself in its failure to contract as did the normal vessel. On histological examination it was hardly possible to distinguish between the vessel and the patch, as the peritoneum and abdominal muscle had become so transformed as most closely to resemble normal vessel wall. The chief difference was in the lesser number of elastic tissue fibers in the patch, though these were much more numerous than in the normal abdominal wall muscles. The anatomical transformation of the abdominal wall into aorta was almost complete, and the functional adaptation was perfect. The practical uses of such a discovery are at present impossible to estimate, but they will undoubtedly be great.

The Pathology of Hepatic Cirrhosis.

For many years there has been some difference of opinion as to the nature of the process known as cirrhosis of the liver. On one side have been arrayed the pathologists who believe that the primary process is a perilobular increase of connective tissue, with a secondary degeneration of the parenchyma due to pressure or inanition, while on the other are those who hold that a primary destruction of liver tissue is compensated for by a secondary growth of scar tissue. In recent years the latter view has been held by most pathologists. In the *Deutsche medizinische Wochenschrift* for May 12, 1910, however, Warschauer reports a case which leads him to believe that, in certain cases at least, the older view may be the correct one. The patient died during the early stages of hepatic cirrhosis. The liver was somewhat enlarged and hard, but showed no other macroscopic changes. Under the low power of the microscope the acini were seen to be intact; in the middle of each acinus was the central vein, without pathological changes; the parenchyma cells were arranged in regular radiations; the capillaries were somewhat dilated; around the interlobular vein, for a distance equal to about five times its diameter, were patches of fibrous tissue with small cell infiltration, and grouped around these were liver parenchyma cells between which the capillaries were not visible. On high power magnification, no signs of degeneration could be seen inside the acini. The cells were normally arranged, the nuclei were well stained, and there was no trace of connective tissue growth within the acini. The appearance, on the other hand, of the interacinous periportal connective tissue was greatly altered. Here were found all the signs of active tissue proliferation; small cell infiltration, fibroblasts, young connective tissue cells, and formed fibrous tissue. Such a picture Warschauer maintains, with some reason, could be produced only by a primary interstitial hepatitis.

News of the Week.

Birth and Death Rates in Europe.—Statistics collected recently by Jacques Bertillon show strikingly the decrease in the birth rate in France. Whereas before the Franco-Prussian War the birth rate was in the neighborhood of one million, during the last three years it has been below 800,000. The excess of births over deaths in France last year was 13,500; in Germany, 880,000; in Austria, 553,000; in Great Britain and Italy it was about the same as in Austria, and in Holland the excess was 83,000.

Cholera in Europe.—A dispatch from Odessa states that on June 22 there were 790 cases of cholera under treatment in the city, and that on that day there were 219 deaths from the disease. The Prussian government has detained a Russian immigrant at the immigration station at Ruhleben with symptoms suggesting cholera.

The Board of Inebriety Bill permitting the Board of Estimate of New York City to establish such a board has been signed by Governor Hughes.

The Children's Aid Society in New York City has opened its various summer homes for the season of 1910. The Coney Island Health Home for mothers with sick infants opened on June 27. On the same day the Children's Summer Home at Bath Beach was opened. The new cottage of the Home for Convalescent Children at Chappaqua had its formal opening on July 1, and the boys' camp at Deuville, N. J., received its first installment on July 2. The society is attempting to raise $50,000 for this summer work.

The University of Arkansas.—An agreement has been reached by which the medical department of this university, located at Little Rock, is to become more closely affiliated with the university at Fayetteville. The first two years of the course will be given at Fayetteville and the last two years at Little Rock.

The University of Wisconsin announces a gift of 1,500 volumes on anatomy and the history of medicine from the late Dr. Byron Robinson. Funds for the establishment of a scholarship in anatomy valued at $550 a year are also provided in the bequest. This will be known as the Byron Robinson scholarship in anatomy, and is to be held by both men and women students in medicine. The purpose of this scholarship is to encourage the anatomical, physiological, and pathological study of the sympathethic nervous system.

Honorary Degrees.—At the University commencement exercises held recently a number of medical men received honorary degrees. Yale University conferred the degree of Doctor of Science

upon Dr. Simon Flexner of the Rockefeller Institute for Medical Research. Rutgers College gave the same degree to Dr. Egbert Le Fevre, dean of the New York University Medical College. Bowdoin College gave the degree of Doctor of Science to Dr. Myles Standish of Boston, and Dr. Lucien Howe of Buffalo. The University of Alabama gave the honorary Doctor of Laws to Colonel William C. Gorgas, U. S. A., and Dr. L. L. Hill.

A Rebuke to the Governor of New Jersey.—At a legislative hearing on a medical bill last spring, the Governor of New Jersey lost his temper and applied Rooseveltian terms to two of the physicians present. At the annual meeting of the New Jersey State Medical Society, held this week in Atlantic City, the medical men had their innings and the society unanimously adopted the following preamble and resolution: *Whereas* at the hearing on the medical practice bill the Governor publicly questioned the veracity of the chairman of our committee on legislation and treated representatives of our society discourteously by refusing a proper discussion of the merits of the bill by unceremoniously closing the hearing; therefore, be it *Resolved*, That the Medical Society of New Jersey in annual meeting assembled hereby not only place on record their perfect confidence in Dr. L. M. Halsey but also their deep regret that the Governor of our State so lost control of himself as to reflect discredit upon his high office and dishonor upon the State. And, moreover, the result has been the lowering of the standards of preliminary educational requirements in New Jersey and the consequent loss of reciprocity between our State and New York State.

The People's Hospital of New York had its opening and dedication ceremonies on June 21. The building is fireproof throughout and has accommodations for fifty patients. Most of the equipment was donated, among the donors being the Emperor of Austria, who gave an operating table. The medical board consists of Dr. I. Adler, consulting physician; Dr. C. A. von Ramdohr, consulting obstetrician; Drs. I. M. Rottenberg, A. Fishman, and J. Broder, visiting physicians; Dr. A. Bassler, visiting gastroenterologist; Drs. J. Bieber and M. Landesman, attending physicians; Drs. J. P. Grant, B. Tilton, J. J. McGrath, G. I. Miller, and C. Pfister, visiting surgeons; Drs. S. Strauss, R. Cronson, J. O. Polok, S. Rottenberg, C. Kennedy, and B. Gordon, visiting gynecologists; Drs. K. B. Page and A. Wolborst, visiting genitourinary surgeons; Drs. S. Spiegel, M. Lewson, and S. Forstot, attending surgeons; Dr. M. Davidoff, attending gynecologist; Dr. H. W. Korman, attending genitourinary surgeon; Drs. S. S. Freidman, C. Broder, J. A. Stoloff, J. A. Prager, and M. Rosenberg, assistant attending surgeons; Drs. A. L. Weindrug and L. Polon, assistant attending gynecologists; Drs. G. Wolf, M. Wolper, and J. Barsky, visiting pediatrists; Dr. Z. Sharfice, attending pediatrist; Dr. L. Weiss, visiting dermatologist; Dr. J. S. Price, visiting ophthalmologist; Dr. M. Rosenbaum, assistant attending ophthalmologist; Drs. D. S. Dougherty and I. Grushlaw, visiting laryngootologists; Drs. G. Kremer and I. F. Pasternak, attending laryngootologists; Dr. J. H. Stebbins, Jr., pathologist and curator.

Bellevue Hospital.—The appointments have been announced of two assistant medical superintendents to Bellevue and the Allied Hospitals of New York City. The appointees are Dr. George O'Hanlon of the Riverdale Sanatorium, and Dr. Mark L. Fleming of the detention station at Hoffman's Island.

A Hospital for the Tuberculous Insane is about to be erected in Fulton, Mo., in connection with the State Hospital there. The new institution will be called the Hadley Hospital in honor of Governor Hadley of Missouri.

The Kansas State Board of Medical Registration and Examination has elected Dr. A. S. Rose of Sabetha, *President*, and Dr. H. A. Dykes of Lebanon, *Secretary*.

Medical Club of Philadelphia.—At a reception held June 17, Surgeon-General George H. Torney of the United States Army, and Surgeon-General Charles P. Stokes of the United States Navy, were the guests of honor.

The Alumni Association of the Yale Medical School held its annual meeting June 22, 1910. The election of officers for the ensuing year resulted as follows: *President*, Dr. Charles Craig of the United States Army; *Vice-Presidents*, Dr. S. J. Maher of New Haven, Dr. Seymour L. Spier of New Haven; Dr. H. J. Schlevin of Brooklyn, Dr. A. M. Loomis of Derby, Dr. T. H. Wilson, Jr., of New Haven; *Secretary and Treasurer*, Dr. E. M. Black of New Haven; *Chairman of the Executive Committee*, Dr. C. J. Bartlett of New Haven.

Obituary Notes.—Dr. Jules A. Simon of San Francisco died on June 8, 1910, of heart disease while ascending Mount Vesuvius. Dr. Simon was a graduate of the medical department of the University of California in 1875 and of the University of Paris in 1883. He was at one time president of the San Francisco Board of Health, and for many years held a professorship in the University of California. He was a member of the San Francisco County Medical Society and the Medical Society of the State of California.

Dr. Joseph Chamberlain Caldwell of Buckland, Maine, died suddenly while attending a patient on June 20, 1910, aged 65 years. He was a graduate of the Medical School of Maine in 1870, and a member of the Oxford County Medical Society, the Maine Medical Association, and the American Medical Association.

Dr. Willis B. McMichael of Boston, Mass., died June 11, 1910, at North Edgecomb, Maine, aged 53 years. He was a graduate of the Harvard Medical School in 1881, and was a member of the Suffolk County Medical Society, the Massachusetts Medical Society, and the American Medical Association.

Dr. Emmett C. King of Hartford, Conn., died at his home June 17, 1910, aged 58 years. He was a graduate of the New York Homeopathic Medical College in 1880 and was a member of the Hartford County Medical Club and the Connecticut Homeopathic Medical Society.

Dr. Steven Frost Horton of Peekskill, N. Y., died at his home June 21, 1910, aged 46 years. He was a graduate of the New York University Medical College in 1886, and was a member of the Westchester County Medical Society, and the Medical Society of the State of New York.

Dr. Wm. Erwurzel died at Philadelphia on May 18 at the age of 68 years. He was graduated from Jefferson Medical College in the class of 1868, and a member of the Philadelphia County Medical Society, and the Medical Society of the State of Pennsylvania.

Correspondence.

MORE FEEDING IN TYPHOID FEVER.

To the Editor of the Medical Record:

Sir:—I was much pleased by three articles in the Medical Record last year on "Milk-Free Diet in Typhoid," by Drs. Seibert, Strong, and Kemp. The articles were terse, strong, short, and full of common sense. The line of treatment follows partly along lines that I have practised for eleven years. I have had 240 cases, with four deaths. Two of those that died had walking typhoid and had had profuse hemorrhages before calling medical aid, and neither lived four days after receiving medical attention. The third one came into my care on relapse after being treated for three weeks with "acetanilide." He was sixteen miles away across country, the only way to reach him was by horseback, and naturally he could not receive the best attention. He lived a week in the relapse, but in that time bed sores of large size developed, showing his resisting power to be low. The fourth died the eighteenth day of the disease. He was the last of seven to come down, he having acted as nurse for the others as one after another became ill. The mother was dead and the neighbors refused assistance, so the family fought it out as best they could among themselves, and this young man waited on himself, taking his food and medicine, using the fountain syringe, and bathing himself for fourteen days, when he became delirious and was unable longer to do it. He died the eighteenth day. These four died. Would Brand, or Osler, or Seibert have lost them? Dr. Seibert's success seems to depend on the irrigation of the bowels and the milk-free diet. I have attributed my success to my "typhoid treatment," rectal irrigation, and abundant feeding. It is my belief that typhoid fever may be "gone after" with as much assurance of success as we would go after malaria with quinine, syphilis with mercury, or acute rheumatism with the salicylates. As I say, I have attributed my success more to drug medication than anything else. But have I been wrong? It may be that I have drugged my patients unnecessarily, and the success should be attributed to the rectal irrigation. I have not been a "milk" man by any means, but have insisted on the patient having a variety of food—"anything he can drink." I must say, however, that to get soups properly prepared is a great problem in most homes, and if there is a trained nurse, she is trained, as a rule, to consider anything but milk in typhoid as certain death, and will not, and generally does not know how to prepare a nourishing soup.

There is no therapeutic nihilism in my treatment, nor is there starvation. I have never excluded milk from the diet, but have noticed that those that take least milk and most other foods get along best. (Some day there may be a standard treatment and standard food for this disease.) I give soup by the bowlful instead of the ounce, and cool water (no ice-water) every hour. Each evening a large edema of soapsuds with a teaspoonful of turpentine is given. Hemorrhage is the only contraindication; and in my last one hundred and sixty cases there have been no hemorrhages. There is rarely any tympanites, delirium, diarrhea, or discomfort. The tongue clears, pulse comes down, temperature gradually subsides, appetite returns, skin is moist, no dryness of the mouth, no sordes, nothing typical of typhoid fever after ten days. "What's the matter with Mrs. P.?" I was asked by one of my hospital patients. I answered, "Typhoid." "Well, if that's typhoid fever, I am not afraid of it. She don't look sick." I said, "Come into the ward." I took the party to the ward and pointed out two other patients and said, "Do they look like typhoid?" He said, "Not typical. What are you giving them?" I said, "Plenty to eat and water—and some medicine."

It is the unusually good appearance of the patients that attracts attention, and the short duration of the disease. Almost every case is free from fever in three weeks or less, with few complications. There have been ten pneumonias complicating the typhoid, but none proved fatal. These have not all been mild cases, for the first of the series was in a malignant epidemic, where more than 35 per cent. died under the "expectant" treatment. But they have been of every grade, mild and severe. I feel sure that fully 50 per cent. of the deaths in typhoid fever are due to milk, and 50 per cent. of the remaining deaths due to starvation. It seems curious that even eminent men will not recognize the fact that it takes a considerable amount of "fuel" to keep the human mechanism in working order, even when lying abed. Many a patient has literally starved to death from underfeeding. Compare Dr. Seibert's feeding with the "regulation" feeding of many hospitals and private practitioners ,and one can readily see why Dr. Seibert's patients have such different "term" of fever. Since reading the "Milk-Free Diet" articles last year, I have excluded milk rigidly from the diet of typhoids, and they have all done remarkably well, although I have had only twelve cases.

C. H. Maxwell, M. D.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

RESEARCH DEFENSE SOCIETY AT ROYAL COLLEGE OF PHYSICIANS—PARLIAMENTARY GRANT—NURSING DISCONTENTS—OBITUARY.

London, June 10, 1910.

The Earl of Cromer presided at the annual meeting of the Research Defense Society, held on the 4th inst. at the Royal College of Physicians. Sir Douglas Prowell, proposing the report, said it was deplorable that a society should be necessary to defend the good work of research against the machinations of a clique which just now dominated another society (that for prevention of cruelty to animals), which after doing much good work had entered on a wild crusade against science and endeavored to exploit the sentimentalism of people who, though worthy, were not wise. Their readiness to be imposed upon and exploited illustrated the truth and force of Mr. Roosevelt's remark: "Of all broken reeds, sentimentalism is the most broken reed on which righteousness can lean."

Sir David Bruce, seconding, pointed out that there was now no new case of sleeping sickness in Uganda, where, in the past, it carried off 200,000 out of a population of 300,000. That result was entirely due to experimentation on animals. By the same method of research, Malta fever, of which, in 1905, there were 643 cases in the army and about as many in the navy, had been banished.

Thanks were voted to the Earl of Cromer and the Royal College of Physicians for the use of its library to hold the meeting in.

Lord Cromer, responding, paid a tribute to the untiring zeal of Mr. Stephen Paget, and commended also Mr. Keen's book on "Recent Surgical Progress," and summarized that author's reply to the question what the friends of research had done and then what its foes had done? To the latter he said Mr. Keen answered in tones vibrating with justifiable indignation. "Nothing but to stand in the way of progress. Not a single life has been saved by their efforts; not a single household made happy; not a single disease has had its ravages abated or abolished." Lord Cromer passed on to the question whether dogs were to be exempted as proposed by some of the sentimentalists, and claimed that he himself and others loved the dog as much as any. But he knew that about 20,000 stray dogs were put to death in the lethal chamber annually, and the few dogs vivisected suffered no more, and there was no reason for making such exception over other animals, and such legislation could not be justified. Lord Cromer proceeded to ridicule Mr. Coleridge's fanciful proposal that a license to experiment should only be granted to applicants with a certificate signed by at least one justice of the peace and one clergyman that he had a reputation for humanity! Such absurdity was enough, said Lord Cromer, to laugh the bill out of court. But if it had a chance of becoming law he would suggest an amendment: "That no one, even in this free country, should be allowed to speak against vivisection unless he could produce a certificate signed by at least two judges and a brace of bishops that he had a reputation for common sense and accuracy of statement."

In connection with the Parliamentary grant for scientific investigations concerning disease the following special researches have been authorized: 1. Continued investigation into enteric fever, by Drs. Theodore Thomson and Ledingham. 2. Continued research on diphtheria by Drs. Thomson and C. J. Thomas. 3. Continuation of that into flies as carriers of infection, by Drs. Monckton, Copeman, Graham, Smith, Merriman, Nicholl, and Bernstein. 4. Continuation of that on the injurious gases evolved during artificial illumination, by Dr. J. Wade. 5. Preliminary inquiry into relation of certain bacteria to infantile diarrhea, by

Drs. C. J. Lewis, Sheila M. Ross, Thomas Orr, and R. A. O'Brien.

A state of unrest and discontent has prevailed for some time among many nurses. Threats more or less serious have been made by some of the leaders of these ladies, but are looked upon with amusement or contempt, according to the view taken. On Monday evening there was a meeting of nurses employed at St. Bartholomew's Hospital to protest against the appointment of a matron who was not one of themselves, but came from another hospital. Considerable excitement was reported in the nursing world, and letters and telegrams of sympathy were sent to the meeting. It is perhaps natural for any kind of staff to consider promotion from its own members the best way of filling vacancies, and, other things being equal, it is often adopted. Is there not a feeling in medical schools in favor of their own students? But we do not hear of revolts or strikes when an outsider is preferred, as frequently happens. Then it may be said that managers have their responsibilities and their rights as to elections.

But, to return to the malcontents of "old Barts." Many strong statements were put forward, the accuracy of which is not quite evident—a natural incident, says a friend, when women are the speakers. The opener declared the "election of a lady from another hospital set the hands of the clock back." She admitted registration had something to do with it, and it seemed as if the meeting advocated registration such as the medical profession has had. If they knew how little good it has done they would not be enthusiastic about it. A resolution was put forward to the effect that the committee had condemned the efficiency of the educative worth of their medical and nursing staffs, etc., and calling for public inquiry into the management and the nursing home, which was said to be insanitary and a death trap in case of fire. It was not explained how these things had only been just discovered. Mrs. Bedford Fenwick, who is usually present at discussions on nursing, declared in her decided way that the action of the committee was a challenge to the whole nursing profession; that no cooperation, no organization, no protective legislation, no liberty of conscience, no liberty of speech, no degree of self-government should be theirs unless those who claimed them were prepared to pay the price of no professional promotion. This is the sort of assertion Mrs. Fenwick has often indulged in, as she advocates registration. Whether her advocacy will help the malcontents of "old Barts" or terrify the committee remains to be seen.

Of course, the name of Florence Nightingale was heard in this discussion—which reminds me that an "appreciation" of her work lately appeared in the *Medical Press* from one who had seen it in the Crimea. It was written to commemorate her ninetieth birthday and endorsed by another witness of her beneficent work. Many amusing remarks and incidents were made in the article. But it was rather marred by exaggeration—quite as marked as that of the feminine speakers mentioned above. It spoke of the nursing of the hospitals in London and New York as inconceivably bad before Miss Nightingale's work. It said the nurses were generally both drunken and immoral. Now, a doctor who went through a hospital in London as student and eventually became a professor protests against this as a gross libel. He only met with one instance of drunkenness, but he admits there was a good deal of ignorance, though not of the self-assertion which is at present so prominent. So much for London nurses then and now. You can speak for New York.

Mr. James Stantin, senior surgeon to the London Skin Hospital, died on the 3d inst. at the age of fifty-nine. He took the M.R.C.S. in 1876 and contented himself with that single qualification, and that through a period when many seemed to aim at adding as many letters as possible to their names. He devoted himself to dermatology, and became a leading authority. His "Pharmacopœia for Skin Diseases" obtained a good circulation, reaching a fourth edition in 1899. He wrote several treatises on this subject and contributed freely to the Transactions of the Paki and the Wilan Societies and the International Dermatological Congress. He also devised a "skin scraper" and a "toughened gold needle" for electrolysis.

H. R. Greene, Pasha and Lieutenant-Colonel in the Royal Army Medical Corps, died suddenly on the 4th inst. He was educated in Dublin, at Trinity College and the Royal College of Surgeons there, taking its license in 1862, and the following year adding that of the Edinburgh Royal College of Physicians. Entering the army medical service, he was employed in various foreign parts. In Egypt he became First English Director of the Sanitary Administration, and for his valuable services in this capacity was created Pasha by the Kheidive. He retired several years ago, having had the misfortune to become totally deaf.

FORTY-THIRD ANNUAL MEETING OF THE CANADIAN MEDICAL ASSOCIATION.

(From Our Regular Correspondent.)

TORONTO, June 15, 1910.

On June 1, in the Section of Medicine, Dr. George W. Ross of Toronto read a paper on the treatment of acne vulgaris by vaccines. He said that treatment was dependent upon the microorganisms found in the pustules of each case. If the bacillus of acne was alone present, as in many cases of acne punctuata, then the bacillus of acne vaccine was used, but if the staphylococcus albus coexisted, then the albus vaccine was necessary as well. Treatment by vaccines was of great value, but it was important to supplement this specific treatment with careful regulation of the general health. Out of fifty-six cases satisfactory results had been obtained in forty-four cases. In the remaining twelve improvement had occurred in all but four.

On June 2, in the Section of Surgery, Dr. Murray MacLaren of St. John, N. S., read a paper on a case of hemorrhagic cyst of the omentum, which occurred in a negro and which was operated upon successfully. Dr. MacLaren defined a true omental cyst as contained in the cavity of the omentum and not attached to the wall. He further said that such cysts were of rare occurrence. Dr. J. M. Elder of Montreal, however, did not think that these cysts were so common as was generally believed.

Dr. I. Wood of Kingston, Ont., read a paper, in the Section of Surgery on June 2, on appendicitis in children, which gave rise to a considerable amount of discussion and difference of opinion. Dr. Wood presented the statement that appendicitis was more deadly than any other abdominal lesion to persons under fifteen years of age, that it was more prevalent in children, and that the condition was more difficult to diagnose in children than in adults. Dr. Wood gave a history of appendicitis from the time of its earliest mention. In 1867 Parker said that gangrene was more prevalent in children, while Little was the first to make special reference to appendicitis in children. Dr. Wood, who acknowledged that he borrowed his views, to a large extent, from Kelly, argued that appendicitis was in every respect more dangerous in children. It was more sudden in onset, more intense in symptoms, and more deadly in result, and abnormal conditions were more frequently met with in children. From anatomical, pathological, and clinical standpoints appendicitis was more difficult to diagnose in children, and diagnostic features which were clear in adults were obscure in children. That its treatment was more difficult in children was made evident from the fact that the death rate from the disease in children was more than 10 per cent., and in adults between 2 and 3 per cent. Finally Dr. Wood advanced the opinion that the literature of appendicitis in children should be revised. In discussing the matter Dr. Bruce said, in appendicitis occurring in adults or in children operation in the majority of cases should be undertaken at once. Dr. F. Shepherd of Montreal said he did not think that diagnosis of appendicitis in children was more difficult than in adults, but he ventured the remark that surgeons in England were behindhand as regards operating for appendicitis. Dr. A. Primrose of Toronto laid emphasis on the more frequent discovery of appendicitis in abscess form in children than in adults.

On June 2, in the Section of Eye, Ear, Nose, and Throat, there was an interesting discussion on the diseased tonsil. Dr. W. P. Caven read a paper on the effect of the diseased tonsil upon the general system. He pointed out that diseased tonsil was occasionally congenital, and that Hutchinson has suggested that chest affections were often due to enlarged tonsils. Shut your mouth and save your life was a dictum of an old doctor which contained a good deal of truth. At any rate, there could be little difference of opinion with regard to the vast improvement in health frequently brought about by the removal of enlarged tonsils. In tuberculosis the tonsil was an important factor of infection. Those suffering from tuberculosis had often had diseased tonsils. The diseased tonsil removed in time would do away with tuberculous glands. Dr. Caven said that articular rheumatism, too, often fol-

lowed diseased tonsils, and he thought that the diseased tonsil might be the port of entry of the bacteria of rheumatism. He drew attention to the fact that the diseased tonsil had a considerable bearing on other diseases, and among these on appendicitis.

In discussing the surgical treatment of the diseased tonsil there was no agreement as to the mode of operation in the young. Dr. Price Brown of Toronto gave his view, to the effect that up to adult age the tonsil should not be completely removed, for the reason that it has functions in childhood. He pointed out that, while the American surgeons enucleate the tonsil, the German and English surgeons do not, and that the greatest European authorities do not believe in complete removal. On the other side, the contention was made that enucleation of the tonsil at any time of life was the only effectual operation, and that if it were not enucleated adenoids had a tendency to reappear.

In the section of medicine, on June 3, Dr. J. H. Elliott read a paper on the value of tuberculin in pulmonary tuberculosis. He said that experiments had shown beyond doubt that in carefully selected cases it was valuable, but that in critical cases attended with fever it could not be used.

"The Blood in Pulmonary Tuberculosis" was the title of a paper read by Dr. A. F. Miller of Kentville, N. C., in collaboration with L. Brown and J. S. Lupton of Saranac Lake. The contents of the paper were the tabulation of the results of six years' efforts and experiments to ascertain the blood changes and developments in cases of tuberculosis. The results were for the most part negative.

On June 3, in the Section of Pathology, Dr. J. L. Todd of Montreal read a paper on the blood in sleeping sickness. He pointed out that auto-agglutination of the blood was very common in this disease, and, although it was not always seen in infected blood, it was so frequently seen as to lead to the suspicion that there was a connection between this condition of the blood and sleeping sickness. Auto-agglutination was not present at any particular stage of the disease, and might be associated with other diseases, and there did not seem to be any intimate connection between it and sleeping sickness, but, as said before, its more or less constant presence in the disease was more than a coincidence. Professor I. G. Brodie of Toronto gave an interesting address and demonstration by means of carefully designed apparatus of the action of the glomeruli of the kidney. He showed that the action was a true secretory process, and was neither passive nor filtrative.

Among other noteworthy papers read was one by Dr. Amzot of Toronto, provincial analyst, on rabies. He mentioned that Professor McKenzie of the pathological department of the Toronto University had many years ago discovered the same protozoan bodies which were afterward discovered by Negri, and by many supposed to be the cause of the disease.

A considerable amount of business was done by the Executive Council of the association. Dr. John Stewart of Halifax submitted to the executive committee of the council an exhaustive report dealing with the inspection of public schools and school children of Canada. The report made these recommendations: That the boards of education, the Minister of Education, or Council of Education, should appoint a public inspector, and that each province should have an expert medical adviser, who should organize a complete system of medical inspection for the supervision of schools and school children. That the system adopted in British Columbia recently to provide for the medical inspection of schools and school children should be approved by the Medical Association. The following special committee was appointed to consider the question: Dr. Stewart, chairman; Dr. Helen MacMurchy of Toronto, secretary; Dr. Jasper Halpenny of Winnipeg; Professor A. McPhedran of Toronto; Dr. C. J. Fagin of Victoria, B. C., and Dr. J. D. Lafferty of Calgary.

At the last business meeting of the association for this year a resolution was passed asking the Dominion Government to establish a laboratory for the production of antitoxin and other serum for distribution throughout Canada at cost price. It was pointed out that the use of antitoxin in diphtheria had reduced the mortality from 35 to 10 per cent. of the cases.

It has been decided to hold the next annual meeting in Montreal, and the following officers for the coming year have been elected: *President*, Dr. George E. Armstrong of Montreal; *General Secretary*, Dr E. W. Archibald of Montreal; *Treasurer*, H. B. Small of Ottawa; *Finance Committee*, Dr. James Bell of Montreal; Dr. J. L. Fotheringham of Toronto; Dr. Murray Maclaren of St. John, N. B.; Dr. S. J. Tunstall of Vancouver, B. C.; Dr. F. N. G. Starr of Toronto; Dr. F. J. Blanchward of Winnipeg, and Dr F. B. Finley of Montreal.

The social aspect of the meeting was not neglected. There were golf matches and bowling games, and, of course, "at homes" and other entertainments for the ladies. On the afternoon of June 2 the members of the association and ladies went to Niagara Falls as the guests of the Toronto members, and on the afternoon of June 3 the members of the association and ladies went to Guelph as the guests of the profession of that city and of the president and staff of the Agricultural College there.

A large exhibit of medical appliances and drugs was held in the foyer of the Convocation Hall.

The meeting of the association was a great success from every point of view. The attendance was large, the papers read were of a wide medical and scientific range, and, on the whole, of a high standard. As a place of meeting Toronto could hardly be improved on, and it may be said that everything went without a hitch, and that probably the meeting of 1910 was the most successful in the annals of the Canadian Medical Association.

Progress of Medical Science.

Boston Medical and Surgical Journal, June 16, 1910.

Cardiac Syphilis.—The paper of G. G. Sears refers to the varying views on this question and studies recent literature. He says that as there is no pathological lesion apart from the gumma which permits positive diagnosis of syphilitic infection of the heart so there are no clinical signs or symptoms which are pathognomonic of it or essentially different from those which result from other causes. If a single gumma be of small size or a fibrous patch be located in the thick muscle of a ventricle there are no symptoms during any stage of its evolution while a similar lesion in a papillary muscle or in the bundle of His might cause great disturbance. Yet in spite of this fact the author thinks that a probable clinical diagnosis can often be made and sometimes a positive one. The cardiac disturbances during the acute stage of the disease may appear under two forms, one toxic and similar to those which occur in typhoid, pneumonia, and other infectious diseases and the other a true organic lesion produced by interstitial foci in the muscle. Most of these cases whatever their form clear up under treatment and the connection is obvious in making a diagnosis. The following complex is the most important; paroxysmal attacks of cardiac asthma or anginal pain, unequal and irregular heart contractions with muffled heart sounds, an indistinct pulse wave and occasional cardiac murmurs if the aortic orifice be involved in the pathological process, and finally in some cases signs of increasing and persistent heart failure with hypertrophy and dilatation. When these occur in young or middle-aged persons without general arterial sclerosis and without the presence of any definite cause and especially when there is reason to believe that syphilis was acquired ten years or so previously, the diagnosis of cardiac syphilis cannot be doubted. The symptoms generally develop insidiously. A notable percentage of cases die suddenly without manifestations of previous ill-health while numerous cases are conscious of little or no cardiac disturbance until a period of overwork or possibly some special effort leads to an unsetting of the cardiac balance with a rapid development of even an immediate onset of urgent symptoms. The prognosis depends on the stage of the disease and the extent of process. The amount of permanent damage will depend to the extent to which muscular tissue has been replaced and on the location of the fibrous patches. All such patients should undergo the Wassermann test and if the result is positive the treatment is at once suggested. The amount of iodide necessary varies greatly according to the case and the patient's reaction. Mercury is given preferably by injection. Cardiac insufficiency if present should be combated by rest and the medication appropriate to each individual case.

Tuberculous Peritonitis.—A. K. Stone makes a plea for the treatment of tuberculous peritonitis by hygienic rather than by surgical measures. He says that in true cases of the disease in which no other focus can be demonstrated the chances of ultimate arrest under properly conducted hygienic treatment are good. They are not enhanced by surgical intervention without distinct purpose and any such operation must be treated not as itself curative but as a step or incident of the cure. In the absence of a symptomatic demand surgical intervention is not justified. Many patients recover under good simple food, fresh air, and good nursing. Many wounds made in the course of surgery in such cases become infected with tuberculous material and as it takes time for this infection to

develop and make itself felt, patients are often discharged from the hospital with apparently good scars only to be found a few weeks later with a discharging tuberculous ulceration of the scar. These ulcerations are notoriously slow in healing and even years may pass before they close. The weeping of the wound as it is called is often advantageous as it gives ocular proof to the patients that they are not yet well. If, however, there is a primary infection of the lymph nodes behind the peritoneum of the cecum or in the retroperitoneal nodes about the spinal column or in the tubes or gut itself, tuberculous material may invade the peritoneum and be distributed throughout its cavity. When there are definite local symptoms which simulate appendicitis or salpingitis there is no question but that an operation is indicated to clear up any doubt and if a diseased focus or organ is found it should be removed.

New York Medical Journal, June 18, 1910.

Malnutrition in Infancy and Its Relation to Gastric Digestion.—L. J. Tint and L. Breskman refer to the functional activity of the stomach in children under one year of age, both with and without gastrointestinal disturbance. Analyses of gastric contents are given both with and without green stools and vomiting. General conclusions are given as follows: (1) The examination of the gastric contents of eleven children, mostly under one year of age, without vomiting, or green stools, showed a constant presence of free hydrochloric acid, rennin, and pepsin. (2) Examination of the gastric contents of twenty children under one year of age, with green stools, vomiting, and gradual loss of weight, showed an absence of free hydrochloric acid, rennin, and pepsin. (3) That in well developed cases of malnutrition, such an absence of gastric activity was constant and persisted throughout the course of the affection. Considering the data given in the tables, they deem the following worthy of further study: (1) That the stomach very early in life plays an important rôle in digestion through its peptic and rennin activities. Free hydrochloric acid is normally present. (2) That with the onset of green stools is artificially fed and in breast fed children, there is an absence of free hydrochloric acid. 3. That the absence of gastric activity is relatively constant in children suffering from malnutrition. (4) Lastly, that the milk should be carefully examined for the fat percentage, when such is taken into consideration in making up feedings, particularly in asylums for children.

Delayed Menopause.—A. E. Callant speaks of the dangers and therapeutic indications of delayed menopause and presents a table showing the approximate age when the menopause should be established. This table says that when the menses begin at the tenth year they should cease between the fiftieth and fifty-second year; at the other end of the scale, when they do not begin till the twentieth year they should cease between the thirtieth and thirty-second year. The author submits the following general propositions: (1) The menopause in women with healthy reproductive organs should be established abruptly at an age depending upon the age when menstruation first began—early if begun late, late if begun early. This age can be approximately determined, and used as a guide in estimating when the menopause may be expected to occur. (2) The menopause is delayed whenever menstruation continues after the approximate age and is always found to be associated with flexion, version, fixation, neoplasm, tubal disease, syphilis, etc. (3) In delayed menstruation the greatest pathological danger lies in the presence or promotion of the growth of fibroid or malignant tumors. The contributory dangers are due to delay: 1. The patient failing to consult a physician; refuses examination; or refuses operation. 2. The physician delays examination; fails to diagnosticate the condition; fails to recognize the importance of early operation; deludes himself and the patient in the belief that the flow will cease, the fibroid atrophy and time will work miracles; forgetting that the grave alone can silence, cover, and conceal these victims of his delay. (4) The danger signals in delayed menopause are: 1. A typical menstruation; 2, hemorrhage; 3, malodorous discharge; and, 4, pain, which if disregarded lead to disaster and death. (5) At the approximate age the woman has reached the limit of fecundity, therefore the prophylactic removal of a useless, probably dangerous, tumor breeding organ is justifiable, and the one sure method of putting an end to all the dangers. (6) The large number of incurable cases of carcinoma uteri, degenerated fibroids, malignant ovarian and broad ligament cystoma, even in early life, warn us to instruct mothers to teach their daughters the dangers of delay whenever they suffer from dysmenorrhea, menorrhagia, metrorrhagia, leucorrhea, abdominal tumors, etc., especially after they have passed the approximate age.

The Clinical Significance of Silent Fluids in the Thoracic Cavity.—The descriptive term used by F. A. Jones refers to large quantities of transudates and exudates into the thoracic cavity without symptoms. These fluids may be serous, serofibrinous, purulent, or hemorrhagic. In tuberculous peritonitis with effusion where the process has not been active in the lungs he has found in most instances a bilateral effusion with a physical examination of the chest. In these cases there were no circulatory or respiratory symptoms. There was no dyspnea, cyanosis, cough, bulging of intercostal spaces, nor fixation of chest walls. During the past year the author has observed six cases of bilateral hydrothorax complicating acute nephritis, in which there were no circulatory or respiratory symptoms or evidences of dropsy elsewhere. Similar cases have been seen in children convalescing from scarlet fever and pneumonia. Quite often the physical signs are a composite picture of consolidated lung and effusion; particularly, in children where Bacellis's sign obtains, tubular breathing on auscultation. The dead flat note, however, over effusions of whatever nature, can, in the hands of the experienced, be distinguished from the living, resilient, flat note which we sometimes elicit in thickened pleura and in consolidated lung. In the latter, the sounding board vibrates. In the former, it is cracked. In pleuritic effusions, the flat note is dead. In thickened pleura with consolidated lung, it is very much alive. Carelessness in the application and interpretation of physical signs often leads us into diagnostic errors. The author desires to impress upon young practitioners, who possibly have not had quite sufficient hospital training, to be careful how they inspect, how they palpate, how they percuss, and how they auscultate. He wishes to enter his protest emphatically against a number of our recent textbooks using the terms "flatness and dullness" interchangeably.

Journal of the American Medical Association, June 18, 1910.

Enucleation in Panophthalmitis.—R. L. Randolph, while admitting that meningitis is a rare sequel of enucleation in the active stage of a purulent panophthalmitis, thinks that such cases should be watched with care as fatal meningeal complications have followed, especially in purulent panophthalmitis with great phlegmon of the orbital tissues. He reports a series of experiments made to determine whether meningitis could be produced in some of the lower animals by first producing a purulent ophthalmitis and then removing the eye in the active stage of the disease. Rabbits and guinea-pigs were employed and the experiments were always made under etherization. The results of 43 such experiments agree with clinical experience in the human subject, namely, that a death from meningitis thus induced is an exceptional event. It is his practice, however, to abstain from enucleation in spite of the evidence of its comparative freedom from risk. He always makes 2 incisions in panophthalmitic eyes, one on each side of the cornea about a quarter of an inch from the limbus and a little below and parallel to the equator of the eyeball, as he is of the opinion that these incisions constitute a measure safer than enucleation, performing enucleation only when a speedy and painless recovery is very important, as, for example, in old and feeble patients.

Autolysis of Pneumococci.—E. C. Rosenow has investigated the autolysis of pneumococci and offers the following preliminary statement. It seems possible to separate the toxic from the nontoxic or antigenic parts of the pneumococcus by autolysis with sodium chlorid, the toxic portion going into solution. It is impossible to immunize animals with this substance to any marked degree. The injection of the nontoxic portion, on the other hand, causes a marked increase in the immunity curve measured by the specific increase of the pneumococcic opsonin. The use of this substance in pneumonia seems to indicate that it will be a valuable aid in the treatment of this disease though further tests will be still required.

Retroperitoneal Enlargements.—W. H. Allport discusses the diagnosis of retroperitoneal growths, giving illustrative cases of how their progress may be limited. Educated methodical diagnosis is essential, the genius for surgical diagnosis consisting almost always in systematized knowledge. The surgeon should take no man's word, but do his own guessing and do it scientifically, recollecting always that his insight, like all applied knowledge, has its limitations, and acknowledging them in time instead of having them demonstrated later on. Abdominal regions, as usually demarcated, are for the student of anatomy; the surgeon and pathologist are concerned with boundaries. Displaced organs still move most readily toward their normal position and the growth of the abnormally enlarging organs is apt to occur within the normal zone and

fascial plane, usually along, rather than across, the normal cleavage planes. To the surgical pathologist the profitable anatomical study is that concerning the distribution of fascias. Neoplasms are usually closely associated with organs; the irregular and atypical enlargements which follow fascias are apt to be either secondary deposits or chronic suppurations, more likely the latter. When in doubt, one should never forget that arch deceiver, the cold abscess. Chronic suppuration is rarely recognized by the direct method; diagnosis by exclusion is the rule. Attention is especially called to the history sheet, the temperature chart, the blood count and the urinalysis reports as aids for diagnosis. Inflation of the colon by Ziemssen's method often enables one to assist diagnosis by crowding the tumor into one or the other space in front of or behind the posterior layer of the peritoneum. If the growth is thus found to be retroperitoneal, the kidney should be studied again by palpation, urine analysis, the *x*-ray; and, finally, by metallic ureteral catheterism combined with skiagraphy. A number of instructive cases illustrating these puzzling points for diagnosis are given in brief detail, and, in conclusion, Allport emphasizes the puzzling clinical problem afforded by hysteria and functional pain. He says that it is a grave question whether pain which the surgeon believes to be genuine, but which exists alone without other symptoms, justifies him in cutting into the peritoneum or retroperitoneal space. His own observation of such cases has not been favorable to operation. The neglect to recognize and properly appraise hysteria is as frequently the cause of failure of diagnosis as is the failure to identify the cold abscess.

The Therapy of Work.—Man is mentally, morally, and physically so attuned that when disordered his perfect restoration demands intelligent readjustment of each element, says R. S. Carroll. The derangements of the mechanical workings of the body have been subject to increasing surgical skill until we invade every precinct of the body. But this has had its evils, and until recently practically normal organs were sometimes removed and exploratory incisions were made for their "mental effect." The modern physician with his immense therapeutic armamentarium, must still feel the stigma of empiricism as he faces many of the diseases of internal medicine, and one reason is that he has ignored that principle of life connected with, dominating and making the real body, the psyche. The neurologist has been pleading that a certain percentage of invalids are psychically ill. Emotional shock is interpreted through the physical sensations, the individual becomes self-centered, the physician who has a powder for every pain fails to apply his psychology and the patient after passing through the hands of the physician, the oculist, the abdominal surgeon, and the osteopath finally finds cure in the negations of Eddyism, and medicine is rightfully discredited. The neuropath may also be of the hereditary type, and then the case is difficult. The acquired form may result from exhaustion, intoxication, or have its origin in the owner's brain. Nerve integrity is reduced by profitless introspection, morbid self-consciousness, ultrasensitiveness, self-depreciation, cynicism, pessimism, doubt, and, most baneful of all, fear in its many forms. The call is for men practised in the arts of medicine, who, in addition, are students of the human mind. The length of the list of false psychotherapeutic cults but emphasizes the need for true, rational psychotherapy. These cults all assert in a chorus most emphatic that beliefs, though false, may displace morbid ideas and effect cures. Years devoted to the development of a workable, practical psychotherapy have convinced Carroll of the preponderating value of work as a present help and a lasting benefit in the treatment of the nervous. The value of Mitchell's rest cure is unquestioned, but often proves inappropriate or inadequate; but work truly is life. As Hall has said, the human body is made for action. Therapeutically, the proper form of work should be prescribed, well within the strength of the patient and requiring sufficient mental activity to distract attention from the purely physical. Even drudgery has its place. There is a wholesome discipline in work. The mental relaxation and rejuvenation which follow substitution of reasonable physical employment for high-pressure mental strain cannot be gainsaid. Wholesome benefits come to the mind from the physical exaltation following the normal use of our muscles. The greatest influence of work as a therapeutic measure rests in the mastering of self which comes with work, and when self-mastery replaces indulgence and doubt of one's strength is replaced by faith, when morbid self-centeredness, that miserable dwarfer of the soul, gives way to an externalizing self, then the passion for material comfort will lose its devitalizing power, and a mastery will ensue superior to petty discomforts of temperature and weather, the habits of our neighbors' children and the din of traffic, a mastery superior to the miserable hyperesthesias and dysthesias so incident to nervousness. Such will ever be the mission of work when divorced from damaging moods.

The Lancet, June 11, 1910.

Imperforate Hymen in Sisters.—Two cases of this nature are reported by W. B. Mayne. The first was a girl of 19 years. Her mother had noticed that for some time she had walked in a peculiar manner and that she had never menstruated. The patient had suffered for some months with abdominal pain and had recently had a swelling of the genitals. Examination revealed a hematocolpos, the uterus being enlarged to the extent of a four months pregnancy and protruding between the labia there was a convex bluish swelling of the size of half a billiard ball. The vaginal septum was incised and there drained away a large amount of a viscid almost meconium-like fluid which was not measured. One week later, the incision showing a tendency to contract, the girl was anesthetized and the fibrous septum was wholly broken down; the os uteri was found to be still markedly patulous and edematous. The sister, a girl of 16 years, who had never menstruated, was found to have a wholly imperforate hymen which was incised and freely stretched but there was no retained fluid.

Fatal Case of Gastric Tetany.—G. A. Gordon was called to see a woman who had a fit. On arrival he found the woman, 48 years of age, perfectly conscious. She had had many years a severe indigestion, vomiting nearly everything she ate. Examination showed the arms flexed at the elbows and wrists, the arms being folded over the chest. The fingers were bent at the metacarpophalangeal joints and extended at the terminal ones. The legs were perfectly rigid and the toes flexed. It required considerable force to straighten the arms or to flex the legs. The stomach was greatly dilated and the presence of a small mass in the region of the pylorus was suspected. The abdominal muscles were fairly rigid. Potassium bromide and chloral failed to relieve the condition. One hour later the patient was becoming delirious and cyanotic. Chloroform relaxed the limbs only slightly. In a short time the patient became delirious again and died in about four hours after being first seen. The author believes that had she been seen earlier she might have been saved.

Rat-Bite Fever.—G. S. Middleton reports the case of a girl of 3 years who had been bitten by a rat on the back of the left hand. The wound had already healed, but two weeks later the hand and arm had begun to swell and had become red and painful and a lump had appeared in the axilla. She was transferred to hospital and had quite a high fever which recurred in short attacks in the course of the next month. These attacks were not accompanied by any swelling of the arm. During the third febrile attack a red measly rash on the cheeks, forehead, and legs appeared but none on the trunk. A rash of similar character came on during each of the following febrile attacks. No cause for this peculiar fever could be assigned. It often rose to 104° or 105°. Recovery ensued, there being no surgical intervention. Examination of the blood during the earlier stages revealed a slight leucocytosis, many of the cells containing an undue amount of small black granules. In fresh specimens the red cells contained one or more rod-shaped bodies which showed a certain amount of movement, but these were not visible in stained specimens and their nature was not determined. In one fresh film there was discovered a diplococcus which seemed to have a capsule. Cultures from the blood made in several different media gave a growth in only one tube—namely, in anaërobic gelatine. This growth had a reddish color and under the microscope showed a diplococcus without a capsule. The organism was an unfamiliar one, and its pathogenic properties were not investigated.

Papilloma Causing Hydronephrosis in a Horse-Shoe Kidney.—The patient of J. Morley was a man of 32 years with the usual symptoms of the condition stated in the title of the paper. A diagnosis of renal growth, probably sarcoma, was made and nephrectomy determined on. Incision was made and a fluctuating tumor found. An attempt to draw it out through the wound led to the tearing of a hole in the cortex. Examination was unable to determine the presence of a kidney on the opposite side. The renal structure on the operated side had every appearance of a horseshoe kidney. The author follows out the technical description of the operation. On the second day thereafter the patient began to have violent and distressing hiccough. On the fifth day the pulse began to fail and the urine to grow scanty, and on the next morning the patient died. Examination of the cystic growth removed

showed on its ureteric aspect a sessile papillomatous growth fungating into the cyst. It was remarkably like a papillomatous ovarian cyst in appearance. The growth completely filled the pelvis of the kidney and it was with difficulty that a probe could be passed up from the ureter through it. The combination of a papilloma with a horseshoe kidney has not, to the author's knowledge, been previously reported. In such a case he thinks that the evidence of cystoscopy and radioscopy would be of doubtful value.

British Medical Journal, June 11, 1910.

Carcinoma of the Rectum Appearing Simultaneously in Husband and Wife.—C. H. Whiteford reports three cases. On the husband's side there was nothing of importance in the history. On the wife's side seven relatives died from malignant disease. The patients have been married thirty-four years. In the case of the husband, a very stout man, aged 63, the first symptoms—evacuations many times a day of small amounts of liquid feces, with small quantities of blood—commenced in April, 1909. Six months later (October, 1909) he was examined and an inoperable growth high up in the rectum was found. On November 9 left inguinal colostomy was performed. All the tissues were very fatty and friable. The mesentery only just permitted the bowel to be fixed outside the abdomen. At the present time (April, 1910), five months after the colostomy and one year from the onset of symptoms, the patient appears to have taken a new lease of life. A daily morning enema empties the bowel, from which neither feces nor flatus escape during the rest of the twenty-four hours. There is no pain, discharge of blood from the rectum has almost ceased, and the patient feels so well that he is actively carrying on his work, which involves much standing and talking. In the case of the wife, a thin, delicate multipara, aged 60, the symptoms, similar to those of the husband, commenced in May, 1909. Ten months later, March, 1910 (some one having suggested that the disease was uterine), the patient was examined and nothing uterine was found, but in the rectum a large growth blocking the lumen 3 in. from the anus. Left inguinal colostomy was performed, fixing the portion of bowel immediately below the splenic flexure. Seen two months after operation the patient is much less weak and the rectal discharge is very little. The high colostomy appears to have prevented prolapse, while the new opening functions as well as that of the husband.

Trigeminal Neuralgia and Its Treatment by Alcohol Injection.—W. Harris says that the alcohol injection treatment is indicated in the following conditions in any persistent neuralgia. (1) When the site of irritation or injury to the nerve is more or less peripheral so that the nerve can be injected on the central side of the lesion. No benefit results from alcoholic injection of a nerve below the point of lesion. This method is therefore contraindicated in tabetic and postherpetic neuralgia. (2) When paralysis of the affected nerve will not cause extensive muscular palsy. Thus injections into the sciatic nerve or into either of the nerve trunks of the upper extremity is contraindicated. The dangers to be guarded against are: (1) In injecting to the foramen rotundum, never inject at a greater depth than 5 cm. for an average-sized skull, or, a better guide, be careful not to sink the needle more than 7 mm. past the anterior edge of the external pterygoid plate. This precaution will prevent the optic nerve being injured. If the injection be made too horizontally, it will pass beneath the superior maxillary nerve and reach the sphenopalatine foramen, and will be felt in the nose. If directed too high, the sphenoidal fissure may be reached and the branches of the third nerve may be damaged, causing diplopia and dilatation of the pupil. (2) In making the injection for the foramen ovale, for the third division of the fifth nerve, if the needle is directed too low and too deeply, more than 4¾ cm., the pharynx wall or the Eustachian tube may be punctured; if too far back, the middle meningeal artery may be injured, and it is conceivable that if directed much too far back by a person with no experience even the internal carotid artery or jugular vein might be injured. Of the author's thirty-three cases treated by this method, thirty-one were completely relieved of all pain; of these nine received the injection under chloroform although in seven the author had previously attempted to make the injection under ethyl chloride spray. In seven of the nine the injection was made through the foramen ovale and in five the foramen rotundum.

Mechanical Effects of a Massive Right-sided Pleural Effusion.—Autopsy notes in one case are given by A. C. Ceddes. They must be read in the original paper as they cannot be well abstracted here. The arteries of the subject were injected under a low pressure with a corrosive-carbolic glycerine preservative, the venæ cavæ and their tributaries to the first valves with 15 per cent. formalin. This method of preservation secures that the majority of the tissues retain an almost lifelike consistency, whereas the heart, liver, and kidneys are firmly, and the lungs partially, fixed. In connection with the displacement of the thoracic viscera the most striking fact in the case reported was that the inferior vena cava and the pericardial attachment of the diaphragm had moored the mediastinal structures as efficiently inferiorly to and through the diaphragm as the great vessels, trachea and esophagus, moor them superiorly to the margins of the thoracic inlet.

Berliner klinische Wochenschrift, May 30, 1910.

Absorption of Radium Emanations Through the Skin.—W. Engelmann discusses the use of radium emanations by means of baths, packs, and local applications. He carried out some experiments to show that the effectiveness of such methods was the result of direct skin absorption. Healthy persons were given emanation baths, so arranged that the head was entirely outside of the bath. The expired air was tested for radioactivity before, during and after the baths. The emanations were found in the breath in every case, their amount being proportional to the length of exposure in the baths.

Münchener medizinische Wochenschrift, May 24 and 31, 1910.

The Treatment of Erysipelas by Hot Air.—Carl Ritter discusses the Bier hyperemia method of treating infections, and, especially, erysipelas. He believes that the usual method of trying to prevent absorption of toxins in such a condition is wrong, and that such absorption should be encouraged instead of hindered. He has applied the principle to erysipelas by treating it with hot air, and he reports fourteen cases with excellent results. In acute early cases the temperature fell rapidly by crisis; in the older cases by lysis. Usually the spread of the disease stopped at once; but occasionally it continued for one or two days and then subsided.

The Etiology of Lupus Vulgaris.—Max Kruger has investigated the tissues of cases of lupus for the presence of the tubercle bacillus. He found the organisms in practically every case examined, was able to grow them in culture media, and to inoculate animals. The organisms were found by the antiform method. The organism was found at times in the form of the rods by the Ziehl's stain, but were frequently as Much's forms.

Hyperemia as After-Treatment of Extirpation of Tuberculous Glands in the Neck.—Heinrich Mohr recommends using Bier's passive hyperemia following operations for cervical adenitis of tuberculous origin. He says that it is generally accepted that the absorption of edema and exudates is delayed by passive hyperemia and hastened by active hyperemia. However, according to researches by Klapp, the final result of the hyperemia is an increase of absorptive activity following an initial delay lasting as long as the bandage is in place. The hyperemia treatment following extirpation of glands appears to aid in destroying any tissue which may remain behind and thus prevent recurrences.

Deutsche medizinische Wochenschrift, May 19 and 26 and June 2, 1910.

Brain Puncture.—Kurt. Pollack describes a method of making exploratory puncture of the brain substance, which he says is of value in the diagnosis of acquired hydrocephalus, circumscribed fluid in the meninges, as cysts and exudates, brain cysts, dural hematomata, and brain abscess. In hydrocephalus, circumscribed meningeal exudates, uncomplicated cysts, and dural hematoma, the puncture is, in certain cases, of distinct therapeutic value.

Hemoglobinuria Nephritis in Pneumonia.—Wilh. Doevenspeck reports three cases of acute lobar pneumonia, in which at the height of the disease there was a marked hemoglobinuria, with hemoglobin stained casts. As to the cause of this condition, the author thinks that the favorable results in all the cases preclude the possibility of the hemoglobinuria being the result of hemolysis produced by a pneumococcus septicemia. It appears to him more probable that the condition resulted from exposure to cold. One of the patients was exposed and soaked through in a storm on the way to the hospital. The others had had ice caps on their heads, cold applications to the chest, etc. The author believes that if the urine of every case of pneumonia was carefully examined for hemoglobin it would be found in a considerable proportion of the cases, especially those in which ice applications were used.

Cystic Calculi in Children.—George Berg says that

diagnosis of cystic calculi in children is not difficult if the physician will examine for them. The history rarely gives much indication of the presence of the stones. Lithotripsy in children is difficult, both as to the crushing of the stone and the removal of the fragments, the difficulty being in inverse proportion to the age of the child, and in direct proportion to the size and hardness of the stone. In adherent stones suprapubic cystotomy is the operation of choice. Complete closure of the bladder is always a great risk, and rarely hastens the healing of the wound. The permanent catheter should be allowed to remain as long as necessary, and in every case until the bladder wound is completely closed.

The Specific Treatment of Tuberculosis by the Various Tuberculin Preparations.—Jochmann has investigated the action of the chief forms of tuberculin, the "old tuberculin" consisting of the bacillus-free bouillon in which the organisms have been grown, the bacillus emulsions, and the bovine tuberculin, upon various forms of tuberculosis. He found that the most successful method of treatment was by a combination of the "old tuberculin" and the emulsion. In children the best results were obtained in cases of adenitis. The general condition of the patients improved, the glands disappeared, and the von Pirquet reaction changed from positive to negative. In many cases of bone and joint disease the results were most satisfactory. In pulmonary disease in children over three years of age marked improvement was found, but in infants the treatment appeared to be without results. In adults in the first stage of the disease, treatment lasting over three to four months was followed by excellent results; the râles disappeared, the appearance improved, the subjective symptoms were relieved, and the weight increased. Cases in the second stage also showed improvement after five to six months. Gains in weight as high as twenty pounds were not rare. The amount of sputum and number of bacilli decreased. In the third stage of the disease improvement was the exception. Good results were obtained in cases of lupus and disease of the testicles, bladder, and kidneys. The author recommends treatment first with the "old tuberculin" and then with bacillus emulsions. The length of time that the treatment should be carried out depends upon the time required to reach the maximum dose, the disappearance of the von Pirquet reaction, the formation of antibodies—in fact, upon the sum of the biological and clinical results. If the râles, sputum, and bacilli have disappeared, and the previously positive cutaneous reaction has become negative, the treatment may be stopped. The author, however, advises that after a lapse of three to four months a new von Pirquet test be made, and if this is positive the treatment should be repeated. This may last much shorter than the first treatment, as the patient, as a result of the first course of treatment, is less susceptible to tuberculin than formerly, and the treatment may be pushed.

A Simplification of Abdominal Palpation.—Galambos states that the main difficulty in palpation of the abdominal organs results from spasm of the abdominal wall. He recommends, in order to overcome this, the following procedure. Before palpating the organ the hand which is not to be used for palpation is placed upon the abdomen a short distance from the organ which the examiner wishes to feel. The hand is pressed gently but firmly and deeply into the abdomen and then is moved toward the organ to be palpated, the skin, fat, and muscles thus being moved with it. This being properly done, the other hand is placed on the site of the organ to be examined and palpation is done as usual. By this means the spasm of the muscles is reduced, and the organ may be felt with greater ease.

The Course of Laryngeal Tuberculosis in Consumptives Treated by Artificial Pneumothorax.—A. Da Gradi has examined the condition and course of the laryngeal lesions in a series of cases of consumption treated by artificial pneumothorax. In such cases in which the cough was relieved by the operation a marked improvement was noted in the laryngeal condition. He says that the efforts of laryngologists to treat laryngeal tuberculosis as a local condition have given very poor results. Nothing else could have been expected as long as the cough and expectoration which so markedly influence this local lesion were not stopped. His cases prove that local treatment of the larynx can give good results if this source of irritation is done away with. He was able, contrary to all expectations, to attain results better than he ever had done before with the usual means of treatment, and at times practically without local treatment. In no cases were heroic local measures employed. In one of the worst cases, though practically no local measures were used, the disease was not only stopped, but rapid and marked improvement was seen.

Inoculation of Guinea Pigs with Syphillis.—Hoffmann says that recently successful inoculations of rabbits with the spirochete of syphilis have been made. He has experimented in order to do the same with guinea-pigs. He inoculated the testicles of three guinea pigs with tissue obtained from a syphilitic tumor of the testis of a rabbit. Fourteen days later there was seen an ulcer with a dirty base, thickened borders, and indurated foundation. Five days later the ulcer showed signs of healing but still had marked induration. In the secretions from the ulcer large numbers of the *Treponema pallidum* were found.

The Significance of Mineral Salts in the Pathology and Therapy of Edema.—Ernst Schloss has carried on a series of experiments by administering various salts to infants. He found that each increase of the salts ingested caused one of two actions on the body, either a retention of fluids with edema or a diuresis. This, he says, has a decided importance in the therapy of edema, in that any salt which has no direct diuretic action, is contrindicated in nephritis as it tends to increase the edema of the disease. The important point in deciding on a salt is to see whether or not it produces edema. As to the kind of neutral salt to be given in such cases, the calcium salts are to be recommended in preference to the potassium as their power of extracting water is much greater. If a basic salt is indicated potassium bicarbonate and calcium carbonate are to be preferred to the usual sodium bicarbonate, the last tending more to produce retention of water and edema. He has shown that it is possible with intact kidneys to reduce edema in an infant in whom an "idiopathic" edema was produced by a diet of buttermilk. The administration of small doses of calcium phosphate caused the edema to disappear within two days. In a like manner a rapid increase of weight produced by sodium chloride disappeared with the administration of calcium chloride. The theoretical findings therefore have a practical significance.

Kidney Diabetes.—Siebke reports the case of a man in whom at the height of a chronic nephritis there developed a glycosuria of an unusually constant sugar percentage (0.1-0.2 per cent.) It evidently was not the usual metabolic diabetes as the sugar content of the urine was entirely independent of the food. The cause of the diabetes must have been some functional derangement of the kidneys.

French and Italian Journals.

The Systematic Treatment of Bronchopneumonias of Children by Inhalations of Oxygen.—Weill gives the results obtained during an experience of a year in the treatment of bronchopneumonias with inhalations of pure oxygen. This treatment is not symptomatic solely, but is directed against the specific septic process of the disease, which he considers to be a descending infection communicated from the nasopharynx. The technique is simple, the remedy harmless, and the clinical results excellent. It may also be used as a prophylactic measure in bronchitis of severe type, to ward off bronchopneumonia. The inhalation is given from rubber bags of oxygen with a mask which covers nose and mouth, and they are repeated every hour or half hour, creating a veritable atmosphere of oxygen. The immediate effects are good; the pulse is slowed, temperature and respiration lowered, and dyspnea lessened. As soon as these good effects wear off the inhalation should be repeated. The course of the disease is shortened, and its severity lessened. A large proportion of the cases treated are cured.—*Lyon Médical, January 2,* 1910.

Treatment of Puerperal Infections.—Barsonyi thinks that we have not gained much in our treatment of puerperal infection. He has used for many years a treatment that was at once simple and effective. It is the intravenous injection of corrosive sublimate, in doses of five milligrams, to be repeated as often as is necessary. The value of the dose is noted by its effect on the temperature, which should be lowered promptly. There is no need for local treatment other than vaginal cleansing, and curetting and intrauterine injections are useless and injurious. General supportive measures are in order. The mercury affects saprophytes less rapidly than the other germs; the most rapid action occurs in pure pyemia; between the two are found the septicemias of lymphangitic type. This method is so simple that it can be carried out in any workman's house, without a special nurse, and without removing the patient to the hospital. In the author's experience it has been promptly successful.—*L'Obstetrique, November* 11, 1909.

Book Reviews.

The Anatomy and Physiology of the Female Generative Organs and of Pregnancy. By Arthur E. Giles, M.D., B.Sc. Lond., F.R.C.S. Edin.; Gynecologist to the Prince of Wales' General Hospital, Tottenham, and Surgeon to the Chelsea Hospital for Women. Third Edition. New York: Paul B. Hoeber, 1910.

This little book of twenty-two pages is too elementary to be of any great value except to the student. There are, however, explanatory plates which are of value, and which can be studied with profit.

Medical Diagnosis. A Manual for Students and Practitioners. By Charles Lyman Greene, M.D., St. Paul, Professor of Medicine and Chief of the Department in the College of Medicine, University of Minnesota; Attending Physician, St. Luke's Hospital and the City Hospital; Chief of the Medical Clinic in the University Hospital; Member of the Association of American Physicians; the American Therapeutic Association; the American Medical Association; author of "The Medical Examination for Life Insurance and its Associated Clinical Methods," etc. Third Edition. Revised, with 7 colored plates and 248 illustrations. Philadelphia: P. Blakiston's Son & Co., 1910.

In his preface to the first edition of this manual the author stated that he had tried to make it a concise, practical, and thoroughly modern handbook of convenient size and form. In order to do this he had not contented himself with rehashing standard descriptions of familiar bedside pictures, but had given in an exceptionally clear and concise manner the important usual and unusual features in each case, and he also devoted a proportionally large space to the clinical laboratory. It is in this latter feature that the book especially excels, in having kept pace with the rapid strides of laboratory diagnosis. The present edition was required by this development of laboratory methods and in producing it the author has brought it most thoroughly up to date. The reviewer has had occasion to refer to this book several times for some small point in the technique of a stain or a test and has never failed to find the exact information desired, not only as to what to do, but also what not to do. The book is printed on very thin paper, which enables the 725 pages of useful and valuable information to be held between two flexible covers in such small space that it can be slipped into the pocket.

Practical Handbook of Medical Electricity for Students and Practitioners. By Herbert McIntosh, A.M., M.D., member of the American Medical Association; Fellow of the Massachusetts Medical Society; Fellow of the New England Association of Physical Therapeutics, Member of the American Electro-Therapeutic Association, etc., etc. Boston: Therapeutic Publishing Company, Inc., 1909.

This book is divided into two parts. Part I., which comprises two-thirds of the book, confines itself strictly to the physics and the physiological action of the various electrical currents, radium, and light. It contains just such information as every man who is to use electricity in therapeutics should know, and a great many do not. Batteries, electrodes, static machines, dynamos, converters, and all the other forms of apparatus used in medical electricity are not only described but are explained. Part II. is devoted to therapeutics and it sticks closely to its subject. The subjects are taken up in anatomical order, and each disease in each region which is amenable to electric, light, or radium treatment is given, the form of electricity indicated, and its action stated. The last chapter, entitled "A Summary of Treatment," takes up in alphabetical order all the disease named from acne to xanthoma, states the form of current advised and refers to the proper page in the text. The title of a handbook is well given as the arrangement, classification, and indexing are so excellently done that the book will prove to be very handy to every electrotherapeutic established or in embryo.

Living Anatomy and Pathology. The Diagnosis of Disease in Early Life by the Roentgen Method. By Thomas Morgan Rotch, M.D., Professor of Pediatrics, Harvard University, Philadelphia and London: J. B. Lippincott Company, 1910.

This volume is a wonderful example of the bookmaker's art and of the ability of a publisher to make of a subject which is in itself not large, a book of the proportions of the usual text-book on internal medicine. The first impression upon seeing the book is of wonder how it might be possible to construct such a mammoth work out of the *x*-ray in pediatrics. On opening the book, however, the explanation is soon found in the thickness of the paper, the immense size of the type, and the impressive width of the margins. A closer look shows that the book really consists of but 218 pages of text, which could easily have been put into seventy-five pages, and of 264 *x* ray plates. Aside, however, from the extraordinary exhibition of "padding," the book if called an atlas of the *x*-ray in childhood, may well be considered a remarkable piece of work. The text is in no way exceptional, but the plates and their arrangement certainly are. Starting with the normal child this development is given from intrauterine life to puberty, the various parts of the bony system being shown as they appear at each year of life. Division II. is devoted to the wrist joints, and Dr. Rotch's recent work upon their development as an index of efficiency. Following this are divisions upon diseases of the newborn and nutrition, and then diseases of the thorax and abdomen, foreign bodies, and disease of the extremities. The plates, which were made by Dr. W. George are superb specimens of *x*-ray photography, and the work of the publishers in reproducing them is much to be commended, while the labor of Dr. Ratch in selecting, classifying, and editing has been most successfully accomplished. The book is a valuable addition to the literature on pediatrics as well as on roentgenology.

The Practical Care and Feeding of Children. By Mary A. Duns, Graduate of the Woman's Hospital, Chicago, Ill. Second Edition. Revised and Enlarged. Chicago: Chicago Medical Book Co., 1909.

This little manual is written for young mothers by an obstetric nurse. It contains very full directions for the various duties of nurse and mother to the young child, and goes into useful details in a thoroughly commendable manner. Where the author confines herself to the proper duties of a nurse as in receipts for older children, the giving of the bath, and the suggestion of clothing, she does her work well. The infant feeding tables are all made up for the use of cream and milk instead of top milk. There are a few statements made with which many will disagree, for example, that "it is very unwise to nurse a baby entirely—it is much better to commence at two weeks giving one bottle each day," and again in speaking of lime water, that "cow's milk contains a great deal of acid." Barring, however, a few such exceptions, the book contains plenty of useful information, placed in a concise, if rather didactic form, and if the author's occasional excursion into the realm of the physician be not taken too seriously the booklet is of value.

A Practical Guide to the Administration of Anesthetics. By R. J. Probyn-Williams, M.D., Senior Anesthetist and Instructor in Anesthetics at the London Hospital, Lecturer on Anesthetics at the London Hospital Medical College, Anesthetist at the Royal Dental Hospital of London, Lately President of the Society of Anesthetists. Second Edition. London and New York: Longmans, Green & Co., 1909.

It is very satisfactory to find that the administration of anesthetics has come to be regarded as a most important branch of surgical therapeutics. A proof of this is furnished by the numerous works on anesthetics which have appeared in recent years, and among those which have achieved the distinction of a second edition is that of Dr. Probyn-Williams. This work attempts to supply in as small a form as possible the essential points in the administration of anesthetics and is intended for the practical instruction of medical students. This, the revised second edition, also contains descriptions of methods and apparatus which have come into general use during the last few years. Thus, two new chapters are devoted to ethyl chloride and spinal analgesia, and also a brief description of the so-called delayed chloroform poisoning has been added. The book is very well written and very complete, the chapter on the "choice of the anesthetic" being particularly good. There is also included a chapter on spinal analgesia, a subject which has become very popular (?) owing to the numerous newspaper articles on the same which have appeared. The writer considers, however, that this method is still in the experimental stage, and the class of cases in which it may be employed has not as yet been defined. Williams' book is suitably illustrated with pictures of apparatus in general use in England and its value to American readers would have been very much enhanced if descriptions of some of the well-known American contrivances, such as the Bennett and Gwathmay inhalers, had been included.

Diseases of the Stomach and Intestines. By Robert Coleman Kemp, M.D., Professor of Gastrointestinal Diseases in the New York School of Clinical Medicine; Visiting Gastroenterologist to the New York Red Cross Hospital; Gastrologist to the West Side German Dispensary; Consulting Physician, Gastrointestinal Diseases, to the Manhattan State Hospital; Member American Medical Association. Philadelphia and London: W. B. Saunders Company, 1910.

This book is a large volume of 750 pages, devoted to the practical clinical discussion of the diseases of the stomach and intestines. The purpose of the book appears to be to teach the man who knows nothing about the subject how to take care of patients whose digestive apparatus is out of order. It presupposes no knowledge and takes nothing for granted, entering with painstaking accuracy into all the minor details, such as the methods of lavage and proctoclysis. The chapter on gastric analysis gives well and in detail the better known laboratory methods of diagnosis. Careful diet tables, giving the amount of carbohydrate, fats, and proteins, as well as caloric values are given. Later the various diseases are taken up separately and their diagnosis and treatment described. In diagnosis the author uses comparative tables extensively, thus giving at a glance and in an easily remembered form the essentials which must be learned. The book is painstakingly prepared, and is profusely illustrated with excellent photographs of the human body, with topographical anatomy marked on the skin, and with drawings, most of which are decidedly crude. The diction, while clear, is decidedly choppy, with paragraphing far too profuse. The work of the publisher is well done.

Clinical Examination of the Urine and Urinary Diagnosis. By J. Bergen Ogden, M.D., Medical Chemist to the Metropolitan Life Insurance Company, New York. Third Edition, Revised. Philadelphia and London: W. B. Saunders Company, 1909.

This book is a little more ambitious than most of the works on the subject which are more apt to be in the form of pocket editions, as it is sufficiently large to be classifiable as a text-book. Its increase in size seems, however, to be obtained more by thickness of paper and size of type than by any especially large amount of subject matter, and in the large form it does not seem to have lost conciseness. There are many books upon this subject on the market, all of which show a marked similarity in form and matter. The present edition is possibly a little above the average in the quality of the plates and cuts, which are distinctly good. The book is comprehensive and still not verbose, and can safely be recommended to those needing an accurate clinical guide to uranalysis. An appendix deals briefly with life insurance examinations.

Preparatory and After Treatment in Operative Cases. By Hermann A. Haubold, M. D., Clinical Professor in Surgery and Demonstrator of Operative Surgery, New York University and Bellevue Hospital Medical College, New York; Visiting Surgeon Harlem and New York Red Cross Hospitals, New York, etc. New York and London: D. Appleton & Co., 1910.

There are several features of interest connected with this book which constitutes one of the latest additions to the numerous works of this character which have been issued in recent years. Dr. Haubold's book seems to be directed primarily to the general practitioner (an unfortunate term), and seeks to prepare him as an associate and helper of the surgeon. The writer is particularly impressed by the idea that in all but exceptional cases the preparatory and after-treatment in surgical operations should be left to the practitioner whose patient the subject happens to be. There are obvious reasons, however, why an arrangement of this kind would in many instances be unsatisfactory both to the family physician and the patient on the one hand and the operator on the other. In those cases, however, where such an arrangement can be applied, Dr. Haubold's book will serve as an excellent guide. The book is intended to give all the necessary information as regards to the handling of a case about to be operated upon from the time the operation is decided on to the making of the incision, and then takes up the case again from time the operative technic is ended until the recovery is complete. The book under discussion is the most extensive of its kind which has thus far been published, including about 650 pages with over 400 illustrations. If the contents were limited, however, to the strict interpretation which the title of the book conveys, the necessary material could be included in a considerably less number of pages. The thirty-four chapters which make up the book comprise not only a description of the preparatory and after-treatment of the patient, but also considerable material of distinctly surgical interest, such as the treatment of wounds, sutures, and ligatures, and the sterilization of instruments. The after-treatment is very completely described in a series of chapters which take up the surgery of the various regions of the body. In conclusion there is also a very complete index. The book may be described as thorough and complete and will undoubtedly prove most satisfactory to those for whom it is intended. One of the features which adds to its general interest is that not only are the various steps necessary to the preparation and after-treatment of an operation described, but the reasons for these various procedures are briefly explained.

Kompendium der Rontgen-Therapie. By Dr. H. E. Schmidt. Second Edition, with 36 illustrations. Berlin: August Hirschwald, 1909.

This little work aims to present to the student and practitioner a concise exposition of the theoretical and practical aspects of roentgen-ray science. In the five years which have elapsed since the appearance of the first edition, the advances which have been made in this subject relate mostly to the dosage of the medium and its extension in certain directions and restrictions in others. These changes are taken note of in the present edition without overstepping the original bounds as regards the size of the book. The author is well-known as a frequent contributor to the literature on the subject of *x*-ray therapeutics, and has succeeded in producing a most valuable and complete work in a small compass. It is unfortunate that the book lacks an alphabetical index—a not uncommon fault in German publications.

Theoretical Principles of the Methods of Analytical Chemistry Based Upon Chemical Reactions. By M. G. Chesneau, Ingénieur en Chef des Mines; Professeur d'analyse minérale a l'école nationale des Mines. Authorized Translation by Azariah Thomas Lincoln, Ph.D., Assistant Professor of Chemistry, Rensselaer Polytechnic Institute; and David Hobart Carnahan, Ph.D., Associate Professor of Romance Languages, University of Illinois. New York: The Macmillan Company, 1910.

We shall probably best serve the interests of our readers by giving an idea of the contents of this volume. In the first chapter, the author examines the influence of the physical state of the precipitates (size of grains, crystalline state, colloidal state) upon their purification by washing. In the next chapter he studies the theoretical principles involved in the methods of analysis based upon irreversible actions; these principles are then applied to some special methods. Chapter 3 is devoted to the study of double decomposition of salts by the calorimetric method; chapter 4 presents the electrolytic theory of these reactions; in chapter 5 these two methods are compared, and the objections to the ionic theory are given in two classes, theoretical and experimental. Chapter 6 contains the theory of the general processes which produce complete precipitation, as far as possible, in double decomposition, and, inversely, which cause precipitates insoluble in water to become soluble. The concluding chapter is a study of some particular methods based upon double decomposition, and includes volumetric methods, gravimetric methods, and methods based on hydrolysis.

Emergency Surgery. For the General Practitioner. By John W. Sluss, A.M., M.D., Professor of Anatomy, Indiana University School of Medicine; formerly Professor of Anatomy and Clinical Surgery, Medical College of Indiana; Surgeon to the Indianapolis City Hospital; Surgeon to the City Dispensary; Member of the National Association of Military Surgeons. Second Edition, Revised and Enlarged; with 605 illustrations, some of which are printed in colors. Philadelphia: P. Blakiston's Son & Co., 1910.

This useful little work now appears in a slightly enlarged form. Among the new matter is a chapter on the general technique of laparotomy; spinal anesthesia is described in detail; and the sections on subphrenic abscess and pericardiotomy are enlarged. The work is intended for the general practitioner, and its main object is to serve him as a guide when he is confronted with difficulty or uncertainty in any surgical emergency. The book admirably fulfils its purpose; throughout, it is practical and clear; and the illustrations, if not always of the highest artistic merit, all serve some definite purpose and convey necessary information in the most direct and unmistakable manner. The general get-up of the book is attractive, and worthy of its contents.

Society Reports

CONNECTICUT STATE MEDICAL SOCIETY.

Annual Meeting, Held in New Haven, May 25 and 26, 1910.

(Special Report to the MEDICAL RECORD.)

(*Concluded from Vol. LXXVII, p. 1114.*)

The Treatment of Fractures.—Dr. GEORGE W. HAWLEY of Bridgeport said that the treatment of fractures had not kept pace with the advance of surgery and did not meet present-day needs. The enormous number of persons crippled every year as the result of fracture offered a challenge to surgical science. He thought that this industrial age would soon inquire what was being done to lessen this great industrial loss. In laying down the principles upon which treatment should be based, he said that there was room for common sense. As fractured bones tend to unite without assistance, the most that can be done is to help nature by approximating the ruptured tissues as accurately as possible. He saw a need for improvement in the means of holding divided bones in apposition, and in the technique of operations on fractures, based on the fact that bones stand trauma or infection but poorly. He saw no reason why an injured bone should not be repaired as readily as any other injured structure.

Dr. PHILIP D. BUNCE of Hartford said that the surgeon was judged to be the cause if the patient had any final disability or deformity after fracture, and that a monument of his skill existed as long as the patient lived. He thought that accurate replacement would give the best results, regardless of what kind of splint was employed, and stated that severe laceration of the soft parts often made the application of a splint or support very difficult. He did not approve of any method of fixation in which nails or drills were allowed to remain projecting through the skin, and said that *x*-ray pictures usually ought not to be shown to the patient.

Dr. WILLIAM H. CARMALT of New Haven was surprised at the pessimism of Dr. Hawley, compared with the optimism he himself felt in regard to success in the treatment of fractures. He thought that the principles of the care of fractures had not changed; and in these days of antiseptic surgery he saw no reason to hesitate to attack a bone that is in bad position and will give a bad functional result. He did not, however, think it worth while to cut down on every bone that the *x*-ray showed not to be in perfect position. One should let well enough alone if from experience one felt that the limb would prove useful.

Dr. SAMUEL M. GARLICK of Bridgeport considered it all very well to take the public into one's confidence when everything was all right, but not when things were not so right as one would like to have them. Professional confidence, he thought wise and safe, but he said that public confidence should be carefully scrutinized.

Dr. HAWLEY said that it had been impressed upon him that the large number of deformities following fractures was unnecessary. He thought that too much treatment was attempted in some cases, as a good many fractures required little or no other treatment than protection.

Some Principles of Intracranial Surgery.—Dr. WILLIAM H. VERDI of New Haven said that the greatest difficulty encountered was not in the surgical technique, but in the cerebral localization. One should not wait too long after making a diagnosis of increased pressure before instituting decompressive measures, owing to the danger of a loss of vision. He did not consider operations on the brain and cord any more difficult than operations elsewhere. In his whole series of cases he was obliged to stop but once on account of hemorrhages, and the only case of infection was that of a child operated upon at a private house, the wound being afterward infected. An operation for decompression is indicated in all cases that cannot be localized. While the results of operation for tumor of the brain were not so satisfactory as they should be, he considered the operation itself comparatively devoid of danger.

Dr. LEONARD W. BACON of New Haven related a case in which, after the withdrawal of the last piece of gauze from the wound left in the brain after the removal of a tumor as large as a turkey egg, there was a repetition of the pressure symptoms, the result being in doubt for several days, after which the patient went on to recovery. It was the first brain tumor removed in New Haven with the survival of the patient. He also related a case of very large brain abscess, in which the delay in operating had probably prevented the patient from recovering her vision.

Dr. MAX MAILHOUSE of New Haven had suggested to Dr. Verdi that in a case of cerebellar tumor in which there was marked bulging from the great intracranial pressure, a slight incision between some of the laminæ might permit the pressure to extrude the growth. This actually took place, and he thought that the same procedure might equally well be pursued in other areas of the brain. While opinions based solely on the presence of pain and choked disk were sometimes erroneous, as specific disease might give this picture as well as tumor, Dr. Mailhouse thought that when the optic disks were in such a condition as to threaten vision, the safest procedure for the patient was at least a decompression. The unilateral dilatation of the pupil is often an aid in localization, and unilateral convulsions are still more valuable in this respect. In the prognosis of the results after operation one should be guarded.

Dr. WILLIAM H. CARMALT of New Haven said that Dr. Mailhouse's last remark had led him to speak of a case of operative infiltrating glioma of the cerebellum in a patient previously operated upon unsuccessfully for decompression. The boundaries of the tumor were not made out, but no recurrence took place.

The Treatment of Tuberculous Patients Outside the Sanatorium.—Dr. DUDLEY B. DEMING of Waterbury said that treatment of patients in the social station in which tuberculosis abounds could not be carried on so well outside the sanatorium as in such an institution. Sanatoria, however, should not admit only incipient cases, while rejecting advanced ones and discharging those that fail to improve. The latter became advanced cases, and spread the disease. The prevention of tuberculosis would require the expenditure of vast sums of money to care for advanced and chronic cases in sanatoria, and to aid families thus deprived of their wage-earners.

Dr. DAVID B. LYMAN of Wallingford said that there was no case of tuberculosis that did not have to be treated outside the sanatorium, because practically all that this institution did was to arrest the disease, the patient requiring treatment for years after returning home. He must be watched for years in order to make sure that his anatomical tuberculosis does not develop into a clinical one. The most dangerous point in the case is when the patient looks and feels perfectly well, but yet has an anatomical tuberculosis. He should be instructed to come to the physician for examination at regular intervals, whether he is feeling badly or not. Dr. Lyman thought that a light indoor occupation was not so bad for such patients as it had been considered, if the doctor could regulate the fourteen hours not spent at work. He approved of the use of a sleeping porch, when possible, but did not believe in overfeeding or forced feeding, which he thought caused most of the stomach symptoms.

Dr. HENRY F. STOLL of Hartford said that if the patients would go to bed at half-past seven, a good many would get well and stay well under home treatment. He thought that extremely good results could be obtained in private

patients with tuberculin, which relieves the toxic symptoms. Patients that take tuberculin relapse less frequently and live longer than those who do not. Great harm can be done with it, however, if not properly used.

Dr. I. E. Brainard of Wallingford remarked that the handkerchief that the patient holds before his mouth when he coughs should be well taken care of afterward, and not stuffed into the pocket with damp sputum on it.

Dr. Erastus P. Swasey of Hartford said that outdoor treatment was not beneficial in his part of the country at some seasons, owing to the high winds, which fill the atmosphere with dust.

Dr. Deming replied that even when it injures the patient the advantage of keeping him out of doors is the lessened risk of exposure to the other members of the family. He thought that a piece of gauze sufficiently thick not to be quickly wet through was better than a handkerchief, as it could be burned.

Some Features of Rectal Alimentation.—Dr. Louis M. Gompertz had conducted some experiments in order to determine the absorptive power of the rectum. He had found salt absorbed almost as completely as when given by the mouth. Dextrose was either all absorbed or disappeared through fermentation. Fat was not tried. The author said that as nutrient enemata do not reach the small intestine, proteins, when not predigested, simply putrefy in the large intestine and pass out as feces. If dextrose were absorbed in sufficient quantity, it would take the place of protein. A little over one-third the number of calories necessary to sustain the body at rest was daily furnished by the dextrose. He concluded that the rectum is capable of absorbing water, sodium chloride, and dextrose solutions in the form of rectal enemata. Therefore, he considered rectal enemata useful in sustaining the body in emergency, preventing complete starvation for a short period.

Dr. Lafayette B. Mendel of New Haven said that as our knowledge of the physiology of the alimentary tract has been greatly extended, it ought to be possible to introduce anew such features of rectal alimentation as are promising in principle and susceptible of clinical application. Observations like those of the author emphasized the helpfulness that came from being able to measure in some way the results that any therapeutic procedure accomplished.

Dr. Charles J. Foote of New Haven remarked that a nutrient enema was a makeshift, designed to meet an emergency, and could not be used for any length of time. It was not intended to build up the body, but merely to prevent retrogression. Dextrose, he stated, is absorbed rapidly, and furnishes heat and energy, while protein, being absorbed less rapidly, does not furnish energy so quickly. He could not, therefore, see the advantage of using it, even when predigested. He stated that alcohol took the place of dextrose to some extent. He thought that one should be on one's guard concerning the absorption of salt in cases of uremia. He had seen instances in which large quantities of the saline had been taken readily in uremia, but in which, as there was a small excretion of urine, a great deal of the salt solution was retained in the system, the patient becoming waterlogged and developing edema of the lungs.

Dr. Frank P. Underhill of New Haven remarked that it was a mistake to think that because rectal enemata could not supply the whole 1,800 calories there was no use in giving any. He thought that half a loaf was better than none.

Dr. Walter L. Barber of Waterbury attributed the cure of his wife from a serious condition in which she could retain nothing on her stomach to the use of rectal enemata containing milk, beef juice, whiskey, and quinine.

Dr. J. F. Calef of Middletown believed that in cases of the vomiting of pregnancy of the severe type there was, more than any other disease, a reversed peristalsis that might carry rectal alimentation into the stomach. He mentioned a case in which he was sure that this had occurred.

Dr. Elias Pratt of Torrington asked whether Dr. Gompertz had made any experiment with predigested protein in connection with the dextrose.

Dr. Gustavus Eliot of New Haven stated that he had found a preparation of milk, partly peptonized by the addition of bicarbonate of soda and extract of pancreas, very beneficial in overcoming the difficulty often experienced in getting these enemata retained.

Dr. Gompertz stated that he had used predigested protein in days gone by, but had had no analyses of the feces made in these cases, so he did not know whether these enemata were absorbed or not. As patients can live for weeks with only water, feeding on their own tissues, and as no accurate measurements were made in the case spoken of, he thought it very doubtful whether any nutrition was furnished by the milk.

Chronic Family Jaundice.—Dr. Wilder Tileston of New Haven described this disease as characterized by chronic icterus of moderate intensity, with enlargement of the spleen and anemia. It is usually hereditary; less often familial or acquired. Males and females are affected with equal frequency. The jaundice is of the non-obstructive type, with well-colored stools, and absence of bile in the urine. There is usually a marked urobilinuria. The spleen is markedly enlarged; the liver, only slightly so. The patients suffer frequently with "bilious attacks," gallstone colic, and nose-bleed, but are otherwise fairly healthy and live to a good old age. The red corpuscles are abnormally fragile. The prognosis is good as to life, but absolutely bad as to recovery. Treatment should be confined to general hygiene. Iron may be tried for the anemia. The presence of colic is an indication for the operative removal of the gallstones. Dr. Tileston presented reports of thirteen cases occurring in four families.

Dr. George Blumer of New Haven stated that when the patients are first seen at night it is not always possible to make out the jaundice. They should be seen again by daylight. He asked whether Dr. Tileston had seen any suggestion of a relation between this disease and paroxysmal hemoglobinuria, another disease in which there is excessive fragility of the red blood corpuscles. While other forms of hemolytic jaundice had been described, Dr. Blumer did not know of any statement to the effect that there was an absence of bile in the urine in these other forms. He thought that this disease might be confused with Gaucher's disease, in which there is also family enlargement of the spleen, but not usually associated with jaundice.

Dr. Tileston did not think that there was a very close relationship between chronic family jaundice and paroxysmal hemoglobinuria. Regarding the absence of bile in the urine in other types of hemolytic jaundice, he said that there was usually no bile, but only bilirubin; although sometimes there was a small amount of bile. As eleven of the twelve reported instances of Gaucher's disease were in females, he did not think it likely to have been Gaucher's disease in his cases.

Periodic Attacks of Indigestion in Children.—Dr. Walter G. Murphy of East Hartford stated that diacetic acid was the result of the intestinal decomposition of food. Various theories had been suggested associating diacetic acid with cyclic vomiting and recurrent attacks of indigestion. The exciting causes of the attacks of vomiting were fright, excitement, fatigue, anger, exposure to cold, and similar influences acting through the nervous system. Many argued that the attacks were not due to errors in diet. Acetone might be present in other conditions, and the

neurotic and rheumatic aspects must be recognized as contributing causes. He believed that the condition was a neurosis, toxic in character, based upon a defective nervous control, the result of an inherited unstable and irritated nervous system. The author said that if this idea were correct, treatment should be directed to the cause, and not to the result. He thought that most children were neurotic and anemic, and that, on account of their digestive troubles, they were often underfed. He considered that a full and generous diet should be given them. On the appearance of symptoms of an attack, food should be stopped, and the digestive tract thoroughly cleaned out with castor oil. Repeated doses of sodium bicarbonate should also be given.

Dr. Frank P. Underhill of New Haven said that there was little doubt that the symptoms described by Dr. Murphy were dependent upon defective nervous control. It was well known that a child was much more easily put into a condition of defective nervous regulation than an adult. Excessive putrefaction in the intestine might serve as a stimulus for this in those neurotic and undernourished subjects. He did not think that the presence of diacetic acid in the urine in these cases should be over-emphasized. Acetone bodies probably arise within the body as the result of the incomplete combustion of fats, and Dr. Underhill believed that the diacetic acid was neither the cause nor the direct result of the pathological condition under discussion. He ascribed the presence of this substance in the urine to the condition that accompanied the abnormal manifestation, viz., the under-nutrition, in which it could be easily demonstrated that diacetic acid was always present. Young children could be thrown into a condition of acidosis with extreme ease, and a moderate degree of acidosis, especially in children, should not be regarded as a grave symptom.

Dr. Charles A. Goodrich of Hartford considered that we should also bear in mind certain intestinal disorders in children in which there was, besides cyclic vomiting and convulsions, a certain nervous phenomenon that resembled the beginning of diabetic coma in adults. In a good many cases of these digestive attacks the diet apparently did not influence the condition; the children, consequently, became increasingly malnutrient.

The Relative Value of Symptoms, Physical Signs, Tuberculin, and the X-Ray in the Diagnosis of Tuberculosis.—Dr. Henry F. Stoll of Hartford said that in tuberculin we have a diagnostic aid of accepted value, if used in conjunction with the symptoms and physical signs. He considered the *x*-ray of great assistance in the diagnosis of pulmonary conditions. The negative must not only be perfect, but the interpretation thereof was of value only when made by one who had had a large experience in this particular field. He said that incipient cases that had been carefully examined rarely came to post mortem, and that much could be learned by a comparison of the physical signs and the *x*-ray findings in a series of early cases. In deep-seated lesions, the *x*-ray sometimes demonstrates a lesion that does not give physical signs.

Dr. William B. Bartlett of Hartford emphasized the difference between anatomical and clinical tuberculosis. Physical signs, tuberculin, and the *x*-ray, if without symptoms, may all three be disregarded; with symptoms, the diagnosis of tuberculosis may be made, even though the signs, the *x*-ray, and the tuberculin test are negative. The importance of malaria in the past history should be emphasized, and among symptoms he considered pain very important. He stated that râles at the base were most frequently due to other causes than tuberculosis. A positive tuberculin reaction, he thought, did not mean clinical tuberculosis. He said that the subcutaneous method of using tuberculin was the most reliable, but that even this might occasionally be at fault.

Dr. David R. Lyman of Wallingford considered Dr. Stoll's comparison of the relative value of these four means of diagnosis showed that not one of them was of such supreme value that physicians could afford to leave everything else out of consideration, and said that the only thing that Dr. Stoll had not mentioned was the constant occurrence of little localized dry pleurisies in these cases. He considered tuberculin one of the most powerful of poisons, but had never seen ill effects from its subcutaneous use in small doses. He did not, however, think it necessary to employ it, if the diagnosis could be made without it, and the patient was willing to accept his opinion and act upon it. He did not approve of the eye-test, and he thought that there was no question but that an expert could discover with the *x*-ray deep-seated lesions that an ordinary person would miss.

Dr. F. S. Crossfield of Hartford stated on behalf of the laryngologists that in the early stages of pulmonary tuberculosis there were absolutely no pathognomonic symptoms in the larynx.

Dr. J. B. Griggs of Hartford did not consider the positive tuberculin test valuable, but said that the negative one was.

Dr. Stoll reiterated that if the tuberculin test was negative the possibility of the presence of tuberculosis was very slight, but stated that it did not exclude the disease. He stated that, long before the invention of the stethoscope, physicians diagnosed tuberculosis correctly by means of the symptoms. It was unusual to have the physical signs disagree with the diagnosis made from the history and the symptoms.

The president's annual address was delivered by Dr. Samuel D. Gilbert of New Haven.

Officers.—The following officers were elected to serve for the ensuing year: *President*, Dr. Frank K. Hallock of Cromwell; *Vice-Presidents*, Dr. Edmund P. Douglas of Groton and Dr. E. T. Bradstreet of Meriden; *Secretary*, Dr. Walter R. Steiner of Hartford; *Treasurer*, Dr. Joseph H. Townsend of New Haven. The society will meet next year at Hartford, on the fourth Wednesday and Thursday in May.

AMERICAN MEDICAL ASSOCIATION.

Sixty-first Annual Meeting, Held in St. Louis, June 6, 7, 8, 9, and 10, 1910.

(Special Report to the Medical Record.)

(*Concluded from Vol. LXXVII, p.* 1111.)

SECTION ON OBSTETRICS AND DISEASES OF WOMEN.

Third Day—Thursday, June 9.

Dr. J. G. Clark of Philadelphia, Chairman.

Dr. Horace G. Wetherill of Denver was elected chairman of the section for 1911.

Tuberculosis of the Female Organs of Generation and the Peritoneum.—Dr. J. Riddle Goffe of New York read this paper, describing the two types of tubal infection: ascending, primary from infection of the mucous membranes of other parts of the genital tract, and secondary lymphatic invasion following traumatism or absorption from the peritoneum. The probability of infection of the female from the male by the seminal discharge was not great. The puerperium and lacerations favored infection, as did also catheterization. The diagnosis was to be made only on finding the tubercle bacillus. In nearly three thousand cases reported from New York City less than one per cent. of the cases had shown tuberculosis. A radical operation was the only efficient treatment in tuberculosis of the female generative organs, and the operation should be as radical as in cancer. The cases of tuberculous peritonitis were rarely of hemic origin, more frequently subsequent to tuberculosis of other abdominal or-

gans, and infected either by contiguity or direct extension. A certain number of cases got well spontaneously. In others the surgeon could assist nature. The kind of treatment depended upon the pathology of the condition; whether ascitic, adhesive, or cheesy type of exudate. In the ascitic cases the fluid should be evacuated and the abdomen promptly closed without handling the contents of the abdomen and without drainage, although any evident focus might well be removed. In the adhesive type no interference was desirable unless some evident focus could be removed. No drainage was desirable. In the stage of caseation while resection of the intestine and extensive operation was not desirable yet a rubber drain (never a gauze drain) might be allowed. Surgery got the best results in the ascitic type, but did little to remove adhesions. He described a case where a young woman four years ago had a primary apical tuberculosis. A year later on account of abdominal distention tuberculous peritonitis was diagnosed. An exploration revealed a peritoneum three-eighths of an inch thick, with fluid and adhesions. The abdomen was closed without drainage, but the incision broke down and the wound began discharging fluid and pus. The patient was treated with full hygienic care with slight improvement, but a year brought a return to normal weight and strength, though the fistula still remained.

Dr. Novak of Baltimore called attention to the importance of always considering tuberculosis in every abdominal mass.

Dr. Frederick of Buffalo said that the cases of acute tuberculous peritonitis did not always survive the operation, but did usually recover. For four or five years he had been draining all cases through the cul-de-sac of Douglas after breaking up all adhesions and exposing all tuberculous surfaces. The drainage tube was kept *in situ* for many months, and recovery followed in nearly every case.

Dr. Gilmore of Chicago had had three cases of tuberculosis of the tubes in the past few months. They were all secondary cases, and gave the same general symptoms as tuberculosis in other regions. He laid great stress on the von Pirquet reaction, which he considered as safe negative evidence if the test was negative, while a positive reaction was of doubtful value. Leucopenia also was suggestive of tuberculosis.

Dr. Byford of Chicago doubted the value of free separation of adhesions, which were nature's process of limiting the infection. He thought that drainage could be effectual only for two to three days, and then over a limited area. He believed in letting in air and perhaps increasing congestion by sprinkling the intestines with chloroform. Primary foci should be removed if feasible. In many cases it might be wise to remove the ovaries, whether they were involved or not, in order to avoid the subsequent monthly congestion of the pelvic organs.

Dr. Gilliam of Columbus had excellent results in operations on the cases of tuberculosis with effusion. Even if the fluid did reaccumulate early a cure might still follow. He did not believe in interfering in the other cases. The adhesions should be let alone, and no drain should be used. He had never found a tuberculous fistula to heal. If many adhesions had to be separated to remove a primary focus, it was better to leave in the focus.

The Participation of the Glandular System and Tissues Adjacent to the Uterus in Carcinoma of the Uterus.—Dr. J. A. Sampson of Albany read this paper. First he noted the differences between cancer of the body and cancer of the cervix of the uterus. Cancer of the body was infrequent, occurred in the old and the multipara. It was of slow growth, of low mortality, and had many cures. Cancer of the cervix was one of the most frequent neoplasms, it was more common in youth than in old age, and rapid in growth, and early involved other tissues and nodes. Hysterectomy for cancer of the cervix was followed by a high mortality and few cures. The remarks were confined to cancer of the cervix. The origin of the growth was either in the mucosa of the cervical canal or on the vaginal portion of the cervix mucosa. The vaginal mucosa origin tended to produce an everting type, was less common, and less malignant. The canal mucosa type tended to produce an inverting growth, invading the deep tissues of the uterus rather than extending over the mucosa, and then the cancer masses, sloughing out, gave crater formation in the cervix. In this type also the lymph nodes were early invaded. Additional danger arose from the proximity of the bladder, ureters, and lymph nodes to the point of origin of the cancer in the cervical canal. The fibrous sheath of the ureter, however, seemed to give it a certain amount of temporary protection from the invasion from the cancer, possibly on account of the density of the tissue, or on the different sets of lymph vessels made necessary by the peristaltic motion of the ureter. As a rule the ureter was compressed before it was invaded by the cancer. This sheath of the ureter also allowed it to be shelled out free from the cancer in a certain number of cases. Of 41 cases operated on for cancer of the uterus, the bladder was invaded in 8; while of 12 ureters examined only 1 was invaded. In one-third of the cases operated on the lymph nodes were involved at the time of operation in one-third of the cases. One node where the ureter crossed the iliac vessels was very frequently involved. New formed lymph nodes in the lymph vessels seemed to check the spread of the cancer. In three cases all the abdominal and pelvic nodes removed were involved, even beyond where they were usually removed. In over half of the cases operated on the growth had extended into the abdominal nodes. Hence "recurrence," so called, was probably but a continuation of growth in unremoved tissues that were already involved. Such was the usual condition in the vaginal recurrences. An increase in connective tissue tended to obliterate the lymph spaces and limit the spread of the disease. Whether a growth could be operated on hopefully or not could not be told until operation, as the induration of the parametrium was not proportionate to the extent of the disease. It might be due to inflammatory infiltration. The most radical operation that the patient would stand was indicated in every case. In over half the cases there was a history of neglected bleeding for over six months, so that it was desirable to educate the physician, and through him the laity, until the first signs of bleeding were recognized as suspicious of cancer of the uterus.

The Results Obtained by the Radical Abdominal Operation for Carcinoma of the Uterus.—Dr. J. H. Jacobson of Toledo gave some statistics on this point. The determination of whether or not a case could be operated on safely could only be determined after opening the abdomen, but in general the Europeans considered 65 per cent. operable, while the Americans would operate only on 35 per cent. Possibly this was due to the campaign of education that had been going on in Europe. The primary mortality in Europe was 20 per cent., while in America it was but 15 per cent. But the cures of five years' duration in Europe were much larger—40 per cent.—in America, but 8 per cent. The principal causes of the primary mortality were sepsis and shock.

The Diagnosis of Operability of Carcinoma of the Cervix Uteri.—Dr. Emil Ries of Chicago discussed this point. The personal equation always was very important in these cases. Some surgeons would never operate. Some operated to get a low primary mortality, but this gave a high secondary mortality. Some men did a radical operation and got a high primary mortality but a low secondary. Some patients neglected themselves, others were neglected

by their family physician. Personally, in the past ten years or so he had seen 33 cases, 11 of which were inoperable and 22 had been operated on. He had done an extremely radical operation in each case, with the patient's consent, and appreciation that an operative death was preferable to a cancer death. Ten of the 22 had died from the immediate effects of the operation through sepsis, hemorrhage, effect of anesthetic, or other cause. Of the twelve completed operations one case was a cancer of the body which was in a different class from the others. One was known to have been alive ten years after the operation, and all the others were still known to be alive and without sign of recurrence. The operability of a case could be determined only by the preliminary examination, a further examination during the operation, noting the condition of liver, spleen, aortic and iliac glands, broad ligaments, and parametrium; and finally by the microscopic examination of the tissues.

Further Observations on the Use of the Cautery in the Treatment of Cancer of the Uterus.—Dr. C. C. Frederick of Buffalo called attention to the value of high rectal examination and the significance of pain. Pain with cancer indicated that the nerves had already been involved. In treatment he regarded the actual cautery as very hopeful and preferable to the chemical cautery, as the deep hard scar extending into the tissues tended to prohibit the later growth of the disease. The cautery controlled the hemorrhage and the infection, and got rid of the fetor of the discharge. The mass of the growth should be curetted away and then the surface dried and cauterized, the cautery being brought near but not touched to the tissues. This radiation cauterization gave greater penetration, as the heat was higher. Care should be taken not to cause penetration of bladder, ureters, or rectum. A secondary hysterectomy might be advisable after the cauterization.

Dr. Gelhorn of St. Louis agreed with Dr. Frederick that the cautery relieved symptoms, but found that repeated cauterization was desirable every few weeks. Personally, he used acetone hardening, which gave deep penetration and kept the patient alive for one or two years in comfort. He curetted away the mass of the tissue and inserted a speculum into the crater thus formed, pouring acetone into the speculum and leaving it in contact with the tissues for twenty to thirty minutes; then he packed the crater with acetone gauze. Applications were made three times a week, and the tissues were rendered so hard that they could not be scraped away with the curette. The subjective improvement of the patient was marked.

Dr. Peterson of Ann Arbor praised the thorough work of Dr. Ries, in spite of the high mortality. Personally, of seven operated on, he had four cases alive more than five years after radical operation. Of those four, two were carcinoma of the body, but even those had not been easy for him to save. Since the less radical removal of glands had been undertaken the primary mortality naturally had been less. Of 22 cases that he had operated on less radically, only 1 had died primarily from the operation and 10 were alive two to three years after the operation. He considered that certain cases were excluded from a radical operation independent of the stage of the growth; such, for instance, as the very obese.

Dr. Goldspohn of Chicago called attention to the frequency of recurrence at the cervicovaginal juncture, which should be removed, and preferably by the combined abdominal and vaginal operation. The hysterectomy to the point of severing the vaginal connection of the uterus should be done from above and then the abdominal part of the operation completed and the removal of the uterus and masses should be done from the vagina, pushing the enucleated uterus down from the abdomen. This allowed much freer excision of the vagina than by either route separately. He considered repeated cauterization hopeful in some of the cases that seemed inoperable.

Dr. Eliza M. Mosher of Brooklyn called attention to the campaign of education that was being carried on in New York to educate the laity as to the importance of early diagnosis in cancer.

Dr. Ries noted that of the cases in which the glands were radically removed and studied, 60 per cent. showed cancerous invasion of the glands at the time of operation. Wertheim said that of the cases with gland involvement at the time of operation, all had recurrences.

The Place of Hebosteotomy as an Aid to Delivery.—Dr. C. W. Barrett of Chicago said that a disproportionately large head of the child in a small pelvis of the mother was a menace to the fundamental principle of pregnancy, which involved the continuation of the life of the mother and the reproduction of another living being. That while pregnancy and labor normally were physiological, yet in pathological cases the duty of the obstetrician should be to save both lives, if possible, and the cases of marked contraction of the pelvis should not cause 100 per cent. mortality of the infant. And the fact that the fetal head remained high above the pelvis late in labor did not always indicate a cesarean section. Enlargement of the pelvis had its distinct place. Williams had reported 25 cases with no deaths to mother or child, and Barrett had had 6 cases with no loss of mother or child. In 4 of the author's cases forceps had been applied without success prior to the hebosteotomy. One of the cases had been in labor for four and a half days. The operation was associated with no greater laceration than was common to forceps delivery, and no annoying hemorrhage. The first case had been done by the open method, cutting cartilage and bone, and the other five by the subcutaneous method, cutting bone. There had been no later bony separation in any of the cases. The reported injuries to bladder, urethra, and possibly to the head of the child had been due to the use of a sharp needle in inserting the saw. The indications for hebosteotomy were those cases of contracted pelvis, where cesarean section was not the choice on account of possible infection. The ideal conditions were those of moderate contraction of the pelvis, in which there had been a fair promise of delivery without any operation but the mother was becoming exhausted. The aseptic restrictions were not as strict as in cesarean section. Prior to operation, thorough massage of the soft parts should be made, to allow additional separation of the soft tissues without tearing. A puncture was made in the angle between the labia majora and the labia minora and the ligature carrier with a large curve and a blunt point, especially adapted to this operation, was inserted into the interlabial puncture and made to penetrate directly to the bone. Then its top was kept in contact with the bone and carried under the symphysis to the upper margin of the bone and there brought out through the skin of the mons veneris. A silk ligature was then pulled back with the ligature carrier and a Gigli saw pulled through with the silk. Then the bone was cut and delivery proceeded with. This cutting of the bone allowed separation of from two to six centimeters. In version cases it might be well to lay the silk ligature preparatory to the saw before doing the version, so that if the after coming head should lodge, the bones could be quickly cut and separated.

Dr. Zinke of Cincinnati had urged this operation some years ago without support, and was glad that it seemed to be finding favor. He thought that all cases of contracted pelvis should go to hospital for delivery and labor tried normally. If the patient was unable to deliver herself, in the cases of moderate contraction hebosteotomy should be done, and in the cases of extreme contraction cesarean section should be done.

Dr. Foulkrod of Philadelphia considered the dangers of hebosteotomy great enough to give it few indications.

The dangers of hemorrhage and laceration were great. At Jefferson Hospital it was the custom to let the woman go into labor, and if she could engage the head forceps were applied, while if she could not engage the head cesarean section was done. He considered that there were a number of cases of infected uteri and gangrenous uteri in which hebosteotomy would not be safe, but cesarean section and removal of the uterus would save the life of the mother.

Dr. Fry of Washington, D. C., considered the painful convalescence to be one of the greatest objections to the operation. The great pain on moving the patient's pelvis after the operation was always to be considered. He would consider the operation never one of choice, though it might be indicated after a long test of labor with probable infection of the uterus. His experience with high forceps and version for contracted pelvis had given an infant mortality of about 33 per cent. He had done hebosteotomy with the mons veneris puncture first, and the labial puncture as the point of exit. In sawing through the bone he considered it desirable to hold the pelvis so as to support the bones at the time of separation to avoid snapping of the bone.

Dr. Burns of Denver considered symphyseotomy simpler; it needed no special instruments, could be done in a private house, and the patient could get up on the tenth day.

Dr. Barrett, in closing, said that the advantage of cutting the bone was the less danger of injury to the crus of the clitoris and to the urethra. The subcutaneous operation was quicker and less liable to infection than the open method. Holding the bones at the time of sawing was not necessary, as there was very little primary separation of the bones. The trying test of labor came only after rupture of the membranes. He considered the operation especially desirable in the very late cases and when the patient could not be moved to the hospital.

The Etiology of Eclampsia.—Drs. E. P. Davis and Collin Foulkrod of Philadelphia presented this paper. They considered eclampsia as a distinct disease of which the toxemia was the essential basis. In the toxemias a chemical cause due to perversion of metabolism was sought in a study of the excretions. The decrease in the urea nitrogen with an increase of the ammonia nitrogen showed a deficient disamidization (breaking down of the ammonia element rather than a mere deficiency in oxidation.) The breaking down of the ammonia took place in the liver, so that a lesion was to be sought in the liver, but the changes in the liver were not the primary changes as kidney changes were found out of proportion to the liver changes in certain cases and thyroid administration seemed to help certain cases, showing, also, a thyroid involvement. It seemed to have been shown that the primary cause of the trouble lay in the placenta and the fetus. The placenta was full of ferments essential to the interests of the fetus and balancing the activities of the mother. And when these placental ferments were upset the mother's balance of metabolism was upset. No special toxin could be found causative of eclampsia. The characteristic symptoms were lassitude, stupor, coma, or mania, headache, dry tongue. There occurred crises of convulsions, explosions of pain, in the head or chest, gastric and intestinal irritation, pernicious anemia, hemorrhages into retina, mucous membranes, retroplacental, and cerebral. There was no fever, but the blood pressure rose early to perhaps 180 millimeters. The daily output of urine was lowered, the quantity of urinary solids lessened, and the proportion of the nitrogen factors changed. The presence of albumin in the urine was not essential. The presence of indican and of casts showed the need of great care.

Treatment of Eclampsia, Including a Comparison of the Dangers of Chloroform and Ether in This Condition.—Drs. E. B. Cragin and E. T. Hull of New York presented this paper. It was generally recognized that in the treatment of toxemia threatening eclampsia that the products of metabolism requiring elimination should be reduced, that elimination of the metabolic products should be favored, that high blood pressure should be reduced. That, if the toxemia did not markedly improve under these lines of treatment, or if an eclamptic seizure supervened, that the uterus should be emptied. That injury to the patient's tissues should be avoided. The reduction of the metabolic products requiring elimination should be done through avoiding meat in the diet. Chicken and fish were allowable, but red meat should not be eaten more than two or three times a week. The elimination should be favored by increasing the activity of the skin, drinking large quantities of water, and taking calomel. Colon irrigations were very useful. The high blood pressure was to be reduced by blood letting or the administration of drugs such as chloral in an initial dose of thirty grains followed by twenty grains every four hours, if necessary, nitroglycerine in large doses, and, if necessary, veratrum viride after the chloral, given in five minim doses of the fluid extract until the blood pressure fell and the pulse rate was about one hundred. If the urine, blood pressure, and general condition did not improve, the uterus should be emptied. In emptying the uterus care should be taken not to reduce the activities of the organs or the patient. Manual dilatation and version was the method of choice if the cases were feasible, but with the rigid cervix the bag dilators avoided much of the shock and laceration. In very urgent cases the vaginal cesarean section might be the choice. Formerly it had been the custom to administer chloroform to prevent the convulsions, but chloroform had been shown to be a very harmful remedy. The pathological lesions produced by eclampsia and by chloroform being very similar, in the congestion, hemorrhage, and necrosis of the various organs of the body. The liver lesions were responsible for vomiting and jaundice; the kidney lesions for headache, and troubles with the central nervous system. Chloroform lesions in the cases of acute and delayed poisoning were both of the same type and might follow the administration of chloroform for only twenty to thirty minutes. In some of the late cases there developed merely pallor, or cyanosis, stupor coma, and death. In dogs killed by ether by one administration and after repeated administrations of two to three hours' duration on successive days no suggestion of the cellular necrosis in liver and kidneys or other organs was found. Hence, the chloroform in itself was the cause of injury to the essential eliminative organs and should not be administered in cases of eclampsia. In the last twenty cases at the Sloane Maternity Hospital, ether had been used in place of chloroform for all operations. The mortality was one case, 5 per cent. In the preceding twenty cases in which chloroform had been used the mortality had been 25 per cent. In a long series of eclampsia cases in which chloroform had been given the mortality had been 28 per cent.

Vaginal Cesarean Section in Eclampsia.—Dr. H. D. Fry of Washington read this paper, saying that the objections to the operation were mainly theoretical. The time for the operation was as short as for the classical cesarean section. The abdominal section was used for many other conditions than eclampsia so that comparison of the results of the two operations was not a fair one. The injury caused was no greater than by other means of delivery for the same men, and subsequent labors were followed by no complications due to this operation.

Indications for, and Technique of Rapid Emptying of the Uterus in the Toxemias of Pregnancy.—Dr. Reuben Peterson of Ann Arbor read this paper. He considered

that vaginal cesarean section was indicated where the pelvic bones were normal, the child not too large to pass the bony structures, and quick delivery essential in the cases of eclampsia with a rigid cervix, and in country practice. In doing the operation the vagina was dilated the cervix caught in a volsellum and brought down in sight, an incision made around the front half of the cervix at the cervicovaginal junction. No longitudinal incision in the mucous membrane was necessary. Then the bladder and soft tissues were dissected free from the anterior surface of the uterus, largely by pushing the tissues up with a sponge. Then two volselli were inserted in the cervix laterally and the cervix split in its anterior lip with scissors up seven to nine centimeters until the hand could be introduced. In pregnancies after the eighth month, a similar posterior splitting of the cervix was usually necessary by a transverse incision in the mucosa, sponge dissection of uterus free from rectum and other soft tissues, and splitting the posterior lip of the cervix with scissors. In closing, the catgut sutures were introduced not entering the cervical canal, but through the submucosa and embracing all the deep tissues of the cervix out to the surface of the uterus that had been dissected free from the vaginal mucosa. After the uterus had been sewed up, the vaginal mucosa flap was closed protecting the deep sutures.

The Surgical Treatment of Eclampsia.—Dr. J. B. DeLee of Chicago said that the presence of eclamptic convulsions was one sure indication for emptying of the uterus. Before the fetus was viable perforation and extraction was the method of choice. After viability, if the os was dilatable version and extraction was indicated. In the cases with a rigid cervix manual dilitation was allowable only in certain easy cases, the bag dilatation was applicable only where there was no need of rapid delivery, as it took several hours for dilatation; and the vaginal cesarean section gave the best results. The vaginal section was not as easy to perform as the abdominal, but the mortality in the eclamptic cases was higher. Not only did the rigidity of the cervix have to be considered but also the rigidity of the pelvic floor and of the vagina. Decapsulation of the kidneys was not a rational line of treatment as the condition was not one of pure renal origin. As an anesthetic morphine had a marked effect on the fetus, chloroform had a very serious effect on the mother. Nitrous oxide and oxygen was the choice.

Dr. Schwartz of St. Louis said that the bad effects of chloroform had been most clearly shown and the great advantage of more careful observation of the women during pregnancy was most desirable. Regulation of the diet and full elimination should be watched in every case.

Dr. Zinke of Cincinnati thought that the great reduction in the fatalities from eclampsia had been made, not by surgery, but by the early medical care. The surgical treatment made no attempt to reduce fetal mortality, but worked solely for the maternal mortality. He quoted certain lines of treatment in vogue in Germany based on absolute rest from external influences as evidence that certain cases recovered spontaneously even after a long series of eclamptic convulsions.

Dr. Carstens of Detroit considered the sole duty of the physician in the case of eclampsia was to deliver the woman by the best possible means, which, in the majority of the cases seemed to be by the vaginal cesarean section

Dr. Plondke of St. Paul noted the cases of postpartum eclampsia in which the removal of about a quart of blood followed by infusion of an equal quantity of salt solution gave a prompt and decided improvement possibly by dilution of the toxins in the blood.

Dr. Burns of St. Louis thought cesarean section, but not hysterectomy, was indicated in the infected cases.

Dr. Rosenthal of Fort Wayne called attention to the limitation of the lacerations in the vaginal section to the median plane of the uterus, and said that the lateral lacerations were more apt to be serious.

Dr. Ritter of Indianapolis considered the early medical treatment as preventive and therefore most desirable. He used veratrum viride and gave doses of ten to twelve minims of the tincture. He had also gotten good results from bleeding and infusion.

Dr. Foulkrod of Philadelphia said that the early preventive treatment was most desirable, keeping the patient on a milk diet and absolute quiet. That the Murphy treatment of lavage and enteroclysis was at times very effective. That better results were obtained from venesection after delivery than before.

Dr. Hull of New York said that bleeding had formerly been used at Sloane, but that it had been superseded by the use of vasodepressants pushed to the point of physiological effect. That after the blood pressure was down and the pulse slow no convulsions followed. That while venesection was rarely needed, that free bleeding with the delivery of the placenta was encouraged by manual extraction of the placenta.

Dr. Fry of Washington called attention to the fact that one of the leading obstetricians of this country, Dr. Hirst, was taking up the medical treatment to the exclusion of the emptying of the uterus. In the operation of vaginal cesarean section he had found the uterovesical ligament at times to be a great interference. He drained all the cases. In regard to the use of chloroform he cited a case of late chloroform poisoning following a forceps delivery after about an hour of chloroform. There had been no symptoms of disturbed metabolism during pregnancy as shown by repeated careful urine examinations, but the third day after delivery she developed a stupor that deepened steadily to death.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held April 28, 1910.

Dr. S. M. Brickner in the Chair.

A Preliminary Report Upon the Use of Oxygen in Asphyxia Neonatorum.—Dr. Frederick C. Holder said that asphyxia neonatorum was a condition of oxygen starvation plus carbon dioxide poisoning, produced by numerous causes. The two types, the livid and the pallid, were different degrees of the same process. Owing to the better understanding of obstetric indications, many of the causes of asphyxia, as well as destructive operations upon the fetus, were things of the past. The Schultze method, although often used to overcome this condition, was not without danger, as was shown by instances of fractured clavicle with perforation of the lung, dislocation of the shoulder, ruptured liver, and injuries resulting from the slippery infant escaping from the hands and falling against the floor or wall. Direct insufflation was open to the criticism that the inspired air was loaded with carbon dioxide and numerous germs. Sylvester's method was rarely effectual, and it was a waste of time to use it. Two years ago Dr. Holder began to use oxygen for this purpose. He held the child in the inverted position with the left hand, after having wrapped a towel around the feet to prevent slipping. The mucus was removed from the mouth and nostrils, and if it was very abundant an assistant compressed the chest while the child was still in the inverted position. The back was then rubbed or slapped, and if the child failed to breathe or cry the cord was cut. The infant was then tubbed in water at a temperature of 105° F. and the method of Byrd followed. This method consisted of folding and unfolding the child like a book. This was done with the infant in the water. While this treatment was being carried out, a funnel, either of glass

or rubber, about three or four inches in diameter, attached by rubber tubing to a tank of oxygen, was held as closely as possible over the child's mouth and nose and the oxygen allowed to flow very freely; in fact, at full force. The irritation to the respiratory tract produced by the oxygen caused rapid respirations and crying. The oxygen was continued and the pallid or livid hue gave way in a few seconds to a bright, rosy color. Occasionally, in extreme cases, he used Laborde's method, rhythmic traction on the tongue eight or ten times a minute. This could be done in connection with Byrd's method and with the funnel still at the mouth. After this the child should be bathed and then laid on the right side with a hot water bag to its back. It was a good plan to make these children cry once an hour for several hours.

Dr. J. O. Polak said that he had been skeptical regarding this method at first, but he had seen a great number of cases resuscitated, and it was amazing to observe the quick change of color. There were many modifications to be made before this method would be perfect.

Spontaneous Intrapartum Rupture of the Uterus Due to Absence of the Vagina.—Dr. Louis J. Ladinski presented this patient and specimen. The patient was twenty-three years of age, and had been married eleven months. She had not menstruated until the age of fifteen, after a specialist had performed some operation upon her, the nature of which she did not know. She was sent to Beth Israel Hospital on March 28, 1910. Physical examination revealed all the signs of a full term pregnancy, with the fetus in the normal position, vertex presentation. About one-half an inch above the introitus vaginæ there was a thick septum, in the center of which was an opening about one-quarter of an inch in diameter. No vagina or cervix could be palpated by rectal examination. The fetal head could be distinctly felt pressing against the septum. He had the patient prepared for a thorough examination under anesthesia the following day, but during the night she began to have labor pains. Before he was able to reach the hospital she suddenly went into collapse, and became cyanotic, with a rapid, uncountable pulse. The fundus uteri could not be felt at all; the epigastrium was bulging, tense, and dull. The fetal contents could be made out right beneath the abdominal wall. Laparotomy was at once performed. The peritoneal cavity was found to be distended with a large amount of free and clotted blood. The body and extremities of the fetus extended through a rent in the anterior wall of the uterus; the head was still grasped by the contracting ring of the lower segment of the uterus and cervix. On withdrawing the fetus the placenta followed. The uterus was low down in the pelvis, hard, and contracted, with a complete transverse rent at the level of the junction of the body and the cervix extending through the entire anterior wall and embracing part of the posterior wall, so that the uterus remained attached to the cervix by only a narrow isthmus. The entire uterus was removed. This was a case in which there was complete absence of the vagina, the cervix uteri extending down to the introitus vaginæ.

Absence of Vagina; Rudimentary Horn of Uterus; Restorative Operation.—Dr. Louis J. Ladinski presented this patient, who was twenty years old, and single. She had never menstruated, but had had menstrual molimina once every four weeks, characterized by cramplike pains in the abdomen. The external genitalia were normal; the introitous vaginæ was represented by a shallow vestibule, in the center of which, and about three-quarters of an inch below the meatus urinarius, was a very small sinus which admitted a probe to a distance of one-half an inch. The perineal body was small, thus making the distance between the urethra and anus shorter than normal. Rectal examination failed to show the presence of a uterine body; the adnexa, however, was palpable. A laparotomy was performed on August 4, 1909, and showed that both tubes and ovaries were present, the latter showing decided signs of ovulation. The uterus was absent, and in its stead were two rudimentary horns, each situated laterally and joined by a broad, thick membrane which extended downward to the junction of the bladder and rectum. The bladder was then carefully separated from the rectum down to the floor of the pelvis, showing both ureters very distinctly. The dissection was carried down to within a few inches of the introitus vaginæ. The space was then packed with iodoform gauze and its upper border closed with a few sutures. After closing the abdomen the patient was placed in the lithotomy position and a transverse incision made into the vestibule. This was deepened by separating the bladder from the rectum by alternating sharp and dull dissection. By using the gauze packing in the upper cavity as a guide a communication was made between the upper and lower channels. The newly formed vagina could now easily admit two fingers to the depth of eight or nine inches. The new vagina was packed with iodoform gauze. On August 17 the granulating cavity was covered with skin grafts. This was not successful. On September 7 skin grafts placed upon sterile silver foil with raw surfaces up was done and results were for the most part satisfactory.

Case of Ruptured Tubal Pregnancy; Death Without Operation.—Dr. Philander A. Harris of Paterson exhibited a specimen consisting of the uterus, tubes, and ovaries removed at autopsy, death having been due to ruptured tubal pregnancy, presumably not advanced beyond two or three weeks of gestation. The growth occurred in the isthmian portion of the left tube, so well in the uterus as to probably constitute a so-called cornual pregnancy. This patient was perfectly well until about four o'clock in the morning, at which time she was seized with very severe colics, and was attended by her physician until she died at eleven o'clock that morning, just seven hours after the first symptoms. She was believed by her physician to be suffering from a criminal abortion, and probably on that account tubal pregnancy was not diagnosticated. The patient denied any history of interference. Dr. Harris was asked to be present at the official autopsy. There were found in the abdominal cavity several quarts of dark blood and many clots. A median line anterior section of the corpus, fundus, and cervix uteri showed the presence of a very considerable decidual formation in the cavity of the uterus, and presented no evidence whatever of intrauterine traumatism. This case was reported by Dr. Harris as an instance of very prompt death from ruptured tubal pregnancy without surgical interference.

A Case of Ovarian Pregnancy.—Dr. George H. Balleray presented a specimen which was removed from a woman forty years old, married ten years, but never pregnant. After skipping her menstrual period two weeks, she had an irregular discharge of blood; then she had an interval of one month with no discharge, and then a recurrence, with intense pain in the lower abdomen. There was abdominal distention and vomiting. After a time operation was performed and a mass was removed, apparently a four-months-old fetus. Outside the mass was made up of ovarian tissue. Dr. Balleray had always maintained that there was no such thing as a true ovarian pregnancy, but from a study of the gross anatomical conditions presented by the specimen he believed it to be a true ovarian pregnancy.

A Case of Interstitial Pregnancy.—Dr. J. O. Polak presented this specimen, which he removed only a few hours before the meeting. The patient was thirty-four years of age, married five years, two children, the last born February 26, 1010. On April 4 she bled for a few days. She was admitted to the hospital, where she remained a few days and then was discharged cured. She

had attacks of pain and intermittent bleeding until April 28, when, at eight o'clock in the morning, she entered into a state of collapse and was brought to the hospital in a state of shock. He removed the uterus. The specimen revealed an interstitial pregnancy. This he intended to present to the pathologist and would make a report at some subsequent meeting of the section.

Ectopic Gestation from the Standpoint of the General Practitioner.—Dr. Guy L. Hunner of Baltimore read this paper. He called attention to the failure to diagnose ectopic gestation when the symptoms were such that the only reason for the failure was that the physician was not on the lookout for this condition. The surgeon was at fault for having taught that the diagnosis could rarely be made before the tragic stage. The general practitioner should, in the majority of cases, make the diagnosis upon the history alone. He cited several atypical cases, but said that these did not at all alter the statement that he had made. With a history of rectal tenesmus, sudden agonizing pain, and collapse, the physician had to make a diagnosis between ureteral calculus, appendicitis, and ectopic pregnancy, a thing not always easy to do. If the case was one of calculus the urine would show blood. Unfortunately, it might also show blood in an appendix case. In ectopic pregnancy with rupture a history could usually be elicited of a missed period and of recent intramenstrual show, and also a history of recent pressure or boring pain. There was present in many cases the evidence of severe internal hemorrhage. The patient should not be disturbed for purposes of examination for fear of stirring up new hemorrhage. As to the advantages of immediate operation on cases in extreme shock from hemorrhage, Dr. Hunner said that he did not like to lay down hard and fast rules for himself or for others. If the patient could be operated upon in good surroundings and was in a condition that promised survival from the operation, he preferred early operation to the risk of further hemorrhages. If a surgeon of wide experience with surroundings that insured rapid and clean operation could not be had he preferred the hibernation treatment. Dr. Hunner reviewed the etiology of ectopic pregnancy and discussed the relation between this condition and appendix diseases. In 34 cases of ectopic pregnancy in his private records the appendix was not mentioned in 13 cases, 5 of these having been vaginal operations. In 3 cases it was considered normal and in 18 diseased. He thought that in the majority of cases of ectopic pregnancy there was a history pointing to appendix disease or well-marked changes of a chronic character in the appendix and its neighborhood. During Dr. Hunner's service at Johns Hopkins Hospital there had been 3,300 patients in the gynecological service, and but 34 cases of pregnancy outside the uterus. Eight of his 34 cases of ectopic gestation were diagnosed before rupture, an unusually large percentage. Six of these eight cases were operated upon in the unruptured state. The only death in his list was from a condition of intestinal paresis and obstruction. With the general practitioner and the surgeon both alive to the possibility of ectopic pregnancy there would certainly occur some unnecessary operations, but it was better to operate upon an occasional patient unnecessarily than to lose a case by hemorrhage. The diagnosis having been made of ectopic pregnancy before rupture, operation should follow at the earliest possible moment. After rupture every effort should be made to keep the patient quiet mentally and physically until conditions could be arranged for a rapid, clean operation. If at a distance from a hospital, the operation should be performed at home. If the patient was transported to a hospital, sufficient time should elapse to demonstrate that she was not bleeding. While waiting for better conditions morphine should be used to quiet the patient.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Oklahoma State Board of Medical Examiners.

April, 1910.

PHYSIOLOGY.

1. What effect has respiration upon the circulation?
2. What is the action of the nervous system upon the salivary glands?
3. What is the function of gastric juice?
4. What is the nervous mechanism of stomach digestion?
5. What are the functions of the liver?
6. What circumstances affect glandular activity?
7. What is a ganglion?
8. What is the effect of stimulation of the divided optic nerve?
9. What is the duty of the large intestine in digestion?
10. What are the uses of the blood?

CHEMISTRY.

1. How may ferric hydrate be hurriedly prepared? When and how should ferric hydrate be used as an antidote?
2. How may lead enter the system and produce lead poisoning? Give a diagnosis of lead poisoning and mention the chemical antidotes for it.
3. Mention the principal products obtained from petroleum and describe the properties of one of the products mentioned.
4. How is chloroform (*a*) prepared, (*b*) tested for impurities?
5. Mention a chemical antidote for sulphuric acid and explain the action of this antidote.
6. How would you detect the presence of bile in the urine?
7. Designate the following as chemical or physical changes: (*a*) The souring of milk; (*b*) decomposition of sunlight by means of prisms; (*c*) converting water into steam; (*d*) dissolving salt in water; (*e*) decay of wood.
8. Technical name of: (*a*) Aqua regia, (*b*) aqua fortis, (*c*) oil of vitriol.
9. Give the formula for: (*a*) Mercuric chloride, (*b*) cupric nitrate, (*c*) calcium carbonate.
10. Give formula for carbolic acid. How is it obtained and what are its properties and uses?

PATHOLOGY AND BACTERIOLOGY.

1. What are some of the phenomena attending pus formation?
2. What are some of the conditions favorable to the increase of bacteria; and what is meant by their toxic products?
3. What is immunity and how produced?
4. Describe the protective agencies by which the body guards itself against the entrance and harmful effects of pathogenic microorganisms.
5. Describe the comma bacillus, and give the manner of its introduction into the system.
6. How should sputum be examined for tubercle bacilli?
7. What is ischemic paralysis?
8. Describe syphilitic gummata.
9. Give the probable causes of occlusion of the bile duct.
10. What are cysts, and how formed?

PHYSICAL DIAGNOSIS.

1. Diagnose mitral regurgitation.
2. Give the physical signs of pericarditis.
3. How would you diagnose aneurysm of the thoracic aorta?
4. Describe the physiological action of the heart.
5. Define rude respiration, bronchial respiration, cavernous respiration, and amphoric respiration.
6. Classify pulmonary tuberculosis. What is the positive diagnostic sign?
7. Describe test for blood in urine.
8. Give physical signs in acute appendicitis.
9. Describe the normal signs of the heart.
10. Give physical signs of acute otitis media.

THEORY AND PRACTICE OF MEDICINE.

1. Write a prescription for (*a*) a collyrium, (*b*) a suppository, and (*c*) a mouth wash.
2. Prescribe a local application for erysipelas, for rhus toxicodendron poisoning; also write a prescription for night sweats of phthisis, for ascites, and for ptyalism.
3. In what disease does leucocytosis occur, and in what diseases is it absent?

4. Give the cause and treatment of bronchial, spasmodic, or essential asthma.
5. Describe the Brand method of treatment in typhoid fever, and what is your opinion of the same?
6. Describe the skin appearance in (*a*) rubeola, (*b*) rubella, (*c*) scarlatina, and (*d*) varicella.
7. Give etiology, symptoms, and treatment of gastrointestinal catarrh of infancy and childhood.
8. Make a differential diagnosis between renal colic and hepatic colic.
9. What are the symptoms of obstruction of the ductus communis choledochus?
10. Differentiate heat exhaustion from sunstroke.

OBSTETRICS AND HYGIENE.

1. Differentiate a foot from a hand presentation. What would you do in either case?
2. What is the bag of waters? What is its function during pregnancy? During labor?
3. How diagnose hour-glass contraction with retained placenta? (*b*) Give treatment.
4. After the fifth month, how may death of fetus *in utero* be recognized; (*b*) what should be done?
5. When and how is the placenta formed?
6. (*a*) State fully the duties of physicians as required by the statutes of Oklahoma. (*b*) What diseases must be reported to the State Commissioner of Health?
7. What are the dangers of cold storage foods?
8. What evil consequence may arise from the use of tobacco?
9. Describe procedure in disinfecting and disposing of typhoid fever stools.
10. (*a*) How much water per day, in ounces, should be consumed by an average adult? (*b*) Mention most frequent pollution of water. (*c*) Give test for organic matter in water.

GYNECOLOGY.

1. Name the most frequent causes of endometritis; (*b*) give treatment, both palliative and surgical.
2. What is atresia of the vagina? Give treatment.
3. Give most frequent causes of pyosalpinx; diagnosis and treatment.
4. Differentiate between menorrhagia, metrorrhagia, and amenorrhea. (*b*) Give treatment of each.
5. Give treatment of prolapsus uteri, both palliative and surgical.
6. Differentiate between ovaritis, cystic ovary, and salpingitis.
7. Give symptoms and treatment of extrauterine pregnancy.
8. Describe the female genital and pelvic organs, and give their functions.

SANITARY SCIENCE.

1. In case you were a health officer, what regulations would you prescribe governing schools, water supply, and sewerage?
2. What would be the most important precautions to be observed for the preservation of health in a city of 20,000 people?

SURGERY.

1. Define hemorrhoids, name varieties, and give treatment.
2. Give differential diagnosis between osteomyelitis and acute rheumatism, and describe treatment of former.
3. Give technique of tracheotomy.
4. Diagnosis and treatment of strangulated inguinal hernia.
5. Give your rule for locating and method of ligating the femoral artery *in situ*.
6. Diagnose and give treatment of dislocation of the astragalus.
7. Name and describe the measurements you would use in ascertaining whether or not there is shortening in neck of femur in case of suspected impacted fracture.
8. What would be your treatment of compound fracture of tibia with laceration of the anterior tibial artery?
9. Differentiate floating kidney from other abdominal tumors, and describe treatment for same.
10. Give diagnosis and treatment of intussusception.

MEDICAL JURISPRUDENCE.

1. What conditions would you find in a case of rape of a girl of twelve years?
2. Enumerate the causes of sudden death.
3. Give the difference between an incised wound made before and one made after death; also gunshot wound.
4. Give the cause and duration of rigor mortis.
5. To what kind of a crime does strangulation point; also hanging?

TOXICOLOGY.

1. What is the antidote and treatment of oxalic acid poisoning?
2. Give the detailed account of post-mortem appearance of carbolic acid poisoning.
3. What are the symptoms and treatment of poisoning with bichloride of mercury?
4. What is the antidote for strychnine?
5. Mention ten drugs, the use of any one of which may cause skin eruptions.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

OKLAHOMA STATE BOARD OF MEDICAL EXAMINERS.

April, 1910.

PHYSIOLOGY.

1. The respiratory changes in the blood: (1) In the *lungs* the blood is changed in color, gains oxygen, loses carbon dioxide, loses heat, and loses watery vapor. (2) In the *capillaries of the body* the blood loses oxygen and receives carbon dioxide.
2. The submaxillary gland is supplied by the chorda tympani (which contains secretory fibers and vasodilator fibers). The sympathetic slows the secretion of saliva in parotid and submaxillary glands. In the parotid gland the auriculotemporal is the secretory nerve. The secretion of saliva is a *reflex* action; the *afferent* nerves being: The glossopharyngeal, the lingual branch of the fifth, and the chorda tympani; the *efferent* nerves are: Sympathetic nerves, auriculotemporal branch of the fifth, and chorda tympani.
3. The *function of gastric juice* is: (1) To change proteids into proteoses and peptones; (2) to curdle the casein of milk; (3) it is also antiseptic.
4. The pneumogastric nerves are *motor* to the stomach, and induce peristalsis; the sympathetic fibers are inhibitory, causing cessation of peristalsis and dilatation of the sphincter pylori.
5. The functions of the *liver* are: (1) The secretion of bile, (2) the formation of glycogen, (3) the formation of urea and uric acid, (4) the manufacture of heat, and (5) the conversion of poisonous and harmful into inert material.
6. *Circumstances affecting glandular activity* are: Blood supply; nerve impulses (trophic, secretory, vasomotor); sometimes food, sensations, or emotions.
7. A *ganglion* is an aggregation of nerve cells, connected with nerves, or other ganglia, or with the cerebrospinal axis; masses of gray matter at the base or in the interior of the brain are also called ganglia.
8. Stimulation of the divided optic nerve causes: Flashes of light, but no pain.
9. *In the large intestine:* Digestion which is already begun may continue, but there is no special digestive action; there is marked absorption of water; there are numerous bacteria, and, as a consequence, proteid putrefaction.
10. The *functions of the blood as a whole* are: To distribute nourishment, oxygen, and the internal secretions to the tissues of the body; to remove carbon dioxide and other waste matters from the tissues so that they may be excreted by the lungs, kidneys, and skin; to regulate the body temperature. In addition the *white corpuscles* serve as a protection to the body from the incursions of pathogenic microorganisms: they take some part in the process of the coagulation of the blood; they aid in the absorption of fats and peptones from the intestine, and they help to maintain the proper proteid content of the blood plasma.

CHEMISTRY.

1. Ferric hydrate may be hurriedly prepared by precipitating solution of ferric sulphate with magnesia. The two solutions should be kept in separate bottles, and when needed they may be mixed and administered. It is used as an antidote in acute arsenical poisoning.
2. The most *common sources of lead poisoning* are the following: "The contamination of drinking water from lead pipes. Contamination of articles of food or drugs by contact with leaden vessels, or from being enclosed in tinfoil containing an excess of lead. Drinking beer, cider, etc., which has been drawn through leaden pipes or allowed to stand in pewter vessels. The ingestion or constant handling of lead or its compounds, as the acetate, nitrate, carbonate (white lead—painter's colic), Goulard's extract, etc. The use of hair dyes containing lead."

Lead poisoning causes: Metallic taste, dryness of throat, thirst, severe, colicky abdominal pains, particularly in um-

bilical region; pulse feeble and slow; great prostration; constipation; urine scanty and red; violent cramps; paralysis of lower extremities; convulsions; tetanic spasms, and (in chronic cases) wrist drop. *Chemical antidote* is magnesium sulphate.

3. Principal products of petroleum are: Paraffin, vaseline, kerosene, benzine, gasoline, mineral oils, rhigolene. *Vaseline* is a yellowish or whitish fatty substance, with slight odor and taste, and is sticky.

4. Chloroform is prepared by the action of calcium hypochlorite on acetone. It is *tested:* (1) For excess of alcohol, by taking the specific gravity; (2) for HCl and Cl, by shaking it with water, which afterward should not give a precipitate with $AgNO_3$.

5. Chemical antidote for sulphuric acid is magnesia; it acts by neutralizing the acid and converting it into a harmless salt.

6. *Test for bile pigment in the urine:* Put 3 c.c. HNO_3 in a test-tube; add a piece of wood, and heat until the acid is yellow; cool. When cold, float some of the urine to be tested upon the surface of the acid. A green band is formed at the junction of the liquid, which gradually rises, and is succeeded from below by blue, reddish violet, and yellow.

7. (*a*) Chemical; (*b*) physical; (*c*) physical; (*d*) chemical; (*e*) chemical.

8. (*a*) Aqua regia is nitrohydrochloric acid; (*b*) aqua fortis is nitric acid; (*c*) oil of vitriol is sulphuric acid.

9. (*a*) Mercuric chloride, $HgCl_2$; (*b*) cupric nitrate, $Cu(NO_3)_2$; (*c*) calcium carbonate, $CaCO_3$.

10. Carbolic acid, C_6H_5OH. It is obtained by heating phenyl iodide and potassium hydroxide. It is a crystalline substance, with characteristic odor and acrid, burning taste, neutral in reaction, and very soluble in alcohol and ether. It is used as an antiseptic and in the manufacture of medicinal compounds, dyes, and explosives; also as a local anesthetic, for pruritus, and sometimes internally in nervous vomiting.

PATHOLOGY AND BACTERIOLOGY.

1. See Da Costa's "Surgery" (1908), pages 127, 130, and 132.

2. Most bacteria require (1) proper temperature, generally at or near that of the body; (2) oxygen is generally needed, those that cannot live without it being called aerobic, and those that can grow without it, anaerobic; nutriment of a proper kind, containing both organic and inorganic material; a slight degree of moisture: a medium of slightly alkaline reaction, and rest. Individual bacteria may require modifications of the above essentials.

By the toxic products of bacteria is meant the production of disease or infection by bacteria.

3. *Immunity* is the power of resistance of cells and tissues to the action of pathogenic bacteria. Immunity may be either natural or acquired.

Natural immunity is this power of resistance, natural and inherited, and peculiar to certain groups of animals, but common to every individual of these groups.

Acquired immunity is this resistance acquired: (1) By a previous attack of the disease caused by the bacteria, or (2) by the person being made artificially insusceptible. The conditions which give immunity from the pathogenic action of bacteria are: (1) A previous attack of the disease; (2) inoculation with small quantities of bacteria, so as to produce a mild attack of the disease; (3) vaccination; (4) the introduction of antitoxins; (5) the introduction of the toxins of the bacteria.

Several theories have been advanced to account for immunity, but the only two that are considered now are: (1) Metchnikoff's theory of phagocytosis and (2) Ehrlich's side-chain theory. This latter "is based on the idea that the toxin destroys a cell by entering into chemical union with it. The molecule of toxin contains at least two groups of atoms, a *toxophore* group, in which the poisonous principle resides, and a *haptophore* group, which brings the toxophore group into touch with the cell and through which chemical combination takes place. Similarly, the cell contains a haptophore group, but the toxophore group of the toxin can only unite with it and destroy it when its haptophore companion has affinity with that of the cell. If that affinity does not exist the two haptophore groups do not unite, the toxophore group does not come into contact with the cell, and the animal is immune. Such is natural immunity. If there is affinity and the cell can throw off a haptophore group (antitoxin), which in its detached condition unites with the haptophore group of the toxin, the toxophore group has then nothing with which it can unite and the animal is immunized. When the individual has to contend with a bacterium as well as its toxin, the same principle obtains. Immunity is established by the production of a double haptophore group, one for the bacterium, the other for its toxin."—(Stenhouse's *Pathology.)*

4. The chief protective agencies by which the body guards itself against the entrance and harmful effects of pathogenic microorganisms are: The acidity of the gastric juice, urine, and the vaginal secretion; the alkalinity of the blood; the agglutinating action of the blood; the bactericidal action of the blood and lymph; the action of leucocytes and phagocytes; the general antitoxic action of the organism.

5. The *comma bacillus* is a spirillum, actively motile, and with a flagellum at one end; it is curved, has rounded ends, and is about half the length of the tubercle bacillus; it stains readily with ordinary anilin stains, but not by Gram's method; it is easily cultivated on the usual media; it has but slight power of resistance; it liquefies gelatin, and does not produce pigment.

It may be introduced into the system by: water, milk, food, fingers, and flies.

6. To demonstrate the existence of *tubercle bacilli* in the sputum: The sputum must be recent, free from particles of food or other foreign matter; select a cheesy-looking nodule and smear it on a slide, making the smear as thin as possible. Then cover it with some carbolfuchsin, and let it steam over a small flame for about two minutes, care being taken that it does not boil. Wash it thoroughly in water and then decolorize by immersing it in a solution of any dilute mineral acid for about a minute. Then make a contrast stain with solution of Loeffler's methylene blue for about a minute; wash it again and examine with oil immersion lens. The tubercle bacilli will appear as thin red rods, while all other bacteria will appear blue.

7. *Ischemic paralysis* is a local paralysis due to stoppage of the circulation in a part (often the result of embolism or thrombosis). It is also another name for myositis fibrosa, or fibrous degeneration of muscles.

8. *Syphilitic gummata* are firm, elastic, yellow or whitish nodular masses, varying in size from a tubercle to an orange. Their shape and outline are irregular, owing to fibrous processes which go through them; they often have a kind of capsule consisting of fibrous-looking but translucent material, which fastens them firmly to adjacent structures. On section they are mucoid or gelatinous, and vascular. *Microscopically,* they consist of round cells and giant cells, nuclei, fat granules and cholesterin; around this portion will be found epithelioid cells, and an outer layer consisting of leucocytes, giant cells, and epithelioid cells. There is some intercellular material; and blood-vessels are present.

9. *Occlusion of the bile duct* may be due to: Foreign bodies within the duct (gallstones, hydatids, or other parasites, inspissated bile); thickening of the mucosa due to inflammation, or cicatricial overgrowth of connective tissue; pressure from without (tumors, enlarged glands, aneurysm); adhesions, due to peritonitis.

10. A *cyst* is a circumscribed cavity containing liquid or pultaceous material. Cysts may be *formed:* (1) By the accumulation of secretions and other products within cavities which are already in existence; and (2) independently, by the softening or liquefaction of tissues.

Varieties: Retention cysts, dilatation cysts, exudation cysts, extravasation cysts, parasitic cysts, congenital cysts, dermoid cysts.

PHYSICAL DIAGNOSIS.

1. See French's "Practice of Medicine" (1907), page 579; or Osler's "Practice of Medicine" (1909), page 807.

2. See French's "Practice of Medicine" (1907), page 560; or Osler's "Practice of Medicine" (1909), pages 777 and 779.

3. See French's "Practice of Medicine" (1907), pages 630 to 633; or Osler's "Practice of Medicine" (1909), pages 857 to 861.

4. A *complete physiological revolution of the heart* or *cardiac cycle* includes all the changes which occur between the commencement of one heart-beat and the commencement of the next; it consists of the alternate contractions (or systole) and relaxations (or diastole) of the auricles and ventricles of the heart. The contraction of the two auricles takes place simultaneously and is followed by the simultaneous contraction of the two ventricles; then follows a period during which the whole heart is in a state of diastole. The cycle then begins again with the auricular systole.

5. *Rude Respiration* is a form of breathing which is neither bronchial nor vesicular, but partakes of the characteristics of both; it is generally called bronchovesicular breathing.

Bronchial Respiration is characterized by absence of the vesicular quality. Inspiration is high pitched and tubular;

expiration is higher pitched and prolonged; the two are separated by a short interval.

Cavernous Respiration is a blowing sound, but constant, heard during both inspiration and expiration, lower in pitch than bronchial respiration, and hollow in character.

Amphoric Respiration is a blowing respiration, of metallic or musical quality; it is present in inspiration and expiration.

6. Pulmonary tuberculosis is classified as an infectious disease. The positive diagnostic sign is the finding of the tubercle bacilli in the sputum. See above, PATHOLOGY, Question 6.

7. Test for *Blood.*—To the urine add a solution of potassium hydroxide to distinct alkaline reaction; heat nearly to boiling (do not boil). A red precipitate is produced.

8. See French's "Practice of Medicine" (1907), page 792; or Osler's "Practice of Medicine" (1909), page 514.

9.

10. See Rose and Carless' "Surgery" (1908), page 882.

THEORY AND PRACTICE OF MEDICINE

1. (*a*) *A Collyrium*:

℞ Atropinæ sulphatis, gr. ij.
Sodii chloridi, ʒr. ij.
Aquæ destillatæ, ʒss. Misce.

Signa: One drop to be placed in the eye every night.

(*b*) *A Suppository*:

℞ Cocainæ hydrochloridi, gr. ij.
Aquæ destillatæ, ♏ vj.
Olei theobromatis, ʒjss. Misce.
Fiant suppositoria No. vj.

Signa: Insert one night and morning.

(*c*) *A Mouth Wash*:

℞ Thymol, gr. vij.
Spiritus chloroformi, ʒvj.
Spiritus menthæ piperitæ, ʒij.
Tincturæ hamamelidis q.s. ad ʒiv. Misce.

Signa: One teaspoonful to be added to two tablespoonfuls of water, and used after each meal.

2. *For Erysipelas*:

℞ Ichthyol, ʒss
Olei citronellæ, ♏xx.
Adipis, ʒj. M.

Signa: Apply as directed.

For Rhus Toxicodendron Poisoning:

℞ Fluidextracti grindeliæ robustæ, ʒj.
Aquæ, ʒx. M.

Signa: Apply as directed.

For Night Sweats of Phthisis:

℞ Acidi camphorici, ʒiv.
Alcohol, ʒij.
Mucilaginis acaciæ, ʒiij.
Syrupi aurantii corticis, q.s. ad ʒvj. M

Signa: One dessertspoonful one hour before sweat is expected.

For Ascites:

℞ Pulveris digitalis.
Pulveris scillæ, āā Gr. xx. M.
Fiat massa in pilulas No. xx. dividenda.

Signa: One every five hours.

For Ptyalism:

℞ Atropinæ sulphatis, gr. ss.
Sacchari lactis, ʒj. M.
Ft. in caps. No. L.

Signa: One after each meal.

3. *Leucocytosis* occurs in: Cholera, relapsing fever, typhus, scarlet fever, diphtheria, tonsillitis, syphilis, erysipelas, bubonic plague, pneumonia, smallpox, malignant endocarditis, septicemic conditions, actinomycosis, glanders, rheumatism, meningitis, affections of gall-bladder, pancreatitis, endometritis, gonorrhea, abscesses, carbuncle, furuncle, appendicitis, pyonephrosis osteomyelitis salpingitis, inflammations of serous membranes, many inflammatory skin diseases, and in many cases of poisonings.

Leucocytosis is absent in: Typhoid, malaria, influenza, measles, rötheln, and tuberculosis. (From Cabot's *Examination of the Blood.*)

4. See French's "Practice of Medicine" (1907), pages 658 and 661; or Osler's "Practice of Medicine" (1909), pages 609 and 612.

5. See French's "Practice of Medicine" (1907), page 113; or Osler's "Practice of Medicine" (1909), page 100.

6. (*a*) *Rubeola*: Character of eruption, small, dark red papules with crescentic borders, beginning on face and rapidly spreading over the entire body; desquamation is branny. The eruption is dark, not uniform, shotty.

(*b*) *Rubella*: The rash is more diffuse, and is of a rose-red color, is brighter, and less crescentic than in measles. It appears on first day, is most intense on second day, consists of red papules, often fades from face before it is seen on the limbs.

(*c*) *Scarlatina*: A scarlet punctate rash, beginning on neck and chest, then covering face and body; desquamation is scaly or in flakes. The eruption is brighter, is on a red background, punctiform, and is more uniform.

(*d*) *Varicella*: The eruption usually appears first on the trunk, is evident on the first day, comes in successive crops, is not shotty, and disappears on stretching the skin; the spots are unilocular, and collapse on being punctured.

7. See French's "Practice of Medicine" (1907), page 782; or Osler's "Practice of Medicine" (1909), page 507.

8. In *renal colic:* The pain is in the region of the affected kidney; it radiates down the thigh; there are intense rigors; retraction of the testicle may be present; also history of previous attacks or of calculi; the urine may be scanty, suppressed, or bloody.

In *hepatic colic:* The pain is in the region of the liver; it radiates to the right scapula and toward the umbilicus; chills and sweats are common; also vomiting, and sometimes symptoms of collapse and jaundice; calculi are found, if at all, in the feces.

9. See Osler's "Practice of Medicine" (1909), page 547.

10. See French's "Practice of Medicine" (1907), page 969; or Osler's "Practice of Medicine" (1909), page 385.

OBSTETRICS AND HYGIENE.

1.

FOOT.	HAND.
This is at right angles to the leg.	This is a straight line with the arm.
The inner border is thicker than the outer.	Both borders are of equal thickness.
The toes are short and are in a straight line.	The fingers are longer, and the thumb is at right angles to the other digits.
The great toe cannot be altered in its relation to the remaining toes.	The thumb may be bent across the palm, and thus brought into contact with the other fingers.
The toes cannot be separated to any great extent.	The thumb and first finger may be considerably separated.
The malleoli and heel (projecting os calcis) may be felt.	There is an absence of such features.
The ankle-joint is not freely movable.	The wrist joint is quite movable.

—(Dorland's *Obstetrics.*)

For treatment, see Williams' "Obstetrics" (1909), page 802.

2. The bag of water is the amniotic sac with the liquor amnii; this latter is alkaline in reaction, has a specific gravity of about 1.001 to 1.008, its quantity is variable, but is generally about two pints. It consists chiefly of water, but contains small amounts of albumin, epithelial cells, urea, phosphates, chlorides, etc. Its source is unsettled.

Functions.—(*a*) *During pregnancy:* (1) As a protection to the fetus against pressure and shocks from without. (2) As a protection to the uterus from excessive fetal movements. (3) It distends the uterus, and thus allows for the growth and movements of the fetus. (4) It receives the excretions of the fetus. (5) It surrounds the fetus with a medium of equable temperature, and serves to prevent loss of heat. (6) It prevents the formation of adhesions between the fetus and the walls of the amniotic sac. (7) It has been supposed, by some, to afford some slight nutrition to the fetus.

(*b*) *During labor:* It acts as a fluid wedge, and dilates the os uteri and the cervix; it also slightly lubricates the parts.

3. See Williams' "Obstetrics" (1909), page 664.

4. *Symptoms* of death of the fetus during the later months of pregnancy are: Cessation of the signs of pregnancy, the abdomen and uterus are both diminished in size, the fetal heart sounds and movements cease, there is no pulsation in the cord, the mother's breasts become flaccid and occasionally secrete milk. If the fetus has been dead for some time, crepitus of its cranial bones may be elicited. *Treatment:* Abortion or premature labor must be induced, and the contents of the uterus removed immediately.

5. See Williams' "Obstetrics" (1909), page 128; or Hirst's "Obstetrics" (1909), page 120.

6. (*a*) To report all cases of infectious and contagious diseases; to effect a temporary quarantine on these same cases; to report all births and deaths occurring in their practice. (*b*) All infectious and contagious diseases.

7. *The dangers of cold-storage foods* are: The keep-

ing quality of the food is impaired, and so the food must be consumed soon after it leaves the cold storage; danger may lurk in the ice, particularly when not made from pure water; a similar danger exists when food is put in dirty water and surrounded by ice; ptomaine poisoning may occur; typhoid bacilli may retain their vitality even in water at the freezing point.

8. "The continued use of tobacco, by smoking or chewing it to excess, produces granular inflammation of the fauces and pharynx, atrophy of the retina, dyspepsia, lowered sexual power, sudden faints, nervous depression, cardiac irritability, and occasionally angina pectoris. Used by the young, it hinders the development of the higher nerve centers and impairs the nutrition of the body by interfering with processes of digestion and assimilation. It has been credited with causing cancer of the lips and tongue, blunting the moral sense, mental aberration, and even insanity."—(Potters' *Materia Medica.*)

9. See French's "Practice of Medicine" (1907), page 108; or Osler's "Practice of Medicine" (1909), page 97.

10. (*a*) About 65 to 70 ounces of water should be drunk in a day, besides about 20 ounces taken in as an ingredient of solid food. (*b*) *The chief sources of contamination of drinking water* are: Sewage, including not only solid and liquid excreta, but also house water and waste water; manufacturing refuse, such as from dye works, bleaching works, tanneries, and numerous other industrial places; from improper storage or service of water. (*c*) The presence of organic matter is shown by the change of color which occurs in a pink solution of potassium permanganate; it loses oxygen and becomes brownish.

GYNECOLOGY.

1. *Endometritis:* The acute form is due to the introduction of septic bacteria, and is manifested by pain, constipation, irritability of bladder, rapid pulse, rise of temperature, and a profuse discharge. *Treatment* following miscarriage or labor consists in curettage, intrauterine hot sterile douche, free purgation, hot over the lower abdomen, milk diet, and stimulants. Chronic endometritis may accompany numerous pathological uterine conditions, but is generally due to gonorrhea. The symptoms are backache, headache, leucorrhea, profuse menstruation, and impairment of the general health. *Treatment* consists in removing the cause when possible, and when due to gonorrhea curettage and irrigation of the uterus, with the application of an antiseptic.

2. Atresia of the vagina is an obstruction of the vagina by adhesion (either congenital or acquired). *Treatment:* Adhesions are to be separated, bands cut off short, cicatricial tissue dissected out, the wound closed, and a dilator inserted into the vagina.

3. *Most frequent causes of pyosalpinx* are: Gonorrhea, puerperal septic endometritis, and sepsis from use of dirty instruments. It is *diagnosed* by: Pain or discomfort, made worse by pressure, examination, or defecation; or colicky pains over the tube; dysmenorrhea; increased menstrual flow; tubes are found to be dilated and swollen *Treatment:* Removal of the affected tube.

4. *Menorrhagia* is an excessive loss of blood at the menstrual periods. *Metrorrhagia* is a hemorrhage from the uterus at other than the menstrual periods. It is very often impossible to differentiate the two conditions. *Treatment:* Remove the cause, if possible; treat abnormal conditions that are present; vaginal douches, tampons, and curettage have been recommended; also ergot, hamamelis, hydrastis, and viburnum prunifolium: rest in bed is necessary. Intrauterine applications of astringents or of adrenalin have been used. *Amenorrhea* is absence of menstruation during the period of sexual activity. *Treatment* consists in: (1) Removing the cause, if possible; (2) general treatment by means of proper hygiene, rest, diet, bathing, attention to the bowels, exercise, etc.; (3) drugs reputed to be emmenagogues such as iron, manganese, aloes, strychnine, apiol, oxalic acid, savine, rue, and tansy.

5. PROLAPSUS UTERI. *Treatment:* "Operative, unless some contraindication to operation exists. In such a case some *mechanical device* should be tried for the support of the uterus. Pessaries are not to be recommended, as their constant use leads to irritation and excoriation of the vaginal walls. Probably the best means for supporting the uterus is by Braun's colpeurynter. This is worn only during the day, and can be introduced by the patient herself every morning. The uterus is replaced and the colpeurynter well anointed with carbolized vaseline and containing about an ounce of water, is introduced into the vagina. It is then distended with air, thus making an even pressure on the vaginal walls and not causing ulcerations. *Operative treatment* gives the most satisfactory results in prolapse. In slight cases of prolapse repair of the perineum will effect a cure. The severer grades will require, in addition, some operation on the anterior vagina. The best of these is Martin's operation for cystocele. If the cervix is hypertrophied it should be amputated. Three operations—on the perineum, for cystocele, and amputation of the cervix—are required in the usual case of prolapse. In addition, hystrorrhaphy may be advisable, since there can be no prolapse so long as the uterus maintains its normal position of anteflexion. These operations failing, hysterectomy may be performed."

6. In *ovaritis:* The ovary is increased in size; is tender on pressure, and pressure causes a sickening sensation; is generally displaced (backward); dyspareunia and hysteria may be present. In *cystic ovary:* The condition is generally unilateral, not often adherent, may grow to be very large size. In *salpingitis;* Both tubes are apt to be affected, the tube is oblong and generally adherent, ovary may be palpated as distinct from the tumor usually it is not very large, and there may be leucocytosis.

7. See Williams' "Obstetrics" (1909), pages 644 and 649; or Hirst's "Obstetrics" (1909), pages 303 and 306.

8. See Williams' "Obstetrics" (1909), page 26; or Hirst's "Obstetrics" (1909), page 43.

SANITARY SCIENCE.

1. *Concerning schools:* The school building should be as near as possible to the center of the area which it is to serve; the site should be airy and open, of sufficient size, free from swamps, and somewhat elevated; it should not be too near factories, busy streets, or railways; the soil should be as free as possible from organic matter. The building should be so planned that the corners look towards the four points of the compass. In this way the sun will have access to each side and to every room during some part of the day. The building should have as few stories as possible. The walls should be of brick or stone, and should be pointed with cement; the inner surface of the wall should be cemented smooth. The foundations must be solid. The general arrangement will depend upon size of site, number of scholars, and number of required rooms. Fifteen square feet per child should be allowed. Details will have to be considered on: plans, accommodations to be provided, shape and size of class rooms, distribution of rooms, teachers' rooms, corridors, entrances and staircases, playground, ventilation, heating, lighting, and placing of windows, sanitation, lavatories water supply, drinking water, sewage disposal, removal of refuse, sanitary appliances, and drainage. Special care must be given to the prevention of contagious diseases, and the exclusion of all possible sources of infection or contagion; there should be physical examination of children, also, for non-contagious physical defects.

Concerning water supply: This must be free from excreta of human beings and animals; and the intake must be a sufficient distance from any possible source of pollution by sewage or other impurities. If the water comes from a source which cannot be controlled by inspection, sand filtration or other means of purification must be used.

Concerning sewerage: This should not be deposited into water which may be the source of supply for any town. For small towns, sedimentation and filtration (or some other recognized method) should be adopted.

2. The main thing is the prevention and check of contagious diseases by isolation, quarantine, and subsequent disinfection. There must be a sufficiency of water, and adequate inspection of the source of its supply; examination of food supplies, particularly milk, and insistence that food is not exposed to dust, flies, or other deleterious influences; purity and wholesomeness of milk and water; proper sewage disposal; adequate medical school inspection; proper laboratory facilities for production of antitoxins and vaccines, and for early diagnosis of diphtheria, tuberculosis, typhoid, and malaria; abatement of nuisances (such as noise, smoke, odors).

SURGERY.

1. See Rose and Carless' "Surgery" (1908), page 1148; or Da Costa's "Surgery" (1908), page 1012.

2. In *osteomyelitis:* There are sudden onset, pain, chills, fever, tenderness, swelling of soft parts, sometimes the joint can be moved gently without pain; septicemia or pyemia may be present. In *rheumatism* there is successive involvement of many joints; the tenderness, pain, and swelling are over the joints, and not over the bones; profuse sweats are present, and the condition responds to treatment by salicylates.

In *osteomyelitis* the *treatment* consists in relieving the constitutional symptoms and preventing the bone from necrosing. An incision down to the bone is made; if pus is beneath the periosteum, the latter is also incised; a piece

of bone is removed by chisel or trephine, pus is removed, the endosteum is hurt as little as possible, the wound is irrigated with hot bichloride solution and packed with gauze; the soft parts are closed and the wound well drained. In case this fails, amputation may be necessary.

3. See Rose and Carless' "Surgery" (1908), page 915; or Da Costa's "Surgery" (1908, page 769.

4. See Rose and Carless' "Surgery" (1908), pages 1099 and 1103; or Da Costa's "Surgery" (1908), page 992.

5. See Rose and Carless' "Surgery" (1908), page 340; or Da Costa's "Surgery" (1908), page 423.

6. See Rose and Carless' "Surgery" (1908), page 638; or Da Costa's "Surgery" (1908), page 609.

7. See Rose and Carless' "Surgery" (1908), page 538; or Da Costa's "Surgery" (1908), page 515.

8. See Rose and Carless' "Surgery" (1908), pages 534 and 481; or Da Costa's "Surgery" (1908), pages 540 and 464.

9. See Rose and Carless' "Surgery" (1908), page 1161; or Da Costa's "Surgery" (1908), page 1104.

10. See Rose and Carless' "Surgery" (1908), page 1121; or Da Costa's "Surgery" (1908), pages 838 and 962.

MEDICAL JURISPRUDENCE.

1. In case of rape of a girl of twelve years old, one might find: (1) Marks of violence about the genitals; (2) wounds, bruises, or other marks of injury on the body; (3) bloodstains and seminal stains on the person or clothing.

2. The *causes of sudden death* are: Cerebral hemorrhage; rupture of a gastric ulcer; valvular disease of the heart, especially aortic; angina pectoris; rupture of an aortic aneurysm; suffocation during an epileptic fit; shocks of electricity; sunstroke; mental or physical shock; diabetic coma; uremia; exertion on an overloaded stomach.

3. A wound inflicted during life is generally characterized by hemorrhage, coagulation of the blood, eversion of the edges, and retraction of its sides. It may also be inferred that the wound was inflicted during life if any of the following are noticed: The presence of inflammation, swelling, pus, or gangrene on the edges of the wound, or if there is any sign of beginning cicatrization.

4. Rigor mortis is supposed to be due to the coagulation of the myosin in the muscles. It lasts for a variable period, generally from about sixteen to twenty-four hours.

5. *Strangulation* generally points to homicide; *hanging*, to suicide.

TOXICOLOGY.

1. *Antidote* (for oxalic acid) is calcium carbonate, or hydroxide, or magnesia. *Treatment:* Give bland mucilaginous drinks, and antidotes; do not use stomach pump.

2. *Post-mortem appearances in carbolic acid poisoning:* "The mouth and throat show corrosive effects. The mucous membrane is generally white or gray and pultaceous, or it may be hardened and corrugated. The stomach usually shows relatively little corrosion. The blood is dark and fluid. All the fluids of the body exhale the odor of phenol. The bladder is empty, or contains a small quantity of dark or greenish urine. As death is usually due to asphyxia, the veins of the head and brain are congested. Putrefaction is apt to be retarded."—(Riley's *Toxicology.*)

3. *Symptoms* of poisoning by corrosive sublimate are: A burning pain in the mouth, pharynx, and stomach; the mouth and tongue are white; the vomitus is white, with shreds of mucous membrane, and tinged with blood; there may be bloody stools, also salivation. *Treatment:* The antidote is white of egg, but too much must not be given at one time; this should be followed by an emetic.

4. The antidote for strychnine is tannic acid, or weak solution of potassium permanganate.

5. Quinine, cubebs, copaiba, belladonna, bromides, iodides, mercury, salicylic acid, arsenic, and onium.

Helminthiasis in Children.—Schloss has made a routine examination of the stools of a large number of children in New York City for intestinal parasites. Twelve of 30 children who suffered from unexplained nervous or gastrointestinal symptoms were found to harbor worms. Consecutive examination of 280 children showed 80 to be infected with worms. Thirty-one harbored *Trichiuris trichiura;* 23, *Oxyuris vermicularis;* 20, *Hymenolepsis nana;* 6, *Ascaris lumbricoides,* and 5, *Tenia saginata.* Only one of 33 infected with *Trichiuris trichiura* suffered from symptoms. Thirty-five of the 51 infected with other parasites suffered from symptoms. The eosinophile cells were not increased in the cases of *Trichiuris trichiura.* In infection with other parasites eosinophilia was usually absent when there were no symptoms of helminthiasis and present in cases showing such symptoms.—*The American Journal of the Medical Sciences.*

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of June 25, 1910.

	Cases	Deaths
Tuberculosis Pulmonalis	518	137
Diphtheria	323	37
Measles	843	20
Scarlet Fever	360	20
Smallpox	—	—
Varicella	232	—
Typhoid Fever	26	7
Whooping Cough	60	3
Cerebrospinal Meningitis	4	5
Malarial Fever	—	—
Totals	2,366	229

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, during the week ended June 24, 1910.

		CASES.	DEATHS.
CHOLERA			
Ceylon, Colombia	April 28	..	..
One case from S. S. Nubia from Calcutta.			
China, Swatow	May 10–16	Present.	
India, Bombay	May 10–17	..	1
Calcutta	April 24–30	..	65
Rangoon	May 1–7	..	1
Java, Batavia	May 1–7	7	4
Samarang	April 17–May 7	143	116
Soerabaya	April 17–May 7	68	34
Philippine Islands, Manila	April 17–23	1	1
Provinces:			
Bulacan	April 17–23	2	1
Pampanga	April 17–23	6	5
Pangasinan	April 17–23	21	17
Russia, Ekaterinislav, government	April 17–May 10	497	47
Alexandrovsk	May 20–26	16	5
Kharkov, government—			
Kubansk	May 9–19	120	9
Starobelski	May 9–19	94	4
Kief, government—			
Kief	May 20–26	18	1
Tschigiri district	May 20–26	10	5
Minsk, government—			
Slutzk district	May 20–26	3	2
Moscow, government—			
Moscow	May 8–14	1	1
Poltava, government—			
Krementchug	May 20–26	4	..
St. Petersburg, government—			
St. Petersburg	May 26	1	..
Tourida government	May 16–28	14	6
Vitebsk, government—	May 8–14	1	1
Siam, Bangkok	April 24–May 3	..	127
Straits Settlements, Singapore	April 24–May 7	..	2
YELLOW FEVER			
Brazil, Manaos	May 15–21	..	3
Para	May 22–28	13	11
PLAGUE.			
Arabia, Aden	April 29–May 4	1	..
From S.S. Hindos, from Bombay.			
Perim, island	May 4	3	..
From S.S. Hindos, from Bombay.			
China, Chaoyang	May 10–16	Present	
Swatow	May 10–16	..	..
Present in vicinity.			
Egypt, Alexandria	April 30–May 23.	1	3
Provinces:			
Assiout	April 30–May 25	70	37
Beni Souef	April 30–May 26	10	..
Fayoum	April 24–May 26	65	43
Galioobeh	April 23–May 20	1	..
Girgeh	April 2–May 26	1	..
Kena	April 30–May 26	93	71
Menouf	April 30–May 23	13	7
India, Bombay	May 10–17	..	214
Calcutta	April 24–30	..	66
Kurrachee	May 7–14	55	53
Rangoon	May 1–7	..	21
Japan, Kobe	May 15–21	1	1
Mauritius	Jan. 28–Mar. 31	56	30
SMALLPOX.			
Abyssinia, Adis Ababa	April 23–May 14	Present	
Brazil, Para	May 22–28	8	5
Canada, Fernie	June 5–11	2	..
Halifax	June 5–11	4	..
Toronto	May 29–June 4	4	..
China, Nanking	April 11–23	Present	
Shanghai	May 2–15	1	16
Case among foreigners and deaths among natives.			
Egypt, general	Mar. 4–April 29	540	122
Reports from Mar. 12–26 and April 8–23 not yet received.			
Cairo	May 14–20	4	2
France, Paris	May 22–28	6	..
Germany, general	May 22–28	3	..
Hamburg	May 22–28	1	..
Gibraltar	May 31–June 7	2	..
India, Bombay	May 10–17	..	31
Calcutta	May 24–30	..	3

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Original Articles.

PROGRESS IN MEDICAL EDUCATION.

By JACOB GOULD SCHURMAN, D.Sc., LL.D.,
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There is much to deplore in the condition of medical education in the United States. With the large number of our proprietary and commercial institutions the number of our medical schools is greater than all the rest of the civilized world put together. The character of the schools may be judged by the fact that nearly half of them have incomes below $10,000. And the valuable and reliable report on "Medical Education in the United States and Canada," published by the Carnegie Foundation, shows that in both countries there are only twenty-three medical schools having a total annual income of more than $50,000; and of these only six have a total annual income of over $100,000; and of these six only three have an annual income of over $200,000, while of these three the medical schools of Cornell University and Harvard University alone have an income of over $240,000. These financial returns are a fair exhibit of the standing of American medical schools, and they demonstrate in a very impressive way the fact that a great number of our medical schools are disgraceful, the majority of them inferior, and only a very small number of them first-class institutions. Good medical education is tremendously expensive; it takes a very large budget to provide salaries for the professors and facilities for teaching and research laboratories, dispensaries, and hospitals.

There are four stages of medical education represented in the great array of institutions which have been so thoroughly investigated by the experts of the Carnegie foundation. And we may regard them as representing four stages in the development of the ideal medical school.

The first stage is that of the apprenticeship, which does not, of course, call for an organized school. In this stage the relation between the master and the pupil is similar in all respects to that between the mechanic and his apprentice. This, I say, was the earliest stage of medical education, and it had at least one great advantage. It brought the pupil into direct contact with the objects of his study, namely, the patients themselves. This advantage was forfeited in the next following stage of medical education.

This is the stage of didactic lectures with quizzes to ascertain if the student has assimilated them. Undoubtedly this second stage of medical education had some advantages over the first. Its fatal defect was the substitution of books and charts and lectures and recitations for actual contact with sick and suffering men, women, and children, whom the student was being trained to heal.

The third stage in the evolution of medical education introduces the laboratory. Medical knowledge was no longer gathered up in packages and transferred in the course of a year by daily doses to students in lectures; but the students were required to ascertain the facts for themselves in the laboratories by the actual study of organs and functions. Of course, the knowledge which the student acquired was already in existence—it was known to his professors and friends. But the laboratory method familiarized the student with the process by which new knowledge is acquired. It made him acquainted with scientific methods. It compelled him to take the attitude of the investigator, and he inevitably learned the technique of the sciences. In a single word, this advance in medical education had two enormous advantages. First, it brought the student into actual contact with the phenomena of his profession, and secondly, it stimulated him to mental activity and creation in place of mere passive assimilation and memory work.

The fourth stage of medical education is only just coming into existence in this country. It is the recognition of the hospital as the supreme laboratory of the medical school. To a certain extent this principle has been adopted by all medical schools which have dispensaries for the treatment of milder forms of disease. But a practising physician has to deal not only with diseases in a mild form, but with diseases in severe and alarming forms. These are the cases, however, which fill hospitals. The final stage in the evolution of the conception of medical education recognizes the hospital, therefore, as an indispensable adjunct to medical education. And if the hospital is to be effectively used, the members of the faculty of the medical school must have the same freedom and right of control in regard to it which they possess in connection with their laboratories in the medical school.

No first-class medical school in the United States to-day possesses such a hospital of its own. The Johns Hopkins Hospital, though a separate organization, has, however, formed an alliance with the medical department of Johns Hopkins University. And this medical department with a total annual income of $102,429 has been greatly strengthened by this reinforcement of hospital facilities. The greatest need of our first-class medical schools to-day is the free and unhampered use of hospitals which they own, or absolutely control on the medical and educational side. I have said that Cornell and Harvard are the only two medical schools in the United States which had an annual budget of over $240,000, and neither Cornell nor Harvard owns a hospital of its own or absolutely controls an outside hospital. The only way in which these schools can utilize hospitals is by appointing to their faculties

*An address delivered at the commencement exercises of the Cornell University Medical School, in New York City, June 15, 1910.

ties gentlemen who are already members of hospital staffs. But this fatally limits the choice of authorities of the university in selecting professors for their medical school. In every other professional school of Cornell University we select the best men we can find in the United States or in the world to fill vacancies. But in the case of our medical school we are limited, not merely to the State of New York, but to the City of New York, and not merely to the City of New York, but to the comparatively small number of physicians and surgeons who are already on hospital staffs in the City of New York. It is perfectly astonishing that with all these limitations we have by the exercise of extraordinary care been able to secure such able and well-trained men. But we cannot count on such lucky accidents permanently. The system is altogether vicious. It is impossible that a medical school should reach the highest stage of development on this basis. As a condition of that goal we must either own or control a hospital of our own.

In the old world it is universally recognized that a hospital, which is an institution for the care and healing of the sick, gets as much advantage by having the members of a medical faculty for its staff as the medical college gets by using a hospital as a place of educational research. Indeed, I do not believe I am going beyond the facts when I say it is universally recognized that the preponderating advantage is on the side of the hospital, for the hospital gets in this way as members of its staff the ablest and best trained physicians and surgeons in the country. In Great Britain, in Germany, in France, and in Austria it would be regarded, not only as an anomaly, but as a piece of barbarism if hospital staffs were closed to university professors of medicine, or if men could not be appointed university professors in medicine unless they had previously, on one ground or another, been appointed members of a hospital staff. That, however, is the condition in New York City, and not only in New York City, but generally throughout the United States. Consequently, this great City of New York, one of the largest and richest cities in the world, stands, both in the matter of medical education and medical research, far behind similar cities in the Old World. The way to establish medical education and medical research on a high plane in this city is for the best hospitals to offer positions on their staffs to the professors in our best medical schools. Considering that the City of New York has poor medical schools as well as good ones, a hospital would be perfectly justified in stipulating that a medical school with which it would affiliate itself must have an endowment of a certain minimum figure, a faculty of a certain size and standing, and students who not only pursued a thoroughly scientific course in medicine, but who were also thoroughly prepared by previous training for entrance upon that medical course. If the Roosevelt, New York, St. Luke's, the Presbyterian, and Mount Sinai hospitals would adopt such a policy they would, in a short time, win a place in medical education and research that would rank them with Guy's and St. Bartholomew's in London, the Royal Infirmary of Edinburgh, the Charité of Berlin, the Hotel Dieu of Paris—and that, too, without sacrificing—but, on the contrary, while enhancing—their reputation as humane and philanthropic institutions for the care of the sick and injured. The most vital question in connection with medical education in this State, and indeed, in the United States, to-day is whether the great privately endowed hospitals of this city will recognize the immense opportunity which now stands open to them for self-improvement by offering positions on their staff to the best physicians and surgeons in America whom a medical school like ours desires to secure for every new or vacant professorship in its faculty. It is already too late for our hospitals to win the honor of being the first in America to adopt this policy. The hospitals of St. Louis, Cleveland, and Minneapolis have just made such arrangements with Washington University, Western Reserve University, and the University of Minnesota. Even the Province of Ontario, with a population approximately a quarter of the total population of the State of New York, or half the population of this City of New York, has already got ahead of us. I was in Toronto last Saturday attending the funeral of Goldwin Smith, and a gentleman with whom I was walking pointed out to me the site of a new hospital to cost $1,900,000, and he informed me that this hospital, which was being erected partly from individual subscriptions, but mainly from municipal appropriations, and which was to be maintained from the same sources, would nevertheless be in charge of a hospital staff under the appointment or control of the University of Toronto. Why should not one or more of the great, rich, and successful hospitals of the City of New York adopt on a scale proportionate to its strength and resources the policy which has already been initiated in these other American cities, which is in universal operation in Europe, which will be a source of incalculable profit and blessing to the hospitals, and which will turn the disesteem now attaching to medical education and medical research in our great City of New York into a fame and honor consonant with the greatness of our city and satisfying to the just expectations of the scientific world?

THE HEREDITARY AND CONGENITAL CAUSES OF EXCEPTIONAL DEVELOPMENT.*

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In the brief twenty minutes allotted to me, I can, at best, only refer in a general way to some of the most important causes which tend to produce the exceptional child; those which are of minor importance I shall simply mention. I shall try to make the little I have to say neither too dry nor too scientific, and at the same time hope to interest you.

The causes which affect development, the factors which make posterity abnormal and unusual are largely those introduced and brought about by man. They result from the diseases which he has contracted through centuries, the poisons which he has imbibed, and the artificial surroundings and foreign environment which he has built up for himself. Nature does play some part in the development of exceptional individuals. It is, however, only in the direction of her usual course and in the execution of

*Read at a meeting of the National Association for the Study and Education of Exceptional Children, held in New York, April 21, 1910.

certain of her laws in which she is inexorable. Nature is doing more than this. She is ever striving to bring about the normal. While man is daily surrounding himself more and more with abnormal and unusual aids and an environment which he calls higher civilization Nature is constantly tending to revert to the normal. Whenever through the operation of certain factors there is produced a genius, at once there is a strong effort on the part of nature to revert to the normal. The next generation is of ordinary ability. The son of a genius is not a genius; the great man rarely leaves behind him a great son. Again, when elements of great degeneracy appear through the operation of certain other factors, nature soon renders succeeding generations sterile. If we take a large and comprehensive view of several generations we always find that the majority of both ancestors and progeny tend to a mean level, to a certain grade, characteristic of that family or tribe.

Of the causes which bear on the subject the most important is defective heredity; tuberculosis and alcoholism are next; then follow a host of smaller ones. A great many act in conjunction; a great many are contributory and indirect factors. Each tends to lower the vitality of the organism; each paves the way for its fellow.

The one which I wish to consider the first is also the one which all authorities are agreed upon as being the most important.

A defect in the ancestry, a pathological condition in the preceding generations is the most frequent, the most important, and the most constant cause of defective mentality in the next and succeeding generations.

This ancestral taint most frequently takes the form of a disease of the nervous system. It may be a cerebral hemorrhage, a neurosis, or a paralysis; it most frequently is insanity, imbecility, idiocy, dementia or epilepsy. The statistics which have been collected on this subject show great unanimity. In Norway it was found that in the cases of those who were sufferers from defective mentality the ancestry showed a defective heredity in 50 per cent.; in Switzerland 55 per cent.; in Germany 60 per cent.; in England and in America the percentage was below this, being about 43 per cent. These figures are all, however, sufficiently near together to show that so far as statistics prove anything there is a general unanimity of opinion in regard to the importance of morbid heredity as a cause. It is fair to say that it is the cause in one-half of the cases; I am inclined to think that this is a conservative estimate, as I should put the figures much nearer two-thirds.

Of all the causes of a morbid heredity, two stand out pre-eminent—idiocy and insanity. The one a mental defect, the other a mental disease. Each tends to transmit a most lasting and a most blasting heritage. Each attacks the entire structure, poisoning alike the mental, the moral, and the physical. Each enfeebles the judgment, each exaggerates the sexual impulse. Each tends to unite with any other latent neurosis. And finally each tends to transmit for many years. There are probably no human characteristics so baneful and none so readily transmissible as idiocy, imbecility and insanity.

It seems strange that I should have to give so prominent and so pointed a place to imbecility as a cause of propagating itself. And yet it is unfortunately too true. There is no greater stigma on the human race, no greater disgrace to civilization and to nineteenth century advance than the simple statement that imbecility and idiocy are the causes of further imbecility, of idiocy, and of profound degeneracy in a large number of cases. Koch gives it as the etiological factor in 24 per cent. of the cases.

Imbecility, idiocy, and insanity are not to be considered as the sole hereditary factors. The mere tendency to these conditions, the mere presence of a distinct neuropathic diathesis, the mere existence of an unstable equilibrium may suffice as etiological factors. They may outweigh Nature's efforts to revert to the normal, and if uncorrected by the infusion of good stable nervous tissue, may conduce to further degeneracy and ultimate ruin. Defective environment will here assume an important rôle; it may overcome the ever constant pull to the normal. Modern life, modern poisons, coupled with disease and the unequal struggle for existence, will aid in this destructive work. Finally, there will appear the lowest order of degeneracy. Then will Nature have recourse to her final safeguard. Sterility will follow and the house become extinct.

Another hereditary factor is epilepsy. There are few diseases which exercise a more baneful effect on posterity. A heritage of epilepsy is most easy to transmit; it is most difficult to eradicate; it may remain latent and skip a generation, but it always leaves its impress; it may reappear as epilepsy or it may bequeath to the next generation a neurosis, alcoholism or a more definite stigma of degeneracy. The child of the epileptic is almost sure to present exceptional characteristics. Therefore, epilepsy should be regarded as being a prominent factor in the production of the exceptional child.

Of the diseases which tend to produce exceptional children the tubercular are the most important. No disease does more to lower the tone and to lessen the physical forces than phthisis—the white plague. The peculiar condition of malnutrition which the tuberculous diathesis produces, seems to do more than almost any other factor to bring about an imperfect development of the nervous centers; it seems to transmit with greater ease than any other disease defective nervous tissue. Ireland say that perhaps two-thirds of all idiots are of the scrofulous constitution. I think that the men who take care of the deficient and feeble-minded will tell you that the most common condition which they have to treat is tubercular. Again, is phthisis very important from an etiological point of view, because it is peculiarly liable to cooperate with any latent neurosis of heredity or to emphasize any existing neurotic taint. Either alone or in conjunction with a neurotic diathesis phthisis is to be dreaded. It is a potent cause of bringing about children of exceptional development.

Dr. Hrdlicka made an analysis from the records at the State Asylum at Syracuse. He found that among the parents of the feeble-minded of whom he could get fairly reliable records, that 20.2 per cent. of the male, and 33.7 per cent. of the female succumbed to consumption. This is an enormous percentage, and probably twice as high as any other statistics on this question. I merely mention it because it will fix in your mind the great importance of the tubercular diathesis as a factor.

Cancer, goiter, and diseases of the cardiovascular system have all been given a place by writers on the subject. They do weaken the body structures; they must tend to bring into the world tissue that is far from normal.

I approach the question of intermarriage with some trepidation. There is no question, however, that is more interesting and certainly none of more practical importance.

Many writers have maintained in the past and many to-day maintain that a marriage between first cousins will promote degeneracy and bring into the world hereditary defectives.

Esquirol says that the number of French nobles who, as a result of intermarriage, are defectives is very large. Members of the laity frequently cite the royal families of Europe as affording proof that intermarriages tend to produce abnormal and deficient offspring. The members of some of the Spanish and Austrian houses have intermarried to a large extent; a review of the members and of the different branches of these families shows existing a large percentage of degenerates. Bemiss reported 833 consanguineous marriages; these were all carefully followed, and exhaustively studied. The degree of relationship was of every possible kind, even involving father and child. From these 833 marriages there sprang almost 4,000 children. Of this number there were over 1,000 defectives.

Now, let us look at the other side. Batz is an isolated, ocean-washed peninsula of the Loire, containing about 3,000 inhabitants. They are neither intemperate nor criminal. They lead simple lives. They are well known for their tendency to intermarry. Voisin reported 46 consanguineous marriages in this commune of Batz, yet he could not find a single instance of either insanity, idiocy, or deaf-mutism. Degeneracy among these people is unknown.

It is well known that among the North American Indians intermarriage is not the exception, but the rule. Mr. Bonsall, who was on the last Kane expedition, says that the Eskimos of North Greenland for centuries have intermarried. The same state of affairs is true concerning the South Sea Islanders, and many other savage tribes. Yet it is a well known fact that among these tribes instances of exceptional and unusual development are rare.

Frederick the Great, together with his remarkable brothers and sisters, was the offspring of first cousins. The great Queen Isabella came from strongly inbred ancestry.

I might go on in this way for some time quoting instances on both sides proving little, and only wearying you. The gist of the whole matter is undoubtedly in the fact as to whether the families in whom the intermarrying occurs have good or bad heredity. In the cases of the royal families it should always be clearly before us that for generation after generation there have been imbeciles and degenerates. On the other hand, in the savage tribes the stock has been good, clean, and strong.

I believe that the consensus of opinion to-day is that the consanguineous marriage is not in itself a cause of exceptional development; it may become so, but only when the two contracting parties are descendants of defective stock. The consanguineous marriages serve to accentuate the family characteristic, be that characteristic good or bad. If the family trait is weak-mindedness the next generation will, as a result of the intermarriage, be more degenerate still; if, on the other hand, the family trait is mental strength, the next generation will be fully up to that standard, if not above it.

Langdon Downs says that he is "by no means sure that by a judicious selection of cousins the race might not be improved." I agree to this. I see no possible objection to the intermarriage of cousins so long as there is no defective heredity in the ancestry. If there is defective heredity I see the greatest possible objection.

The literature and the facts which have been collected on the subject of alcoholism as a factor in the production of the exceptional child are full of interest. What, for instance, can be more so than the statement made by Dr. Elam in "A Physician's Problem?" He says that on the removal of the spirit duty in Norway insanity increased 50 per cent. and congenital idiocy 150 per cent. Dahl spoke much in the same strain of the conditions in Norway. Forty years have elapsed since then and we know that in that time there has been an enormous decrease in drunkenness both in Norway and in the entire world. Yet there is an apparent decrease in the number of idiots.

And again this: It is the custom in parts of Scotland for entire villages to become intoxicated at certain times of the year, as for example, during the holiday season. The celebration of this season covers several days. We might then expect that the children born nine months later would be largely imbecile. No one, however, has ever observed this. This is true also of many other communities where the custom is for drinking to take place in entire communities at certain periods of the year, yet the succeeding children who are born nine months later in no way differ from those born in that community at other times and under more normal conditions.

It is, of course, practically impossible to get data which will throw any light on the subject of whether drunkenness at the time of conception in either parent has any effect on the unborn child; it seems to me that such as I have just narrated would be of some value in helping us to reach a conclusion. It ought to be especially so in the cases of some of the fishing villages, where the men are away for long periods and then return to vend their wares and spend their money. In none of these instances, I repeat, are the resulting children in any way different from their brothers and sisters. In this sense alcohol has, to my way of thinking, but little effect. I mean that the isolated debauch occurring at the time of conception can have little if any effect on the next generation. Langdon Down has laid much stress on this subject. He takes the opposite view and states that from personal enquiry he knows that the drunken condition of the father at the time of conception is a potent cause of idiocy.

Dahl thinks that brandy taken by the fathers at the time of conception is a potent cause of idiocy.

Ireland does not embrace nearly so radical a view on the subject.

In weighing this question it should always be borne in mind that the man who goes on a periodic debauch is apt to be the man who has a neurotic taint and who, as he gets older, will, in all probability, increase both the frequency and the periodicity of his indulgences. To my way of thinking it is not possible to prove that a normal man, who becomes intoxicated at the time of conception of his child, is acting as a direct factor in the production of an exceptional child.

When, however, we come to consider alcohol in its broader sense as a factor in the production of unusual and atypical children we have a very different matter. There can be no doubt, it seems to me, that the succeeding generations of alcoholic

parents are weakened physically, morally, and mentally.

Alcohol weakens the resisting powers of the different cells of the body; it forms an hereditary neurosis; it destroys the healthy tissues; it prepares the way for the unusual, for weakened and for degenerate conditions. It does more than this; it conveys its baneful effects to the next generation and sometimes to the third and even the fourth. It is often the direct cause of such conditions as epilepsy, migraine, and conditions of great depression.

Alcohol is a potent cause; it acts both directly and indirectly. Given a mild neurosis, add alcohol to it and the next generation will develop far more than a neurosis.

It should also be borne in mind that alcoholism is itself often nothing more nor less than a symptom, a manifestation of a disordered nervous system, an indication of a neurotic taint. When it occurs in this sense it is, of course, of itself not a direct cause but only an indirect one. However, in those instances, and they are many, in which alcoholism occurs in the parents there is going to be a detrimental effect on the children and on the grandchildren; the family is going to be affected by it. The man who drinks to excess is not the man to have children.

Nor do I believe that the marriage of children of alcoholics can do any good to humanity.

Syphilis is not a factor of great importance in the causation of exceptional children. There are scarcely any observers who have given it a place of more than two or three per cent. There is no doubt but that it does have the effect of lowering the vitality and weakening the powers of the cells. In the instances, however, in which syphilis is found there are frequently other and more drastic causes. One of the main reasons for the low percentage which syphilis occupies as an etiological factor no doubt lies in the fact that nature herself rebels at the prospect of transmitting the syphilitic heredity. She takes her own measures to remedy the impending evil. She produces still-births and short-lived offspring; oftener she blasts the unfortunates with the curse of sterility and miscarriage. Syphilis is more apt to be an indirect factor; the results not appearing until the third or fourth generation.

There are many other poisons which no doubt have a devitalizing effect on the human cell germ. There is neither time nor space here for me to discuss them. One rather important one I wish to mention. It is lead. A certain case is cited by Paul, so unusual as to bear repetition. The mother was free from any toxic or abnormal condition; the father was the victim of lead poisoning. There were 32 pregnancies. Of these, 12 were still-births and 17 died under the age of 3.

Most authors agree that the relative age of the parents at the time of conception is a factor. Duncan, for instance, was of the opinion that premature and late marriages were influential in the production of idiocy. Langdon Down found that in one-quarter of the idiots which he examined there was a disparity of more than ten years in the ages of the parents. I am of the opinion that a man produces better, stronger, and more intellectual posterity before forty rather than after. I believe that this is so because the average city dweller is a better man physically before forty. I believe that a great disparity in years has some slight detrimental effect. These are two causes, however, which do not play any great part in the etiology of the subject.

Finally, there are a host of minor factors, all of which play a part in the production of the exceptional child. These are modern life, with its late hours, its higher civilization, its greater struggles; poverty, deprivation, and hard work. A high degree of anemia and great mental exhaustion in the parents. There are certain telluric influences which cause Cretinism, which is really the expression of degenerative factors. I should not omit the mention of intrauterine conditions, which may result in the atrophy and sclerosis of the fetal brain, and so be the cause of an exceptional child. Those instances where a cystic degeneration, a faulty or maldevelopment of the brain occur are again illustrative as factors of faulty inheritance. They may be oddities of nature, but as such are rare.

The whole matter of the congenital causes of this subject can best be placed under two headings: (1) The abnormal condition of the mother, and (2) the abnormal conditions prevailing at the birth.

I do not believe that the mental condition of the mother during pregnancy is a factor of any importance in producing the exceptional child. A majority of women are very greatly depressed during pregnancy; at some time their condition borders on a melancholia. A few do actually develop such a condition. If their mental condition were to affect the embryo there would be to-day before me a room full of melancholiacs.

The question of shock and fright to the pregnant mother is a somewhat different matter. Baron Percy, the famous French military surgeon, states that at the siege of Landau, in 1793, 59 of the 92 children born within a few months of mothers exposed to the terrors of the cannonading and blowing up of the arsenal were abnormal. Down states that similar results followed the siege of Lucknow. Mr. Ishii, of Tokio, tells of an earthquake in Japan, the effect of which was to bring into the world a large number of idiotic and imbecile children. These are facts, and as such should be given due weight. On the other hand, it should be borne in mind that no similar observations have been made in our own country after either the surrender of Richmond or the great earthquake at San Francisco.

The question of maternal impressions I am going to leave for others to discuss. I believe it is one of minor importance.

The physical condition of the mother I consider to be one of great moment.

Any wasting disease in the mother is going to have an effect upon the embryo; any chronic or infectious disease is equally bad.

Feré found that by injecting a few drops of an alcoholic extract beneath the shell of the chicken's egg he could produce monstrosities. It is, therefore, more than probable that the ingestion of any considerable amount of alcohol by the pregnant woman will have a deleterious effect on the fetus.

It is well known that the women who work in the potteries of France, and who are of necessity exposed to lead, are very apt to, and do, produce deaf mutes and macrocephalics.

Other influences, which undoubtedly exist and do exert an influence over the embryo, but which are not so well established nor so well recognized, are a profound degree of anemia, great mental exhaustion, and physical deformities of the mother.

Abnormal conditions prevailing at the time of birth have some influence in producing the exceptional child. Their importance, however, as an etiological factor is, to my mind, overrated. Pressure on the fetal head, if very severe and intense, may cause a permanent injury. The forceps, if used for too long a time or in too severe a manner, may also injure the child. This latter factor is under present-day conditions rarely if ever a factor. There are instances where the deformed pelvis and a prolonged labor, both singly and together, may act as a cause in producing the unusual child. Asphyxia at birth may act as a cause; it must, of course, be very prolonged and intense; in this way the blood is not properly aerated and, therefore, may exert a toxic effect upon the cells of the brain.

I believe that these are all factors, but I also believe that they are factors which have been given too important a place in the etiological list; parents greatly prefer to think that their defective children are defective through the fault of nature and the accoucheur, rather than through the faults of their ancestors and their own shortcomings.

Primogeniture is often spoken of as a factor. I do not believe that the firstborn child is more apt to be the weak-minded one than the last born. But I do believe that if there is a defective hereditary factor that it will be more apt to appear in the eldest and in the youngest than in the intermediate children. This is probably to be accounted for by the fact that the reproductive powers of the mother in the case of the first born child are not well established; in the last have begun to flag.

The only thing to say about premature birth is that, all things being equal, the seventh month child is more handicapped than the eighth or than the full term child; I mean that if an hereditary taint does exist, the premature child is more apt to succumb to it than the one at full term.

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THE PARADOX OF THE TUBERCLE BACILLUS.*

By IRA VAN GIESON, M.D.,

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This paper may be prefaced by giving the results and conclusions of a study of acid-fast particles associated with and subject to confusion with the tubercle bacillus, both in sputum and in tissues. These particles simulating fragments of the tubercle bacillus are of rather rare occurrence in casual examination of sputum with Ziehl's method, but in systematic examinations of large numbers of sputa in sanatoria the acid-fast particles appear quite frequently, say in 5 per cent. of the daily examinations. The particles give precisely the same reaction in Ziehl's method of staining, as the tubercle bacillus itself and apparently have the same degree of acid-fastness in retaining the dye. The particles, as a rule, take the form of minute spherical or slightly elongated points like tubercle bacilli in miniature, or show in various intermediate stages up to larger and coarser and sometimes budding tiny droplets of the same brilliant red hue as the tubercle bacilli. These particles occur quite uniformly or in more or less densely packed spherical aggregations inclosed often within a rim or halo made by their delimitation from the surrounding material of the sputum. Struck by the peculiarity of the enclosure of the particles as if in a hollow spherical envelope, and by their exceedingly capricious appearance in sputum sometimes suddenly appearing in and vanishing equally abruptly from persistently negative sputum and noting, also, the fact that these acid-fast particles failed to infect guinea-pigs or to develop in appropriate culture media, we accepted the idea that such particles might be fatty food globules making their way into the sputum when coughed up immediately after a meal. This probatory conjecture for the explanation of the particles turned out to be correct, for in examining various fatty elements of food, such as milk, fatty soups, and raw oily foods, precisely similar structures were seen under the microscope when stained with Ziehl's method and decolorized with acid alcohol or Pappenheim's rosolic acid solution. These fatty foods then, especially milk, are liable to contaminate sputum in a highly irregular fashion and to appear as if they were fragments of or aberrant developmental phases of real tubercle bacilli.

In old cheesy material, notoriously difficult in a demonstration of tubercle bacilli, the same mistake is liable to be made, for this material, as might easily be demonstrated by osmic acid and other staining methods, contained numerous fat droplets and probably a variety of the fatty acids and derivates. Among these are certain members of the fatty series the particles of which are acid-fast and may appear under the guise of derivates of the tubercle bacillus, as exhibited before you in the large scale colored sketches copied from camera lucida drawings with the microscopic slides chiefly of bovine lymph node cheesy material.

Feces, containing as they do, palmitic, stearic, and some eight other fatty acids, show these acid-fast fatty particles quite frequently.

The importance of recognizing the fatty character of these confusing acid-fast particles associated with the tubercle bacillus is obvious in practical laboratory diagnosis in the examination of sputum, feces, abscesses, and the like. Besides the possibility of diagnostic errors in cheesy material the proper appreciation of these particles is additionally important because of the mistakes in the literature of the degenerative and reproductive cycles of the tubercle bacillus, which has recently received a fresh and voluminous accession under the stimulus of Much's dubious work of the subject. Schrön, D'Arrigo, Spengler, and others seem wholly averse to the consideration of the real nature of these particles which so readily masquerade in the false role of conjectural "capsules," "granules," and "splitters" supposed to represent degenerative and reproductive phases of the tubercle bacillus.

It is not within the plan of this brief initial communication to give a critical analysis of the literature in which these confusing acid-past particles have been mistaken for phases of the tubercle bacillus, or to detail the literature pertaining to the misapprehension of the paradox of the tubercle bacillus. I wish at present only to express to you the conviction forced upon me by certain experiments and studies to be detailed later, that both subjects have been dealt with erroneously.

What is meant by the paradox of the tubercle bacillus seems too familiar to need any extended explanation. This paradox is synonymous with the

*A preliminary communication from the laboratory of the Otisville Sanatorium of the Department of Health of the City of New York. Read at a meeting of the Medical Association of the Greater City of New York, May 16, 1910, and accompanied by some thirty large wall chart illustrations.

contradiction encountered in finding no tubercle bacilli under the microscope, and still proving their presence by the results of animal inoculation with companion portions of practically identical material.

This has been an old and puzzling paradox to students of tuberculosis, and they have known for some thirty years that old, cheesy material, for instance, of bovine origin, especially, must contain bacilli in some form because it was virulent. But in spite of this, they were unable to demonstrate them under the microscope in smears or sections. The bacilli, or the remains of them, seemed absolutely invisible by the conventional method of demonstration. The most reasonable explanation of the paradox would be that such elusive bacilli had lost their acid-fastness, and then the puzzle would be simple, for such forms would be practically invisible with the methods current for their recognition.

According to his followers, who have built up quite a formidable literature, the prize of solving this important problem belongs to Much. This observer in comparing and contrasting the several methods for staining the tubercle bacillus, found that the ordinary method of Gram, not only appeared to stain more of the bacilli, but also stained here and there tiny granules and minute stavelets (stäbschen) alongside of them. Having thus gotten the hint that the invisible tubercle bacilli might be nonacid-fast, and at the same time of unusual form in minute spherical or miniature stave structures, he extended the intensity and scope of the Gram procedure by prolonged staining of hours instead of minutes.

Applying the modified method to material which was absolutely barren of bacilli by the conventional Ziehl method, it was no great task to convince himself and a good many others that these invisible bacilli had simply escaped detection by methods depending on the property of acid-fastness by losing this quality and had become transformed into these unfamiliar structures of isolated, apposed, or clustered granules and tiny stavelets.

Accompanying Much's work are experiments, which at first glance seem to grasp the question indisputably, although in reality they are extremely loose in catechising the phenomenon and are wide open to sources of error. These experiments consisted, quite naturally in planting bits of the seemingly barren tubercular material in culture media or in the tissues of animals, and from time to time with suitable staining technique watching the proliferation of the nonacid-fast miniature forms of the bacillus and their transformation into the familiar and classical structure of the bacillus in its acid-fast form.

Through abundant corroboration of Much's work, the problem now appeared to be settled and to epitomize the whole matter, the bacillus is regarded as having under certain circumstances a cycle in which, roughly speaking, one-third of its life history appears in a nonacid-fast form eluding detection by our time-honored methods.

One indication alone of the value of this discovery is that this masked part of the life history of the bacillus is coincident with the phenomena of latent tuberculosis, and a revival of the theory of the transmission of the bacillus in this form to offspring is at hand.

If the teaching of this school following Much is true, its importance is secondary only to the discovery of the tubercle bacillus itself. But I feel that a good deal of this work of Much's and his inductions are so fallacious that far from settling and solving the problem he had not even properly approached it, but the contrary had added confusion to the subject.

Much, it appeared from the speaker's investigation on the subject, had fallen into one of those cleverly masked traps which beset every turn of the scientific investigator, whose excuse that truth is often gained by the pursuit of error, is but a poor quibble of the fact that truth is gained through the pursuit of *corrected* errors.

The pitfall in this problem seems to have been the assumption as determined by the monographs, and conscientiously repeated in the text-books, that cheesy material and the like, in tubercular lesions is dead stuff; it is structureless, amorphous, and contains nothing but the ashes of coagulation necrosis.

Consequently, when these tiny bits of chromatin were disclosed in this supposedly lifeless material, it was natural to regard them as the only living constituent of this material; viz., the phantoms of tubercle bacilli, especially since these chromatin particles were the images of what tubercle bacilli might be expected to resemble on the supposition that they had disintegrated or had lost their acid-fastness besides, although not their vitality to culture, nor their virulence to susceptible animals.

The only trouble with this accommodating theory is that it appears to be wrong. Far from having this degradation of structure and being devoid of chromatin life, cheesy material, the avatar of the invisible tubercle bacillus when studied with especially devised technique showed an amazing complexity of organic structure, and a wealth of chromatin particles emerging from hosts of leucocytes in all stages of degeneration. It was truly remarkable to witness (as shown in the wall chart illustrations), the persistence of these degenerating leucocytes with their hosts of extruded chromatin filaments, and myriads of "granules," and "stäbchen" mimicing perfectly what might be expected of degenerating nonacid-fast tubercle bacilli.

Much and his followers seem to have fallen into the old makeshift of setting up cell degenerations as scapegoats for the real article where causal organisms are suspected or badly wanted.

The Much school seems open to this criticism: if they had not eliminated the products of cell degeneration they had not grasped the problem; if they had mistaken these degenerations for aberrant tubercle bacilli or confused the two, a serious blunder had been made on account of the very grave importance of the subject.

Undoubtedly in many of his preparations among the structures described by Much are involuting or aberrant types of tubercle bacilli; but the critical point still remains, that he has not eliminated the mimicry of granules and strands from the surrounding dying or degenerating cells. Quite likely also in some of his preparations he saw no vestigeal bacilli at all, but only their Dromio-like particles.

I feel that Much has not guarded himself against the similar mistake of considering the several "bodies" in cancer, variola, scarlet fever, trachoma, etc., as the real transmission organism. These, I believe, have been clearly shown to be degeneration products. And when these degenerations are dragged in under a brand new label in tuberculosis, it seems time to protest. Besides this, in Much's work the laxness of the experiments, the absence of illustrations, so that one could determine precisely just what the observer was talking about, and

above all the looseness of language seem hardly commensurate with the seriousness due the consideration of a problem of this magnitude. Tuberculosis is the most important of all diseases, and its most important factor is its early recognition, and one of the most, if not the most important factor, therefore, in this is the detection of the tubercle bacillus.

THE USE OF INTERNAL ALUMINUM SPLINTS IN THE TREATMENT OF FRACTURE.*

By WILLIAM S. THOMAS, M.D.,

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No matter how far the operative treatment of fracture may advance toward perfection, there will, doubtless, remain a large majority of cases best treated by ordinary splints and massage. There will also remain a class of border-line cases where a decision whether or not to perform an open operation will depend upon the surgeon's experience and views. W. A. Lane of London is the most prominent advocate of open operations in practically every case of fracture where the skiagram shows misplacement of fragments which cannot be reduced indirectly. Stimson stands at the other extreme and decries any attempt at open operation, except in rare instances. Meanwhile, the number of cases of fracture considered as amenable to open operation constantly increases.

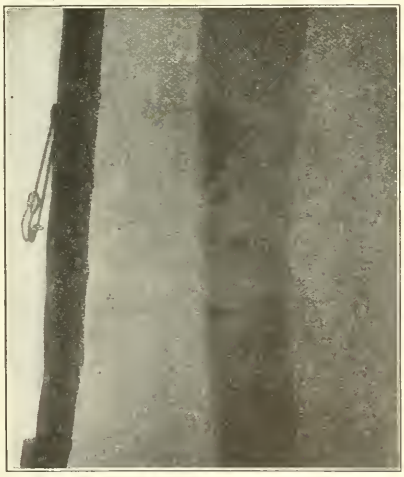

Fig. 1.—Skiagram of Femur with Internal Aluminum Splint in Position.

I will not discuss the *pros* and *cons* of this question, but will describe the method which appeals to me after experimenting with several, as the best operation for general use, namely: that which makes use of steel screws and aluminum plates. Steel screws are used because they have given satisfaction and are easily procured. The principal objection to the common wood screw in bone work is that its thread is not continued throughout its length. Screws answering these requirements, however, may be obtained of Allen and Hanbury in London. On the other hand, if a screw be selected whose point extends into the cortex on the opposite side of the bone it will not fail to hold the splint securely.

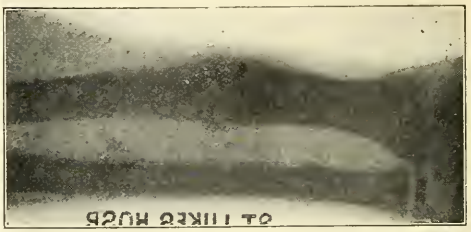

Fig. 2.—Skiagram of Internal Aluminum Splint with Callus Three Months After Operation.

Aluminum is the metal of choice for cleats because, while strong enough, it is easily worked into shape at the time of operation to suit any requirement. A piece of sheet metal of the proper thickness is selected and cut to an approximate shape with scissors. Three or four holes are bored in

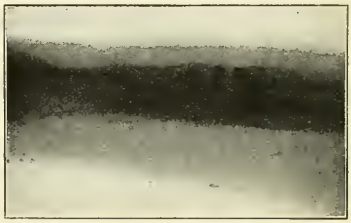

Fig. 3.—Side View of Fig. 2.

it with any sharp steel point and trimmed smoothly with a pocket knife and it is sterilized with the instruments.

Lane has multiplied the number of instruments for use in such cases and has devised steel plates of many shapes and sizes, but if aluminum be used it

Fig. 4.—Skiagram of Internal Aluminum Splint.

is easy to prepare it after the site of fracture is exposed and the particular requirement of the case becomes evident.

*Read before the Academy of Medicine (Section on Orthopedic Surgery), January 21, 1910.

Among the disadvantages of open operation for fracture are those due to the technique necessary with suture or intermedullary splints. Some of these drawbacks are obviated by the use of the aluminum plate. The great amount of trauma, necessary in

Fig. 5.—Side View of Fig. 4.

exposing all sides of the fragments for some distance from the fracture, so as to drill through the bone or apply a splint to its cavity, is quite done away with when a plate or cleat is used to hold the fragments in place. In the latter case it is not necessary to expose much or strip any of the periosteum. It suffices merely to expose enough of

Fig. 6.—Skiagram of Fractured Radius with Internal Aluminum Splint.

the fragments so that the plate may rest against them, without injuring the periosteum more than to puncture it for the screw holes. The ends of the fragments are held in place with a stout hook or elevator slipped under that one which needs to be pulled into place while the plate is being applied. The periosteum may be included between plate and bone without harm. The size of the drill bears a definite relation to the size of the screw which is to follow. A convenient plan is to use a mechanic's wire guage to measure the caliber of the screw which has been selected for use. Then a drill is selected two sizes smaller. This screw, when driven into the bone, will fit snugly and resist great force in attempting to dislodge it. With the plate lying in position, bridging the site of fracture, the drill is put through one of the holes in it and driven into the bone. A screw follows. With the plate now fastened in place as a guide the other holes are drilled in their proper places. The number of screws to be applied will depend upon the tendency of the fragments to become displaced, but there should be in all cases more than one screw on one side of the fracture. Otherwise, hinge motion will be allowed or the screws entirely dislodged.

It has been objected that the screws, acting as foreign bodies and irritants will cause absorption of the bone around them and thus become so loose as to be useless. This objection would seem to apply theoretically more certainly if machine screws with their shallow threads were used than will wood screws, with their deeper, coarser indentations.

Fig. 7.—Suture Ineffective in Overcoming Angular Deformity.

Those plates which I have used have held firmly at least until relieved of their work by natural union of the fragments. On removing both screws and plates I have found them to be firmly enough imbedded to necessitate being pried out of their resting places; but those which I have removed have all remained in place for many months.

W. A. Lane has gone so far as to avoid contact of everything with the wood except his tools and gauze sponges. Not even his gloved fingers are permitted to touch exposed bone or soft parts. His reiterated caution against carelessness in asepsis has caused some of his readers to suspect that he has had unpleasant experiences with infection. There is no doubt that strict asepsis is of great importance in these operations, but on the other hand, bone surgery carries with it no special predilection to infected wounds. Elsberg of this city, the inventor of the intermedullary aluminum splints, has even found pure aluminum to have a distinct antiseptic action. Certainly the danger of infection in the operative treatment of fracture will not be so great when trauma is not so great.

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TONSIL RESEARCH.

By RICHARD B. FAULKNER, M.D. (COLUMBIA),

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PREVENTIVE surgery is identical with preventive medicine as the great aim of modern medical research. The object of surgery is the restoration of physiological function. Surgery has no other object than to restore physiological action. Surgery often fails. "One in twenty bone operations on the nose will prove beneficial" (A. Jacobi, Phases in the Development of Therapy, *Medical News,* November 4, 1905). The best surgery is the least that is necessary.

George Crocker's legacy to Columbia University of nearly two million dollars for the sole purpose of research investigation into the cause and prevention of cancer, indicates a deplorable absence of knowledge upon this subject. And there are other fields in which the want of knowledge is equally deplorable, and in which there is urgent need for research light. Universities, and municipal and national authorities, are thoroughly aroused to the necessity of laboratories for original research in all fields of science. The nose, mouth, and throat need the light of physiological research. An increasing mass of literature pertains to the tonsils alone; permeated by conjecture, contradiction, and confusion. Physiologists know nothing of the faucial tonsils. Their textbooks do not mention them. Special investigators disagree. There is no accord —even as to the definition of a normal tonsil.

"The present period has been aptly termed 'the physiological era' of surgery. To succeed all operations must be based on accurate knowledge of all the conditions which make operative intervention necessary. The surgery of the future will have a lower mortality, not so much because of better technique, but because of better knowledge of the impaired function which it seeks to restore" (John W. Draper Maury, *Columbia University Quarterly,* March, 1909).

"Formerly, surgeons could not and would not perform many operations, which now are performed daily and with very little risk to life. On the other hand, physicians feel, and indeed believe they know, that operations, no matter how skilfully done and with what remarkable immediate outcome, do not invariably lead to apparent good results. They see recurrences, they remark unexpected deaths, they are not unfamiliar with painful symptoms later, which are fairly attributable to previous operations. Further, they ask, *cui boni,* to have an operation successfully performed and to return to the life and conditions which were unquestionably the occasion of the development of the disease primarily, and led to the necessity of an operation." (Beverley Robinson, MEDICAL RECORD, May 8, 1909.) "A surgical success; but the patient died," is a reproachful couplet, now familiar to all intelligent laymen. Operative surgery is overdone. Whenever a child is taken to a physician or specialist "there seems to be a tonsil, an adenoid, or an appendix which ought to come out." Political doctors pursue children even into the public schools, and send them away for operations upon their eyes, their tonsils, and their alleged adenoids!

Elaborate, systematic, research investigation has only just begun. When its light covers the entire field, and its enlightening rays stream into the mouth, the nose, and the throat, the foundations of intelligent laryngological practice, let us hope, will broaden; and the time may come when the question will be apropos, Does the surgeon need his knife? Henceforth, a surgical success must mean the restoration of physiological function. No more. No less. The man with a knife must succeed along the lines of physiological research, or he must not operate. "Just so soon as people can be made to understand that physicians are experts in the management of disease prevention, just so soon will disease be lessened and the sum total of human misery dependent thereon approach the vanishing point" (MEDICAL RECORD, November 28, 1908).

Faucial tonsils of healthy structure are constantly removed by laryngectomists. It is presumption to call all enlarged tonsils diseased. Without regard to function there is a growing habit of removing all tonsils, normal and abnormal—even in babies. "Their existence in the adult is unnecessary, and as they serve no good purpose, they are best removed, if they give the slightest trouble." (H. Holbrook Curtis, Voice Building and Tone Placing, page 72.) "The advancing popularity of the newer term, tonsillectomy, rather than tonsillotomy, is indicative of a general attitude favorable to total excision of the faucial tonsils" (Wm. E. Casselberry, *The Laryngoscope,* June, 1906). "For all these conditions enumerated, depending upon enlargement or degeneration of the tonsils, a positive cure can be guaranteed. No other condition of like importance in the whole domain of medicine is any more amenable to absolute cure than is this condition being considered, and the only rational treatment is surgical, viz., the thorough and total ablation of all hypertrophied or diseased follicle-bearing tissue. Arguments will be advanced that the loss of the tonsils may cause a permanent loss of the singing voice; that the tonsils are valuable bulwarks in giving protection against lung troubles, etc. It is needless to say that these claims enumerated, and all others of the same ilk, are thoroughly puerile and groundless" (Edward Pynchon, *Alkaloidal Clinic,* October, 1897). The complacency with which opinions are sometimes offered as matters of fact is interesting. "It is being more and more recognized that the complete enucleation of the tonsil with its investing capsule is the most satisfactory method of dealing with diseased tonsils. In the following indications it should be remembered that they are given with especial reference to the complete operation, technically known as tonsillectomy: (a) Nasal catarrh, and (b) Ear diseases, (c) Recurrent attacks of tonsillitis independent of ear or pharyngeal complication, (d) Repeated enlargement of the deep glands of the neck, (e) When the crypts of the tonsils are found more or less filled with débris and bacteria, (f) Laryngitis with attacks of hoarseness, crypts diseased, and tonsils hypertrophied, (g) Hypertrophy of the tonsils, (h) Chronic follicular tonsillitis, (i) Follicular pharyngitis, (j) Tuberculous infection of the tonsils, (k) Recurrent acute articular rheumatism following acute tonsillitis" (William L. Ballenger, Diseases of the Nose, Throat, and Ear, 1908, page 395). "Singers and public speakers, with a troublesome subacute laryngitis, whose tonsils are small and fibrous, or enlarged, may be benefited by the complete ablation of the tonsils" (Ballenger, page 364).

Ballenger's remarkable indictment of the tonsils, embracing the foregoing eleven counts, is fairly open to criticism. He presents total ablation as the

only appropriate remedy for all tonsil affections. Many, I believe, will consider this remedy needlessly severe, in a large number of cases. Research investigation and pathological classification seem forestalled, and differential diagnosis has no value when ablation is the sole remedy. The general indictment reminds us of the platitude found in "Science and Health and Key to the Scriptures" (1908, page 79), to wit: "The act of describing disease—its symptoms, locality, and fatality—is not scientific."

To offer tonsillectomy as a succedaneum for every tonsil affection, and for many pathologic disturbances of the pharynx, larynx, and ears as well, is not in keeping with the spirit of scientific research. Again, the strong advocacy of tonsillectomy is weakened by the hesitancy of Ballenger and the strong words of wisdom from his excellent text-book (1908, page 376): "It may still be questioned whether it is good practice to remove the tonsils in the wholesale manner now in vogue. The function of the tonsils in a child and in an adult is still an open question. The last word concerning the treatment of the tonsil cannot be spoken until its exact function is established."

Tonsil diseases are not fatal. But many die from tonsil operations. Tonsillectomy is always dangerous. Some surgeons consider removal of the tonsil more dangerous than removal of the appendix. "In all operations upon the tonsil we should remember the close proximity of the internal carotid artery (Gray's Anatomy, eighth edition, page 919). "Instances have occurred in which this artery has been wounded during the operation of scarifying the tonsil, and fatal hemorrhage has supervened" (Gray, page 491). The danger of scarification is many times amplified by tonsillectomy. The internal carotid supplies the brain, eye, and ear. Its ligation will interfere with the nutrition of these organs. "The arteries that supply the tonsil, from which dangerous bleeding also occurs, are the dorsalis linguæ, the ascending palatine, and the descending palatine, from the external carotid" (Gray, page 757).

Among the accidents which follow tonsillectomy are: Death from hemorrhage, from the tonsil, and also from the internal carotid; injury and laceration of the palatoglossus, palatopharyngeus, and superior constrictor muscles; severe infection of the wound (Ballenger, pages 411, 413); blood poisoning; inflammation of adjacent tissues; removal of one line of defence against microbic invasion (Ballenger, pages 361, 363); development of latent tuberculosis in adjacent glands and pulmonary tuberculosis (Ballenger, page 363); incomplete tonsillectomy with recurrent tonsillitis; extreme contraction of tissues; troublesome cicatrices; reflex nemoses: noises in the ears; affection of the tympanum: deafness; visual affection; alteration, impairment, and loss of voice.

Is the faucial tonsil an absorbent organ? Is it a portal of entry for microbic invasion? "In what manner and to what extent infectious material is absorbed by the tonsil appears to be a subject still open for active discussion" (Rufus B. Scarlett, Monthly Cyclopædia and Medical Bulletin, Philadelphia, December, 1908, page 667).

Dr. George B. Wood, in an article on "The Importance of the Upper Respiratory Tract in the Etiology of Cryptogenous Infections, Especially in Relation to Pleuritis (*Annals of Otology, Rhinology, and Laryngology*, December, 1908) states: "For an infection to start there must be some portion of the throat which may act as a gate of entrance. As lymphatic tisue is the tissue *par excellence* for the propagation of infection, it is natural that one should suspect the tonsils of showing lessened resistance. By the tonsils I do not mean the faucial tonsils alone, but also the pharyngeal and lingual tonsils, the lymphoid tissue of the lateral folds of the pharynx, and the lymph follicles of the posterior pharyngeal wall. However, as the faucial tonsils would generally represent by far the greater amount of lymphoid tissue in the throat, these structures are much more open to investigation, and hence the greater part of the work outlined in this paper pertains especially to them." Why Dr. Wood considers it "natural that one should suspect the tonsils" is probably for the reason that with many it has become a matter of habit to blame the tonsils. The case seems like the story of the boy who was twice arrested for stealing, and both times discharged for want of evidence, but, on the third occasion, he was convicted of suspicion.

"The faucial tonsils are much more open to investigation." True. It is also true that the other lymphoid tissues in the fauces and pharynx are exceedingly intricate in their distribution, cover large surfaces, and are vastly more difficult if not impossible to investigate thoroughly in regard to absorptive function. The great network of lymphatic structures in fauces, pharynx, and postnares, has not been thoroughly investigated by anybody. Beyond his preliminary statement, at the beginning of his article, namely, that "the faucial tonsils are much more open to investigation" than the neighboring lymphatic tissues in the fauces and pharynx, Dr. Wood makes no further mention of the latter structures, but quotes numerous cases, from many sources, alleging infection through the faucial tonsils as sole portals of entry. The lymphatic tissues of the fauces, pharynx, and postnares are very active absorbents. In not one instance, among the many cases reported by Dr. Wood, were these tissues said to be involved. Unless Dr. Wood can show by fair evidence that these tissues were not involved in the process of absorption, in any given instance, then it cannot be admitted that the faucial tonsils were the only portals of entry.

No investigator has ever succeeded in any instance in proving that the faucial tonsil alone was the sole portal of entry of an infection. This will be exceedingly difficult to prove, if at all possible, in a living subject. "We are seldom in a position to separate the tonsil from its neighborhood during the acute invasion or the rapid progress of a microbic or toxic poison. In cases of membranous throat disease, whenever the membrane is limited to the tonsil there is little or no glandular swelling in the neighborhood. On the other hand, if a membrane extends from the tonsil to its neighborhood, or starts at a distance from the tonsil, neighboring lymph bodies swell at once. Again, the treatment of this neighborhood shows its effect almost immediately on the swollen glands. That is mostly evident where the seat of the membrane is anywhere in the posterior nares which contain an immense network of lymphatics. These clinical observations have stood the test of time and must be reckoned with" (A. Jacobi, Tonsil as a Portal of Microbic Invasion, *Archives of Pediatrics*, July, 1906). Dozens of years ago I could prove that diphtheria when limited to the tonsils was least dangerous. The

thousands of other lymph bodies disseminated in the fauces and posterior nares are more guilty than the two dozen which form the tonsils. It is they that should be considered in the preventive treatment of all the infectious diseases of childhood" (A. Jacobi, Phases in the Development of Therapy, *The Medical News,* New York, November 4, 1905). It is reasonable to conclude that as long as a tonsil is normal, not inflamed, either acutely or chronically, it will behave more or less like a normal tonsil treated on the laboratory table. That is, almost like injection material, living invading material may enter the lymph circulation, or the blood circulation, provided there is a break in a wall, but not with the same facility as injection material forced in. A surface lesion must always be supposed to exist when a living germ or toxin is to find access. There is only one exception. Stoehr has shown small gaps between the normal epithelia of the surface of the tonsil. It looks rational, therefore, to admit that when there is merely a surface lesion, though ever so slight, there may be an invasion into the tonsil. When, however, the vessels are exposed to pressure by newly formed cells or tissue, there is no invasion, certainly not beyond the tonsil itself, no ganglionic swelling, and no toxic poisoning. It is even rational to believe that now and then, when tonsils, or what is more common, a single follicle, become inflamed, the very venous obstruction will exert the bactericidal influence of the stagnating blood serum.

Laboratory injections into the normal tonsillar structure are made under pressure, and prove nothing, or very little, for the unembarrassed organ when *in situ,* and surely not under pathological conditions.

Microbic invasion through the tonsil is not predominant over that which takes place through the lymph apparatus of the pharynx. Membranous affections limited to the tonsil cause no, or little, adenitis or constitutional symptoms.

The lymph current near the tonsils is less active than that of the pharynx at some distance. There are, moreover (Labbé), no lymphatic sinuses round the tonsil. There is a system of closed canals in the follicles which do not open into the connective reticulum. This observation of Retterer is confirmed by Hodenpyl. The external deep surface of the tonsil is covered by a firm fibrous capsule. This capsule is sometimes so disposed as to send along the tonsillar blood-vessels a network of fibrous tissue. It sends off connective tissue into and between the folds of the mucosa.

Exposure, and many diseases, change the surface and the structure of the tonsils. Cell infiltration and cicatricial tissue render absorption less possible. Blood and lymph vessels are compressed and undergo atrophy. That is why in advanced life the tonsil gets harder and smaller, and infections become less. (A. Jacobi, *Archives of Pediatrics,* July, 1906).

"The results of studies by Labbé, Retterer, Hodenpyl, and Most justify the conclusion that there are nets of lymph vessels inside the tonsil which do not open into the connective tissue reticulum, and that injections made into the region of the tonsil (not even into the tonsil itself) would not spread like those made into other parts of the nasopharynx. It would appear, therefore, that the tonsil and its immediate neighborhood are rather inferior, in regard to facilities for absorption, to the rest of the pharynx and nares, with their lymphatic pharyngeal ring."

Grober adds: "It is not possible, however, to remove the tonsil entire; besides, after its removal, there would be left behind, in the other parts of the lymphatic pharyngeal ring, apparatuses of equal anatomical and functional value which would assume the rôle of the tonsil" (A. Jacobi, Tonsils, or General Lymph Apparatus of the Pharynx, Which? *Archives of Pediatrics,* September, 1906).

The faucial tonsils are peculiar organs. They possess an anatomical character different from other tonsils, and from other lymphatic tissues. They are innocent organs, with functions chiefly confused by medical literature. Their blood supply is scant; and they have almost no communication with the lymphatic system. They are not absorptive organs; and no one has demonstrated that they contain any particular quantity or quality of antitoxic fluid, or phagocytes. Their crypts are lined by mucous membrane having the ordinary function of other mucous membranes so far as known. They are distinctly separated from the very active absorptive and bacteriolytic lymphatic structures of the fauces, pharynx, and nose. From the segregated position of the faucial tonsils; from the fact that the external deep surface is covered by a dense fibrous capsule; from the fact that this capsule sometimes sends a network of fibrous tissue as outrunners along the tonsillar blood-vessels (Hodenpyl); from the fact that the faucial tonsil contains a system of closed lymph canals in the follicles which do not open into the connective tissue reticulum (Retterer, confirmed by Hodenpyl); from the fact of the relative innocence of diphtheritic membranous processes when limited to the tonsil, and the absence of constitutional symptoms in these cases (A. Jacobi); from the fact that there are no lymphatic sinuses around the tonsil, and the further fact that the lymph current near the tonsil is less active than that of the pharynx at some distance (Labbé); from the fact that injections made into the region of the tonsil (not even into the tonsil itself) do not spread like those made into other parts of the nasopharynx (Labbé, Retterer, Hodenpyl, Most, Jacobi), the author concludes that the function of the faucial tonsil is chiefly, if not solely, mechanical. It is an important phonetic organ. It has other mechanical uses. It should not be removed without cause.

"Lymph nodes are structures so placed in the course of the lymph vessels that the lymph, in flowing toward the larger central trunks, passes through them, undergoing a sort of filtration. In the majority of cases, lesions of lymph nodes are secondary. The exact nature of these more diffuse masses of lymphatic tissue is too little understood, as indeed is that of the lymph follicles and glands themselves" (Delafield and Prudden, Text-Book of Pathology, eighth edition, 1907, page 442). "The nature of the process or processes of lymph formation is still a matter of keen debate" (Adami and Nicholls, Principles of Pathology, 1909, vol. 2, page 104). "The tonsils *appear* to have an important function" (Adami and Nicholls, page 392). They are not sure.

"A further important function (of lymphatic glands) is said to be the formation of leucocytes" (Adami and Nicholls, page 209). Again, not sure.

"I am disposed to think that the faucial tonsil in a healthy throat constitutes an organ of but trivial significance. That the tonsil, however, constitutes an intimate part of a healthy throat can scarcely be questioned in view of the admirable and exhaustive observations of Retterer" (F. H. Bosworth, Dis-

eases of the Nose and Throat, 1892, vol. 2, page 15).

"The organs of the human voice are related to many interesting inquiries in science and philology. In reviewing the writings of physiologists we observe defects which are obviously to be ascribed to the great complexity in the organization, and the real difficulty of the subject; but there are others which arise from the habit of resting contented with assigning one use for a part in the animal frame, whereas there is nothing which should more excite our admiration than the variety of offices destined to be performed by the same organ. This is especially true with regard to the organs of the voice" (Sir Charles Bell, The Organs of the Human Voice, Philosophical Transactions, London, 1832). "Every change in the shape of the passageway through which the voice is passed occasions a corresponding change in the quality of the voice" (Alexander Graham Bell, Mechanism of Speech, 1909). And no one can foretell what the change will be. The faucial tonsil is a natural organ, and should not be removed any more than any other natural organ. The mouth is an acoustic cavity. If you alter its walls, by removing the tonsils, you will necessarily change the voice. The faucial tonsil is an important phonetic organ; and it has, also, other undoubted mechanical functions. The great original work of Dr. Scripture in experimental phonetics, and of Professor Alexander Graham Bell, Dr. Henri Marage, and others, on the mechanism of speech, will enlighten, broaden, and improve the practice of laryngology. Medical and philological research regarding the faucial tonsils is badly needed.

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ANESTHESIA IN ITS RELATION TO THE GENERAL PRACTITIONER.

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Paul Bert has, not inaptly, likened the administration of an anesthetic to a journey along a narrow road beset with difficulties on either side, where an imprudent or ill-advised step to right or left may imperil life or prove fatal. And yet it is probably true that of the whole curriculum of our medical schools to-day there is not a subject concerning which the average graduate possesses less theoretical or practical knowledge. The majority of our colleges give the subject no place whatever—thereby implying to the student that it is one of minor importance, that anybody can give an anesthetic, and creating in his mind a sort of careless contempt for these powerful agents. From this attitude of complacency he is apt to be rudely aroused when for the first time he is brought to face some one of the alarming conditions which sometimes complicate anesthesia, with which he must deal promptly on his own responsibility, and to meet which he realizes his knowledge is inadequate. Is it surprising that the mortality under anesthetics has been heavy, and that it is perhaps increasing? It is true that anybody may give an anesthetic, and the patient may live (if he has luck on his side). So may anybody draw a picture which might be recognized as a man or donkey, as the case might be, but the work is not likely to be very artistic to say the least. Many an unoffending victim has been unduly and ignorantly "soaked" with an anesthetic and left to recover at his leisure, by the help of a long-suffering Providence and a good constitution. Here is undoubtedly to be found the source and reason for many of our cases of "ether pneumonia," aggravated nephritis, gastromesenteric ileus, acidosis, etc., so conveniently blamed on the anesthetic itself, for in these matters also Providence is apt to be on the side of the heaviest battalions, as represented by proper and careful technic. Safety in anesthesia cannot be attained without knowledge and experience, which means not only ability to detect untoward symptoms in their incipiency and make prompt application of the remedy, but ability to so conduct the anesthesia as to prevent their occurrence, in the ordinary case at least.

Our patients are as much entitled to the best of anesthesia as they are to the best of surgical talent. But many a physician will think his duty done if he spares no expense or effort to secure for his patient, who is about to submit himself to the trying ordeal of a grave surgical precedure, the very best operator he can find, assuring him, as far as may be, of accuracy in diagnosis, skillful, scientific surgical technique, and protection against infection, while he may not have given a second thought as to who is to take the life of his patient in his hands to guide him, for hours perhaps, along this narrow pathway separating safety from danger or death, under the influence of one of the powerful drugs which so profoundly modify the vital functions of the body as to produce the mysterious condition which we know as surgical anesthesia. He thinks only of the end, overlooking a very important means. His surgeon is capable—his anesthetist may be inexperienced, a student who has not studied, a layman, druggist or what not—anybody. It is not at all an uncommon event to find such a patient approaching his operation in a most distressing condition of nervous dread of the anesthetic, as compared to which his fear of the knife is as nothing. He may know from former experience, or from friends, something of the suffocation, choking, strangling, and the miserable nausea following many a faulty administration, and the feeling of his utter helplessness even to protest in any crisis that may arise unites with this knowledge to produce a mental condition which presents a very real difficulty to the anesthetist. The patient has confidence in his surgeon. He should have opportunity to know, or reason to trust, his anesthetist as well, thereby removing to some extent an element which often modifies the success of the whole operation much more than is generally appreciated, viz., fear of the anesthetic.

Like many other branches of medical science anesthesia is advancing, and the time is not far distant when its proper relation to the surgery of to-day will be more fully and generally recognized. It is true, however, that for a good many years real progress has been slow, and until comparatively recently the question of anesthesia and anesthetics has been as old straw threshed over and over, yielding only an occasional grain of added truth or fact to our knowledge. A reason for this is not far to seek when we consider the indifference of the profession in general, and that it has been the custom invariably to refer all inquiry on the subject to the surgeon as the one entitled to speak with authority. The studies and observations of our surgeons have been of great value, but as a matter of fact the surgeon, whose mind is engrossed with his operative work, technique, and concern for results, has neither time nor opportunity to note the changes his patient may be undergoing as the result of the anesthetic,

and it not in a position to draw reliable conclusions, or to work out and apply details of administration. With him the anesthetic cannot be the first consideration, and his impressions are based on effects rather than on incidents as they occur, which combine to produce these effects. The experienced anesthetist was seldom heard from. In fact experienced anesthetists have not been plentiful, principally because of the attitude of medical men toward him and his work, belittling his position, withholding their support, restricting his freedom, dictating his treatment of his patient, mistrusting his judgment. There has been little inducement or encouragement, pecuniary or otherwise, for the capable or ambitious medical graduate to devote himself to work along these lines. From the standpoint of credit due it has always been the operator alone who has been named and lauded for great results obtained, for cures wrought, for relief given. The position of the anesthetist has been a thankless one and if he were named at all it would probably be to raise a question as to his reponsibility for a death on the table "under the anesthetic." But to-day the medical press, at home and abroad, is arousing the profession to a fuller recognition of this neglected subject, urging the appointment of experienced men in hospitals, a proper training of students in our medical colleges, and sufficient requirements by licensing boards. The work of such men as Clover, Hewitt, Boyle, Buxton, Luke, Bennett, Allis, Gwathmey, Teter, Cunningham, and many others, has brought to light many important and impressive facts. As a result the mass of laymen is awakening and the obscurity of the background beyond the brilliant light of the "miracles and wonders" of modern surgery is clearing, so that all concerned may know something of the important modifying effect in surgery of a good or bad anesthesia. This is the era of the specialist and the day of the specialist in anesthesia is dawning.

It is impracticable, however, for all of us to be specialists, even if we would. Nor will we find it practicable always to have a specialist at hand when required, if we would. Every medical man will find himself called upon more or less frequently to administer anesthetics in the emergencies which arise in the course of his practice. It is one of the responsible duties which go along with the "rights, privileges, and honors" conferred by his diploma. Such being the case, while we are all as a matter of course interested in the fuller development and perfection of the many sides of this important branch of medicine, we should make it our business to familiarize ourselves with the effects, indications for, and difficulties attending the use of one or two anesthetics, and be able to give them reasonably well. Impressed with this idea, it will be the object of the writer to discuss briefly in this paper, in a general way, the two most common anesthetic agents, viz., ether and chloroform, to bring out a few points which seem of special importance, and, if space permits, a few general principles which he has endeavored always to bear in mind.

Since the period of their first introduction, some half century or more ago, ether and chloroform have rivaled each other for place in the surgeon's favor. At different times and in different localities they have alternated with each other as anesthetics of choice, one or the other having the advantage as some new fact has been brought to light, favorable or otherwise. Chloroform has nearly always been more popular in tropical countries for obvious reasons, also in Scotland where it was first used as an anesthetic. For the purposes of this paper we will pass over all history, the endless discussions relative to the merits and demerits of the two, reports of investigating bodies, etc., yielding the point that each has its own proper place in anesthesia, merely observing that the man who is thoroughly familiar with the use of both will obtain better results in general than from the exclusive use of either, and that in regard to these, as of all anesthetics, the personal element of the administrator himself is a more important factor than the particular drug or inhaler used.

In selecting an anesthetic for any given case we are influenced by several considerations—the safety, type, condition, and age of the patient, the nature of the operation, the skill of the anesthetist, the preferences of the operator, first and foremost in the mind of every conscientious man being the safety of the patient. For purposes of comparison of the toxicity of the several drugs mortality statistics are available, which have been made as reliable as possible and furnish a basis upon which we may work. The latest obtainable are as follows: Chloroform, 1-3,000; ether, 1-16,000; ether (by drop method), 1-30,000; nitrous oxide, 1-50,000; nitrous oxide, with oxygen, no deaths reported.

The most casual glance at these figures cannot fail to impress us with the evident wide range in toxicity of these three common anesthetic agents, and applying to our practice the principle which binds us to select the safest anesthetic possible for any given operation our attention is at once directed to nitrous oxide with oxygen. In the work of the general practitioner, however, the special, costly, complicated apparatus and skill required to make it satisfactory, the bulk and cost of the gases (about $5.00 per hour of administration), constitute a serious objection. But for hospitals and for special work there are numerous factors which seem to point to this as an almost ideal anesthetic. For instance, as regards safety in particular, we note that not a single death has been reported from the use of nitrous oxide with oxygen. It may be mentioned that Bellamy reports four million administrations in England in four years with no deaths. There are, perhaps, in America 100,000 administrations annually, so far without fatality. Martin has kept dogs anesthetized for three days without apparent injury. Gatch of Johns Hopkins has maintained anesthesia for five hours without so much as a headache following. It is not the intention, however, to attempt a discussion of these gases in this paper.

As between ether and chloroform our comparative figures show the former to be from five to ten times as safe as the latter in its immediate effects, and there can be little doubt that in after effects the ratio in favor of ether is still greater. Ether by the drop method is unquestionably the safest and most satisfactory routine anesthetic we have today for general practice. Given in this manner, with reasonable care, the element of danger is reduced to a minimum. It is a comparatively hard thing to administer a dangerous overdose without sufficient warning from the gradual failing respiration and changing color of the patient. When dealing with ether the practically simultaneous stoppage of respiration and circulation which may occur with the too rapid administration of chloroform is unknown if the patient be even moderately healthy, and however failure of respiration may arise, the

circulation of the patient, when breathing ceases, is sufficiently good for proper remedies to be almost always successful.

Ether is stimulating, while the essential characteristic of chloroform is depression, and though paralysis of the respiratory center is generally the cause of fatalities, it is often accompanied or very closely followed by paralysis of the circulatory center, and primary cardiac failure is not unknown. In fact, with chloroform, especially if rapidly given, the patient may die so suddenly that the order in which the fatal symptoms arose is impossible to recognize. In summarizing answers received to a circular letter sent by him to one hundred prominent American surgeons regarding a choice between these two drugs for anesthetic purposes J. E. Lumbard says: "They show that there has come to be an almost universal consensus of opinion in favor of ether, except in very special circumstances." Pulmonary and nephritic complications are on the whole no more probable under ether than chloroform. A great deal of experimental and investigating study of the pathological effects of ether and chloroform has been done in recent years, and much can now be authoritatively stated to the disadvantage of chloroform which heretofore was merely suspected. It has come to the point where the more experienced and better informed the physician is in regard to the toxicity of this drug, the more usually is he afraid of it and will refuse to give it except to a few exceptional cases. First, is its high primary mortality; second, its possession of an apparent selective action on the circulatory apparatus. Very sudden and unexpected diminution of blood pressure may occur at any time during its administration, and we can never be sure of the heart action; third, it is not only depressant to animal vitality, but is poisonous to protoplasm. According to Stiles chloroform causes, in some cases, fatty degeneration of the ganglionic cells of the heart and of the cardiac muscle fibers, the muscle cells of the body generally, the cells of the viscera and glands (particularly the liver), and the coats of the blood vessels. These changes may produce fatal results long after the drug has been administered.

Thus we see that chloroform not only produces narcosis but is capable of entire destruction of nerve and other tissues, causing first cessation of function, further on making it impossible of resumption. Of course, the most important factor as regards safety is that of dosage, which, if properly regulated, makes all the difference, but the margin between safety and danger is so small that the possibility of overstepping is never absent.

Of the after effects of ether and chloroform certainly the most frequent and that most complained of is vomiting. This varies from a transient nausea with a little mucus to prolonged retching and vomiting lasting for days. In this connection much depends on a careful preliminary preparation of the patient, next to which the amount of the anesthetic and manner of its administration will influence the result. Ether by the drop method, necessitating a large percentage of air with the anesthetic, avoids the cyanosis and carbondioxide poisoning which a closed inhalation adds to the irritation of swallowed secretions. In the writer's experience with this method ether nausea to any very troublesome degree has been nil. He believes that vomiting after ether in its worst forms is due, in a majority of cases, to an insufficient dilution with air, that sickness arises in much the same way as from the prolonged inhalation of any heavily laden carbon dioxide atmosphere, and that because of the character of the drug there is no more reason why a patient should be nauseated after he has rid himself of the ether-impregnated mucus which has been swallowed (which usually occurs before consciousness has fully returned) than after a moderate dose of alcohol. On the other hand vomiting following chloroform, while perhaps not quite so frequent, is apt to be more severe and prolonged, and arises not from local irritation of the digestive tract, but from interference with general metabolism. It is not nervous but toxemic in origin and due to more or less profound depression of the hepatic function, all the greater if the liver be weakened by disease. There appears to be little doubt that the prolonged vomiting sometimes seen after chloroform is but an early sign of the delayed chloroform poisoning which may, and often does, end fatally.

As regards nephritic complications, it seems to be fairly well established that neither ether nor chloroform are likely to produce more than a temporary albuminuria where there has been no preexisting renal disease. Nephritis and uremia have followed etherization in cases possessing unhealthy kidneys. The choice has usually fallen to chloroform in these cases, but the wisdom thereof is open to question and in fact both drugs are contraindicated in well-marked renal disease, or must be given with the greatest caution.

The question of glycosuria and acetonuria following ether and chloroform is of the utmost interest. Dr. Beesley of Edinburgh has done some valuable work along this line. A summary of the results of his observations on delayed chloroform poisoning would be of interest; but space forbids. The most important fact brought out seems to be that while both ether and chloroform invariably produce a temporary acute acetonemia, that of ether is less harmful because ether itself is less harmful to the cells of the liver and kidneys, and so does not interfere with elimination. It appears that very many cases of death a few days after operation which have been attributed to "septic intoxication" have really been due to acute acetonemia from chloroform, and failure of the kidneys to excrete the acetone with sufficient rapidity.

"Ether bronchitis" or "ether pneumonia" is the great bugbear and has been the pet argument of the chloroform advocates. The frequency of its occurrence has been very greatly exaggerated. Bronchitis and pneumonia do occur occasionally after ether, and no doubt many cases have been unjustly attributed to the anesthetic. A certain number of hospital cases will develop these troubles independent of any anesthetic, and in such their occurrence after the administration of ether may be mere coincidence; further they may arise from the use of dirty inhalers; from aspirated discharges from a septic nose, mouth, or pharynx, or vomited material; the operating room may be too cold, or the patient may be taken improperly protected through draughty corridors, or placed in bed near an open window. The proportion of cases of true ether pneumonia will be infinitesimally small under proper conditions of surroundings and administration. But while it is questionable if the refrigeration of the lungs from the inhalation of ether is ever in itself a cause of pneumonia, it certainly does mean a great expenditure of body heat at a time when this is much needed. When we consider that

the alveolar air space, in area something like 100 times the body surface, is being exposed to the icy vapors of ether, which the blood must warm to body temperature, the importance of this factor, as a predisposing cause of shock at least, appeals to us. Cunningham and Anderson have determined by careful experiment the temperature of inhaled ether vapor to be approximately 10° above zero, and have estimated that it requires 21,000 calories of body heat to warm each ounce of ether used. Expressed in other terms, sufficient energy in the form of body heat is dissipated during an ordinary operation under ether to sustain an average-sized man for a whole day. These figures are rather striking, and while it may not be practicable in general practice to adopt measures of warming ether vapor before inhalation, they impress us with the importance of conserving this energy for combatting possible shock by preventing unnecessary exposure during and after administration.

The deduction we draw from all the foregoing is that chloroform is an exceedingly dangerous drug to employ and should never be used for any operation which can be at all properly performed under ether. As absolute contraindications to ether may be mentioned active bronchitis, simple or tuberculous, latent or stationary pulmonary tuberculosis, and operations necessitating the actual or thermo cautery about the mouth. Aside from these the number of conditions in which ether may be satisfactorily given, which have been supposed to indicate chloroform, is surprising. It has been rather generally believed that women in parturition and young children enjoy special immunity from danger under chloroform, but this has been proven untrue and both women in labor and children will die readily if overdosed. It may be true that by reason of posture, high blood pressure, and stimulation of respiration and circulation by the pains, women in labor are fairly favorable subjects for chloroform, and on account of convenience and quick action it may be used in ordinary labor cases where full anesthesia is not required. But it should be remembered that the very same stimulus to full respiration which seems to protect may likewise menace through a quick overdose, and in all cases where operative procedures under full anesthesia are contemplated ether should be used if possible.

The difficulties and dangers attending this work must never be lost sight of. Personally I never give an anesthetic without having at hand such apparatus as may be required in dealing with emergencies, remembering that trouble is quite as likely to arise with strong, healthy individuals, who are more apt to resist and get an overdose, as with those who are comparatively feeble and yield readily to the drug. These things may not, probably will not, be needed, but, if they should be, delay while procuring means of treatment may mean the loss of the patient.

Dangers to life may arise primarily in connection with either respiration or circulation, but when conditions become really serious both of these great systems are usually involved. In the administration of ether it is the respiration which claims our first attention. Failure in this may be due to local or mechanical causes interfering with breathing, or to causes central in origin. The airways must be kept clear, and it is necessary to know by the sound of the breathing that such is their condition. A rule which soon becomes a sort of second nature should be that every expiration must be heard or felt in order to make sure that efficient breathing is going on. Unrecognized obstruction to breathing is one of the main elements of danger.

Mechanical or local obstruction to respiration may exist or arise anywhere in the respiratory tract. Polypi, spurs, deviations of the septum, etc., in the nose, valve-like action of the lips in the old or edentulous, falling of tongue against the pharyngeal wall, large tonsils, adenoids, abscess, foreign bodies, such as teeth, food, vomited material, or blood, which may be aspirated. I once relieved a man of his quid of chewing tobacco, and discovered a toothplate working toward the pharynx of a maiden lady who had indignantly denied the possession of any such perquisite to the nurse in the ward. Excessive mucous secretion may accumulate in the air passages. Spasm of the laryngeal or chest muscles from irritation of the anesthetic or from reflex causes; large abdominal tumors, tympanites or fluid in the cavities hampering the action of the lungs or diaphragm.

Symptoms develop suddenly or gradually according to the cause and completeness of the obstruction. Respiration becoming noisy, duskiness of ears and lips showing insufficient oxygen, and increasing until the patient is almost black in the face if the obstruction be complete, the pulse not altered at once but failing unless relief is obtained, and the respiration growing feebler and more irregular. The color of the ears and lips is to me a definite and reliable physical sign, denoting whether or not all is well, and in the use of ether these, with the character of the respiration, are observed more carefully than the pulse. It is not sufficient merely to see the movements of thorax and abdomen for these may continue quite long enough after air entry has become obstructed for damage to be done and serious asphyxiation to occur. Asphyxial factors must be differentiated as they arise and eliminated without loss of time, otherwise the patient will suffer, if not in loss of life, certainly in after effects.

Aside from obstruction, the respiration may fail from shock, loss of blood, or overdose. This will come on more slowly and be preceded by marked ashy pallor. Sometimes when an incision is made under light anesthesia the respiration may be stopped reflexly. Again in connection with the act of vomiting, under light anesthesia, the breath will often be held and temporary cessation of respiration result. This may occur at any time during an operation, especially if there be any manipulation of the abdominal viscera, but, though embarrassing, is not serious, for the anesthetist is master of the situation and the condition will rapidly improve if the anesthetic be pushed to a deeper degree.

Concerning circulatory difficulties it may be said that cardiac syncope, by far the gravest danger that can threaten one who takes an anesthetic, is practically unknown in the use of ether, but when it occurs does so almost always in the administration of chloroform. It may come not only in the weakly individual, but in the healthy adult male, and often when the operation to be performed is but a trival one. Many cases have followed chloroform given to a patient sitting in a chair for tooth extraction. It may occur at any stage but is most common at the very beginning. The most usual cause, the most fatal and the most difficult to treat, is overdose, though fright in the beginning and reflex inhibition during operative procedures are also to be mentioned. Much has been said on this subject by writers on anesthesia and several explanations have been brought forward. For our purposes, and

briefly, let it suffice to say that when in the early induction stages a too concentrated vapor is given to a patient, he holds his breath and struggles. The intrathoracic pressure is raised, the venous system congested, the arterial tension lowered, less blood and oxygen are supplied the heart and the heart muscle is weakened. Then comes two or three deep inspirations, for the breath cannot be held indefinitely. A large dose of chloroform is drawn into the lungs, passes to the already weakened heart which is thrown into an acute paralytic dilatation from which recovery is rare. Fortunately I have never had such an accident, but I have witnessed several deaths in young subjects from syncope under chloroform. In none was there any warning sign, but with startling suddenness the patient blanched, respiration and pulse failed, eyelids partly opened, and to all appearances death was almost instantaneous.

In the milder forms of syncope more warning is given and fortunately there is much more prospect of rescue. Death from failure of circulation other than syncope is probably due to the effect of the drug on the medulla, already anemic from lowered blood pressure which always accompanies the use of chloroform.

Treatment cannot be considered at this time further than one word, which should be a watchword—prophylaxis.

In conclusion the writer would say that he considers it the first duty of the man doing this work to be always (in slang parlance) right on the job. Certain classes of cases are, of course, attended with especial difficulty. These will naturally be treated with the utmost caution on the part of the anesthetist, and with all the skill he possesses. But it seems to me of the greatest importance for every man who practices anesthesia, if he would escape distressing accidents, to impress his mind with the fixed idea that every case is a study in itself, involving its own peculiar risks and dangers, with the element of danger never absent. Statistics will show that the majority of deaths occur at times and in cases where there seemed least reason to anticipate such a termination, often with the greatest suddenness, and in connection with operations comparatively insignificant. The work, then, calls for constant vigilance, together with the feeling that no case is too trivial to receive our best attention.

1221 O Street Northwest.

THE ENEMA—ITS PLACE IN THE TREATMENT OF GASTROINTESTINAL DISEASES.

By CHARLES J. DRUECK, M.D.,

CHICAGO.

In the preparation of this paper I have had a little misgiving lest the reader might think me a faddist on the use of the enema, as contrasted with other methods of treatment, but there is so much that is forgotten about the value of the enema that I feel I dare offer it as a subject for consideration. It is a method that is always handy and within your reach in any household. Given properly, it is absolutely without danger or bad after effects, and will never interfere with any other treatment of the patient. It is prompt and positive in its results. Its indications are found right along in daily practice from the restlessness of the baby, as a result of an over-filled bowel, to the saving of a life in cholera infantum or shock. This paper might have been labeled intracolonic hydrotherapy, but it is limited to the indications for the enema in the treatment of gastrointestinal disease, though I hope the reader will also see its value in the treatment of affections of the heart, liver, and kidney. I shall submit nothing theoretical, but shall attempt to present a few facts about the varieties of enemas and the indications of each, what they should contain, and a word about the technique of administration.

Simple Enema.—Let us first consider the simple enema such as is so commonly used to unload the bowel. For this purpose any form of syringe may be used and the water should be 95° to 100° F. This temperature causes the least reaction and peristalsis. The smallest quantity of water that will suffice must be used because the colon may easily be over-distended and the patient thus suffer irreparable damage. Large quantities of fluid should never be used as they produce atony of the bowel by over-stretching, just as atony of the anal sphincter is produced by stretching with the speculum. One quart of water should be the maximum and where we wish to stimulate peristalsis one-half pint of cold water is better than a large warm enema. To increase the effect of the enema, a teaspoonful of salt, molasses, or soap may be added, or one-half ounce of castor oil, glycerin, or oil of turpentine. Any of these added to the enema irritates the mucous membrane, removes the mucous from the bowel, and softens the fecal masses, thus aiding a prompt evacuation.

In atony of the bowel when a large part of the enema is retained, instead of being voided, the colon may be stimulated to contraction by applying a cold towel to the abdomen and lower back. If this does not suffice, the enema may be withdrawn by inserting a colon tube. An enema of a quart must never be allowed to remain in the colon, as it positively produces paresis; and above all, one should never add insult to injury by injecting another quart before the first is withdrawn.

If there is a desire to expel the enema prematurely, it may be controlled by pressing a folded towel firmly against the anus.

The simple enema to unload the bowel may be given with the patient in the sitting or recumbent position. In these positions the liquid is retained in the sigmoid and lower descending colon. Therefore, one quart is the maximum adult limit. One should always be careful in giving an enema not to introduce air into the bowel as that stimulates evacuation and sometimes causes colic.

Cold Enema.—By the cold enema is meant one with a temperature of 70° F. This much neglected enema should replace the simple tepid one very frequently because the cold water stimulates the bowel so much more powerfully that a much smaller quantity of fluid will serve our purpose. One-half pint of cold enema will unload the colon just as well as a quart of tepid water and by stimulating the muscle wall will leave the sigmoid and rectum in a contracted and anemic condition instead of relaxed and congested one. The cold enema, by stimulating the intestines, removes quantities of decomposing matter and toxins and increases the portal circulation. The reaction following the cold enema also produces a flow of fluid toward the intestine. In cases of chronic constipation or where hemorrhoids complicate the condition, the injection of one pint of cold water each day acts very well.

The cold enema is also a very valuable means of reducing the temperature in fevers and in typhoid fever it is an excellent means of stimulating the liver and kidneys, besides cleaning out the colon. The water is introduced through the rectal tube and should be injected slowly, the reservoir being about one foot above the patient's pelvis; it should be retained 10 to 20 minutes and then slowly let out through the tube and another quantity of cold water run in. This procedure is repeated two or three times without withdrawing the tube. It is well in some cases to begin the treatment with the first half pint of the enema at 90° F. and then steadily, but rapidly, reduce the temperature of the rest to 70° F. This helps the bowel to tolerate the enema and prevents its premature expulsion.

Hot Enema.—The hot enema or irrigation is used in the treatment of inflammation of the pelvis. It increases the blood pressure, accelerates the heart action, and stimulates the kidneys. The action on the kidneys and heart require a temperature of 110° to 120° F. An enema of 100° to 104° is of no use for this purpose. Following the hot enema it will often be noted that the patient voids a large quantity of clear urine. Kellogg places the hot enema superior to any diuretic drug in the treatment of suppression of the urine and Cantani and Wonte claim good results in the treatment of colic and infantile diarrhea.

The Coloclyster.—The purpose of the coloclyster is to introduce a large amount of liquid without over-distending the bowel. With the patient on his back not over three pints can be passed into the colon safely, but in the knee chest or Sims position six or seven pints may be injected without inconvenience. This is especially valuable in the treatment of pseudomembranous colitis, catarrh of the cecum, atonic and chronic dilatation of the colon when they complicate neurasthenia, autointoxication, and in collapse and shock.

Rectal Irrigation.—The chief advantages of irrigation over the enema is that a flushing may be given the parts. The first water introduced may be about the body heat and the latter rapidly heated or cooled as required to obtain the therapeutic results without causing sudden shock to the surrounding tissues. Hot irrigation of the rectum and sigmoid is useful in inflammation of these structures or surrounding tissues, in rectal ulcer, spasm of the sphincter, and in some gynecological affections. The water should be 100° to 125° F. beginning at 100° and raising to 125°. Normal salt solution (salt 1 dram to water 1 quart) is better than plain water to relieve local irritation.

I wish now to give you a brief outline of the therapy of colonic lavage in the treatment of a few intestinal disturbances to show the indications for the different forms.

Cholera Infantum and Cholera Morbus.—In the treatment of these diseases a hot enema (110° F.) may be given after each stool to remove the irritating and infectious material from the colon and reduce the frequency of the stools. To this may be added any necessary astringents, such as zinc sulphate, 1 to 3 grains to a 6-ounce enema, or an equal strength of silver nitrate or lead acetate, or 3 drams of bismuth subnitrate. Where there is a great deal of griping pain 2 to 4 drops of laudanum may be given in 2 drams of starch water. To reduce the fever a cold enema may be given as outlined above. For collapse a large warm coloclyster at 100° F. should be administered and retained.

Colic.—When the pain in the bowels is not due to inflammation but rather to pent-up intestinal gases or to enteralgia, the hot rectal irrigation gives good results. Also in ovaritis and salpingitis. If, however, the rectal irrigation is not convenient, the nurse can give the hot enema. One or two pints of hot water is injected into the sigmoid and colon and retained for five minutes. It is then expelled and more injected. This is repeated 3 to 6 times. The whole treatment may be repeated 2 or 3 times each day. The rectal tip of the syringe will suffice and the rectal tube is not necessary. The patient rests on her back to prevent the water passing high up in the bowel. With the rectal irrigator the hot solution flows out continuously as it enters. It does not distend the tissues but bathes all of the parts with the same temperature during the whole treatment. It is, of course, much more convenient for the patient and physician.

Colitis.—To cleanse the bowel we use a quart of water at 110° F. containing one-half dram of sodium bicarbonate and sodium chloride and flush out the colon twice daily. After each bowel movement we give a simple enema at 98° F. To relieve the pain and inflammation we give a cold enema at 60° F. to be retained 5 or 10 mniutes or, a cold rectal irrigation. This procedure may be repeated hourly, if needed. The cold enema or rectal irrigation, or even the cold anal douche, acts very nicely in treating prolapsed and irreducible hemorrhoids.

Chronic Diarrhea.—To lessen the congestion and stop the mucous stools we give an enema at 98° F., and follow it with a tonic enema of one-half pint of cold water, to be retained. To reduce the bacterial growth one or two large hot coloclysters should be given each day and followed with a small coloclyster of one pint containing gallic, or tannic, acid 1 dram. For the pain in the abdomen a hot enema at 110° F. after each stool is useful. For the alternate constipation and diarrhea a large, warm, simple, or soap coloclyster at 98° F. twice a week, followed by one pint of cold enema is advised. The general treatment consists in toning up the general digestion by regulating the diet and by means of the enema removing the masses of feces and mucus, and hords of bacteria, and with the small enemas containing gallic or tannic acid destroying the retained germs.

Peritonitis.—In the treatment of peritonitis the large coloclysters at 75° F., given three times daily assists very much in preventing obstruction, and if there is added one dram of turpentine it helps to evacuate the gas and relieve the tympanitis.

Constipation.—In the treatment of constipation the enema serves a great many different purposes, but it must be judiciously employed or it may cause more damage than good. Where the constipation is due to atony of the bowel, due to loss of nerve sensibility, the hot enema at 110° for 15 seconds followed by the cold enema at 60° F. for 15 seconds twice a day after breakfast, and at night, accomplishes a great deal. Or we may use the rectal irrigation. To increase the peristalsis the cold enema and the graduated enema by which the bowel is stimulated, or a gradually lessening enema is of much use. We should always avoid completely emptying the colon and also use a small cold enema instead of a large quantity of warm water, except when needed to relieve autointoxication, or to remove hardened or impacted feces. To remove fecal masses the hot coloclyster or enema of soap, oil, or glycerin (glycerin 1 to water 4 ounces) should

be used. The enema may have to be repeated several times, and should be given every hour until the bowel is thoroughly cleansed, and then a pint of cold water at 70° F. should be given to tone the bowel. The habit of the warm enema must be avoided, and it is well to make it a rule to give a small cold enema afterwards to tone up the bowel.

Typhoid Fever.—The treatment of typhoid fever presents many indications for an enema and yet I think it is many times forgotten. For the diarrhea a hot enema of 2 to 3 pints and after it is voided a cold enema of 1 pint is of value. For the constipation which sometimes displaces the diarrhea and for tympanitis and meningitis a copious coloclyster at 95° F. may be administered twice daily, and yellow soap or 1 dram of turpentine may be added to this. For the high temperature or delirium a cold enema at 70° F. to be retained for 15 minutes and repeat every 3 hours until the temperature reaches 102° F., is advised. But with a high temperature and a cold skin we have a different condition and we want the stimulation of a hot enema and the cold friction rub to the skin. For intestinal hemorrhage a rectal irrigation with ice water is of value and two days after the hemorrhage has ceased a cleansing coloclyster at 75° F. to remove decomposing blood clots from the bowel. Gastric irritation calls for the withdrawal of food by the mouth and the giving of nutrient enemata, but space forbids our taking up that subject here.

438 East Forty-sixth Street.

PRELIMINARY REPORT OF A STATISTICAL ANALYSIS OF OVER 43,000 CASES OF DIPHTHERIA.

By MARY SALLOM, M.D.,

PHILADELPHIA, PA.

The number of cases of diphtheria which has occurred during the past 12 years in Philadelphia, as reported to the Bureau of Health, has been 43,997. The figures may be considered quite reliable inasmuch as a majority of the diagnoses made was subsequently confirmed by a bacteriological examination. This is very well shown by the report of the Bacteriological Division of the Bureau of Health. Thus, in 1898, 5,536 cultures were made. This number gradually increased, when in 1907 as much as 14,297 examinations were made. This number is exclusive of the examinations made in the laboratory of the Municipal Hospital. To a certain extent the large number of cases examined for diphtheria bacillus is due to the vigilance exercised by the medical inspectors in their general work, and more especially to the constant supervision and study of the throats of school children.

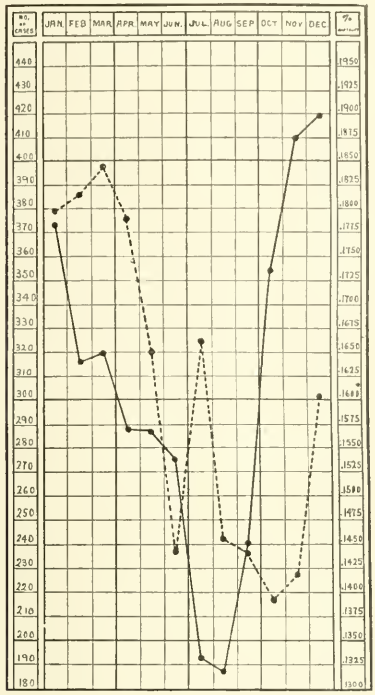

Chart I.—Show the average number of cases and the percentage mortality for each month of the year. Statistical analysis of 43,997 cases.

Of the 43,997 cases reported 7,097 died. From the etiological as well as the therapeutic stand-

YEAR	1898		1899		1900		1901		1902		1903		1904		1905		1906		1907		1908		1909		TOTAL		AVERAGE		%
MONTH	NO OF CASES	MORTALITY	NO OF CASES	MORTALITY	NO OF CASES	MORTALITY	NO OF CASES	MORTALITY	NO OF CASES	MORTALITY	NO OF CASES	MORTALITY	NO OF CASES	MORTALITY	NO OF CASES	MORTALITY	NO OF CASES	MORTALITY	NO OF CASES	MORTALITY	NO OF CASES	MORTALITY	NO OF CASES	MORTALITY	NO OF CASES	MORTALITY	NO OF CASES	MORTALITY	MORTALITY
JANUARY	445	97	356	81	550	101	446	73	302	57	206	33	372	71	331	45	346	106	368	55	366	33	408	57	4496	809	374½	67⅜	.1799
FEBRUARY	328	90	250	62	462	91	324	47	277	55	208	41	289	42	217	50	374	57	359	50	375	57	328	50	3810	692	317½	57⅔	.1816
MARCH	309	99	219	53	398	97	495	62	296	57	194	47	295	39	237	38	459	65	359	58	291	43	306	55	3842	708	320⅛	59	.1843
APRIL	367	82	266	63	308	73	225	39	181	40	237	46	373	49	308	38	278	48	329	34	270	49	319	62	3456	618	288	51½	.1788
MAY	243	69	287	57	346	87	247	46	256	36	283	45	243	35	233	32	290	43	289	40	325	26	406	53	3448	569	287⅓	47½	.1650
JUNE	211	50	309	65	382	71	300	42	176	39	236	37	235	21	291	29	356	33	268	35	222	25	315	29	3301	476	275⅛	39⅝	.1442
JULY	267	61	275	63	238	52	161	20	127	34	145	24	178	27	188	33	165	16	166	12	205	28	189	14	2304	384	192	32	.1666
AUGUST	174	36	290	48	228	36	194	36	109	9	252	38	146	18	133	17	122	17	237	33	180	21	192	20	2262	329	188½	27⅜	.1454
SEPTEMBER	311	52	347	68	376	64	211	21	139	22	219	35	202	27	181	19	252	38	206	25	211	28	238	19	2888	418	240⅝	34⅞	.1447
OCTOBER	559	121	363	69	425	57	266	39	149	25	389	40	419	55	263	33	263	40	300	28	451	50	487	39	4254	591	354½	49¼	.1389
NOVEMBER	444	113	459	96	545	75	488	48	248	30	374	59	409	36	351	48	317	51	570	57	408	52	342	34	4922	699	410⅛	58⅓	.1420
DECEMBER	469	128	702	129	520	73	348	57	202	33	343	55	500	63	495	61	379	46	262	40	411	54	438	65	5014	804	417½	67	.1604
TOTAL	4123	998	4116	849	4718	817	3702	525	2442	437	3081	500	3620	478	3238	443	3600	560	3708	467	3705	466	3858	497	43997	7097			.1618
% MORTALITY	.2418		.2060		.1835		.1418		.1775		.1623		.1320		.1368		.1556		.1259		.1258		.1288						

Table I.—Showing by month the number of cases of diphtheria occurring in Philadelphia from January, 1898, to December, 1909, inclusive.

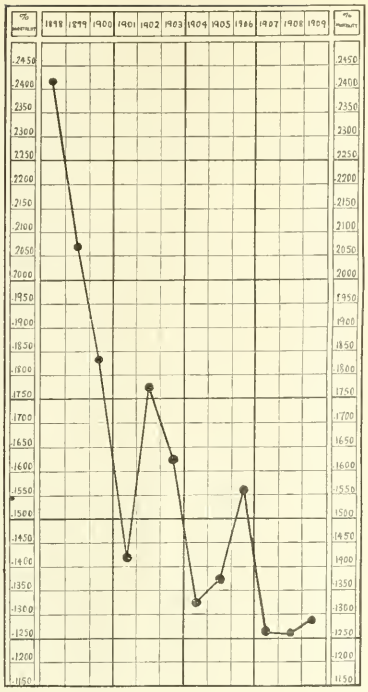

Chart 2.—Showing percentage mortality for each year. Statistical analysis of 43,997 cases.

point of view a study of so large a number of cases is indeed interesting.

Table No. 1 gives the number of cases and the mortality by months. At the foot of each column the total number of cases and mortality as well as the percentage mortality for each year is given. To the right of the table is given the total and average number of cases for each month. The percentage mortality for each month is also given.

Chart 1 graphically portrays the influence of season upon the disease. Starting with rather a high average of 374 cases for January it falls to 317 cases for February. Rising slightly for March it then gradually falls during April, May, June, and July, reaching its lowest ebb during August. From thence it rises very rapidly, reaching its maximum during December, which has an average of 419 cases. The percentage mortality for each month is represented by the dotted line in Chart 1. Starting with a mortality of nearly 18 per cent., it rises during February and reaches a maximum of 18.43 per cent. during March. It then rapidly falls during April, May, and June. During July it reaches its second maximum, being 16.66 per cent. During August, however, it falls again to nearly the same percentage as June. From thence it falls gradually, reaching its lowest mark during October. It again rises during November and December, reaching 16.03 per cent. for the latter month.

Chart 2 is of particular interest especially from a therapeutic standpoint. It graphically shows the mortality for each year. In 1898 the mortality was 24.18 per cent. For 1899, 1900, and 1901 it fell to 14.18 per cent. Rising to 17.75 per cent. for 1902, it then gradually fell during 1903, 1904, and 1905. During 1906 it rose 15.56 per cent. only to fall to over 12 per cent. during 1907, 1908, and 1909.

Aside from showing the percentage mortality for each year it also undoubtedly shows the important rôle played by antitoxin in the reduction of the mortality. It will be seen that as more and more antitoxin was used the mortality fell lower and lower.

To a certain extent the amount of antitoxin used in Philadelphia can be gauged by the amount which the city through its Bureau of Health distributed free of charge; thus in—

Year.	Amount furnished.
1898	3,367 doses
1899	2,976 doses

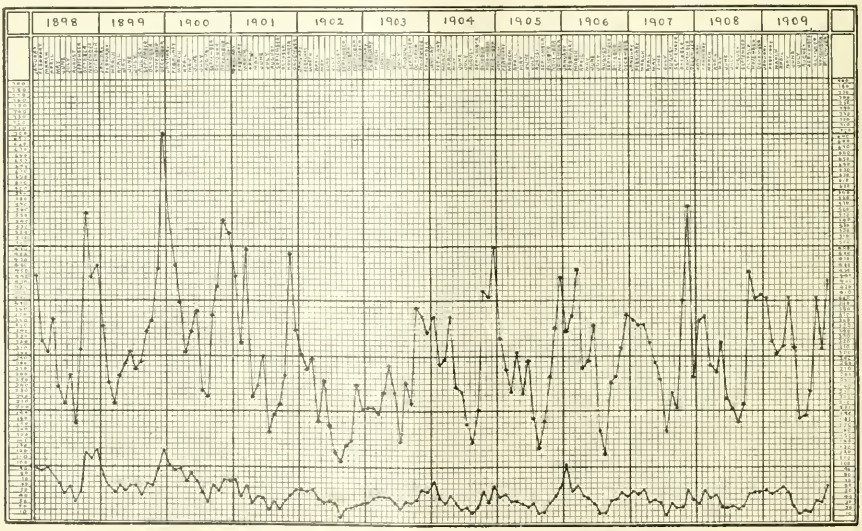

Chart 3.—Graphically showing the number of cases and mortality by months. Statistical analysis of 43,997 cases.

Year.	Amount furnished.
1900	5,233 doses
1901	5,374 doses
1902	5,771 doses
1903	7,342 doses
1904	15,500,000 units
1905	21,800,000 units
1906	34,000,210 units
1907	36,818,500 units

It will be seen that with the more extensive use of the diphtheria antitoxin the mortality has been reduced. This, I believe, is sufficient to the most radical adherents against the use of antitoxin of the therapeutic value of diphtheria antitoxin.

Chart 3 graphically shows the number of cases from month to month, and year to year. The upper line represents the number of cases, and the lower the mortality. Reading from right to left each space represents one month, and every twelve spaces are intersected by a heavier line marking off an interval of one year. A glance at the chart will show that in almost every instance the lowest number of cases is recorded about the middle of the year, and the highest number of cases during the early and late part of the year; showing that season undoubtedly exercises its influence in the same manner regardless of the total number of cases that occur during the whole year. This chart also shows the general prevalence of the disease from year to year.

1625 South Fifteenth Street.

CASE OF CONGENITAL FUSION OF TOES WITH NOTE ON PREVIOUS GENERATIONS.

By FREDERIC GRIFFITH, M.D.,

NEW YORK.

I once heard Dr. Reichert, my physiology teacher, relate that tailless mice could be bread if amputation of the caudal extremities was continued up to the eleventh generation. Hereditary influence seems proven in body conformation in some lower animals, therefore, however much it may be that it is environment rather than heredity which causes change or moral lapse from type of mind in the humankind.

While examining a first and male child, eleven months old, of good flesh and figure, I noted an

anomalous complete linear fusion between the second and third toes as pictured in the illustration. Both feet were included. The parents are healthy people, above the average size and intelligence. The mother claimed to possess a similar freak in one of her feet; she further stated that her own maternal parent was likewise endowed upon a single foot similar to what the grandchild had in both of his pedals. The fused toes were perfect otherwise, in having nails and joints and bones of normal size for age presented. Asked for the reason I could only recall that some scientist had given out that the human foot was destined from the shoes we wear to grow in time by fusion into a heel and sole, and single pointed toe and that, perhaps, now was shown an example of an advancement in the make of feet. I was jeered at for my pains. However, I will recollect the family difference in these people and will endeavor to note the feet of any future children and report thereon.

Syphilis of the Ear.—G. Berruyer says that syphilis in all stages may affect the hearing. It may affect the external ear just at it does any other portion of the skin, by the presence of papules or gummata. But the most important effects are upon the internal ear. In heredosyphilis there are suppurative conditions of the middle ear that accompany nasal and pharyngeal catarrhs of syphilitic origin. The specific catarrh of the new-born infants presents a portal of entry for secondary infections. Suppurative otitis appears as a complication a few months after birth, appearing insidiously, without pain, or general or local reaction. It may be bilateral, and in such cases is very likely to end in deaf-mutism. Later in childhood we find specific ulcerations of the nasopharynx, accompanied by inflammation of the middle ear and deafness with retracted drum. Again there is a dry otitis characterized by progressive deafness, which takes place in young people from twenty to thirty years of age. It may be accompanied by ocular or dental stigmata. Acquired syphilis shows itself in disease of the drum, the tympanum, and the Eustachian tube. Mucous patches at the orifice of the tube determine inflammatory reactions and obstruction of the tube. This form of ear trouble may be diagnosticated by its resistance to all treatment except antisyphilitic remedies, and the diminution of the osseous conduction, showing participation by the internal ear. Tertiary syphilis in the ear depends on nasopharyngeal lesions. In the internal ear we find deafness appearing suddenly without pain at the time of puberty, without any apparent cause. Deafness is absolute and prognosis is bad. In some cases it comes on slowly. Acquired syphilis causes deafness from obliteration of the arteries of the labyrinth. This form is accompanied by neuralgias with nocturnal exacerbations. It appears suddenly and becomes absolute very soon, with little hope of cure.—*Le Bulletin Médical.*

Myelogenous Leukemia in a Child.—Whiphman reports the case of a child eighteen months of age, who was healthy until one year old, when he began to waste. The father gave a history of untreated syphilis. The child was unable to sit up. The frontanelle was wide open. There was no bossing of the skull. The ribs were slightly beaded, but there were no epiphyseal enlargements. The lymphatic glands were just palpable and somewhat hard. The spleen extended to the middle of the abdomen, and four and one-half inches below the umbilicus. The liver was enlarged. The blood count was as follows: Red cells, 4,080,000; leucocytes, 63,400; hemoglobin, 80 per cent. The differential count showed: Polymorphonuclears, 32.4 per cent.; lymphocytes, 5.2 per cent.; large mononuclears, 18.8 per cent.; transitionals, 12.8 per cent.; eosinophiles, 2.6 per cent.; basophiles, 0.6 per cent.; neutrophile myclocytes, 25.8 per cent.; eosinophile myelocytes, 1.6 per cent.; normoblasts, 1.6 per 100 leucocytes. Subcutaneous hemorrhages occurred upon the extensor surface of the right arm, or the right shin, on the scalp, left ear, left eyelid, and left side of the face. The child had been under observation one month, and was getting worse; the leucocytes had risen to 101,000. The child had received *x*-ray treatment without evident effect. The author refers to thirteen known cases of myelogenous leukemia in children. The earliest reported was four months of age.—*Proceedings of the Royal Society of Medicine.*

Laryngeal Vertigo.—H. J. Davis reports this case. The patient described his attacks by saying that "first a tickling begins in his throat, he coughs and coughs for five or ten minutes, he then becomes violently giddy, and he falls to the ground insensible; when he recovers in a minute or two all desire to cough has gone, and he feels all right." Examination showed severe conjunctival hemorrhage, hemorrhage from dilated veins in the pharynx, hemorrhage into both vocal cords, and numerous bruises from falls.—*Proceedings of the Royal Society of Medicine.*

MEDICAL RECORD.

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MUTUAL RELATION OF LIFE INSURANCE AND THE MEDICAL PRESS.

IN speaking at the annual banquet of the American Medical Editors' Association at St. Louis on June 6, Mr. Frederick L. Hoffman, Statistician of the Prudential Insurance Company of America, made some complimentary references to the work of the medical press in connection with life insurance. The speaker directed attention to the fact that so long ago as 1873 the MEDICAL RECORD made an effort to maintain a special department of insurance medicine, and that many of the most valuable contributions to the subject had never been reprinted in text-book form, and were, therefore, only available through the periodical medical press. He surveyed the field of medicine, and dwelt at length with the involved and increasingly important subject of occupation morbidity and mortality, alluding to the many suggestive discussions on industrial poisoning, industrial dust, and other dangers to life and health in industries treated of in articles and papers printed or reprinted in the medical periodical press. The insurance aspects of some rare, obscure, or new disease, including anthrax, leprosy, and pellagra were also discussed.

After referring briefly to the important problems of tropical medicine, Mr. Hoffman concluded by saying, "All of these illustrations are but mere fragments of a vast amount of extremely useful data, theories, and conclusions regarding the innumerable elements and factors, common or rare, which more or less have a bearing upon the science of insurance medicine. The perfection of the human understanding on the basis of the growth of human knowledge is necessarily slow, but it is sure towards the goal of ultimate truth. In this laudable aim and endeavor, the medical periodical press is rendering a most useful service, not only to life insurance medicine, but to the cause of scientific, sound, and solvent insurance throughout the world. Every contribution of fact and truth toward a broader knowledge and a more accurate understanding of the principles of insurance medicine has its value, which while not to be expressed in dollars and cents, is at least convertible into sentiments of genuine appreciation and gratitude, which I have tried to express on the present occasion. I trust that what I have said will prove an encouragment to those who labor unknown, and who are often discouraged and more often disappointed at the meager reward of editorial labors, and that you will carry with you the conviction that, though you may know it not, your work is appreciated to its fullest extent by at least the few, and, perhaps, by the many, who as medical directors, medical examiners, or in other positions of trust and responsibility, promote the cause of truth and progress in the vast domain of modern medicine and insurance throughout the world."

Such words as these are full of comfort and encouragement to the medical editor. As a rule, this individual obtains little recognition and less praise, in fact, there are those who hold that editorials in themselves are, in these days, superfluous and that all needed in the make-up of medical journals are merely scientific medical and surgical facts. This view, however, of editorial writing is superficial. An editorial should not only be used as the medium for intelligent comment on current happenings in the medical world, but should be an expression of opinion on the same. It must also be borne in mind that, at the present time, lay papers devote a considerable amount of their space to medical matters and copy or refer to any editorial of moment in a medical journal, evidence that the general public takes an interest in medicine.

STRAW ITCH.

OCCASIONAL outbreaks of a disease characterized by an urticarioid eruption and at times mild constitutional symptoms have been noted in several of the eastern and middle western States. The disease has been supposed, at times, to be due to "chiggers," or the "red bug." It has, also, been mistaken for urticaria and scabies, and in some instances the possibility of its being chickenpox or smallpox has been suggested. In 1901, Schamberg reported an outbreak in Philadelphia, and since then cases have been recognized there annually during the summer months. During the early part of the summer of 1909, Goldberger and Schamberg, in studying an outbreak among sailors, identified the cause of the disease as a small, almost microscopical mite in the straw of mattresses upon which the patients had slept or had placed their clothes. Working independently, and at about the same time, Rawles traced the cause of a similar outbreak in Indiana to the same mite. Goldberger has recently reviewed our knowledge on the subject in an article published in the Report of the United States Public Health and Marine-Hospital Service, for June 10, 1910. The mite has been identified as the *Pediculoides ventricosus,* which appears to be found commonly in growing and stored grain, where its presence is dependent upon the existence of certain insect parasites upon which it lives. The mite feeds on the larvæ and adults of these parasites, the most common of which so far as grain is concerned seem to be the joint-worm and the Angoumois grain moth. The mite, it appears, may, in the presence of an abundant food supply, increase enormously in numbers, so that those handling the grain in the field or in the process of thrashing, readily become infested.

It would also appear that the mite may be transported long distances in the straw and that, when this is used as a filling for mattresses, may escape through the ticking and attack those sleeping on them.

According to Goldberger, the mite does not bore into the skin, but simply attaches itself rather feebly to the surface where it bites, and probably while doing so injects a poisonous substance which produces the skin lesions and frequently mild constitutional symptoms. The dermatitis accompanied by itching, which is at times intense, has been described as consisting of wheals surmounted by small vesicles which, in the course of a few hours, become filled with pus. The eruption is reported to involve mainly the trunk, leaving the limbs, face, and neck little or not at all affected. In severe cases chilliness, nausea, vomiting, and albuminuria have been noted. The treatment of the affection seems to be exceedingly simple, due to the fact that the mite attaches itself so loosely to the skin that it is readily brushed off by the clothing or other gentle friction, the essential point being a recognition of the condition so that repeated exposure to the attacks of the mites may be avoided. The disease has been reported from various places in New Jersey, Maryland, Pennsylvania, Ohio, Indiana, and Tennessee. However, it, in all probability, has existed in a much larger territory than that indicated, and judging from the known prevalence of the grain parasites, upon which the mite depends for food, the disease may be expected to be of fairly frequent occurrence for possibly some years, especially in rural communities and the smaller towns.

Lactation in Omphalopagi.

The phenomenon of lactation is one which has caused no small amount of mystification to physiologists from the earliest days of scientific medicine. Recent investigations have pointed to three chief factors in the production of milk, which may be briefly summed up as follows: The growth of the breasts at puberty and especially during pregnancy is due to the stimulation from the internal secretions of the ovary; the production of milk is dependent upon absorption of some material produced in the placenta; and the continuance of the flow is caused by the mechanical stimulation of suckling. Such facts have been brought out largely by experiments on dogs, by transplantation of ovaries, and inoculation of placental extracts, by which means animals which had never been pregnant were made to secrete profusely of normal milk. Such observations are in the human being under ordinary conditions impossible. Recently, however, a natural anomaly has presented the opportunity for an observation which goes a long way towards confirming this theory as applied to man. A few weeks ago two women in Bohemia who were joined together in the manner which was made famous by the "Siamese twins" were admitted to the General Hospital in Prague, and shortly after admission one of the twins gave birth to a child. Basch, who has done much work on experimental lactation, observed the women carefully, and in the *Deutsche medizinische Wochenschrift* reports the interesting fact that whereas the woman Rosa was the mother of the child, and her sister Josefa had never been pregnant, both women were secreting perfectly normal milk from their mammary glands. The circulation of the two women being connected it is evident that whatever chemicals were produced by the pregnant Rosa were also circulating in the blood of the virgin Josefa, whereas any mechanical influence of pregnancy would affect Rosa only. This observation adds additional weight to the chemical theory of lactation.

The Action of the X-Ray in Large and Small Doses.

Since the discovery of the *x*-rays and their application to therapeutics, many and various results have been obtained from their use, results often quite contradictory in character, the explanations of which have at times been distinctly puzzling. It has been difficult in many instances to explain why in one case the use of the rays would cause degeneration and at others regeneration of similar tissues; why, for example, in one patient superfluous hair would be removed and in another the use of the rays on a smooth skin would result in a profuse hirsute adornment. In recent years, however, means have been devised of regulating the dose of the *x*-rays and of estimating in units the amount of radiation being administered in each case. This has made the study of the action more accurate and has enabled the illumination of several obscure points. In the *Berliner klinische Wochenschrift* for May 23, 1910, H. E. Schmidt reports a small series of experiments into the effect of various doses of the *x*-ray upon cell growth. Having soaked a number of beans in water for six hours he treated the different beans with different doses of the rays, and then planted them. His results were quite uniform and demonstrated two points of interest. Whereas those beans which were treated with large doses of the rays were partially or completely inhibited in their growth, as compared to untreated control beans, those which received very small doses were distinctly stimulated; not only were the plants larger and more vigorous, but the flowers were larger and the resulting crop of beans better. From these findings Schmidt suggests that the same phenomenon may apply to animal cells, and experiments which he carried out on an ulcer on the arm suggest that this is the case. If this be so it is evident that in treating conditions in which healing and proliferation are desired, as a sluggish ulcer, very small doses of the *x*-ray should be used, whereas in cases of malignant growth, where tissue destruction is required, large doses are needed, and small doses instead of destroying the neoplasm may do harm rather than good by stimulating it to renewed activity.

Treatment of Fractures by Parathyroid Medication.

Some time ago Gauthier called the attention of physicians to the value of thyroid medication as an aid in obtaining union in fractures that had refused to unite, and this method of treatment was experimented on with variable results, which were not sufficiently good for it to become generally used. Some excellent results had been obtained, but for some reason the method could not always be depended on. In the *Archives Générales de Chirurgie* for April, 1910, Louis Morel says that he has solved the mystery of the irregularity of the

results, by certain experiments which have shown the importance of the secretion of the parathyroid bodies in producing consolidation of bony tissues. In cases of myxedema in which the stature is stunted thyroid medication causes growth in length of the long bones, and increase in size of the skull. But if thyroid material is given too freely serious accidents occur in the nature of cardiac and pulmonary troubles. There is a relation between osteogenesis and the thyroid apparatus, but the parathyroids are more important than the thyroid itself. They have an importance in the metabolism of the metals present in the body, calcium, magnesium, sodium, and potassium. After removal of the parathyroids there are grave symptoms of disassimilation of minerals in the body, and in men and animals who have died of parthyroid tetanus there is a diminished amount of calcium in the brain. Morel studied experimentally the growth of healthy bone and cicatrization of bone under parathyroid treatment in animals. He found that the action of parathyroid medication is as important in the growth of healthy bone as in the healing of fractures. The action in adult animals is not noticeable, while in the young it is marked. All the osteogenetic rôle of the thyroid glands, indeed, seems to be due to the parthyroid tissue.

Education in Breathing.

The normal type of breathing exists in children of both sexes up to the age when the lives of girls and boys begin to differ, and their dress to change. Then, owing to the donning of the corset, the type of respiration in the girl becomes entirely superior, costal or diaphragmatic, while that of her brother remains of the inferior costal type, the normal and desirable one. Maurice Faure, in the *Gazette des Hôpitaux*, for March 31, 1910, brings out these facts in an interesting way. The respiration of the infant begins automatically and goes on in the same way. At the same time respiration may be modified by the will and by education. This is shown by the acquired diaphragmatic respiration of the singer, the man who blows upon a wind instrument, etc. The diaphragmatic type is that of men because they have no constricting waist bands, and their clothing is suspended from the shoulders. It is the type of those who make violent efforts. Because the corset immobilizes the lower part of the thorax the woman's type is the costal. It results from a regression, a degeneration of the normal type. The primary object of respiratory education is to cause the child to preserve its costal respiration and make use of both the diaphragm and the ribs. The secondary object is to maintain the respiratory interval, and expand the chest. It is a mistake to suppose that because a man is an athlete therefore he breathes well. A man may be a good athlete and a bad breather. Respiratory exercises should be taken with the chest bare, and in children a comrade should be used as an example. Singing and blowing may be added to the other exercises. A thorax may appear large and well developed muscularly and yet the person may not breathe well. A permanent increase in the expansion of the chest may be obtained by exercises. All sorts of exercises that develop the movements of the trunk are valuable. Extension and flexion of the trunk, and of the limbs with the body fixed, both in the dorsal position and standing are valuable. Acrobatic gymnastics are useless and may be injurious so far as increasing respiration is concerned. They tetanize the thorax and develop the muscles of the arms rather than those of the thorax. Graduated exercises of the shoulders, trunk, and thorax are indispensable.

The Tubercle Bacillus in the Sputum.

During the past few years workers with tuberculosis and its early diagnosis have become less satisfied with the common method of selecting from the sputum one or two likely looking particles and examining these for the tubercle bacillus, and have sought for methods by which from larger quantities of material the organisms may be isolated in concentrated form. This search has resulted in various methods more or less unsatisfactory. In the *Münchener medizinische Wochenschrift* for April 19, 1910, Zahn of Strassburg reports a new method for which he claims the advantages of simplicity and speed. To from 5 to 15 c.c. of sputum are added 50 c.c. of distilled water and 5 c.c. of a 4 per cent. solution of sodium hydrate. This mixture is shaken in an Erlenmeyer flask, boiled for two or three minutes, and then cooled under the tap. Then one or two c.c. of a 5.5 per cent. solution of calcium chloride is added, and the mixture is again well shaken. The now almost clear fluid is centrifugated for one to two minutes, after which the supernatant fluid is poured off, more material added, and the process repeated several times, when the sediment is collected in the bottom of the two tubes. In the absence of a centrifuge the material, after the addition of the calcium chloride, is well shaken with glass pearls, and is filtered. The sediment from the tubes, or the precipitate upon the filter paper, is now spread upon slides, allowed to dry in the air, and stained by the usual method. The same procedure may be applied to the urine, to ground-up organs, to stools, to exudates, and to blood. When dealing with fluids the sediment obtained on standing is used for the original material. From the author's description the method would appear to be simple and more time saving than many which have recently been offered to solve the problem of finding the occasional needle in the hay stack of the sputum.

News of the Week.

National Confederation of State Medical Examining and Licensing Boards.—The twentieth annual convention of the National Confederation of State Medical Examining and Licensing Boards was held at St. Louis, Mo., during the first week in June, under the presidency of Dr. A. Ravogli. After an invocation by the Rev. Stephen F. Sherman, Jr., Dr. A. H. Hamel, chairman of the local committee of arrangements, introduced Dr. Joseph S. Grindon, who delivered the address of welcome, which was responded to by Dr. Joseph C. Guernsey. Dr. A. Ravogli delivered the annual address of the president, "A Plea for More Practical and Extended Clinical Instruction for Medical Students." The report of the secretary-treasurer, Dr. M. G. Motter, was read, audited, and approved, showing a total of $557.89 with a balance of $228.08. The report of the Executive Council was read by Dr. N. R. Coleman, referred to a committee which commended the subject matter for its practical value to medical educators and recommended the adoption of an amendment to the constitution providing for

a corresponding secretary, and the appointment of a committee to confer with a committee from the American Confederation of Reciprocating, Examining, and Licensing Medical Boards on the feasibility of uniting the two bodies. According to the subsequent report of this committee, the proposed union was found to be impracticable at present. The report of the Committee on Clinical Instruction, by Dr. Henry Beates, and that on Materia Medica, by Dr. M. G. Motter, were read and referred for publication. The Symposium on Clinical Instruction was opened by Dr. George Dock, who said that present school conditions warrant the introduction by the boards of practical examinations, that the material is available, that their purpose should be to test the applicants' methods, and that they would necessitate expert examiners. Dr. Fred C. Zapffe contributed a valuable and timely paper on the "Present Status of Clinical Instruction." Dr. J. C. Guernsey discussed the advantages of the old preceptor system; Dr. J. C. Oliver opposed the lengthening of the medical course to five years; Dr. A. F. Stephens dwelt upon the importance of postgraduate clinical work. With reference to the introduction of practical examinations by the State boards, Dr. Thomas McCrae discussed instruction in clinical medicine, Dr. A. D. Bevan instruction in clinical surgery; Dr. C. F. Hoover, instruction in diseases of the heart and lungs; Dr. W. A. Hardaway, diseases of the skin, and Dr. D. T. Vail, refraction. Dr. J. Coons outlined the methods of practical examinations in histology, pathology, bacteriology, uranalysis, etc. The Board of Medical Examiners of Utah, the State Medical Board of Arkansas Medical Society, the Eclectic State Medical Board of Arkansas, and Drs. E. J. Collins, A. H. Hamel, Frederic Singer, Darlington Snyder, R. O. Tucker, and N. P. Colwell were admitted to membership in the Confederation. The following officers and committees were elected: *President,* Dr. J. C. Guernsey, Philadelphia, Pa.; *First Vice-President,* Dr. James A. Egan, Springfield, Ill.; *Second Vice-President,* Dr. Charles A. Tuttle, New Haven, Conn.; *Secretary-Treasurer,* Dr. George H. Matson, Columbus, Ohio; *Assistant Secretary,* Dr. Darlington Snyder, Columbus, Ohio.

Saner and Safer Fourth.—The *New York Times* reports the casualties of the Fourth of July celebration this year to be 24 dead and 1,294 injured, not counting the man slugged at Reno, Nevada. Last year the deaths were 44 and the injured were 2,361. It's worth while foregoing a little noise to save twenty lives and to prevent more or less acute suffering and disabling injuries of 1,067 persons, chiefly children.

Pollution of New York Harbor.—That the sewage now being emptied into New York Harbor is a menace to the public health is the conclusion reached by the Metropolitan Sewage Commission, which recommends that an interstate board be created by New York and New Jersey to protect the harbor for all time. The commission, which is the successor of the New York Bay Pollution Commission, is composed of George A. Soper, President; James H. Fuertes, H. de B. Parsons, Charles Sooysmith, and Dr. Linsly R. Williams, selected because of their sanitary or engineering experience. Studies carried on in cooperation with the United States and Geodetic Survey have shown that the sewage which is discharged into the harbor is not flushed out to sea, but is assimilated by the water, and the work of the commission has included several thousand chemical and bacteriological analyses to determine the digestive capacity of the harbor waters. The commission finds that there is danger that the assimilative capacity of the water will soon be exhausted, and that intolerable conditions will result from the emptying into the harbor of an excessive amount of sewage. New York Harbor above the Narrows is now unfit for bathing purposes, and the eating of oysters and shellfish from these waters is dangerous. The commission recommends the abolishment of the bathing establishments along the docks of the city. While the cost of keeping all sewage out of the harbor would be prohibitive, the commission finds that great good would be accomplished by removing as much as possible of what is harmful in the sewage, and discharging the remainder under the most favorable circumstances. The commission is strongly opposed to the great trunk sewers which have been proposed to drain the Passaic and Bronx valleys, as these would turn into the harbor immense volumes of sewage from inland towns which should be disposed of in a more modern and sanitary manner.

Hospital Roof Camp.—The New York Throat, Nose, and Lung Hospital on East Fifty-seventh street, has recently opened a camp on the roof of the hospital building for the outdoor treatment of tuberculous patients. The camp is open on three sides and has large ventilating skylights. The dormitory, accommodating ten patients, is in a gallery along the closed side. A dining room, dressing rooms, and shower baths complete the equipment.

Free Bath Season Begins.—July 1st saw the opening of the free bath houses at the Battery. Later on the Board of Education will provide swimming instructors for both boys and girls.

Fire in Nurses' School.—A small fire in the training school connected with Bellevue Hospital, New York, was extinguished without the aid of the fire engines by the attendants of the building. The training school adjoins the new hospital pavilions, C and D, but none of the patients were disturbed by the alarm.

Comfort of Employees.—The New York State Welfare Committee of the National Civic Federation has formed plans for extending its work which was originally designed to promote the comfort and well-being of employees in factories and workshops. A committee of education and suggestion to devise ways and means of increasing the number of attractive and sanitary workshops has been appointed, as well as a committee on the improvement of factory inspection. The committee feels that sufficient laws have already been enacted, and that the enforcement of these will guarantee the safety and comfort of the employees.

The Army Medical School has recently moved from its old quarters in the Army Medical Museum and Library Building in Washington to the new quarters in the large building known formerly as the Builders' Exchange, No. 721 Thirteenth street, Northwest, between G street and New York avenue. The school will occupy five floors of the building, beginning on the second floor, which will have the administrative offices, the lecture hall, and the locker and darkrooms. The chief feature of the floor above, the third story, is the chemical laboratory. On the fourth floor is the bacteriological laboratory. About sixty students can work at once in each of these laboratories. Four days will be

given to bacteriological work and two to chemistry laboratory work. The fifth floor will be given over to Major Frederick F. Russell, who is the expert in typhoid vaccination and allied studies. Here five rooms will be used by him and his assistants and clerks. On the sixth floor is the room to be devoted to operative surgery. On this floor, too, will be the *x*-ray apparatus.

A Medical College for Manchuria.—At the annual United Conference of the missions of Manchuria, held in Newchwang in May, resolutions were unanimously passed strongly urging the establishment of such a college, and heartily recommending it to the liberal support of all interested in the welfare of the Chinese. It will be essentially a missionary institution. Through the generosity of the Chinese, a suitable site for the college has been obtained, contiguous to the hospital, and well situated.

The Medico-Legal Society of Belgium has organized an International Congress of Legal Medicine, to be held in Brussels August 5-10, 1910. The president of the society is Dr. Eugene Dewez, and the general secretary is Dr. Camille Moreau, 6 rue de la Gendarmerie, Charleroi, Brussels.

Harvard University, at its recent commencement exercises, conferred the degree of Doctor of Sciences upon Dr. Theobald Smith of the Harvard Medical School.

A New Institute for Medical Research.—Announcement has been made of the establishment of the Otho S. A. Sprague Memorial Institute for the Scientific Investigation of the Causes of Disease in Chicago, with an immediate endowment of $1,000,000. Provision for establishing the institute was made in the will of O. S. A. Sprague, a Chicago merchant, who died last year.

Rockefeller Institute Appointments.—The Board of Directors of the Rockefeller Institute for Medical Research announce the following promotions and appointments for the year 1910-1911: Laboratory Staff—Member: Jacques Loeb, experimental biology. Associates: W. A. Jacobs, biological chemistry; D. R. Joseph, physiology and pharmacology; Peyton Rous, pathology; B. T. Terry, protozoology; D. D. Van Slyke, biological chemistry. Assistants: M. T. Burrows, experimental surgery; P. F. Clark, bacteriology; I. S. Kleiner, physiology and pharmacology; Hardolph Wasteneys, experimental biology. Fellows: F. J. Birchard, biological chemistry; F. B. La Forge, biological chemistry. Scholar: J. Bronfenbrenner, pathology. Hospital staff: G. Canby Robinson, George Draper, H. K. Marks, F. W. Peabody, H. F. Swift. General manager: Jerome D. Greene.

Charitable Bequests.—By the will of the late Elizabeth C. Burkhart of Philadelphia the sum of $3,000 is bequeathed to the Philadelphia Home for Incurables and $3,000 to the Hahnemann Medical College and Hospital.

The Floating Hospital of St. John's Guild in New York made its first trip for 1910 on July 5. In the summer of 1909 the Floating Hospital carried 11,155 women, and 27,895 children. The total number of women and children carried since the work of the guild was begun is 1,337,602.

The Phipps Institute.—The University of Pennsylvania is preparing to carry on the work of the Henry Phipps Institute for the Study, Prevention, and Treatment of Tuberculosis, for which Mr. Phipps already has provided more than $5,000,000. Ground has been acquired in Philadelphia for a hospital, and the donor and the trustees have approved the report of a committee appointed to outline the policy of the institute. There will be three general departments, each with a director. Dr. Paul Lewis of the Rockefeller Institute for Medical Research will be director of the laboratory. Alexander M. Wilson of the Boston Association for the Relief and Control of Tuberculosis will be in charge of the sociological, and Dr. H. R. M. Landis of the clinical department. There will be a board of eight directors, and in addition an advisory council has been created, which will meet once a year. The following have accepted membership in the council: Dr. Samuel G. Dixon of Harrisburg, Pa.; Dr. S. McC. Lindsay of New York; Dr. William H. Baldwin of Washington, D. C.; Dr. Herman M. Biggs, New York; Dr. William H. Welch of Baltimore, Dr. Theobald Smith of Boston, Dr. Gideon Wells of Chicago, Dr. Simon Flexner and Dr. James A. Miller of New York, Dr. Laurison Brown of Saranac, N. Y.; Dr. Henry Baird Favell of Chicago, and Dr. James Pratt of Boston.

The Mott Memorial Medical and Surgical Library, established in 1867, has been presented to the library of the New York Academy of Medicine.

University of Vermont.—Thirty graduates of the medical department of the University of Vermont received the degree of Doctor of Medicine at the 106th commencement on June 29. Large gifts to the university have made it possible to secure the $100,000 offered conditionally by the General Educational Board, so that the endowment fund now amounts to a half million dollars.

Red Cross Mine Work.—The American National Red Cross plans to introduce in the bituminous mining districts the first aid to the injured system which has been in use for several years in Pennsylvania. The Pullman Car Company has donated a car in which visits will be made to the mines throughout the country, and instruction will be given to employers and employees in the most approved first-aid methods. The railroads over which the car will travel have, with the sanction of the Interstate Commerce Commission, agreed to furnish free transportation, and it is expected that the work will be begun during the latter part of the month under the supervision of Dr. M. J. Shields.

Addition to Hospital.—Through the munificence of Thomas Bradley, president of the Methodist Hospital of Philadelphia, a four-story addition will be made to the hospital at a cost of $41,000. It will contain diet kitchens, dining room, serving room, chief resident physician's suite of rooms, officers' dining rooms, general dining room, and bed rooms for employes. The new building will afford accommodations in the hospital for fifty additional patients.

The Manitoba Sanatorium for Consumptives was formally opened near Ninette on June 22, 1910. The institution as it now stands cost $65,000 and will when fully equipped accommodate 80 patients.

The San Antonio (Tex.) Free Dispensary and Hospital was dedicated on June 23, 1910, the new building on South Laredo street, San Antonio, having been completed.

The Wisconsin State Medical Society, at a meeting held at Milwaukee June 23, elected the following officers: *President,* Dr. Hiram Caples of

Waukesha; *Secretary,* Dr. C. S. Sheldon of Madison; *Treasurer,* Dr. Sidney R. Hall of Ripon.

The Des Moines Valley Medical Association held its thirty-ninth annual meeting at Ottumwa, Ia., June 23, 1910. The following officers were elected: *President,* Dr. L. W. Littig of Iowa City; *Vice-Presidents,* Dr. L. A. Rodgers of Oskaloosa and Dr. D. C. McClure of Bussey; *Secretary-Treasurer,* Dr. Fred Bowles of Ottumwa. *Censors,* Drs. S. A. Shillman of Ottumwa, J. A. Replogle of Udell, and H. C. Young of Bloomfield.

The Orleans County (Vt.) Medical Society met at Barton recently and elected the following officers: *President,* Dr. R. M. Wells of Orleans; *Vice-President,* Dr. C. C. Waller of North Troy; *Secretary and Treasurer,* Dr. J. C. Colby of Derby Line.

The American Association of Clinical Surgeons is at present in London, England, visiting the clinics of that city, the members being the guests of the London Surgical Society. Thirty members of the association are on the trip.

Mr. Henry C. Weeks, known as the foe of the mosquito and the friend of the shade tree, died recently at his home in Bayside, L. I. Mr. Weeks was the first secretary of the American Society for the Extermination of Mosquitos, and was an active experimenter in carrying on the fight, the present general public interest being largely due to his efforts.

Obituary Notes.—Dr. Henry Harris Aubrey Beach of Boston, Mass., died on June 28, 1910, aged 66 years. He was a graduate of the Harvard Medical School in 1868. Dr. Beach has served as assistant and demonstrator in anatomy and instructor and lecturer in surgery in the Harvard Medical School, and at the time of his death was consulting surgeon to the Massachusetts General Hospital. He had been an associate editor of the *Boston Medical and Surgical Journal,* was president of the Boylston Medical Society in the early seventies, and belonged to the American Medical Association, American Social Science Association, Massachusetts Medical Society, Boston Society for Medical Improvement, Boston Society of Medical Sciences, the American Association for the Advancement of Science, and the Biological Society of Washington, D. C.

Dr. George P. Yost of Glen Rock, Pa., died at Baltimore on June 12 at the age of 62 years. He was graduated from the Washington University School of Medicine of Baltimore in the class of 1871.

Dr. Ephraim S. Wynn died suddenly of heart disease at Camden, N. J., on June 13, at the age of 61 years. He was graduated from Jefferson Medical College in the class of 1872. He was secretary of the Medical Board of the Fidelity Mutual Life Insurance Company of Philadelphia.

Dr. Henry S. Warren of Boston died at his home June 25, 1910, aged 37 years. He was a graduate of the Harvard Medical School in 1900. Dr. Warren was at one time house physician to the Children's Hospital in Boston, and later was one of the physicians in charge of the Harvard football team. He was a member of the Suffolk District Medical Society, the Massachusetts Medical Society, and the American Medical Association.

Dr. Eugene T. Wilhelm died at South Bethlehem, Pa., on June 24 at the age of 61 years. He was graduated from Jefferson Medical College in the class of 1878. He was president of the Local Board of Health.

Dr. Albert O. Bogert of Spring Valley, N. Y., died at his home June 24, 1910, aged 58 years. He was a graduate of the College of Physicians and Surgeons of New York in 1875 and a member of the Erie County Medical Society, and the Medical Society of the State of New York.

Dr. John F. Bennett of Detroit, Mich., died suddenly in Northfield, June 19, 1910, aged 46 years. He was a graduate of the Detroit College of Medicine in 1892 and was a member of the Wayne County Medical Society, the Michigan State Medical Society, and the American Medical Association. Dr. Bennett was coroner of Wayne County.

Dr. Jacob Wesley Berton of Providence, R. I., died in the Boston City Hospital June 20, 1910, aged 65 years. He was a graduate of the New York University Medical College in 1878 and had practised in New York City, Trenton, N. J., and Providence, R. I. He retired from practice six years ago.

Dr. William Lobdell Johnson of Johnstown, N. Y., died at his home, June 26, 1910. He was a graduate of the Albany Medical School in 1865, and was a member of the Fulton County Medical Society, and the Medical Society of the State of New York. Dr. Johnson was the third of his name to have been prominent in medical affairs of Fulton County, his father and grandfather having practised in Johnstown before him.

Dr. W. J. Lewis of Hillsboro, N. B., died at his home June 23, 1910, aged 80 years. He was graduated from the University of Glasgow in 1855, and the same year received the degrees of L. R. C. S. and L. R. C. P. Edin. Dr. Lewis took a prominent interest in political affairs, having sat in the House of Commons for two terms.

Dr. J. Winthrop Spooner of Hingham, Mass., died at his home, June 19, 1910, aged 64 years. He was a graduate of Harvard University in 1867, and of the Harvard Medical School in 1871. For 24 years he was medical examiner for Plymouth County. Dr. Spooner was an ex-president of the Norfolk District Medical Society, and a member of the Massachusetts Medical Society, and the American Medical Association. He was also an ex-president of the Medico-Legal Society.

Dr. Belle Walrath of St. Paul, Minn., died at St. Luke's Hospital, June 20, 1910, aged 63 years. She was a graduate of the Northwestern University Woman's Medical College in 1882, and was a member of the Ramsey County Medical Society, the Minnesota Medical Association, and the American Medical Association.

Dr. Alfred Willard Southgate of Worcester, Mass., died at the Worcester City Hospital June 25, 1910, aged 31 years. He was a graduate of Amherst College in 1901 and the Harvard Medical School in 1906, and was a member of the visiting staff of the Worcester City Hospital.

Dr. Charles Zellhoefer of Brooklyn, N. Y., died at his home June 29, 1910, aged 65 years. He was a graduate of the New York University Medical College in 1873, a consulting physician to the Eastern District and German Hospitals of Brooklyn, and a member of the Medical Society of the County of Kings and the Medical Society of the State of New York.

Dr. Richard Joseph Nunn of Savannah, Ga., a well-known Mason and a veteran of the Confederate Army, died at his home on June 29, aged 79 years. He was graduated from the Savannah Medical College in 1854, and was active in the fight against yellow fever in the South.

Correspondence.

DEATHS RESULTING FROM THE ADMINISTRATION OF ANESTHETICS.

To the Editor of the Medical Record:

Sir:—On Dec. 15, 1908, a committee of experts was appointed in England "to inquire into the law relating to coroners and coroners' inquests, and into the practice in coroners' courts." By the special instruction of the Secretary of State, the committee was asked to investigate the question of deaths resulting from the administration of anesthetics. The so-called coroners' committee, therefore, made a thorough inquiry into the whole subject of anesthetics, in the course of which many expert witnesses were examined and considerable data bearing upon the various phases of the subject were collected. The results of the inquiry have recently been made public in a parliamentary report,* dated March 18, 1910.

It was brought out that the number of deaths reported in the United Kingdom as having been caused by anesthetics had increased quite rapidly and considerably in recent years. In the single year of 1908 no less than 235 fatalities from anesthetics were reported to the coroners of the United Kingdom. The available statistics, however, were found to be unsatisfactory both because of incompleteness and because of imperfections in the returns. For example, in many cases the statistics did not clearly indicate whether the deaths were from an anesthetic or under an anesthetic. Obviously, a death under an anesthetic might have been due to the shock of operation or to an accident incident to the administration of the anesthetic—such as asphyxia, resulting from the tongue slipping back, or regurgitation of food. To determine the relative hazards of the various anesthetics as administered under varying conditions, the statistics of fatalities must clearly discriminate between the deaths which should be charged to the drugs, or deaths from anesthetics, and deaths under anesthetics, and the latter should discriminate so far as possible between the deaths due to shock of operation and deaths due to the effects of the anesthetic. At best, the line of demarcation cannot always be sharply drawn.

The committee, after a careful examination into all the available facts, came to the conclusion that "when all sources of error are allowed for, we have the fact that there is an increasing number of deaths under anesthetics, and that in the opinion of experts a certain number of these deaths are due to preventable causes." They further agreed that "a certain number of deaths are inevitable whatever the care and skill may be with which the anesthetic is administered."

The report in its entirety should be of interest to all surgeons, practitioners and dentists who make any use of anesthetics. The more important recommendations of the committee are as follows:

"(1) Every death under an anesthetic should be reported to the coroner, who, after inquiry, should determine whether it is desirable to hold an inquest or not. (2) In the case of every death under an anesthetic the medical certificate of death should specify the fact whether the anesthetic was the actual cause of death or not. (3) No general respirable anesthetic should be administered by any person who is not a registered medical or dental practitioner. (4) Registered dentists should be confined to the use of nitrous oxide gas for dental operations, and should not employ the general respirable anesthetics of longer duration. (5) Intraspinal anesthesia should be practiced only by registered medical practitioners. (6) Practical and theoretical instruction in the administration of anesthetics should be an essential part of the medical curriculum. (7) Such instruction in the administration of nitrous oxide gas should be an essential part of the dental curriculum. (8) In the case of any death under an anesthetic in a hospital or other similar public institution, there should be a scientific investigation into the actual cause of death, conducted by the authorities of the institution. (9) A small standing scientific committee on anesthetics should be instituted under the authority of the home office."

Inasmuch as there is likely to be a continued and rapid progress in surgery in the United States as well as in England, with an increasing number of patients submitting to operations in which anesthesia is desirable or necessary, it is quite probable that most, if not all, of the conclusions and recommendations of the English Coroners' Committee are equally applicable to this country.

Frederick S. Crum.

Prudential Insurance Company, Newark, N. J.

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OUR LONDON LETTER.

(From Our Regular Correspondent.)

HOSPITAL SUNDAY—MALTA FEVER—ACUTE HEMORRHAGIC PANCREATITIS—NATIONAL SOCIETY FOR THE PREVENTION OF CONSUMPTION—SIR T. BARLOW—SANATORIUM SOCIETY—TERRITORIAL SANITARY SERVICE—OBITUARIES.

London, June 17, 1910.

Hospital Sunday opened the week, and the usual collections were made. It is not known at present whether the response will prove an advance, as the amounts have not yet been returned. But from one or two churches I have heard of collections of sums above the average, so it may be hoped the fund will not be found to have diminished.

In the House of Commons a member, who appears to have a difficulty in dealing with statistics, wanted to know what was the good of further research as to Malta fever, and objected to public money being spent in this way, when the fever had practically been extinguished in the British troops. He was informed from the ministerial bench that Sir David Bruce had informed the commission quoted that goats were capable of infecting man when they themselves remained healthy. The prohibition of the use of goats' milk in the barracks had been most successful. In July, 1906, it was issued, there having been 123 soldiers admitted to the hospital up to that period of that year; in the remaining months there were only 40. In 1907 there were 11; in 1908, 5; the next year only one, and during the present year up to date, none. Among the civil population it is hardly practicable to prohibit the use of the milk of goats. Research into the causes of the infection in these animals is therefore most desirable in order if possible to remove them.

Acute hemorrhagic pancreatitis is met with occasionally, and may be mistaken for some other abdominal lesion unless the case is carefully examined. Perhaps it is more common, as usually taught, in adult males who are rather fat and indulge freely in alcohol; but such is not always the sort of patient. Two cases were related by Dr. A. Elliot at the West London Society on the 3d inst., and formed the basis of a paper on the subject. They were in men of 40 and 50 years respectively, addicted to alcohol. The diagnosis was suggested by extreme suddenness and severity of the pain, with persistent and urgent vomiting—this symptom-complex being more frequently found, said the author, than in other acute abdominal attacks likely to be taken for it. There was not much tenderness on palpation in the early symptoms of either case; and collapse, which some writers have insisted on, did not occur until late. Dr. Elliot recommended early surgical intervention. Mr. McAdam Eccles said drainage through the lesser omentum with free drainage of the biliary passages gave the only chance to the patient, and then only if done early. Dr. G. C. Low described four autopsies he had made and said fat necrosis was only found in the abdominal cavity. In a malarial case he had not found any fat necrosis. Dr. Cairns Forsyth had seen six cases operated on, but only one of them was successful. He thought many cases might not be inflammatory at first, but rather a pancreatic apoplexy. They were generally seen in patients in whom other hemorrhages seemed likely to occur. He suggested placing a gauze drain in the foramen of Winslow, if patent, as well as the drainage others had advised.

The National Association for Prevention of Consumption is appealing for funds to carry out its educational campaign by (a) traveling exhibitions, (b) caravans with lantern slides for small towns, (c) popular lectures, (d) information bureau for press and public, (e) distribution of literature. It is urged that success in the war against the disease depends on the cooperation of all classes. It is pointed out that £500 will fit out a traveling exhibition and £600 will run it for a year; £300 will fit out a caravan and £700 run it for a year; £5 will pay for a lecture; £1 for a set of slides, and one penny for some leaflets.

On the 8th new buildings were opened on a ridge of the Chilterns erected by the National Children's Home and Orphanage Committee when addresses were delivered by medical and other supporters. Sir T. Barlow, F.R.C.P., passed in review the advances made in the treatment of consumption, and laid down some preventive principles. He gave primary importance to the feeding of children with varied diet—pure milk and butter, bacon—which, he said, had virtues not commonly recognized—well cooked vegetables. A diet of this kind he recommended for children. People should give up sending flowers to hospitals, superseding them by gifts of fruits and fresh vegetables. Well-cooked fresh meat was another necessity.

The Royal National Sanatorium's annual meeting of governors has also been held this week, and the 55th report adopted. The balance sheet once more shows a considerable deficit. During the year 502 patients were treated. The most important business was a question of extension of the work. They were faced with a proposal to adopt the system of graduated labor, which was thoroughly advocated by their medical advisers. This was impossible, the committee reported, with their present grounds, which did not exceed three acres. Land would be required on which patients could be set to agricultural labor, and workshops for indoor employment. It was estimated that £30,000 would be necessary to secure a sufficiently commodious site and erect a new sanatorium. A hope was expressed that land might be presented, or at least offered at, a very low price. The meeting decided to ask the committee to prepare a scheme and submit it to the next meeting.

Livingstone College, named after the great medical missionary, is devoted to the training of missionaries so far as to be of service to their brethren during illness and to the communities where they labor. They do not call themselves medical missionaries, but endeavor to be of service where qualified doctors are not available. At Commemoration Day last week, Dr. Harford, principal, read extracts from an address by Professor Ronald Ross, who indicated the success of the anti-malarial campaign and the assistance the college could enable the students to give. Dr. J. H. Cook, who had worked many years in Uganda, said the students of the college had been able to give valuable work, and it would be well for a much larger number of missionaries to be trained in the college before going abroad.

Lt. Col. C. H. Melville, Professor of Hygiene at the R. A. M. C., gave an address on the 8th before the Sanitary Institute on the work of the sanitary service of the new territorial force. He told the officers their first duty was to maintain the resisting powers of the soldier, by attending to the water supply and camp conservancy as well as a study of food, clothing, work and play, in all of which tact was necessary. Their force differed from the regular army, as it had no continuous existence as an organized body in times of peace. So whatever breathing time the force might have when called out, none whatever would be allowed to the sanitary department. They would not get six weeks nor even six days to prepare. From the first moment of mobilization, sanitary work would begin, and if they had not learned it during peace, the price would be so many territorials in the hospital and so many in the grave. Before the army men saw an enemy it would, he calculated, in such a case, suffer a loss equal to that which a severe engagement might inflict. Their duty, therefore, was to study in time of peace the conditions they would have to face in war.

Many members of the profession attended the service at Nottingham in memory of Dr. Arthur J. Sharp, who has died at the age of 42, after a protracted illness, the result of septicemia contracted, it is thought, in the performance of a post mortem. The funeral was at Ambleside, the service at Nottingham taking place simultaneously.

Surgeon-General J. G. Faught, K.H.S., died on the 12th inst. in his 78th year. He joined the army service as assistant-surgeon in 1855 and was employed as sanitary officer at Cape Coast Castle during the Ashanti War of 1874 and served in the Afghan War, 1878-80, receiving a medal in each case. Again he saw service in the Egyptian War, 1882, in Bechuanaland, 1884-5, as P.M.O. to Sir C. Warren's expedition, and finally in the campaign against the Zulus in 1888.

Dr. T. E. Smith, of Trinity College, Dublin, died on the 8th inst. after an operation for appendicitis, aged 47.

OUR LETTER FROM PARIS.

(From Our Regular Correspondent.)

CHLOROFORM ACCIDENTS IN THE ICTERIC—TREATMENT OF ANGIOMATA WITH HOT AIR—EXPERIMENTAL POLYURIA—GENERAL TREATMENT OF SURGICAL TUBERCULOSIS OUTSIDE OF CITIES.

PARIS, June 15, 1910.

THE rôle of anesthetics in the pathogeny of accidents after operation on hepatic patients is considerable. While chloroform causes serious accidents, ether, on the contrary, produces very simple operative results. Without denying that ether also may have injurious action on the kidneys and the liver, that injurious action is infinitely less than that of chloroform. It results from this, according to Quénu, that ether should be used in all operations on the icteric, while in such patients the use of chloroform is absolutely to be condemned. Jean Louis Faure shares this same opinion, and thinks that among the icteric all post-operative accidents are to be attributed to the action of chloroform. Chaput thinks that we should prefer lumbar anesthesia to chloroform or either. Lucas-Championnière and Régnier think that if the injurious action of chloroform on the liver is sometimes noted it is only in exceptional circumstances, and in livers whose resistance has been reduced. Sieur thinks that in true hepatics chloroform presents dangers, and that its use should be especially avoided in alcoholics whose livers are always diseased.

Ricard presented three patients who had angiomata of the face, which had been treated with hot air. The especially interesting facts in this treatment are the very great rapidity of cure and the perfection of the cicatrix. Broca thinks that this treatment of angiomata by means of hot air should not be applicable only to those on the surface, but that by removing the eschar as fast as it forms excellent results may be obtained in growths as large as a nut. He thinks this treatment superior to electrolysis, and that the eschar obtained by hot air is very superior to that obtained by the galvanocautery. Vasquez and Cottet have studied experimental polyuria. The urinary secretion is not continuous, but presents variations following a rhythm which is not the same in the normal as in the pathological condition. The urine secreted during the day is more abundant and less dense than that secreted during the night. We must take account in diuresis of extrarenal factors which are numerous and varied; we must take account of the apparatus of absorption and of circulation (stomach, liver and heart); we must also take into account the effect of the nervous system, the intervention of which explains certain bizarre kinds of rhythm, but which in practice may be neglected. The urinary secretion depends not solely on the functional condition of the kidney, but on the quantity of materials which the blood brings in a given time. If we cannot act upon the functional condition of the kidney, we may experimentally modify the blood current, for we may very simply cause variations in the circulation of liquids in the organism by change of attitude. In fact, the upright position with relation to the horizontal position presents an obstacle to the normal progress of liquids by the simple fact of the intervention of the law of gravity. The notion of renal permeability shows how important it is to take notice of the amount drunk, not only its quality, but also its quantity, which should be regulated by the renal needs. In the normal condition, when the kidneys and the heart are healthy, the ingestion of a large amount of water presents no inconveniences, because it is eliminated as soon as it is absorbed; but when the kidneys are diseased and are no longer able to eliminate the water in proportion to its penetration into the circulatory stream, it increases the mass of the blood and the work of the heart, which suffers the more as it is more diseased. From this is deduced the already long known indication to reduce the amount of liquids in cardiac and Bright's disease. Courtellemont had seen cases in which the ingestion of 600 to 1,000 grams of water were sufficient to precipitate vomiting, headache, palpitation, vertigo, and even pulmonary edema. As conclusion, it is necessary in treatment of diuresis in the great majority of cases to enjoin the horizontal position, ordering them not to drink in that position, and to keep this position for a variable time according to the case. Under the influence of the horizontal position patients get a better diuresis, while dyspeptics, cardiacs, and those fatigued benefit by repose in the

horizontal position in various ways. In treatment of diuresis we should take into account the condition of permeability of the kidneys; and on the other hand expect that it will differ greatly according as it is proposed to act on the general equilibrium of the economy, or to produce in the urinary apparatus a lavage by the passage of a veritable water race. Under pain of grave misconception the ingestion of water should be dosed according to the eliminative power of the kidneys. Paul Delbet thinks that tuberculosis cases are not cured any more easily at the seaside or in the country than in the city. To obtain a cure in surgical tuberculosis there is needed good hygiene, a well regulated life without excessive fatigue, good nourishment, air, and sunshine. If these conditions can be obtained in cities it is preferable that the patients be treated there. Tuberculosis patients may be treated anywhere provided that they may have good hygiene and be properly cared for. Instead of constructing distant and costly sanatoria it would be better to construct in cities habitations for workmen that are healthy and full of fresh air and light. Judet thinks that it is possible to cure in cities surgical tuberculosis with good hygiene and good local treatment. Lance thinks that surgical tuberculosis is more easily cured at the seashore or in the country than in the city. The pure air, the wind by its continuous action, are stimulants of the exchanges, of assimilation, and of appeite. The action of solar light is particularly remarkable. Sunburn is a sign of great importance, and it is to be noted that those who do not present it obtain much less benefit than others from a sojourn at the seaside. Brodier thinks that sea baths, sea air, sun, altitude, are precious auxiliaries in surgical treatment. The change of surroundings gives the organism an excellent stimulus, but in the country, the mountains, at the seaside the most valuable results of treatment are not obtained unless the patients enjoy themselves. Mayet thinks that for the formulas above given we should substitute the following: Bony tuberculosis may be cured anywhere when it is properly treated. The importance of outdoor air is considerable, and the principle of the open window should be widely accepted. A very interesting experiment has been made by Lannelougue and Achard; they took several parcels of guinea pigs of the same age and as far as possible the same weight, and the same day inoculated them in the peritoneal cavity with the same amount of the same culture of tubercle bacilli. Then these different parcels of animals were placed in different hygienic climatic conditions: The country, the seashore, the coast of La Mancha, high altitudes, the South, the North: the last lot was kept in the laboratory in a dark room, but with a window constantly open. The guinea pigs of each lot received daily the same food; whenever a pig died he was sent to the laboratory of Lannelongue for an autopsy. Those that resisted to the last were those in the laboratory. They were not in pure air,but they were always in the air. La Fur thinks that a sojourn at the seashore should be prescribed for tuberculosis of the genitals and urinary organs. Genouville concedes that if genital tuberculosis is treated with advantage at the seaside, it is not so with urinary tuberculosis. Ozenne thinks that if a surgical tuberculosis when well treated locally may be cured in the city as easily as at the seashore or in the mountains, the best observation has shown that there is a considerable benefit from seashore treatment, rural life and high altitudes on the organism afflicted with tuberculosis.

Progress of Medical Science.

Boston Medical and Surgical Journal, June 23, 1910.

Arthrodesis and Its Application in Infantile Paralysis of the Foot.—W. B. Macausland and B. E. Wood report 13 cases of arthrodesis, which is an operation to stiffen joints not completely or at all under the control of normal muscular groups: in consequence of this lack of control deformities develop. Probably the best time to operate is between the eighth and twelfth year. The patient is prepared in the usual manner from toe to knee, inclusive. A tourniquet is advisable. A semicircular skin incision is made between the prominence of the external malleolus and the Achilles tendon, passing one-half inch below this malleolus, forward to a corresponding distance in front of the same, making an incision of from about four and one-half to five inches. This skin flap is then dissected upward. The extensors of the little toes are then pulled forward and the peroneal tendons pulled backward. A similar incision is then made through the ligamentous and capsular covering of the ankle joint, exposing the tibial astragaloid joint. The foot should then be inwardly dislocated. Too great force may injure the tibia. After the joint is thus dislocated the ends of the tibia, fibula and astragalus can then be denuded of cartilage. Other joints may require similar treatment when they are involved in the loss of muscular and ligamentous control. The dislocation is then reduced, bringing the denuded surfaces together. The new approximation is wobbly, and must be made firm in order to secure a good result. To accomplish this, the fibula is fractured by subcutaneous osteotomy and pressed in closely in the application of the plaster. One of the writers has felt that the tibia and fibula should be left in normal relation, so he splits the astragalus in two longitudinally, hoping thereby to secure perfect approximation between the tips of the tibia and fibula, and also to produce excessive callous formation.

The Effect of Tobacco on the Ear and Upper Respiratory Tract.—H. O. Reik offers the following conclusions: (1) It does not appear, at least it has not been proven, that tobacco causes any definite characteristic lesions of the nose, ear or throat. (2) While it is possible that the excessive use of tobacco may by indirect action produce a toxic effect upon the auditory and olfactory nerves, with resulting impairment of the sense of hearing or smell, there is not at present any definite laboratory proof for such an opinion, nor is there sufficient clinical evidence to substantiate the belief. (3) The ill effects of tobacco smoke on existing diseases of the throat arising from other causes are established and are the same as would be observed from any other form of irritation. (4) Gastric and systemic nervous disturbances may arise from excessive use of tobacco in any of its forms. The nicotine content of tobacco is a recognized poisonous substance and in the process of smoking there are evolved other poisonous products. (5). Carbon monoxide is probably a more dangerous and injurious constituent of tobacco smoke than is nicotine, only a very fractional amount of which ever enters the tissues. (6) The cigarette is more injurious than the cigar in that it involves inhaling the smoke, but without inhalation it is no more dangerous than any other form of cigar smoking or pipe smoking; probably not as much so unless enormous numbers are consumed.

New York Medical Journal, June 25, 1910.

Etiology and Symptomatology of Infantile Scurvy.—This question is considered by J. P. Crozer Griffith, who says that there is in addition to dietetic faults an individual predisposition, active in the production of scurvy; otherwise we should find much more of the disease than we do. In some families the disease comes on about a certain age. The most striking symptom is pain, often of sudden onset. The mistaken diagnosis of trauma may be made. Pseudoparalysis is a natural consequence of pain on movement. Involvement of the gums is present in the majority of cases. Swelling of the limbs is another sympton seen regularly in severe cases. Hemorrhage such as occurs beneath the periosteum and in the gums is also seen in other parts of the body, and is most characteristic. It may sometimes occur in the posterior part of the orbit producing exophthalmos and ecchymosis of the eyelids. It is seen also in the form of petechiæ and may occur from the bowel. One of the most frequent forms is, in the author's opinion, from the kidneys. In severe and long continued cases a progressive anemia and cachexia develop. The expression is one of constant pain. The child may sleep but little on account of the suffering. Edema of the parts involved is often very decided, sometimes with a marantic edema of other parts. Fever may be present in moderate amount, appetite is diminished, diarrhea not uncommon; or there may be constipation. Without treatment there is but little tendency to recover.

Pathology of Infantile Scurvy.—C. A. Fife says that recent years have added but little information to our knowledge of the pathological changes in scurvy. The gross lesions are due to increased vascularity and more directly to hemorrhages in the various structures, especially the periosteum, bones and muscles. The subperiosteal hemorrhages occur in preference in the long bones of the lower extremities, particularly the lower ends of the femora. These hemorrhages may be slight or may almost separate the periosteum from the bone. Hemorrhages occur also in the soft and reddened marrow, producing clots around which softening occurs. As a result of this the cancellous portions are absorbed and rarefied and the compact parts greatly thinned. Others maintain

that the bone changes are a cause rather than a result of the hemorrhages. The gums are swollen, congested, bleeding, spongy, and ulcerated. Visceral changes are not important and are due simply to hemorrhages and anemia. Bleeding may occur from any mucosa; extravasations have been found in practically every organ, and may take place in any serous cavity, and on the surface of any serous membrane. The kidney may be the seat of hemorrhage without undergoing any inflammatory change. Albumin, casts, and blood found under these circumstances do not indicate true hemorrhagic nephritis. The blood condition is essentially one of chlorotic anemia. Nucleated red cells, poikilocytes, macroblasts, microblasts, polychrome basophiles in the nucleated reds have all been seen. Recent work seems to indicate that the marrow changes are the basic pathological processes in the disease. The lymphoid marrow becomes poor in cells and in blood vessels, is rarefied and converted into friable scaffold-like tissue resembling embryonal connective tissue which contain spindle cells and a few osteoblasts.

Treatment of Infantile Scurvy.—M. Ostheimer sums up the treatment in a single word, orange-juice. It is as prompt as mercury in syphilis or quinine in malaria. Drugs are probably without value. Much difference of opinion exists as to feeding during treatment. Some stop all proprietary foods, condensed milk or sterilized milk, and substitute either uncooked milk or milk which is boiled just before it is given to the child. The orange juice may be given in doses of one tablespoonful or more every two hours. Grape juice comes next, while lemon juice is regarded unfavorably on account of its great acidity. It has been found that in nurslings, giving orange juice to the mother benefited the child; but it is better to give it directly to the child. The latter needs rest and should be handled as little as possible. Fresh air and plenty of water are naturally of benefit. Beet juice seems to have a doubtful value. Sodium lactate has been advised by Wright of opsonic fame. Iron, arsenic, and cod liver oil may be given late in the disease to infants in whom there is marked secondary anemia or exhaustion. The author thinks that it would be well as a prophylactic measure to give orange juice to all infants who come under our care after having been on any of the proprietary foods, condensed milks or sterilized milks for any length of time. Such infants ought to be at once placed on an uncooked milk mixture. Recovery with the orange juice generally ensues in three or four days.

The Lancet, June 18, 1910.

Influenzal Meningitis.—F. E. Batten reports five cases, one recovering. The diagnosis must rest on the result of bacteriological examination, for this form of meningitis has no features which distinguish it clinically from other forms of the same disease. Routine cultures of the cerebrospinal fluid must be made on some blood medium. A certain suggestive value obtains in the occasional viscidity of the cerebrospinal fluid, but one would be loath to make a diagnosis on this feature alone. Lumbar puncture has been performed in most of the recorded cases, but it can hardly be considered a therapeutic measure; although recovery has followed in some of the cases in which it was done. In the author's favorable case, as soon as the nature of the disease was recognized, urotropin was given in 10-grain doses every four hours for three weeks. It has been noted that after the use of urotropin within therapeutic limits a sufficient amount of the drug appears in the cerebrospinal fluid to exercise a decided inhibitory effect on the growth of organisms, and will markedly defer, and, in some cases, even prevent the onset of a fatal meningitis. The favorable result in the author's case cannot be attributed, he says, to the urotropin; but the fact that all other cases in children under two years of age have proved fatal while this one recovered is suggestive and justifies a further trial of the remedy.

A Note on the Treatment of the Partially Drowned.—J. A. Barnes says that drowning appears to be due, (1), to mechanical asphyxiation and, (2), to shock from sudden and prolonged immersion. He calls special attention to the latter form. The usual directions are, he says, to perform artificial respiration and apply warmth. But, if we look on these cases as due chiefly to shock, something more can be done. The blood is stagnating in the splanchnic areas and we should drive it thence so that the brain may receive its proper supply. He aims at autotransfusion in the following manner. Having started an assistant on artificial respiration he firmly bandages the legs from the feet upwards. A roller towel is then passed round the patient's abdomen, the two ends crossing in front. One assistant is told off to each of these ends. As the arms are brought down to the chest in the expiratory movement of artificial expiration (Silvester's method) these two assistants, grasping the towel-ends firmly with their right hands, pull them; at the same time making pressure on the abdomen with their left hands. In this way considerable squeezing of the abdomen is obtained. As the inspiratory movement commences the pressure is relaxed so as not to interfere with the expansion of the lungs. The process is continued synchronously with the movements of artificial respiration. His idea is that this acts beneficially in two ways: (1) it assists, by pressing up the diaphragm, to more completely empty the chest with expiration; and (2) it squeezes some of the excess of blood from the abdominal cavity. The bandaging of the legs and arrangement of the towel can be very quickly carried out with assistance, of which there is usually no lack in these cases. Gravity should also be made to assist the flow of blood to the brain by keeping the head at a lower level than the body. He gives a hypodermic injection of ether (30 minims) and usually one of strychnine as well. The objection to the use of these stimulants—that they stimulate an already tired center and are quickly followed by increased depression—seems hardly to apply in cases of drowning; for when once reaction has set in recovery is usually rapid. Adrenalin chloride given hypodermically (30 minims of a 1 in 1,000 solution) should act beneficially by raising the blood pressure.

Comparison Made Between the Simple Gastrocirculatory Seizure and the Angina Pectoris Attack.—W. Verdon discusses these two conditions. He contends that the angina seizure is a gastric reflex, that it is evolved from the painless type of gastrocirculatory seizure and that the entity pain is not an essential content of the syndrome but an excrescent appendage. Space does not allow the following out of the argument in all its details. He says that in the anginoid attack there is much else worthy of consideration than the pain. When the attack is considered in regard to its place among the paroxysmal seizures it is found to resemble a class associated with functional disorders of the stomach of which the simple gastrocirculatory seizure known as a vomiting attack is a strong example. The dual syndrome of this latter attack represents a series of operations organized for the purpose of protecting the stomach from the effects resulting from the intrusion of a noxious body. The gastric group of operations have for their object neutralization of the offensive properties of the irritant and its ejection from the gastric cavity; the circulatory group the defense of the gastric wall tissue and the repair of its lesions. When the anginoid seizure is stripped of its pain the remaining symptoms are circulatory and gastric. If the syndrome of the gastric and circulatory symptoms of the anginal seizure be examined closely they are observed to afford evidence of the existence of processes in operation, animated by purposes precisely similar to those manifested in the dual syndrome of the simple gastrocirculatory attack. There is this difference, however, between the two types of seizure. In the robust forms of the simple gastrocirculatory attack the processes in operation as represented in the gastric section of the dual syndrome are perfectly coordinated and sufficiently effective to accomplish their end, and the attack terminates in expulsion of the contents of the stomach; whereas in the case of the anginal seizure the processes in all their operations are inefficiently organized and abortive, and the purpose of the seizure usually remains unfulfilled. The author's paper is well worth reading in its original form.

British Medical Journal, June 18, 1910.

Suggestion in the Treatment of Disease.—Henry Morris presents an elaborate paper on this subject discussing the topics of mental suggestion, hypnotic suggestion, religious suggestion, the cases treated at Lourdes, compares Lourdes cases cured with cases met with in private practice, gives the history of Lourdes and of former shrines, discusses the relation of miracle cures to the doctrine of the Immaculate Conception, refers to the creative life, mentions Christian Science healing, dwells on the importance of temperament in a propagandist, touches upon the lives of the founders of great religious movements, says that Christian Science lacks even glowworm luminosity and closes with the following quotation from Carlyle: "An inward force has been given to man whereby he is enabled to withstand the pressure of things outward. Obstruction abounded but faith was also not wanting. It is by faith that

man removes mountains; while he has faith his limbs might be wearied with toiling, his back galled with bearing; but the heart within him was peaceable and resolved. In the thickest gloom there burned a light to guide him. If he struggled and suffered he felt that even it should be so; knew for what he was suffering and struggling. Faith gave him an inward willingness, a world of strength wherewith to front a world of difficulty. The true wretchedness lies here: that the difficulty remain and that the strength be lost; that pain cannot relieve itself in free effort, that we have the labor and want the willingness. Faith strengthens us, enlightens us for all endeavors and endurances; with faith we can do all and dare all and life itself has a thousand times been joyfully given away."

Psychopneumatology.—J. Rorie discourses on the interactions of mind, body and soul. The paper is made up mainly of quotations from John Goodsir, who was Professor of Anatomy in the University of Edinburgh. The latter's views, says the author, adapt themselves admirably to the most scientific ideas and to even higher and more incomprehensible problems such as those of life, death, and the hereafter when, the individual having fulfilled his purpose here on this earth, the time has arrived when the psyche and the pneuma have to be withdrawn from their mere material companion, and when the last, in consequence, coming under the dissociative laws of physicochemical action alone returns to the purely inorganic elements of which it has been composed, while the two first, still united and now the depository and register of all the deeds done in the body, continue to pursue their eternal and predestined course.

Berliner klinische Wochenschrift, June 6, 1910.

Radium Therapy.—Eichholz says that there is a decided difference between radium rays and emanations. The local action of the radium rays is inhibition to physiological functions; in strong doses they produce tissue destruction. The rays come into play only in affections which can be reached directly as neoplasms and skin diseases. Great care must be used in applying them. The emanations have an exciting irritative action. They are anti-bacterial and resorbent, and stimulate metabolism. Once taken into the body they activate tissues and organs and are excreted mainly through the breath. Treatment by emanations consists of drinks, baths, inhalations, injections, and applications to the skin. The question whether emanations are absorbed through the skin is not yet definitely settled, nor is that of their excretion by the kidneys. It is proved, however, that during the bath cure, the emanations enter the body, and that a bath cure without a drink cure gives excellent results. The indications for radium treatment are as follows: (a) Chronic inflammation of all kinds, either in the soft parts or in the bones and joints, rheumatism, arthritic processes, neuralgia and chronic purulent exudates; (b) constitutional diseases, scrofula, rachitis, tuberculosis, anemia, chlorosis, arteriosclerosis, diabetes, and obesity; (c) catarrh of the mucous membranes; (d) neoplasms, both in operable malignant and benign tumors; (e) skin diseases with horny proliferation, as chronic eczema and psoriasis; also furunculosis and anomalies of the sweat glands, seborrhea, comedones, acne, etc.; (f) weaknesses of old age and following illness; (g) bacterial diseases (internal disinfection by the drink cure). Contraindications to radium therapy are acute diseases, pregnancy, nephritis, hemorrhages, and gastric ulcer. During treatment frequent examinations of the urine for albumin are indicated.

Münchener medizinische Wochenschrift, June 7, 1910.

The Significance of Ambulatory Typhoid in Children.—G. Brückner says that children between the ages of 11 and 15 years form the class most susceptible to typhoid fever, instead of persons of the second and third decade, as previously supposed. These cases of child typhoid are of importance in epidemiology. The occurrence of epidemics in children from 1 to 15 accounts for many of the instances of regional typhoid immunity. The disease in children runs a very light course, often unrecognizable as typhoid fever clinically, is often untreated, and is therefore of especial danger as a means of spreading the infection. The ambulatory typhoid case in a child is often the source of infection of more or less numerous cases, and so the origin of an epidemic. The fight against these mild cases of typhoid in children is to be carried on by an organized campaign, especially by thorough control of the schools in association with school physicians and teachers. A successful campaign, however, can be carried on only when the practitioner appreciates that children are prone to typhoid infection and that in them it may take a very light form, suggesting only a simple dyspepsia. Wider use of the bacterial institutes on the part of the practitioners is much to be desired, especially in the febrile affections of children without a definite diagnosis. Only by the closest relationship between bacteriologist and clinician will the knowledge of the uncertain types of typhoid fever be advanced, and the campaign against them made effective.

Tuberculosis of the Optic Nerve.—Reye reports the case of a child who died of tuberculous meningitis. At autopsy a tuberculous lesion of the optic nerve was discovered. The author says that such a lesion may be caused by one of three conditions. (1) It may result from a tuberculous caries of the skull bone, which, after destroying the dura, involves the root of the optic nerve; (2) in an existing tuberculous meningitis it may result from a spreading of the tuberculous process along the course of the pial vessels; (3) it may result from metastasis of disease elsewhere, entirely independently of any local lesion. In the case reported there was no involvement of the skull. The case was therefore the result of the second or third of these causes.

Deutsche medizinische Wochenschrift, June 9, 1910.

Alcohol Hand Disinfection without Soap.—Schumburg says that the most diligent scrubbing of the hands with soap and hot water does not render them sterile. Soaking them in absolute alcohol or denatured spirits gives thorough disinfection if the hands are dry. Previous scrubbing not only makes the skin more tender and liable to scale after the alcohol, but the moisture in the skin so weakens the absolute alcohol as to render it much less effective as a germicide. He therefore advises that for operations the hands be soaked in absolute alcohol without previous scrubbing.

Treatment of Pernicious Anemia by Blood Injections.—O. Huber has treated a series of five cases of pernicious anemia by intramuscular injections of small quantities of defibrinated blood with excellent results. The amount injected varied from 20 to 110 c.c. In one case the red blood count rose from 1,200,000 to 4,800,000, and the hemoglobin from 18 per cent. to 92 per cent. in four months. In another case the red blood count changed from 1,460,000 to 5,200,000, and the hemoglobin from 20 to 90 per cent. The third case showed improvement in red cells from 3,200,000 to 5,000,000, and in hemoglobin from 40 per cent. to 70 per cent. The fourth case was still under treatment. The red cells had increased from 650,000 to 2,000,000, and the hemoglobin from 10 per cent. to 55 per cent. The fifth case ended fatally. The author believes that the intramuscular injection of defibrinated blood is a most valuable procedure in severe anemias.

Household and School Prophylaxis of Measles and Scarlatina.—Guiseppe Pecori believes that it is not possible to do much in the way of prevention of the spread of measles by the use of fumigations and disinfection of articles. The virulence of the contagion is short-lived, and the mischief is done in the very early stages of the disease, before the diagnosis is made. The thing that will be of value in this disease is a systematic education of the public to understand the necessity of early diagnosis and immediate and perfect isolation of children sick with measles. At present these children are allowed to go to school and to mix with other children at a time when they should be in isolation. As to scarlatina, the same perfect isolation is needed, and must be maintained for at least forty days from the beginning of the illness. It is questionable whether the actual desquamated scales are contagious, but the skin is capable of being inoculated with germs from the throat, and we know that they retain their vitality for a long time. The contagious thing is the patient, not his surroundings, and the nasopharynx carries virulent germs for a long time after the general symptoms have ceased. The patient, all that he wears or uses, and the persons who take care of him should be carefully disinfected after the disease is at an end. Whenever possible the child should be cared for in a hospital. If he must be cared for at home it is advisable to have everything in his room washed with a disinfectant, and the matresses and other nonwashable articles sterilized by heat. It is important to recognize and isolate the slight and abortive cases also. Many of the cases of albuminuria and nephritis in children are due to an unrecognized scarlatina.—*Gazzetta Medica di Roma.*

Book Reviews.

Diseases of the Genito-Urinary Organs considered from a medical and surgical standpoint, including a description of gonorrhea in the female, and conditions peculiar to the female urinary organs. By Edward L. Keyes, Jr., M.D., Ph.D., Clinical Professor of Genito-urinary Surgery, New York Polyclinic Medical School; Surgeon to St. Vincent's Hospital; Lecturer on Surgery, Cornell University Medical School. New York and London: D. Appleton and Company, 1910.

This work consists of six divisions, containing ninety-one chapters covering 975 pages. The subjects include the diseases of the male and female urinary organs, the male genital organs, syphilis, and a section on genitourinary surgery. It is intended for the use of the student and the general practitioner, but it is of real value to the specialist as well, since it comprises the latest advances in this field of medicine. The chapters on the kidney are particularly excellent because of the admirable presentation of the collected knowledge of our time in a manner quickly and easily comprehensible to the reader. He has given insufficient attention to that keystone of modern urology, uranalysis; its more extensive consideration would be in better keeping with the thoroughness of his work. Many teachers and urologists will differ with him in his technique of instrumental diagnosis of urethral stricture, since he places entire reliance on a therapeutic instrument—the sound. It is also surprising that he has omitted that valuable and time-honored irritating injection test from the proofs of cure in gonorrhea. The section on syphilis, though extremely condensed, covers the subject in a masterly manner. The tonic treatment as originated by Keyes, Sr., occupies a prominent place. The laboratory methods of diagnosing syphilis are reviewed in a dispassionate tone and the diagnostic table of genital sores will be most useful to those not possessing wide experience in these lesions. The section on operative work includes everything from nephrectomy to meatotomy. Occasionally, the author treads on thin ice in the use of his English, but this is pardonable because of the force and virility of his style. He skillfully avoids polemics by blunt statements of personal opinions and experiences on mooted points. The chapters on cystoscopy and gonorrhea in the female by Drs. B. S. and E. D. Barringer are praiseworthy; likewise the two hundred instructive cuts and illustrations.

Lehrbuch der gynäkologischen Cystoskopi und Urethroskopie von Prof. Dr. W. Stoeckel, Direktor der Universitats-Frauenklinik in Marburg a.L. Zweite, vollig neubearbeitete Auflage der "Cystokopie des Gynäkologen. Mit 25 lithographierten Tafeln und 107 Textfiguren. Berlin: Verlag von August Hirschwald, 1910.

Stoeckel has so changed, rewritten, and added to his first work that the present book is practically new. The methodical arrangement begins with descriptions of the various cystoscopes and accessories, and ends with the therapeutics of urethroscopy and cystoscopy. In the first chapter, full honor is accorded to the immortal Nitze for his work, and mild sarcasm to those later "inventors" of wonderful cystoscopes. The painstaking directions in the technique of sterilization of instruments, operator and operative field are commendable, since it is only by strict adherence to these details that the bladder, ureter, and kidney pelvis will tolerate the insult of cystoscopy or ureteral catheterization. In the chapter on complications of cystoscopy, the author recites the difficulties encountered in bringing all parts of the bladder into view, the causes of failure in the operation by malposition of the lamp or prism, and the possible obstructions to the urethral catheter before and after entering the ureter. Later, he describes every known trick employed to engage the catheter tip in the ureteral meatus. All this important information for the cystoscopic student is arranged in logical sequence. The views expressed on the determination of renal function, kidney and bladder pathology, and intravesical foreign bodies are not new. The sections on urinary fistulæ, cystoscopic findings in pre- and post-operative gynecological conditions are instructive. The plates by Frl. L. Krause are well made and are devoted almost exclusively to illustrations of technique. One very interesting plate shows the jaws of a forgotten artery forceps entering the bladder from the abdomen. The colored plates do not compare favorably with those of other similar works. Stoeckel's wide teaching experience befits him for the preparation of this book, which is strongly recommended to beginners in cystoscopy, since those who follow his teachings cannot go astray.

Preventable Diseases. By Woods Hutchinson, A.M., M.D. Author of "Studies in Human and Comparative Pathology," "Instinct and Health," etc., etc. Clinical Professor of Medicine, New York Polyclinic, late Lecturer in Comparative Pathology, London Medical Graduates' College and University of Buffalo. Boston and New York: Houghton, Mifflin Company, 1909.

The author of this work is too well known to require any introduction to either the medical profession or the lay public. The present book is written in the author's usual breezy style. Some of the chapters have already appeared in lay magazines; and the titles are well selected, and will ensure a perusal of the work. "Offering up a guinea-pig for the life of a child" is the alternative title for the chapter on diphtheria; and appendicitis is labeled "Nature's remnant sale." Physicians will enjoy reading the book; and at the same time it is a capital volume for such of the public as desire to know something of things medical. Just now there is a demand on the part of the laity for more information from the medical profession; and the present is one of the two or three volumes best calculated to supply this want. The general tone of the book is healthy, and no one will be the worse for a perusal of the same.

Maladies des Veines et des Lymphatiques. Par MM. Paul Launay, Chirurgien des Hôpitaux de Paris, et Henry Brodier, ancien chef de clinique chirurgicale de la faculté de médecine. Avec 36 figures intercalées dans la texte. Paris: Librairie J. B. Baillière et fils, 1910.

This pamphlet is the twelfth in the "Nouveau Traité de Chirurgie" series. The authors approach their subject not only from the standpoint of the clinician and operator but also from that of the pathologist. The novel accidents and diseases of the venous and lymphatic systems are ably discussed with an exceptional thoroughness. Interesting illustrations accompany the text and serve to make a very acceptable addition. Diagnostic points are carefully brought out, and the most recent theories in etiology serve to maintain an interest on the part of the reader.

The Stomach, Intestines, and Pancreas. By W. C. Bosanquet, M.A., M.D., Oxon., F.R.C.P., Assistant Physician to Charing Cross Hospital and to Brompton Hospital; and H. S. Clogg, M.S., Lond., F.R.C.P., Eng., Assistant Surgeon Charing Cross Hospital, Senior Surgeon to the Evelina Hospital for Children. Edited by James Cantlie, M.A., M.B., C.M., Aberd., F.R.C.S., Eng., Surgeon Seamen's Hospital Society, Lecturer on Surgery, London School of Tropical Medicine. New York: William Wood & Company, 1910.

This book is the second volume of the Medico-Chirurgical Series edited by Dr. Cantlie and designed to represent in one and the same publication the views of both physicians and surgeons upon special subjects in medicine. The book is divided into five sections, the first of which contains a brief description of the surgical anatomy of the stomach, intestines, and pancreas, the matter being presented in a form available for the physician or surgeon in diagnosing affections of these organs in the sick room and in dealing with them on the operating table. Various peritoneal pouches and the related lymphatic channels are especially described especially fully.

Section II deals with the functional and organic affections of the stomach, the various forms of gastritis, gastric and duodenal ulceration, obstructions of the pylorus, benign and malignant tumors of the stomach being considered in order. The various chemical tests in the diagnosis of these affections are given ample space and whenever surgical treatment may be indicated the technique of the operation and the after-treatment of the patient are fully considered. A similar plan is followed in the two following sections dealing with the affections of the intestines and the pancreas. Appendicitis is treated with a wealth of detail. It may be noted that the authors believe in expectant or "medical" treatment of this affection much more than it is the fashion on this side of the Atlantic. The book is closed by a short appendix giving a few specimen prescriptions used in the treatment of gastrointestinal affections.

The book does not claim to be an exhaustive treatise of the subject considered. The diseases in question are discussed for the most part dogmatically, but this makes the volume so much the more valuable for the practical use for which it is intended. Its chief merit, however, lies in the very plan under which it has been conceived, namely, the viewing of the subject matter from the standpoint of both the physician and the surgeon. It is heartily recommended to men active in either of these fields of medical work.

Society Reports.

AMERICAN GYNECOLOGICAL SOCIETY.

Thirty-fifth Annual Meeting, Held in Washington, D. C., May 3, 4, and 5, 1910.

THE PRESIDENT, DR. EDWARD P. DAVIS, PHILADELPHIA, IN THE CHAIR.

AN address of welcome was delivered by Dr. I. S. Stone, Washington, D. C., which was responded to by Dr. Seth C. Gordon, Portland, Me.

Primary Carcinoma of the Female Urethra; Hematoma of the Broad Ligament Recurring with Pregnancy; Fibroid Tumor of the Ovarian Ligament.—Dr. MANTON of Detroit reported three unusual cases in great detail, and said that primary carcinoma of the female urethra was among the rarest of malignant manifestations. A careful search of the literature up to 1910 gave the reports of but 35 cases, including his own, of primary cancer of the female urethra. A careful search of the literature failed to reveal the report of a similar case of hematoma of the broad ligament recurring with pregnancy. Regarding the case of fibroid of the ovarian ligament, the only reference to the occurrence of fibroids of the ovarian ligament which he had not been able to find, were the two cases reported by Doran in 1896. In both of these cystic cavities existed.

DR. REUBEN PETERSON of Ann Arbor, Mich., had operated on a woman four or five years ago for carcinoma of the meatus which extended up into the urethra about one-half inch. Incontinence followed, with subsequent prolapse of the bladder mucosa through the remainder of the urethra. The woman complained of this, and so he sewed up the opening and made an opening from the bladder into the vagina. Then she complained of incontinence. He did a colpocleisis, and made an opening into the rectum. This woman had passed her urine through the rectum ever since, and to-day she was as well as one could be in that condition. The second case of primary carcinoma of the urethra happened a short time ago. It looked like a urethral caruncle. However, microscopical examination showed it to be primary carcinoma. In this case he removed about one-third of the urethra, and there had been no recurrence for two years.

DR. CLEMENT CLEVELAND of New York had had two cases of primary cancer of the meatus, on one of which he did a radical operation, but the disease returned. In the second case he resorted to the use of the actual cautery, with gratifying results. He called attention to the value of radium in these cases.

DR. J. RIDDLE GOFFE of New York had had one remarkable case of malignant urethral caruncle or primary carcinoma of the urethra. This was a number of years ago. The woman gave a history of having been operated on by Dr. William T. Lusk, six years previously. For six years the woman was comparatively comfortable. She had control of the urine, but passed it through a buttonhole which was made in the urethra by Dr. Lusk. At the time she consulted the speaker there was a cauliflower excrescence protruding from the meatus, which was of a bright cherry-red color, exquisitely sensitive, and the source of constant pain. With the cautery he removed all of the urethra and the surrounding tissue from the posterior angle of the urethra, taking away all but one-fourth of the urethra at the neck of the bladder. The woman made a comfortable recovery, but inside of a year the disease returned, and she died with great suffering about a year after the procedure he had instituted.

DR. FREDERICK J. TAUSSIG of St. Louis, Mo., reported a case of carcinoma of the urethra that had occurred in the practice of Dr. Drosett and himself. The patient was kept under observation for a long time. He saw her in 1900, and at that time there was a urethral caruncle, chronic urethritis, a retroverted uterus, and a relaxed pelvic floor. He operated on her for the retroversion and pelvic floor, but did nothing further to the urethra. Three years later the patient returned with a history of bloody discharge which had existed for three weeks. When he examined her he found an infiltrating cancer involving the lower part of the urethra. Operation consisted in removing the entire urethra to the point of its entrance in the bladder, putting a pursestring suture around the opening which was left in the bladder so as to strengthen the muscular tissue there, and then, as a further precaution, removing the external inguinal glands on both sides, although there was no glandular enlargement at the time. The patient recovered from the operation, although there was partial incontinence. A year and a half after the primary operation, the patient returned with recurrence in both inguinal regions and higher up. She was kept at the skin cancer hospital two or three months under trypsin treatment, but with no benefit. The patient died, and at autopsy there was absolutely no recurrence at the primary site. The tissues about the urethra and bladder were absolutely free from carcinoma, and the glandular involvement was not merely confined to the lymphatics, but it involved the liver and spleen.

DR. SETH C. GORDON of Portland, Maine, reported the case of a woman, seventy years of age, who had a growth of the urethra for nearly a year, and at the time she came under his care she had been treated by caustics for six or eight months. The growth was as large as a walnut and bled on the slightest touch. He removed the growth with three-quarters of an inch of the urethra, bringing the remainder of the urethra down and attaching it. The operation was done four years ago, and she had had no return of the disease. Microscopic examination showed it to be carcinoma.

DR. HIRAM N. VINEBERG of New York had a case of primary carcinoma of the urethra some years ago which involved the anterior third of the urethra. He did a thorough operation, went close to the vesical sphincter, and as a result there was slight incontinence. Prior to the operation the woman had no pain or bleeding. Microscopic examination showed the growth to be carcinoma. He did a plastic some time afterward and found in trying to build up the artificial urethra and in bringing the stump of the urethra forward it was only partially successful. The woman could retain her urine for an hour or so while in bed. She was under observation three years, and during that time there was no recurrence.

DR. HENRY T. BYFORD of Chicago had had one such case, and called attention to the fact that this disease of the urethra was not so rare as one would judge from the cases reported.

DR. FRANCIS H. DAVENPORT of Boston had seen a woman in whom nearly one-quarter of the urethra was involved with carcinoma. Radium was tried for several months, but only externally from the vaginal side. Finally the growth became so large that there was retention of urine, and a suprapubic fistula had to be made which relieved the woman of her symptoms, but within three months after that she died from exhaustion.

DR. I. S. STONE of Washington, D. C., said it was essential to know about how wide the excision should extend, and how far the malignant process extended when one began to operate on these cases of carcinoma of the urethra.

DR. JOSEPH BRETTAUER of New York had repeatedly had cases sent to him which were diagnosed as carcinoma of the urethra, but which turned out to be urethral carbuncle by microscopical examination. It was difficult to decide at times whether the growth was malignant or not.

Dr. Edward L. Duer of Philadelphia said that not long ago he did an extensive operation for a carcinoma of the urethra which extended well into the end of the vagina. The disease returned in a short time after the operation, when radium was used with a gratifying result.

Dr. Manton, in closing, questioned whether all the cases reported were really primary carcinoma of the urethra. Many cases of periurethral carcinoma were mistaken for urethral malignancy, and no doubt some of them belonged to this class.

Bilateral Tubal Pregnancy; Coincident Development.—Dr. Palmer Findley of Omaha reviewed the literature on the simultaneous development of a fetus in either tube. He found twenty-eight cases reported as examples of bilateral tubal pregnancy, but only eight were unquestioned as being of simultaneous development. Of the twenty cases of doubtful identity, the clinical diagnosis was not supported by the macroscopic and microscopic findings of fetal structure in the two tubes. To these eight cases the author added a ninth in which there was a probable simultaneous development of both fetuses in either tube, with rupture of the right tube, and the escape of the ovum through the fimbriated end of the left tube. The escape of the two ova was probably simultaneous. The pelvis was full of blood and there was a general peritonitis. Decidual tissue and chorionic villi were found in both tubes, but neither fetus was discernible. Both ovaries were cystic and adherent. In the right ovary was a fresh corpus luteum. An abdominal section was performed with the removal of both tubes and escaped blood. The abdomen was drained. Death followed from general peritonitis.

Dr. Douglas Bissel of New York reported a case of successful reimplantation of a pelvic kidney in the female, and made some remarks on the surgical treatment of kidney misplacements in the true pelvis.

The Chief Cause and Prevention of Postoperative Cystitis.—Dr. Joseph Taber Johnson of Washington, D. C., emphasized the necessity for a more strict prophylaxis, and said that when cystitis was diagnosed, a more active and continuous treatment should be instituted, not only to bring about an early cure, but to prevent its transition from an acute to a chronic condition. Cystitis occured in women more frequently after abdominal than other operations, where there were confined the evil influences of both traumatism and bacterial infection. Where patients were catheterized several times daily for a week or even longer, the conditions were present which easily resulted in the production of a cystitis unless great care was practised to prevent trauma or infection.

Improved Operation for Extreme Cases of Procidentia and Cystocele.—Dr. J. Riddle Goffe of New York said that procidentia and cystocele were the results of three lesions: first, a descent or relaxation of the supports above. Second, laceration of the perineum to the second degree, and, third, stretching and tearing of the fascia at the base of the bladder, producing a hernia. The support below was only indirect and of secondary importance. The true principles of support was that of suspension, and in order to secure a permanent result after operation the organs must be suspended or hung from above. The broad ligaments, including the round ligaments, and the fascia lata were the proper tissues to utilize for this support. As a rule, these conditions obtained in patients at or beyond the menopause. In childbearing women, especially if they desired children, the uterus should be carried into normal position and retained there by shortening the uterosacral and round ligaments. The bladder was then freed from all its attachments to the vagina and lateral structures and carried up and spread out over the face of the uterus and broad ligaments. The vaginal sheath and wall were then cut away in the median line sufficiently to bring it up snug against the base of the bladder when stitched from side to side. If the perineum was torn to the second degree and a rectocele was present, the floor of the pelvis was restored. In patients at or beyond the menopause the uterus was removed, the broad ligaments beginning with the round ligaments at their upper borders were then stitched together across the pelvis from side to side, from the round ligaments down to the cardinal ligaments, thus turning the raw edges of the broad ligaments posteriorly. Upon this plane of tissues thus constructed, the bladder was then spread out and stitched in such a way as to carry the bladder high in the pelvis, thus restoring the base of the bladder as it was originally to a comparatively immobile foundation, and restoring the hinges and the coruna of the bladder as so graphically described by Dr. Kelly. The upper end of the vagina was also stitched to the broad ligament, bringing it up taut against the base of the bladder, the fascia lata was cut away and stitched as previously described, and the perineum repaired. To accomplish this work it was necessary at the beginning of the operation to make a longitudinal incision in the vagina along its anterior wall throughout its entire length and dissect the bladder freely from all its attachments. The results of this work were most satisfactory in every particular, and were likewise permanent.

Dr. Charles Jewett of Brooklyn said he had had the privilege and pleasure of watching Dr. Goffe do this work, and his technique was the most complete and perfect of any he knew. He had been especially gratified to observe that he concluded the operation by securely building up the perineal buttress beneath the bladder.

Dr. I. S. Stone of Washington, D. C. said this method or a slight modification of it had given him the utmost satisfaction. He had no knowledge of any case of cystocele or prolapse having recurred if this work had been properly done. He did not mean to say that his work was better than others, but the possibilities of this operation were so thoroughly good that if any surgeon would try it, he would be rewarded by perfect success.

Dr. Henry T. Byford of Chicago described a modified operation which he did in these cases.

Dr. Seth C. Gordon of Portland Maine, said he was satisfied all of the work his profession had been doing heretofore in their efforts to fix the uterus, after they had had complete procidentia, had been of very little avail. The uterus gave way after a while. Of late he had been removing the uterus in every case and stitching up remnants of the vagina to the broad ligaments, and fixing it as well as possible, and he believed they opened a new line of work in that direction when they began by removing the uterus.

Dr. Clement Cleveland of New York said he had followed the operation described by Dr. Goffe for some years. In his hands it had succeeded in the great majority of cases. He had done it over thirty times, and he could recall no case in which it had not been a success.

Dr. C. C. Frederick of Buffalo said he had been doing this operation for the last four or five years, and he had taken the position that in cases of advanced procidentia the removal of the uterus, as a part of the operation, was the *sine qua non* to success. He had done from seventy-five to eighty of these operations for procidentia, and had invariably used catgut for suture material and had not had any ill results from it.

Dr. J. M. Baldy of Philadelphia said this operation was so extensive in its denudative qualities and so dangerous in its possible results as to be absolutely unwarranted as a simple cystocele operation.

Dr. Leroy Broun of New York said he had seen Dr. Goffe do this operation often. He had done it himself, and he had had the privilege of seeing one of his cases

upon whom he had operated, and a more ideally perfect result he had never seen. The uterus was in excellent position.

Dr. George Gray Ward, Jr., of New York said that Dr. Goffe taught him this operation five or six years ago, since which time he had done it in several instances, and he could only bear out what Dr. Broun had said, that the results spoke for themselves. He had not seen a failure from the operation where it had been properly done. The patient was satisfied, and that was the best part of the game after all.

Intramural Sequestration and Fixation of the Corpus and Fundus Uteri for the Cure of Procidentia Uteri Existing in Women with Whom Further Pregnancy Is Not Possible.—Dr. Philander A. Harris of Paterson, N. J., said he had subjected six women to a possibly novel procedure for the cure of procidentia uteri, and since these operations had been followed by most gratifying results, he wished to describe the operation for whatever value it might possess for others. The following was the author's description of the operation: "Cut a median line abdominal incision from one inch beneath the umbilicus for three or four inches, and deliver there through the corpus and fundus uteri. While an assistant grasps and draws the uterus well out of the incision, the cut edges of the parietal peritoneum are sewn to and around the uterus at the junction of the cervix with its corpus. This sewing crosses the broad ligament at either side about two inches away from the fundus uteri. After thus attaching the opposing cut edges of the peritoneum to the uterus and the broad ligaments, the suturing is carried upward to the top of the incision, thus closing the peritoneal cavity with the corpus and fundus still held in the grasp of the assistant, and, of course, outside of the peritoneal cavity. While the assistant continues to hold the uterus outside of the incision, an iodoformed 5-16th inch gauze and rubber tissue drain is placed on top of the muscle and beneath the fascia to a point two or three inches to one side of the incision, at which point it is made to emerge from a small stab wound. The tapering tail of this drain is placed in the wound between the peritoneum and fascia. The anterior surface of the corpus and fundus uteri are next denuded with a knife, after which the fundus is seized with a hook and volsella, with which it is dragged upward as far as possible toward the umbilicus, and made to nestle in the incision anterior to the peritoneum and between the recti muscles. The fascia is next sewed from the umbilicus downward with running stitches of chromicized catgut. Wherever the corpus and fundus uteri are in contact with the fascia as it is being closed, the stitches are made to include sufficient musculature of the uterus to fix it in its sequestered position. The sewing of the skin with a running catgut suture completes the operation unless the patient is obese, in which case a small drain is placed between the fascia and the skin and made to emerge from a stab wound two inches or more to one side of the incision. The application of the usual gauze dressing and adhesive straps completes the operation. The drainage tubes are partly withdrawn in two or three days, but generally not removed until ten days or more after operation." "No one," he said, "should perform the operation of intramural sequestration upon any woman with whom pregnancy was still possible, but since they were often asked to relieve patients from the symptoms produced by procidentia uteri after the menopause, it would be realized that there were very many cases for whom this operation might be recommended if, on further trial, it was found to possess a special value to which he was inclined to attach to it.

Gallstones During Pregnancy and the Puerperium.—Dr. Reuben Peterson of Ann Arbor, Michigan, read a paper on this subject in which he drew the following conclusions: 1. Gallstones were most commonly met with in women between the ages of twenty and thirty-five. 2. Gallstones were more common in women than in men. 3. There were reasons for thinking that child-bearing had something to do with the frequency of gallstones in women. 4. This was borne out by finding that in 542 patients where the gall-bladder was palpated during the course of abdominal operations, gallstones were found to be present in 64 or 11.8 per cent. 5. The percentage of patients with gallstones, who had borne one or more children, was 75 per cent., as against 63.7 per cent. in women who had no gallstones. 6. In the present series of pregnant patients with cholelithiasis, in nearly one-third of the cases the onset of the attack was at the fifth month of gestation, or at the time when the uterus was approaching the level of the umbilicus and beginning to crowd the intestines toward or upon the bile passages. 7. In the puerperal cases the onset of the attack in one-half of the cases was during the first seven days post-partum. 8. Chills, elevation of temperature, associated with jaundice, were frequent in gallstones complicating pregnancy and the puerperium. 9. In the series studied there was a surprisingly large percentage of pregnant patients with jaundice, 15 out of 25 or sixty per cent. 10. Only one out of the ten puerperal patients had jaundice. 11. The operative mortality for the twenty-three pregnant patients was 13.04 per cent. 12. The operative mortality for the puerperal cases with cholelithiasis was 11.1 per cent. 13. In the pregnant patients with cholelithiasis more than one-half of the stones were in the gall-bladder alone. The same may be said of the puerperal cases. 14. It was probable that there was no greater tendency for gallstone operations to interrupt pregnancy than was the case with other abdominal operations during various periods of gestation. 15. It was advisable, when cholelithiasis complicated pregnancy and the puerperium, to choose the operative procedure which could be performed in the shortest possible time consistent with the existing conditions. 16. The condition of the pregnant patient as regards the cholelithiasis should be the determining factor as to when the operation should be performed, whenever possible the operation should be postponed until the child was viable. 17. The diagnosis of cholelithiasis during pregnancy and the puerperium would not be difficult in typical cases, if the possibility of the complication be borne in mind. Much reliance could be placed upon the jaundice which seemed to be more prevalent in pregnant than in non-pregnant women with gallstones.

Dr. W. Francis Wakefield of San Francisco believed a very large percentage of women had gallstones, and in carefully studying the histories of cases a large percentage of the women could trace the beginning of the symtoms to pregnancy. The gall-bladder should be examined every time the abdomen was opened, and every time gallstones were found in the gall-bladder they should be removed at that time. It was a great mistake, however, to operate on gallstones during pregnancy if it could be avoided.

Dr. Philander A. Harris of Paterson, N. J., said that if a patient had gallstones, he did not think the decision to operate should rest upon the mere fact as to whether the patient was pregnant or not. The decision to operate should be governed by other conditions, no matter whether gallstones occurred in connection with pregnancy or not.

Dr. A. Lapthorn Smith of Montreal questioned whether it would be a good thing to operate on a woman for gallstones who was six months advanced in pregnancy. The pregnant woman should be carried along with morphine and other treatment until she had been delivered of her child, and then operated on for the removal of the gallstones.

Dr. W. Gill Wylie of New York had been watching

the gall-bladder whenever he opened the abdomen through an incision large enough to introduce his hand, and he had found that the percentage of gallstones was very much greater than he had expected.

Dr. Hiram N. Vineberg of New York stated that a few years ago he was called in consultation to see a case of supposed puerperal sepsis. The woman had been delivered ten days before. She was very ill; had a temperature of 104.5°, pulse 120, and complained of pain on the right side of the lower part of the abdomen. She had given no history of gallstone attacks prior to that. He examined her carefully and found a distended gall-bladder and made a diagnosis of cholecystitis. At the operation the gall-bladder was found full of small stones, with mucopurulent fluid in the gall-bladder. The woman made a good recovery.

Dr. Henry T. Byford of Chicago said that undoubtedly a great many women had gallstones, and perhaps in most of the cases, instead of gallstones originating from pregnancy, they were old instances of people who had been known to have had indigestion, and whose cases had not been diagnosed. Many of these women had had gallstones for a long time, and pregnancy was merely the cause of the first recognizable symptoms of gallstone trouble.

Dr. John F. Thompson of Portland, Maine, reported the case of a woman, three or four months pregnant, upon whom he operated and found a perforation of the gall-bladder with stones and pus and some bile, which fortunately were shut off by folds of omentum. The operation was not complicated. The patient had no interference with pregnancy, and was now three months more advanced.

Dr. Henry Hough of New Bedford, Mass., had operated on two cases of gallstones during pregnancy. One was a woman, twenty-three years of age, and two months pregnant. She had stones in the gall-bladder and in the duct. She also had chronic pancreatitis. Drainage and removal of the stones resulted in a cure, and about one month after operation she was delivered of a three months fetus. The other woman was five months pregnant, who had acute cholecystitis with gallstones in the gall-bladder. The gallstones were removed from the gall-bladder, and drainage established, followed by a prompt recovery. The woman went on to full term.

Dr. Richard C. Norris of Philadelphia said that operations on gallstones during pregnancy should be determined by the character of the cases. If the case was an aggravated one, the woman should be relieved of her gallstones independent of the pregnancy, but if it was a case where one could tide the patient over until labor had been completed, it was better to do so.

Anastomotic Repair of the Ureter.—Dr. Malcolm McLean of New York said that cases might occur where end-to-end anastomosis was desirable and preferable to implantation into a slit wound. He described a method which offered a means of securing anastomosis and at the same time providing for the safe conduct of the urine past the point of repair during the first critical hours after the operation.

President's Address: American Gynecology.—The President, Dr. Edward P. Davis of Philadelphia said that American gynecology had its origin in the crude obstetric practice of fifty years ago. The necessity for repairing the injuries of labor developed the genius of Sims and Emmet, and American ingenuity added a new branch to surgical science. As obstetric surgery had developed and asepsis was introduced, gynecology had become more and more abdominal surgery. This had been the case, not only because better obstetrics had lessened the injuries of labor, but because women had those abdominal lesions most easily recognized and most frequently occurring. At present the modern gynecologist operated upon men and women alike, the surgeon in turn performing many operations on women. Today the tendency of development in gynecology lay in the study of the normal relations of the abdominal and pelvic viscera, the determination of the dynamics of the abdomen and pelvis, and the recognition of those causes which produced abdominal and pelvic ptosis. The repair of lacerations of the genital tract did not suffice to cure these cases. The pelvic viscera must be brought into such relation with the abdomen and its contents that the dynamics of the abdomen shall maintain health for the individual, and not disease. That this subject was today of primary importance was shown in the fact that this society and the American Surgical Association were about to engage in a joint discussion of this problem. Modern surgery having conquered the world of technique, it sought other fields of conquest. The operation for cancer seemed to have reached its anatomical limitations, but the cause of cancer remained unknown. Gynecology today was especially charged with the task of studying the cause and the mode of growth of malignant disease, so that operation might be wisely chosen and performed. In no branch of medicine had so great advance been made in recent years as in obstetrics. Pathological chemistry had thrown new light upon toxemia and eclampsia and lessened the frequency and mortality of these grave complications of parturition. Obstetrics offered abundant work for the future. Toxemia and eclampsia were but partly understood. It was still not proven that vaginal delivery, after opening the pelvic girdle, was not accompanied by such injuries that abdominal delivery was not better, and even in the repair of lacerations the final word had not yet been spoken. It was still an open question whether in puerperal sepsis we could do more than feed and stimulate the patient. Gynecology was an American science, of which America might well be proud. Let us see to it that it served faithfully the land of its birth.

The Use of the Uterine Stem.—Dr. Francis H. Davenport of Boston said that twenty years' employment of the stem had convinced him of its efficacy and safety. The principal use was in dysmenorrhea of a particular type, which was characterized by severe pain coming on with, or soon after, the appearance of the flow, and rarely lasting more than twenty-four hours. The pathological condition in these cases was generally as follows: A rather small, usually anteflexed uterus, a relative stenosis of the internal os, a tendency to the formation of connective tissue at this point, and exquisite sensitiveness to the passage of the probe. The attempt of the uterus to get rid of the menstrual blood past an extremely sensitive, somewhat narrow os, gave rise to pain until the general relaxation of the tissues which accompanied menstruation had taken place which was usually within twenty-four hours. A solid, hard rubber stem was sewn into the uterus and allowed to remain from four to six weeks, usually with complete relief of the dysmenorrhea. The stem was also useful in some cases of sterility and amenorrhea from lack of development.

Fibroid Tumor Complicatng Pregnancy and Rendering Natural Labor Impossible.—Dr. B. F. Baer of Philadelphia said that early in his medical career it was his fortune to see two cases of pregnancy complicated with fibroid tumor, in one of which rupture of the uterus occurred during labor, followed by death of both the mother and child. In the other case death resulted from septic peritonitis in consequence of injury to the soft parts following instrumentation for dystocia caused by complicating fibroid. The child had perished during the labor. The first case was attended by a midwife. To the other he was related as an assistant. This dreadful experience impressed upon him the fact that pregnancy complicated

with fibroid tumor was a most serious condition, and investigation of the literature soon convinced him that he had only witnessed a disaster that was not uncommon in the period that had passed. After reviewing the literature, Dr. Baer reported six cases. The first was one of multiple fibroid tumor of the uterus complicating pregnancy, with hemorrhage and miscarriage; myomectomy and oophorectomy; recovery. The second was one in which he resorted to supravaginal hysterectomy for a fibroid tumor complicating pregnancy and rendering labor impossible; recovery. The third was one of fibroid tumor complicating pregnancy, hemorrhage, and miscarriage, in which supravaginal hysterectomy was done; recovery. The fourth one was a fibroid tumor in the posterior wall of the uterus complicating pregnancy. Pelvic incarceration rendered the continuance of pregnancy dangerous and labor impossible, and supravaginal hysterectomy was done at the fifth month, followed by recovery. The fifth was one in which pregnancy was complicated with fibroid and ovarian tumor. Supravaginal hysterectomy was done, followed by recovery. The sixth case was a pregnancy complicated with fibroid tumor in the lower zone and broad ligament, blocking the pelvis and rendering natural labor impossible. Abdominal hysterectomy was done at the seventh month, with recovery. The cases cited showed the great importance of operating on cases in which the tumors caused such obstruction as to interfere with the natural delivery of the child.

Dr. W. Gill Wylie of New York said that if the fibroid tumor was so large as to interfere with the delivery of the child, it should be removed; but if nothing disturbed the women's health, so far as the fibroid was concerned in the way of hemorrhage, and the tumor or tumors were situated above the os internum, undoubtedly the woman could be delivered of a healthy child in the natural way.

Dr. Hiram N. Vineberg of New York said that he had seen five or six cases in which pregnancy was complicated by fibroid tumors. It was rare that we were called upon to operate on these women during pregnancy, for the majority of them would deliver themselves normally.

Dr. Malcolm McLean of New York said that not infrequently fibroid tumors took on a retrograde movement in pregnancy as the result of that condition. He had seen two such cases in which the tumors almost entirely disappeared after delivery.

Dr. Seth C. Gordon of Portland, Me., said that where a woman had a fibroid tumor that was troubling her, she had better have hysterectomy performed.

Dr. Reuben Peterson of Ann Arbor, Mich., had seen three cases of fibroid tumors complicating pregnancy in the last year. While we should always deal with these cases conservatively and give every chance to the women, we should still remember that the fetus should have a chance, and if the pregnant woman could go on without jeopardizing her life without an operation she should have that privilege.

Dr. Edwin B. Cragin of New York said that within the last three months he had done a cesarean section in a case of fibroid tumor obstructing the canal complicating pregnancy. On the other hand, they had had a large number of cases at the Sloane Maternity which had given no trouble.

Dr. I. S. Stone of Washington, D. C., did not believe in the disappearance of fibroids unless degeneration took place, or unless necrosis occurred and a submucous abscess formed and discharged. A fibroid might disappear in that way or by twisting of the pedicle, getting separated from the uterus and disappearing.

Dr. Charles M. Green of Boston said that in one case he found the pelvis of a woman filled with a large fibroid tumor. During transmission to the hospital the fibroid ascended out of the pelvis, and when he saw the woman and could reach the os he found a breech presentation. They gave her further time, the fibroid ascended out of the way, and the woman was delivered of a living child, and made a normal convalescence.

Dr. Edward Reynolds of Boston said that two or three years ago he saw a young woman who was pregnant with a fibroid in her uterus. She miscarried. He determined the position of the fibroid with fingers inside the uterus and the hand outside. He operated on her for other causes about a year ago, and found at the site of the fibroid no tumor whatsoever, but a white, comparatively bloodless area in the uterine wall, which evidently represented complete disappearance of the fibroid.

Dr. Willis E. Ford of Utica, N. Y., alluded to the influence which pregnancy had upon a fibroid tumor, and recalled the case of a girl whom he saw before her marriage with an intramural fibroid which reached half way up to the umbilicus. He was called to see her after her marriage, at which time she was pregnant at the fifth month. This was fourteen years ago. He had made arrangements to do a Porro operation. Fortunately nothing happened. She was delivered in the normal way, and had a boy now thirteen years of age. The other day he examined her and found that the fibroid tumor had entirely disappeared.

Dr. Richard C. Norris of Philadelphia had seen tumors situated in the lower segment of the uterus retract themselves, being drawn out of the way by the action of the longitudinal fibers, and disappear when he was about ready to do a cesarean section, and the woman he delivered spontaneously.

Dr. George Tucker Harrison of New York said that in negro woman myomata were much more common than in women of the white race. The position of a myoma was not a bar to conception, and the proof of this was found amongst the negro race.

Surgery of the Upper Pelvic Floor by Direct Suprapubic Approach.—Dr. William M. Polk of New York spoke of the need for further development of the surgery of the upper pelvic floor by direct suprapubic approach, and illustrated the subject by referring to eleven cases upon which he had operated. One was a case of complete prolapse of the uterus. Two were cases of partial prolapse, the cervix resting at the ostium vaginæ. Five were cases of retroversion with adhesions. Three were cases of retroversion without adhesions, and one a case of prolapse of the pelvic floor subsequent to hysterectomy performed some years previously. He described in detail his method of operating.

(To be continued.)

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, Held May 16, 1910.

The President, Dr. Reynold Webb Wilcox, in the Chair.

The Paradox of the Tubercle Bacillus.—Dr. Ira Van Gieson read a paper with this title (see page 52).

Dr. James Ewing said that if we had to deal with a nonacid-fast form of the tubercle bacillus, then we were face to face with a question which was second in importance only to the discovery of tubercle bacillus itself. If such be the case, then a large part of the history of tuberculosis would have to be revised. Much's work was of very great importance, and although his articles had been common property for the past year and a half, not a single important contribution bearing on the subject had appeared in this country, barring perhaps one. Dr. Van Gieson, therefore, had brought up for discussion an extremely important subject, and was the first one in this country to submit to critical consideration the data upon

which Much had based his important conclusion. It was a rather curious fact that although the tubercle bacillus had been discovered as far back as 1881, such simple problems as its morphology and staining properties were still unsettled. In its development the tubercle bacillus did not always assume a rod-shaped form; it might appear as a row of acid fast granules. Whether these granules could lose their acid-fast quality while still retaining their viability and infectiousness was a very important question very difficult to prove. Dr. Ewing himself had not been able to find proof of such a possibility. He had found that granular bacilli after Gram's stain were sometimes more abundant in old lesions than after the ordinary carbol-fuchsin stain. He was quite unconvinced that Gram positive, non-acid-fast, still viable tubercle bacilli or cocci, did not occur so frequently nor in any such numbers as Much had claimed.

Dr. H. G. Piffard said that Dr. Van Gieson had spoken of the non-visible forms of tubercle bacilli and he would like to say a word regarding the non-existent forms. There were many, Dr. Piffard said, who did not look upon the tubercle bacillus as a specific organism, and he had expressed his own views on the subject in an article entitled "Some Problems Connected with Tuberculosis," which was published in the *New York Medical Journal* about a year ago, in which he had referred to the fat and other acid-fast bacilli, and their close similarity to the tubercle bacillus, and had emphasized the importance of a more improved technique in the bacteriological diagnosis of tuberculosis.

Intestinal Infections in Children.—Dr. Joseph E. Winters made some remarks on this subject. He stated that the excessive mortality which statistics showed to exist among infants was largely limited to those which were bottle-fed. Ninety-eight per cent of the mortality was among infants in the tenement house population, and it was unquestionably due almost exclusively to the kind of feeding which these infants received. This gave rise to infectious processes which might prove rapidly fatal from the conditions set up in the intestines, and which, if more prolonged, involved other portions of the system. After the first week, bronchopneumonia was extremely common, and various complications might arise, such as pleuritic effusion, otitis media, etc. The treatment of these patients should be based strictly on physiological principles. Ordinary cow's milk, animal broths and cereals were not only useless, but positively injurious in the case of young infants. The first thing to do was to clean out the intestinal canal thoroughly with a large dose of ice-cold castor oil, which was the one remedy adapted for this purpose. If it was vomited, the dose was to be repeated. Where vomiting was a feature, there was nothing so efficacious in checking this as hot water in drops, administered with a medicine dropper. For a suitable interval after the dose of oil, nothing whatever was to be given, not even water. Then water alone should be given for a considerable time, in small quantities, and not too frequently. Finally, the infant was placed upon a food composed of the top half ounce of quart bottles of milk (at first, two bottles, and afterwards, three or more bottles), properly diluted and having lime water added to it. This afforded a flocculent protein which closely approximated mother's milk. The results of this treatment had proven eminently satisfactory and the lives of many infants had been saved by it. As for the milk used for this purpose, it was desirable that it should be cooled immediately after being drawn, placed in bottles, and afterwards kept at a temperature of 40° F. Pasteurization or any kind of sterilization was of no service whatever, as was clearly shown by mortality statistics. Later, the top ounce, instead of half ounce, from quart bottles of milk should be employed, and in older infants the portion of the milk sterilized would vary according to the age of the child. In those still older farinaceous food, properly prepared, was as much of a specific for the diarrhea as quinine was for malarial fever, or mercury for syphilis, and the results from its administration alone were often marvelous.

Dr. Henry S. Stearns said that while the method of treatment of the intestinal infections in children recommended by Dr. Winters was very satisfactory for those who were in a position to use it, most of these patients, perhaps 98 per cent., came from the tenements, and were unable to get either the quantity or the quality of the milk that was essential to carrying out his method of feeding. In those cases we must make some compromise. It would be futile to tell the parents of these poor children to take "the top of the bottle" of four to six bottles of good milk, so we had to do the best we could for them.

Dr. Henry D. Chapin said that in spite of the emphatic manner in which Dr. Winters had enunciated his views on feeding in the treatment of the intestinal infections in children, he could not agree with him excepting on one or two points. One of these was the necessity for the rapid cooling of the milk, and in connection with his work with the Milk Commission of the County Medical Society he had frequently seen an illustration of the fact that milk from a dirty dairy gave a low bacteria count by rapid cooling. The fact should not be lost sight of, however, that milk could not be kept at a temperature of 40° F. in the average refrigerator. In some of these cases of intestinal infection in children whose digestion was impaired it was better to give the feedings less often than was recommended by Dr. Winters—even every four hours. As to the amount of fat in the feeding, Dr. Chapin thought the pendulum had swung too far, and that we would see cases of rickets and malnutrition from nonfat feeding. The percentage of fat in the top few ounces of the bottle varied considerably, and if we could only convince Dr. Winters to go a little deeper into the bottle he would probably see his babies thrive quite as well, if not better. As a matter of fact, every time one was putting cow's milk into a baby's stomach one was putting in a foreign body. If we could keep the children at the breast, we would see very few cases of intestinal infection. Dr. Chapin said he was the first to call attention to the fact that the proteins of milk had two functions, a developmental function as well as a nutritional function. The casein of cow's milk coagulated in tough, stringy masses, and every time we put cow's milk into a baby's stomach we were putting in a food which was intended for an animal with four stomachs instead of for a child with but one stomach. The protein of all milks coagulates in a form analogous to the future food of the adult animals.

Dr. J. Madison Taylor of Philadelphia said he had long held the opinion that one of the most essential points in the artificial feeding of infants was to get the milk as fresh as possible and use it as soon as possible. By getting the milk directly from the cow and properly modifying it and using it as soon as possible, before its vital enzyme became dissipated, the speaker thought we were doing much towards the solution of this problem of infant feeding. It was entirely possible to have cow stables in cities similar to horse stables, yet with special equipment, including small open spaces for exercise. Portions of city parks could be used in this way, the stables being near by. Cows could be brought by automobile ambulances in an hour or two, and when dry returned in the same way. No one factor would contribute so much to save infant life as absolutely fresh milk accessible to those who needed it most.

Dr. H. Seymour Houghton spoke of certain cases of intestinal infection in children which were apparently the result of some peculiar form of toxemia, and which were

not associated with any prior inflammatory condition or due to bad feeding. This condition usually occurred in children who had been reared with the utmost care. The symptoms came on suddenly, like a thunder shower in summer, with or without preliminary fever and without diarrhea, but with constipation and stupor.

Dr. Walter Lester Carr said that intestinal infections might be of different varieties. For example, since the discovery of the Shiga bacillus many cases of summer diarrhea had been found to be due to this bacillus or to one of its associates, the Flexner or Hiss form. These cases of bacillary diarrhea were not always severe, nor were they dysenteric in the sense in which the word was formerly used. The term intestinal infection might designate also the complex changes found where there was incomplete metabolism—autointection. A common form of summer diarrhea might be dependent upon changes in cow's milk from faulty methods in handling. With clean, fresh milk, kept at a temperature of 45°, there was little danger of intestinal disease. It was an accepted fact that if babies were fed on breast milk, their natural food, they did not suffer from summer diarrhea, but as many babies were not able to get breast milk, the best that could be done for them was to use modified cow's milk.

Dr. William Shannon said he thought that many of the summer diarrheas in children could be prevented if we instructed the mothers how to handle the milk after its delivery in the morning. The milk was often left for an hour or more on the window sill or near the kitchen stove before it was put on the ice, and thus the growth of bacteria was favored. The speaker said he had seen many examples of the beneficial effect of the treatment outlined by Dr. Winters, whose success largely depended on the manner in which he impressed the parents to carry out his instructions to the letter.

Dr. William D. Tyrrell, discussing the etiological factors of intestinal infections in children, said we could not draw any hard and fast line between the chemical and bacteriological factors. Personally, he was convinced that an excess of protein in the food was often an exciting factor, as it always left a residuum in the large intestine which was acted on by the putretactive bacteria and formed an irritant. During the intense heat of July and August, when it required less feeding to maintain the body temperature, the babies received the same amount of food as during the cooler seasons, and so were overfed.

Dr. Winters, in closing the discussion, said that all he knew of intestinal derangements in children he had learned from dispensary or tenement-house practice. Even among the poorer classes the necessary amount of top milk could be obtained by making an arrangement with other tenants in the house, and he never had the slightest difficulty in having the mothers carry out his instructions. On the contrary, it was marvelous how exact and careful the mothers were when they were properly impressed with the importance of the matter, and when the instructions were given to them in written form. For this purpose, printed slips had been prepared, which gave the hours of feeding, the number of feedings, and the proper quantities; everything was written out. Speaking of the fat content of the food, Dr. Winters said that when diluted, the feedings as he recommended them were not excessive in fat. None of the milk delivered in New York City gave more than 25 per cent. of fat when the upper half ounce was used. In reply to Dr. Chapin's statement that every time we were putting cow's milk into a baby's stomach we were putting in a foreign body, Dr. Winters said that by taking the top half ounce from a quart bottle of milk and treating it as he had described we obtained a product that could not be told from woman's milk. We had to feed babies artificially, and the sooner we got away from this nonsensical biological talk the better.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of July 2, 1910.

	Cases	Deaths
Tuberculosis Pulmonalis	493	158
Diphtheria	371	26
Measles	623	20
Scarlet Fever	236	13
Smallpox	2	—
Varicella	95	—
Typhoid Fever	45	13
Whooping Cough	57	4
Cerebrospinal Meningitis	2	2
Malarial Fever	—	—
Totals	1,924	236

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, during the week ended July 1, 1910.

CHOLERA.

		Cases.	Deaths.
India, Calcutta	May 1-7	..	63
Rangoon	May 8-14	..	1
Java, Batavia	May 8-14	5	4
Samarang	May 8-14	50	40
Soerabaya	May 8-14	15	6

YELLOW FEVER.

Brazil, Manaos	May 30-June 4	..	1
Para	May 30-June 11	11	7
Ecuador, Guayaquil	May 16-31	21	8
Gold Coast, Sekondi	May 1-27	8	8
Sierra Leone, Freetown	May 1-31	3	3

PLAGUE.

Chile, Iquique	May 8-21	9	4
China, Hongkong	May 8-14	2	..
Ecuador, Guayaquil	May 16-31	2	..
India, Bombay	May 18-24	..	162
Calcutta	May 1-7	..	75
Kurrachee	May 8-21	60	60
Rangoon	May 8-14	..	17
Bombay Presidency and Sind	May 1-14	985	868
Madras Presidency	May 1-14	38	15
Bengal	May 1-14	626	567
United Provinces	May 1-14	3,660	3,415
Punjab	May 1-14	16,810	14,654
Burma	May 1-14	348	340
Central provinces, including Berar	May 1-14	118	82
Mysore State	May 1-14	18	12
Hyderabad State	May 1-14	5	2
Central India	May 1-14	9	7
Rajputana and Ajmer-Merwara	May 1-14	4,650	4,286
Baluchistan	May 1-14	54	46
Peru, Callao, department—Callao	May 19	1	..
From S.S. Nicarie			
Trinidad, Port of Spain	May 15-21	1	1

SMALLPOX.

Algeria, Bona	May 1-31	1	1
Australia, Victoria, general	April 3-19	1	1
Austria, Galicia	May 29-June 4	3	..
Brazil, Para	May 29-June 11	8	1
Canada, British Columbia—Fernie	June 12-18	1	..
Nova Scotia—Halifax	June 14-20	2	..
Pictou	June 12-18	2	1
Ontario—Toronto	June 5-11	1	..
China, Canton	May 8-21	4	..
Hongkong	May 8-14	1	..
Nanking	May 7	..	Present.
Egypt, general	April 30-May 6	50	15
Cairo	May 21-27	4	2
France, Paris	May 29-June 4	6	..
Germany, general	May 29-June 11	9	..
Great Britain, South Shields	May 22-June 4	4	1
India, Bombay	May 18-24	..	28
Kurrachee	May 15-21	5	..
Madras	May 14-20	..	2
Rangoon	May 8-14	..	12
Italy, general	May 30-June 5	8	..
Naples	May 30-June 5	18	1
Korea, Fusan	May 1-7	1	..
Malta	May 22-28	1	..
Mexico, Aguascalientes	June 5-11	..	7
Mexico	May 15-21	..	1
San Luis Potosi	May 29-June 4	2	1
Portugal, Lisbon	May 29-June 4	34	..
Russia, Libau	May 30-June 5	32	1
Moscow	May 22-28	7	5
Odessa	May 22-June 4	28	3
Riga	May 29-June 4	5	..
St. Petersburg	May 8-28	146	36
Spain, Barcelona	May 31-June 6	..	3
Cadiz	May 1-31	..	1

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Original Articles.

THE PSYCHONEUROSES: AN INTERPRETATION.*

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MANKIND is liable to affliction with certain disorders that are called nervous diseases. When the nervous system thus diseased undergoes demonstrable structural alteration, the disease is said to be organic. When such alteration is not demonstrable, the disease is said, without prejudice, to be functional. Such functional nervous disease is called a neurosis, and when it is attended in its display with conspicuous mental and emotional symptoms, the name psychoneurosis is often and legitimately given to it.

Year by year our conception of disease changes. At one time it changes more rapidly in a certain branch of pathology; at another in quite a different branch. In neurology the changes are more striking and less convincing than in any other branch of medicine. This is so because the pathological physiology cannot be understood until the normal physiology has been established. The physiology of the brain, and to a lesser extent of the spinal cord and the sympathetic nervous system, is still an unfinished chapter. Until the functions of the nervous system are determined, the functional nervous diseases must remain somewhat enigmatic.

The chief functional nervous diseases or neuroses are epilepsy, migraine, tic, hysteria, neurasthenia, and psychasthenia. Epilepsy and migraine are not attended with mental and emotional symptoms. Tic may or may not be, but hysteria and neurasthenia are, and they are the psychoneuroses. Whether or not there are others depends upon what is meant by these designations.

What Is Hysteria and What Is Neurasthenia?—It is not an easy matter to define hysteria or neurasthenia, either in a conventional sense or in a medical sense, but, that any value may attach itself to a discussion of the psychoneuroses before a body of physicians interested in all human ailments it is necessary that an attempt be made to define them, or at least to state the significance accorded them by neurologists.

It is not so long ago, about 60 years, that all diseases of the nervous system were classified as functional diseases, neuroses. Then, in one generation, thanks to the initiative of Duchenne in France and Romberg in Germany, many of them yielded the secret of their existence. The beginning of the present century saw still included in this category chorea, paralysis agitans, and exophthalmic goiter. They have now been removed, and year by year the list of functional diseases grows smaller; and there are some who incline to believe that eventually it will include only the psychoneuroses; that epilepsy, migraine, and tic will be found to be dependent upon demonstrable lesion and that the visceral neuroses will reveal a genetic relationship to obsession.

The Trend of the Times Is Toward Simplicity of Classification.—Be that as it may, certainly the trend of the times in Neurology and in Psychiatry is toward simplicity of classification and the grouping together of cases which, though they may vary widely in their symptomatic manifestations, have fundamentally certain characteristics in common. Thus hysteria, neurasthenia, psychasthenia, states of mental and emotional unrest under the dominion of obsession or fear, states of anxiety and of panic, are classified as psychoneuroses. The essential factor in all of them is psychical, and as we approach the last analysis, we shall see that it is ideo-obsessive.

The Designation Hysteria Often Misapplied.—Many designations in medicine are used loosely. Hysteria is one of them. Indeed, it is the most flagrant example. No one believes at the present day that hysteria has anything to do with uterus, but it is probable that few of us have the same mental picture called up by this designation. Hysteria is a disease which manifests itself by fairly well-defined symptoms, though they vary enormously in intenstiy and in association. They may be so slight as to cause merely inconvenience, or so overpowering as completely to incapacitate. We are very familiar with its clinical manifestations and with its career. We know something of its causation, in so much as we know that it may be called into existence by fright or by forces designated as moral shock. We know little or nothing of its pathology, and our theories of its causation now, just as since time immemorial, are not susceptible of proof. Whether they are more tenable than those which they attempt to dislodge, depends upon the point of view.

The Theories of Hysteria.—The newest theories of pathogenesis of hysteria are those advocated by Babinski of Paris, and of Freud of Vienna. For Babinski, hysteria is a special psychic state manifesting itself principally in disturbances which are called primary, and subsequently in secondary disturbances. The primary disturbances are distinguished by the fact that it is possible to reproduce them by suggestion in certain subjects with rigorous exactitude and to cause them to disappear under the exclusive influence of persuasion. The secondary disturbances are distinguished by the fact that they are immediately subordinate to the primary disturbances.

Babinski proposes to call hysteria pithiatism, because it is susceptible of cure by persuasion. In

*Read before the Canadian Medical Association, Toronto, June 2, 1910.

fact, he seems to think that it is the only neurosis that is susceptible of cure in this fashion! He denies that the so-called signs of hysteria are characteristic or permanent, or that they have the fundamental importance that has been attributed to them. Although a number of years have elapsed since Babinski's views were first submitted to the profession, it is not apparent that they have been widely accepted, nor has the term pithiatism come into use.

The chief service of the discussion provoked by the advocacy of this theory has been to show that many of the so-called stigmata of hysteria, *i.e.* the objective signs, have been given a fictitious value by French writers, and that many of the symptoms of major hysteria existed in the imagination of the person describing them, or are instances of association of hysteria and organic diseases "badly interpreted."

Freud's Theory.—The theory of Freud cannot be so summarily dismissed. Originally formulated by Breuer and Freud it is in reality an extension of doctrine propounded by Janet, which holds that hysteria is a psychosis belonging to a group of mental diseases due to cerebral insufficiency. It is characterized especially by moral symptoms. The essential feature is weakening of the faculty of psychological synthesis. The hysterical process causes a splitting, a disintegration, a doubling of personality. Freud adopts this theory and contends that the disintegration is initiated by a force which he calls sexual trauma. In order that I may do him no injustice, I quote literally the conclusion of his chief disciple and advocate, Jung. "There develops usually on a constitutional basis before puberty definite sexual activities which are chiefly of a perverse nature. These activities do not as a rule lead to a definite neurosis before the time of puberty, which, by the way, manifests itself earlier in the psyche than in the soma, but to sexual phantasy, which takes on a perverse, constellated direction by reason of the infantile sexual activities. On constitutional grounds the increased phantasy of the hysterical individual leads to the formation of complexes which are not taken up by the personality because of the shame and disgust which they engender. They remain buried, and thus is initiated a conflict between normal passion (libido) and the sexual representation of these buried infantile perversions. This conflict gives rise to the symptoms of hysteria.

The Mechanism of Hysteria.—Freud explains the mechanism of hysteria as follows: Experiences of a painful emotional character are psychic traumata, and if not reacted to adequately and appropriately they remain in the mind and give rise to affect-memories. If these affect-memories are sufficiently organized they may usurp control of the bodily innervation as well as the psychic activity, thus producing various hysterical phenomena.

The psychic trauma may consist of a single experience, or of a group of experiences, or it may result from indifferent occurrences coinciding with a time of special nervous susceptibility as in a state of fear. The connection between the psychic trauma and the resulting phenomena may be obscure. Often it is forgotten and frequently it is unpleasant to relate.

The affect-memory may produce (1) a single acute attack of hysteria, (2) a series of more or less persistent symptoms of a hysterical nature, or, more frequently, (3) a combination of these two. Hysterical attacks may be spontaneous or provoked either directly by recalling the affect-memory or indirectly through some experience analagous to that which caused the trauma.

Normally, the memory of any event fades with the passing of time, but this takes place only when the individual reacts adequately to the experience. Speech alone may be sufficient to facilitate the reaction or it may require voluntary or involuntary reflexes, from weeping to an act of vengeance. Adequate reaction may be prevented (a) by experiences to which no reaction is possible, as the death of a beloved one, and (b) by experiences which the individual voluntarily excludes from the field of consciousness as in sexual matters, or (c) they may be prevented by the nature of the attending circumstances, such as experiences accompanying fear or occurring under abnormal conditions such as revery-autohypnosis.

The phenomena of dissociation are analagous to those of dreams in which the experiences are detached from the normal consciousness. Freud calls this the hypnoidal state. Dreams do not influence the waking state while the products of the hypnoidal condition obtrude themselves into waking life as hysterical phenomena.

Even in a normal person, a severe psychic trauma, or a forced suppression of an affect, brings about a splitting off of groups of ideas, but in time these are assimilated and the memory fades away. In hysterical subjects, the splitting-off group remains split-off and long retains its original vividness. A series of hypnoidal memories may associate with each other and reach a high degree of psychical organization even to the highly organized "second personality." Each hysterical attack acts as an additional trauma, reinforcing the tendency to subsequent attacks. The two physical conditions, *i.e.* the normal consciousness and the hypnoidal consciousness, tend to establish a system of alternating activity which admits of each assuming control without really influencing each other.

Criticism of Freud's Contention.—Freud takes an attitude toward consciousness such as one would take toward a working machine, and proceeds to describe it in terms of what he calls psychic mechanisms. His procedure is not systematic, and he omits to give any extended description of the psychic mechanism of the normal mind except by implication. What he has to say concerning this has to be gathered mainly from his description of what occurs to the normal mind at certain "critical moments," by which he seems to mean moments when under severe stress, possibly accentuated by some fundamental lack of staying power in the subject of this experience, the customary complete control of the situation is lost, and a situation is produced which is neither understandable nor removable, and which consequently remains in the active consciousness only as an obstructive element. If the mind is of good staying quality it will wrestle with the intruding state until it interprets its meaning, in terms of its larger and less stressful experience, and so brings it under control. If it fails to do this it suffers the inconvenience of having the process repeated until there is sufficient of this material on hand to call for organization unto more complex systems of activities. These symptoms never get related to the main activities of consciousness, no matter how far this secondary organization proceeds.

Freud's general method of treating his subject, then, is to take up a certain attitude toward the normal mind, to proceed from that to an abnormal condition of it which he calls traumatic, from which he is ready to advance another step to the phase of abnormality known as hysteria.

No particular objection can be raised either to an attempt at mere description, or to this order of procedure. It is only when the details of his effort are scrutinized that its limitations appear. Even these are of negligible importance, unless it can be shown that the resulting description is, by its very nature, a doubtful foundation on which to rest the principles of treatment of hysteria.

Freud's interpretation of hysterical states should therefore be subject to severe scrutiny in the matter of details, for it is there that the insufficient or misleading nature of the process will make itself apparent.

Two tests might be applied to the working out of his method. One would be seriously to accept his view of the mind as a mechanical structure, and attempt to complete his sketchy outline according to the implications he makes, and then to criticise the description in the light of its total result. A much simpler way is to try to make the most of the situation as he outlines it, allowing for the insufficiency of the terms, frankly discounting their significance as anything more than merest connecting material and resolutely avoiding an extension of fictitious values.

Among the terms which Freud uses with great freedom and with no open acknowledgment of their fictitious values are: Traumatic neuroses, psychic trauma, causal trauma, grand trauma, partial trauma, affects, affects of memory, affective ideas, affectful experience, abreactions, cathartic reactions, psychic determinants, associative elaborations, associative organizations, hypnoid states, hypnoid ideation, hypnotized memory, accidental moments, etc. Furnished with this set of terms, which he dignifies by describing them as psychic mechanisms, and with the general conception of this mind as a working machine, he proceeds to weave together his picture of hysteria with alluring ease and certainty. There is first the normal mind, which makes its complicated adjustments to situations, shaping the mechanical parts and grouping them into sufficiently organized activities to meet the ordinary situation of experience. It takes, that is, a certain attitude of its own contrivance toward the present situations, according to the way in which the situations affect it; these are affect attitudes on the part of the mental mechanism. Their peculiar significance is shown by the persistency of this affective element in the memory of the event; the slightest clue as to the original situation may bring back the full affect of the first experience.

Next there comes into view the normal mind, strained to its utmost, and reaching the breaking point, either because of the extraordinary nature of the event, or the inherent limitations of its mechanism; the result is a failure to complete the process of response. The mechanism is over-affected by the experience and responds partially and inadequately, instead of reacting in a fully organized and effective manner. Its abreaction is insufficient for the occasion, and below the capacity with which it is normally credited. Not the mechanism, so much as its habit of acting, has received an injury, a trauma. Inasmuch as it is a habit-forming mechanism, its condition is more or less permanently affected and may now be viewed as traumatic; that is, it is in a peculiarly susceptible condition toward a recurrence of a like event, which may cause a repetition of failure even though the situation is much less important than the original one. It is also generally susceptible toward the acquisition of traumatic experiences. The evidence of this new situation is very marked when we turn again to the activity of memory, into which this new class of representations has been introduced, and contends with normal memories on terms of even greater advantage than those which belong to the truncated experiences in their rivalry with completely organized experiences. The course of development which ensues for the normal mind depends on circumstances. If the extraordinary events are infrequent, and if the mind is of good sustaining power, no significant damage results, and the effect wears away or it is accommodated without serious disturbance of satisfaction.

Quite a different course of development follows in the case of minds that by the effect produced on them must be called in relative terms abnormal. The traumatic interruptions are more severe and lasting; the isolation of the peculiar memories resulting from the painful experience is more complete; their appearance as rival activities in the field of memory is more frequent and effective; the tendency to inaugurate new experiences of this sort is more pronounced. But with all this distortion of the mechanical activity one important feature of memory still remains, so long as memory itself is active: the association type of activity still persists and operates in the field of the isolated and secondary activities as well as in the immediately useful primary activities. As a result, there grows up in the abnormal mind, constituting its abnormality, a second set of organized memories which rivals the first set both in its power to affect new experiences as they arise, and in their capacity for organization about a second center.

Having reached this point, Freud has entered the field of hysteria as he conceives it. It is marked by nothing different in kind from what happens occasionally to normal minds, or to the abnormal mind more frequently on account of its greater susceptibility; but it is subject to become habitual and is marked by a tendency to continued organization of the useless activities into a complex which has no more important function to perform than to occupy the field of consciousness to the exclusion of the higher useful activities, and in a mischievous relation to the super-excitable motor activities which are no longer coordinated in some purposeful undertaking.

Dreams and Their Interpretation.—One of the aspects of the hysterical mode of mechanical activity to which he gives particular attention is the type of memories which originate in dreams, reveries, hypnoidal states. They belong in the class of free-flowing movements of the normal mind, which occur in greater frequency in ungoverned minds, and are the characteristic remainder in the suppressed form of mental activity called the hypnotic state. In the case of the hysterical mind, with its organized duplicity of behavior, and its consequent superficiality of movement, these free occurrences attain a significance they would not otherwise have. The memory of them becomes peculiarly intrusive, since the dissociation of mental activities into groups appears in its most pronounced form in the field of memory. The limitations of

the point of view which furnishes this description are apparent when it comes to its application to specific situations. As Freud himself is forced to acknowledge, the only method afforded is to go patiently over the field, pick up the traumatic occasions one by one, often in the most painful fashion, furnish the subject with a complete description of what he did and what he ought to have done—that is, to substitute a normal affect and a normal abreaction, and thus to dissipate the efficiency of the traumatic memory by withdrawing it from its dissociation from the normal associative process. It remains extremely doubtful how much of this training must be given before the hysterically disposed will have changed his disposition. It is certain that the mere removal of the uncorrelated memory will not do it, nor will voiding the effects of such an activity alter the native disposition of the subject. The indications are strong that isolation of the subject in a special environment is essential in order that no more false experiences may be set up. There are equally strong indications that the question of the economic importance of the process should be investigated in the case of each subject.

The objections to Freud's theory and practice are that his mode of interpretation is too arbitrary, that the psychoanalysis becomes a source of suggestion, direct and indirect, and that it gives a conspicuousness to the sexual factor as a causative agency which it has not yet been proven to have.

The arbitrary interpretation refers particularly to the dream symbolism, according to which theory dreams are psychical structures of sexual origin not always accessible to interpretation. The sense of any dream is the fulfillment of a wish; that is, dreams are the accomplishment of suppressed desires. Dream fabrics are characterized by a tendency to condensation and a displacement of the subconscious thought. This is the keynote for the translation of the hidden dream fabrics, and the attributed condensation resulting therefrom seem to me grossly exaggerated. The most serious objection, however, to Freud's procedure is that it becomes a source of autosuggestion. Psychoanalysis is equivalent to sexual analysis and every step in it turns on an erotic pivot. Only the completest self-mastery on the part of the interlocutor, and the supremest impersonality on the part of the victim can keep the element of autosuggestion out of the psychoanalytic seance. The constant digging for complexes becomes an enormous incentive to the individual whose mind and emotions are easily swerved to fabricate such complexes.

Even addmitting that sexual factors have the importance in the psychogenesis of hysteria that Freud maintains, very little has yet been vouchsafed us upon which to base the belief that the psychoanalysis is a reliable therapeutic agency.

If the most we can do for those afflicted with hysteria in the present state of ignorance as to its causes is to put them in possession of a description of their condition, then the service rendered them is of doubtful value if the description itself is artificial, strained, inadequate, or questionable.

Estimate of the Value of Freud's Hypothesis.—On the whole, it must be said that Freud's method justifies itself if it is not taken too seriously, and too much is not hoped for from its application. The specious appearance given to this statement through his use of analogical terms is easily "abreacted from" and need result in no distortion of view in the normal mind, free from superesthetic tendencies and hyperexcitability. It will undoubtedly work best with minds which are inclined to split up analytically and is most easily applied to minds whose difficulties have arisen through confinement of their marked experiences to the field of sex excitements, which are the most frequent highly developed crises to which the generality of people are subject.

What Hysteria Means to the Average Mind.—To the average student of medicine who has no theory of his own to explain hysteria, it is a disease founded upon a constitutional peculiarity which we speak of as neuropathic temperament or degeneracy, which is a matter of heredity, whose manifestations are frequently called into evidence by such forces as mental and emotional shock, which includes fear, worry, grief, anxiety, and physical injury or disease. This hypothesis interprets the manifestations of hysteria as the persistence in adult life of childish types of reaction to the facts of life. The hysterical reaction is in reality an attempt at adjustment to experience.

Neurasthenia a Mental Disorder.—In attempting to define neurasthenia, we find our task no easier than when we essay to define hysteria. We certainly do not mean what Beard meant when he first described it or when he finished describing it. "Exhaustion of the nervous system, the effect of wasting fevers, exhausting wounds, parturition, protracted confinement, dyspepsia, phthisis, Bright's disease, etc.; a part of the compensation for our progress and refinement in civilized intellectual communities." It is no more a part of the compensation which we pay for our present-day culture and civilization than Christian Science or Spiritualism is. It is a manifestation of atavism that has not been corrected by education. Beard speculated that it was due to a change in the central nervous system. "The central nervous system becomes dephosphorized, or perhaps loses somewhat of the solid constituents; probably also undergoes slight indetectable, morbid changes in its chemical structure" (*Boston Medical and Surgical Journal*, April 29, 1869). This view that neurasthenia is the expression of some debilitating physical experience gained ground for 25 years. At the end of that time it was a clinical Colossus in the shape of a Sphinx. Nearly every "functional" nervous disorder unaccompanied by convulsion, profound suicidal impulse, or dementia, was placed beneath its covering. The first veil was lifted from its face by Dunin of Warsaw ("Grundsatze der Behandlung der Neurasthenie und Hysterie," Berlin, 1902), and in this country by Dana in 1904, who in that year read a paper before the Boston Society of Neurology and Psychiatry entitled "The Partial Passing of Neurasthenia" (*Boston Medical and Surgical Journal*, March 31, 1904), in which he pointed out that a large number of so-called neurasthenias should be classed as prodromal stages, abortive types, or shadowy imitations of the great psychoses. "The morbid mind dominates the situation, not a weak eye muscle, a poor stomach, a heavy womb, uric acid, arterial sclerosis, or even an exhausted motor nerve cell. The body also is at fault, but the psyche is in main control, and gives the stamp to the syndrome, directs the prognosis, and most acutely solicits the treatment."

That the mind in its perverse activity dominates the clinical picture presented by neurasthenics had been noted many times by innumerable investigators, but it has been impossible to dislodge from the

medical mind, and from the lay mind as well, the conviction that neurasthenia is the expression of physical disease, and that the problem which the neurasthenic patient presents is the detection of the disease or disorder of which the neurasthenia is merely an end-result, or an epiphenomenon. Therefore, the neurasthenic's digestion is attacked, his vascular system is treated, his eliminative pathways are stimulated, his sense-organs are tested and aided, his viscera are replaced, he is rested and fed and fattened and very properly so, if the sick person needs it, but when these infirmities are overcome the disease may still exist, its ravages for the time having been repaired. It has been with the greatest difficulty that the conception of neurasthenia as a disease and not as a symptom-complex indicative of some other disease has been forced upon our recognition. Another thing that has retarded our understanding of neurasthenia is that it has meant one thing for one person and another thing for another; in other words, it has had no definite clinical connotation. Under this category has been included all cases of nervous disorder that could not be readily classified. The custom has been if you do not know what it is, call it neurasthenia, so to the laity neurasthenia, or nervous prostration, has come to include a large part of the non-dementing insanities.

Almost from the beginning it was recognized that there was a form of neurasthenia which occurred in individuals with an inherited neuropathic temperament. From the time of Charcot this variety has been called hereditary or constitutional neurasthenia. About ten years ago Janet, recognizing that these so-called constitutional neurasthenics made up a considerable proportion of all the neurasthenics, proposed to set them apart and label them, which he did, and the name that he applied was psychasthenia. Since then, owing to Janet's continued interest in the study of these neurasthenias, and to the co-operation of Raymond, psychasthenia has become quite well known to the medical world and its coming has been heralded far and near. Many writers are already using it synonymously with neurasthenia without defining what they mean by neurasthenia. The result is added confusion.

Neurasthenia and Neurasthenic States.—The matter that we have first to decide before we can make any headway in this discussion is: Does the average individual—here spoken of as the normal individual—exposed to the attributed causes of neurasthenia, namely, work, worry, privation, and disease, develop a complex of symptoms which constitutes a fairly definite clinical picture whose leading features are fatigue, inertia, abulia, and perversion of function of the vegetative system. If he does, neurasthenia is a fatigue, a toxic, an exhaustion neurosis. The longer I practice medicine, and the more intimately I become apprised of the results of the activities of the above-mentioned agencies, the more am I convinced that neurasthenia does not flow from any of these causes. The normal man may work and overwork, the normal man may worry intemperately, the normal man may encounter disease in its most tempestuous or undermining way, the normal man may break all of hygeia's laws, and as the result of all these, he does not develop neurasthenia. He may become inert physically, sluggish mentally; he may have disturbances of all of the important functions of his body; he may have no initiative, and he may be depressed and dissatisfied with what has been meted out to him, but such an individual has some disease or disorder of which these symptoms are but expressions, and as soon as these diseases or disorders are overcome, the symptoms which are commonly labeled neurasthenia will vanish. If it facilitates the recognition and pathological dependency of such conditions to call them neurasthenia or neurasthenic states, I have no valid reason to give why they should not be so designated. The point I wish to make is that they do not constitute a disease *sui generis*, and that the symptoms are mere ancillæ of other diseases. I believe there is a disease which is properly called neurasthenia, that it is always a psychasthenia, and that it is a true psychoneurosis. It is a disorder characterized principally by lack of initiative and of executive capacity. Those who are afflicted with it, can neither start the ball of daily life nor can they keep it going when it is started for them. Physically they are tired and inert, mentally abulic and inactive. They are depressed, preoccupied with themselves and their infirmities, filled with foreboding, unable to accept assurance, their thought and conduct often under the dominion of an obsession or obsessive ideas. They have symptoms referable to every system of the body; one may predominate today, another to-morrow; but fundamentally the symptoms that are invariable are the mental and emotional symptoms that have been enumerated above.

This variety of neurasthenia flows apparently from overwork, disease, and dissipation, but only in those who have that something which we call neuropathic heritage. The neuropathic heritage cannot be defined with the same exactitude as a physical trauma, but every one knows what is meant when the term is used, just the same as every one knows when the term arthritic diathesis is used. Amongst other things that such an individual has is inability to resist physical and psychical influences which are not injurious to the average individual. These influences oftentimes causes a complex of symptoms to which we given the name neurasthenia or psychasthenia, and if the latter conveys more clearly both the origin and its clinical display, its course and its termination, then it may be used in preference to the other.

The majority of the cases diagnosticated as neurasthenia by the rank and file of us are not neurasthenic states nor neurasthenia. In the young they are dementia præcox, atypical attacks of manic-depressive insanity, and hysteria. In the mature, they are forms of mental involution, particularly melancholia.

Ten years ago the diagnosis of neurasthenia was very common in the Out-Patient Department of every hospital. Nowadays it is made with comparative rarity. The bodily disease which is attended with neurasthenic states is searched for, often detected, and properly designated, and no less often the mental disease masquerading as neurasthenia is made out. This leaves far fewer "neurasthenics" than our predecessors of a generation ago taught us to believe was the case.

Unity of Designation Desirable.—I said in the beginning that the psychoneuroses were hysteria and neurasthenia, or psychasthenia. If these include all the psychoneuroses we must enlarge our conception of them, and that probably is what we shall do. Three years ago Dr. G. L. Walton read a paper before the American Neurological Association, in which he pointed out that the majority of cases classified as neurasthenia,

psychasthenia, and phrenasthenia, partake so far of the various morbid mental states peculiar to the ideo-obsessive that they are best included under the general designation psychoneuroses or obsessive psychoses, and that is the conclusion that I have come to. If we could call all the various clinical complexes that are classified as functional nervous diseases, in which there is a dominant mental element, psychoneroses and the victims of such disease, psychoneurotics, it would be a great deal simpler than to call them neurasthenics, hysterics, psychosthenics, hypochondriacs, sufferers from obsession, doubting madness, counting mania, anxiety neuroses, etc.

As a matter of fact, nothing whatsoever is to be gained by an effort to classify these cases into separate disorders; the thing to be recognized is that fundamentally the disorder has its foundation in disordered mentality and emotivity, that the manifestations of the disease are immediately conditioned by obsession and that it is in reality an obsessive psychosis on a hereditary basis.

A word concerning the rôle that the psychoneuroses play in contributing to all the misery in the world. Only the neurologist who sees the psychoneurotic at short range can realize their relationship to incapacitating mental states and to unhappiness. Recognition of their existence, a conception of their construction and development is the best preparation that we can have to deal with them. Successfully to do so is a problem in orthogenesis which for its solution requires study of the laws of heredity and the principles of psychology by a person who loves his fellow man.

DUODENAL ALIMENTATION.*

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As is well known, there are frequently conditions in which the usual methods of alimentation (by mouth and stomach) are either impossible or undesirable. Rectal feeding has always been used in these cases before. Every clinician, however, knows how unsatisfactory this mode of nutrition is. The food is utilized only in a small degree, and, besides, the rectum often becomes irritable, so that the enemata must be stopped. It is therefore desirable to have some other way of feeding to the exclusion of the stomach.

The duodenal pump,† which usually serves the purpose of obtaining the duodenal contents, can also be used for the introduction of food into the duodenum. This kind of feeding may be designated as "duodenal alimentation." The method consists simply in introducing the duodenal pump into the digestive tract, and feeding is begun as soon as its end is in the duodenum. The apparatus is left in the digestive system for from 8 to 12 days. The thin rubber tube does not inconvenience the patient, and thus everything is ready for the feeding. This is best done at intervals of two hours. After the feeding, water is forced through the tube, and finally air blown through and the stop cock is closed. We can introduce at one feeding between 240 to 300 c.c. of food slowly. All fluids must, of course, be used at body temperature. I have used this method of treatment successfully in three cases.

Usually the following nutritive material was used every two hours, from seven in the morning until nine in the evening: Milk, 240 c.c.; 1 raw egg, sugar of milk, 15 Gm. The mixture well beaten up

Fig. 1.—Patient being fed through the duodenum.

and injected at blood temperature. Patient received nothing by mouth. Two patients were given, besides, a quart of physiological salt solution by rectum, according to the Murphy drop method; the third patient also received water directly injected into the duodenum, but very slowly, drop by drop. I would like to append a photograph of a patient who is just being fed according to this method. (See Figure 1.) I will now briefly outline the three cases treated according to this method:

Case I.—January 29, 1910. Dr. L. A. S., 42 years old, suffered since his seventh year from

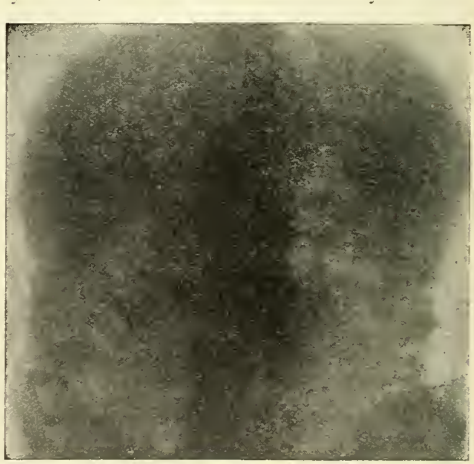

Fig. 2.—X-ray photograph of patient, Dr. Sh. with the duodenal pump in the digestive tract. The tube is seen along the whole course of the duodenal loop and the capsule in the beginning of the small intestine.

migraine. An error of refraction was corrected with glasses, and his condition was considerably improved, without, however, entirely relieving him. For the last ten years patient suffered off and on from attacks of vertigo, followed by intense headaches, with subsequent vomiting. The vomited matter consisted mainly of a sour liquid, mixed with bile. The attack generally lasted a few hours, and seemed to recur about every 2 or 3 weeks with-

*From the German Hospital, New York. Read before the American Gastroenterological Association on June 6, 1910, at St. Louis, Mo.

†Einhorn, Max: Medical Record, January 15, 1910.

out apparent cause. Immediately after the attack patient would feel perfectly well. Occasionally he would not have an attack for from one to two years.

Lately, however, the attacks became somewhat more intense. They lasted longer, and were of a more severe character. The present attack began three weeks ago, with the usual vertigo, followed by headache and vomiting. Patient feeling easier after the attack, and being very busy, he did not take the necessary rest, and in consequence thereof he soon had a second attack. After partaking of milk and toast, he had considerable nausea and eructation of gas. Twelve hours later patient took kumyss. This patient retained, but soon headache, vertigo, and belching occurred. This condition lasting for six days, without any signs of improvement, patient entered the hospital, after having lost twenty pounds.

Present condition: The patient looks very weak and pale. The thoracic organs reveal nothing abnormal. Palpation of the abdomen shows marked tenderness over the epigastrium. A splashing sound can only be elicited with difficulty. According to this, the stomach reaches to about the level of the navel. The spleen is markedly enlarged and easily palpable; temperature normal, urine negative.

The patient was examined by means of the duodenal bucket. It was left in the digestive tract over night, and was removed in the fasting condition. There was no resistance to be felt at the pylorus, and the thread showed no bile discoloration, but a brown spot at 48 cm. Apparently the bucket had remained in the stomach without passing the pylorus.

Lavage of the stomach in the fasting condition shows food remnants from the day before and an acidity of 110, with an excess of HCl; occult blood was present. The duodenal bucket was then used a second time. This time, on withdrawing the bucket, a slight resistance was encountered at the pylorus. The thread was of a golden yellow color near the bucket, and again showed brown discoloration at 47 to 48 cm. The diagnosis was made of migraine, ulcer of the stomach, with recurring spastic stenosis of the pylorus and enlargement of the spleen. As patient vomited continually, rectal feeding was ordered. Patient, however, could not retain the nutritive enemata and they had to be stopped.

On Feb. 2 the duodenal pump was introduced.

Fig. 3.—X-ray photograph of patient McC. The tube of the duodenal pump is visible in the duodenal loop and in a considerable part of the small intestine. The stomach was filled with air by means of a thin stomach tube, and is seen as a light zone. Owing to the bismuth medication, the colon is also visible.

After about two or three hours it had reached the duodenum. (This was proved by aspirating the duodenal contents, which reacted alkaline and contained all the pancreatic ferments, as well as bile. See Figure 2.) The duodenal pump was left in, and patient nourished through it. Every two hours either milk alone, or milk and egg with sugar of milk in 8-ounce quantities, were slowly injected into

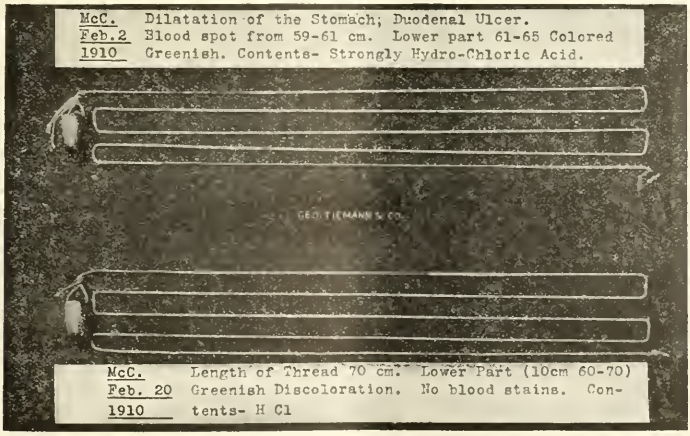
McC. Dilatation of the Stomach; Duodenal Ulcer.
Feb.2 Blood spot from 59-61 cm. Lower part 61-65 Colored
1910 Greenish. Contents- Strongly Hydro-Chloric Acid.
GEO. TIEMANN & CO.
McC. Length of Thread 70 cm. Lower Part (10cm 60-70)
Feb. 20 Greenish Discoloration. No blood stains. Con-
1910 tents- H Cl

Fig. 4.—Showing the results of the thread test in patient McC. on Feb. 2, 1910 (before duodenal alimentation was instituted), and Feb. 20, 1910, before leaving the hospital.

the duodenum by means of a syringe. Patient soon felt better; the feeling of hunger disappeared, and with it that of weakness. The vomiting stopped. The duodenal feeding was continued for eleven days. During this time patient gained one-half pound.

At the end of this duodenal feeding period (Feb. 13) the duodenal pump was removed, and the usual oral feeding was again begun. Soon patient again suffered from gastric disturbance, marked by acidity and the belching of much gas.

An attempt was made to dilate the pylorus through the introduction of an inflatable pyloro-dilator. This was successful once. A few days later, however, on my desiring to repeat this procedure, the instrument did not pass the pylorus.

Patient left the hospital and to-day (April 6, 1910) is not free from his complaint.

Case II.—Jan. 29, 1910. Wm. M. McC., 21 years old, is complaining for two or three years of his digestion. He is constipated, and feels a sensation of distress about one-half hour after meals, lasting for one and a half hours. At the same time, mental depression, vertigo, a desire to rest, and a feeling of complete physical exhaustion occur. This state would last a few days, and increase in severity until patient took either a laxative or violent exercise, which generally resulted in improvement for one week, when it would recur again. The attacks increased in severity, patient was very nervous and began to have hallucinations. These occurred only after meals, and disappeared when patient brought up gas from the stomach. Patient had lost 15 pounds in weight.

Physical examination shows that the heart dullness begins at the lower border of the fourth rib. There is also ptosis of the liver. The right kidney is movable in the fourth degree. The stomach is considerably dilated and reaches a hand's width below the naval. The urine showed nothing abnormal; pulse small; temperature subnormal. Examination of the stomach contents one hour after Ewald's test breakfast shows: HCl + Acidity = 74, some food remnants from the day before. In the fasting condition the stomach also contains a small quantity of food from the previous day. The duodenal bucket, which on the second of February was left in the digestive tract over night, and was removed in the morning in the fasting condition, showed a discoloration due to bile from the bucket up to 65 to 61 cm., and a brown discoloration from 59 cm. to 61 cm. The rest of the thread was white. The diagnosis was made of enteroptosis (cardioptosis, hepatoptosis, right movable kidney) and duodenal ulcer with dilatation of the stomach and slight ischochymia, probably caused by pylorospasm.

Patient was placed on duodenal feeding on February 4. The duodenal pump easily reached the duodenum (within one hour). All feeding per os was discontinued, and only duodenal feeding was resorted to. The length of the rubber tube was 85 cm., so that the capsule laid in the small intestine. (See Figure 3.) Every two hours he was given either 8 ounces of milk, + half an ounce of sugar of milk, or the same with the addition of a raw egg well beaten up. Besides this, patient received a quart of physiological salt solution in divided doses injected through the tube directly into the duodenum. Every other evening an oil enema of 8 ounces was given.

As medication he received magnesia usta, 3ʒ½ bismuth subnitrate 3ʒ, water 3ʒ; one tablespoonful three times daily by mouth. The mouth was frequently washed with a weak solution of tincture of myrrh. Patient was treated in this manner for nine days. Then I began to give small quantities of fluid by mouth in addition to the duodenal feeding. On the tenth day the duodenal pump was removed (Feb. 14), and patient was nourished by the mouth. He was first given five ounces of fluid food every two hours, which was quickly increased to eight ounces, and then ten ounces.

A new test with the duodenal bucket on Feb. 20 showed a greenish discoloration due to bile at 60 to 70 cm.; no brown spot, however, and the remainder of the thread was white. (See Figure 4.)

The patient was then given a more ample diet, and his stomach was irrigated off and on in the fasting condition. It was now always found empty. On April 4, 1910, the patient reports that he has gained ten pounds in flesh and has no more trouble. Physical examination shows that the heart and liver lie normally. The right kidney cannot be palpated, and the stomach reaches only to the navel. It seems that we have to deal here with the cure of a duodenal ulcer and the restitution to the normal of an enteropotosis of a high degree.

Case III.—Mrs. Josephine R., 39 years old, began to suffer from digestive disturbances three years ago, accompanied by violent headaches and vomiting. A year ago she had abdominal colic. She was operated in the Roosevelt Hospital, and her appendix removed. This operation, not proving successful, patient was operated at another hospital in 1909 for adhesions. She then felt fairly well for two months. Soon, however, the old pains returned and uncontrollable vomiting set in, for which she was admitted to the German Hospital.

Physical examination does not reveal anything abnormal in the thorax. In the abdomen there is slight tenderness on pressure over the epigastrium. The stomach extends two finger widths below the navel. A test meal shows absence of HCl, and an acidity of = 20. The urine—daily amount of which varies between 300 to 1750 c.c. for 24 hours—shows a trace of albumen; otherwise nothing abnormal. The duodenal bucket showed that the pylorus was open. Neither were there any blood spots on the thread. Patient complains of constant vomiting, not being able to retain even water. A diagnosis of subacidity and nervous vomiting was made. The usual treatment was instituted, but without success.

On March 22 duodenal feeding was resorted to. Patient received every two hours eight ounces of milk, one egg, and half an ounce of sugar of milk, well beaten up, through the duodenal pump. This was given eight times daily. Besides this, she was given a quart of physiological salt solution, per rectum, according to the Murphy drop method. The treatment was continued until April 2.

During this period she had vomited only rarely, not, however, food, but small quantities of a watery fluid, mixed with mucus. The patient felt well, had no hunger nor thirst, and looked well nourished. Her weight remained nearly stationary. It was as follows: March 23, 140 pounds; March 26, 142½ pounds; March 28, 140 pounds; March 31, 140½ pounds; April 1, 139 pounds. Pulse and temperature were normal, her stool was formed.

After resuming feeding by the mouth the vomiting recurred. She will probably soon have to again be fed by the duodenum.

None of the three cases lost any appreciable

weight during the duodenal feeding. They felt very well, *i.e.* the feeling of hunger was satisfied, and while without food they felt weak and tired, they felt well and strong after the duodenal feeding. At all events, the cases prove that good nutrition may be kept up (without loss of weight) for a longer period, without stomach feeding.

The advantages of duodenal over rectal feeding are at once apparent; for while the rectum and colon are simply organs for the expulsion of fæces and for the absorption of possibly remaining liquids, we have to deal in the duodenum with an organ where the most important digestive juices are secreted.

In the colon we have to do with the last part of the digestive tract, in the duodenum, however, with the principal part of the digestive appartus, so that everything is here utilized.

THE DIAGNOSIS OF SUPPURATIVE DISEASE OF THE NASAL ACCESSORY SINUSES.*

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An absolutely essential requisite in making an intelligent examination of the nasal accessory sinuses, is a thorough knowledge of the anatomy of these cavities. A few of the chief points in their structure and relationships will, therefore, not be amiss. There are four cavities on each side of the head, the frontal, ethmoidal, maxillary, and sphenoidal cavities. The frontal and sphenoidal are confined to a single bone each, while the maxillary and ethmoidal sinuses have several bones entering into their formation, the ethmoidal cells being enclosed by the ethmoid, frontal, lacrymal, and sphenoid bones, while the maxillary sinus has entering into its construction the superior maxilla, ethmoid, palate bone, inferior turbinate, and lacrymal bones.

The largest of these cavities is the maxillary sinus, or antrum of Highmore (Fig. 1).

Fig. 1.—FS. Frontal sinus. E. Ethmoidal cells. A. Antrum of Highmore. O. Orbit. OF. Olfactory fissure. MM. Middle meatus. IM. Inferior meatus. U. Unciform process. OA. Ostium antri. CG. Crista galli. MT. Middle turbinate. IT. Inferior turbinate.

This is a pyramidal cavity lying in the superior maxilla. The base is above, and corresponds to the floor of the orbit. The anterior is the facial wall, the internal corresponds to the outer wall of the nasal fossa, and the posterior looks toward the zygomatic fossa. The apex is directed downward, and lies over the roots of the bicuspid and molar teeth. Sometimes the roots of one or more teeth lie free in this cavity. Sometimes they are separated from the floor of the cavity by a layer of bone three-quarters of an inch thick. The normal orifice lies in the upper part of the nasal wall, a short distance below the roof of the cavity. The most important of these walls, from the viewpoint of diagnosis, is the inner or nasoantral wall. This wall is composed mainly of superior maxilla. The inner wall of the superior maxilla shows a large defect, which is partly closed in by inferior turbinate below, unciform process of the ethmoid above lacrymal bone in front, and palate bone behind (Fig. 2).

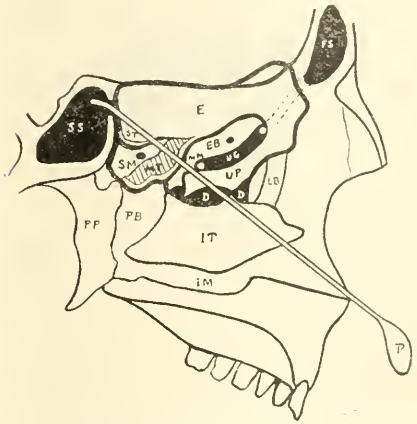

Fig. 2.—FS. Frontal sinus. SS. Sphenoidal sinus. E. Ethmoid bone. PB. Palate bone. PP. Pterygoid process of sphenoid. IT. Inferior turbinate. MT. Stump of middle turbinate. ST. Superior turbinate. LB. Lacrymal bone. IM. Inferior meatus. MM. Middle meatus. SM. Superior meatus. UP. Uneiform process of ethmoid bone. UG. Unciform groove or hiatus semilunaris. D. Defects in bony naso. antral wall. EB. Ethmoidal bulla. P. Probe in sphenoidal sinus. (Ethmoidal bone is drawn in with heavy lines.)

However, there is still left a small defect between the unciform process and the insertion of the inferior turbinate bone, and another small defect above the unciform process. The latter space is the site of the normal orifice of the antrum, while the former is filled in by mucous membrane, and is occasionally the site of accessory foramina into the antrum. The membranous portion is the weakest part of the nasoantral wall, and would be the ideal site for exploratory puncture, if it were

Fig. 3.—(Schematic after Hajek.) FS. Frontal sinus. SS. Sphenoidal sinus. 1. Lamella of the unciform process. 2. Bulla lamella containing bulla cell, 3. Lamella of the middle turbinate. 4. Lamella of the superior turbinate. UG. Unciform groove. AEC. Groove of anterior ethmoidal cells. PEC. Groove of posterior ethmoidal cells.

*Read at a meeting of the Bronx Medical Society, March 9, 1910.

not for certain anomalies, which will be mentioned later on.

The ethmoid cells are enclosed entirely in the ethmoid bone, except the upper lateral and upper anterior edges, which are closed in by the ethmoidal notch in the horizontal plate of the frontal bone

Fig. 4.—(After Sieur & Jacob.) FS. Frontal sinus. OP. Its orbital prolongation extending backward as far as the posterior extremity of the ethmoidal cells. EC. Ethmoid cells. CP. Coibriform plate.

and the lacrymal bone; and the posterior surface, which is closed in by the body of the sphenoid.

The ethmoidal labyrinth consists of an irregular collection of cells enclosed in a quadrilateral box, situated between the orbit and the upper or olfactory portion of the nasal fossa. This box is formed externally by the os planum, internally by the superior and middle turbinates and superior meatus, below by the middle meatus, and above by the quadrilateral plate of bone which lies just external to the cribriform plate, and not as described by many writers, by the cribriform plate itself; in front by the lacrymal bone, and horizontal plate of the frontal, and behind by the body of the sphenoid (Figs. 1 and 2).

Sometimes there are dehiscences in the os planum, a condition which predisposes to orbital cellulitis and emphysema.

The ethmoidal cells are divided into two groups, an anterior and a posterior, dependent not upon their location, but upon the location of their orifices. The anterior group opens into the middle meatus of the nose, and the posterior, into the superior meatus.

In order to get a clear conception of the structure of the ethmoidal labyrinth, we will follow the description given by Hajek. He describes the ethmoidal labyrinth as being composed of cells which lie in three grooves, these grooves being separated from each other by four lamellæ of bone, which traverse the labyrinth obliquely, and are attached externally to the os planum, and above to the base of the skull (Fig. 3).

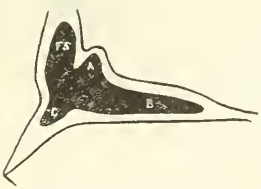

Fig. 5.—(Modified after Sieur & Jacob.) FS. Frontal sinus. A. Prolongation into crista galli. B. Orbital prolongation. C. Prolongation into root of nose.

These lamellæ are all complete except the first one, which does not reach up to the base of the skull. The first of these lamellæ is the unciform process of the ethmoid. This is a thin hook-shaped process of bone (Figs. 2 and 3), which is attached to the anterior inferior angle of the lateral mass of the ethmoid, and extends downward and backward for about an inch, where it ends free. This process forms the lower boundary of a groove, called the unciform groove, or hiatus semilunaris. This groove is of the utmost importance, both for the diagnosis and the pathology of accessory sinus disease, as it contains the orifices of the frontal, maxillary, and anterior ethmoidal cells, and obstructions in this groove will interfere with the drainage of these sinuses. The second lamella is the lamella of the ethmoidal buula, which begins at the upper anterior angle of the body of the ethmoid bone, and extends downward and backward to the posterior extremity of the lamella of the unciform process. This lamella contains the bulla cells, which are the most important factors in causing obstruction of the nasofrontal duct, and which must be removed in order to drain the frontal sinus properly. One of these bulla cells sometimes causes a prominence on the posterior wall of the frontal sinus, and is then called a frontal bulla. The third lamella is formed by the root of the middle turbinated bone, and the fourth by the superior turbinate.

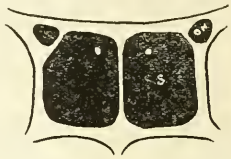

Fig. 6.—(After Hajek.) SS. Sphenoidal sinus with its ostium, viewed from behind. ON. Optic nerve.

The first groove lies between the unciform process and the bulla lamella, and consists of the unciform groove. The second groove lies between the bulla lamella and the lamella of the middle turbinate. It forms the middle meatus, and contains all the remainder of the anterior ethmoidal cells, outside of the bulla cells. The third groove lies between the lamellæ of the middle and superior turbinates. It forms the superior meatus, and contains the posterior ethmoidal cells. There are usually some posterior ethmoidal cells situated above the fourth lamella.

The anterior ethmoidal cells may open by a common orifice into the middle meatus, or each cell may have its own orifice. The posterior ethmoidal cells open by one or several orifices into the superior meatus.

The frontal sinus lies in the vertical portion of the frontal bone, between its anterior and posterior plates, sometimes extending back into the horizontal portion, above the inner angle of the orbit (Fig. 4). It is separated from the sinus of the opposite side by a vertical septum, which may be situated a considerable distance to one or the other side of the median line, so that one frontal sinus may extend over both orbita. The orifice of the frontal sinus is situated at its lowermost point. It opens into the nasofrontal duct, which is continuous with the unciform groove at its upper end. Obstruction to drainage of the frontal sinus may be located in the ostium or nasofrontal duct, due to swelling of its mucous membrane, but is more commonly due to hypertrophies in the middle

Fig. 7.—(Schematic after Onodi.) SS. Sphenoidal sinus. PEC. Posterior ethmoidal cell overlying sphenoidal sinus. OC. Optic canal in close relation to posterior ethmoidal cell.

meatus or disease in the anterior ethmoidal cells causing an obstruction in the unciform groove.

In some cases there is no frontal sinus present in the vertical portion of the frontal bone. It is not absent in these cases, but is present as a small cell, resembling an ethmoidal cell (which it really is developmentally), located just above the lacrymal bone. In this situation it can only be reached through the orbital roof. The frontal sinus sometimes sends prolongations backward over the roof of the orbit, upward and backward into the crista galli, and downward and forward into the root of the nose (Fig. 5). The orbital prolongation is of considerable pathological importance, because in order to drain this properly it is necessary to remove a large portion of the roof of the orbit.

Fig. 8.—(Schematic after Onodi.) PEC. Posterior ethmoidal cells. ON. Optic nerve in close relation to posterior ethmoidal cell. S. Anterior surface of sphenoid, with its ostium. A. Antrum of Highmore. ST. Superior turbinate. MT. Middle turbinate. IT. Inferior turbinate.

The sphenoidal sinus is a quadrilateral cavity in the body of the sphenoid bone. The roof and posterior walls are in relation to the cranial cavity (Fig. 2). The roof is very thin and can easily be perforated in curetting the sinus. The anterior and inferior surfaces run into each other without a definite boundary line and form the posterior portion of the roof of the nasal fossa and the roof of the choana. The orifice of the sinus is situated in the upper part of its anterior wall, behind the superior turbinated body (Fig. 2). The outer wall is in relation to the optic nerve and internal carotid artery (Fig. 6). This wall is often very thin, and disease of the sphenoid sinus is often accompanied by optic neuritis. The sphenoidal septum is sometimes obliquely placed, so that one cavity lies in front of the other.

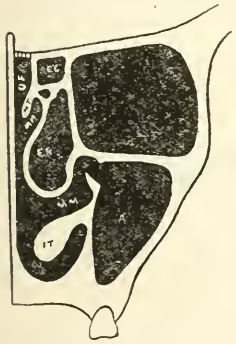

Fig. 9.—(Modified after Hajek.) EB. Enlarged ethmoidal bulla simulating middle turbinate. MT. Middle turbinate. AEC. Anterior ethmoidal cell. O. Orbit. A. Antrum. MM. Middle meatus. IT. Inferior turbinate. OF. Olfactory fissure.

We may divide the cases of accessory sinus suppuration, from the diagnostic viewpoint, into two classes, the closed and the open, *i.e.* those in which there is no pus to be seen in the nose, and those in which there is a purulent discharge to be seen in the nasal cavity.

The majority of the closed cases are acute. The cases of chronic empyema of the accessory sinuses, without discharge, are rare. Often a chronic case which has been discharging freely is transformed into an acute closed case, as a result of closure of its ostium from acute swelling of the mucous membrane. In the cases of acute closed empyema of one or more of the accessory sinuses, we have headache, more or less intense, with a feeling of fullness and obstruction in the nose. There are general febrile symptoms. There may be edema of the skin over the sinuses when the frontal or maxillary sinuses are involved. Sometimes, in the acute cases of closed frontal sinus disease, there is displacement of the eye downward and outward, due to edema or pus in the orbit. This is more likely to occur in those cases of ethmoidal suppuration in which there are dehiscences in the os planum. However, there may be protrusion of the eyeball without a perforatoin in the orbital wall of frontal or ethmoidal sinus. This condition may even exist without pus in any of the sinuses. In some of these cases we find only granulations and necrotic bone in the sinuses.

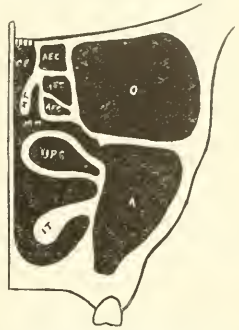

Fig 10.—UPC. Dilated cell in unciform process simulating middle turbinate. MT. Middle turbinate. IT. Inferior turbinate. MM. Middle meatus. OF. Olfactory fissure. AEC. Anterior ethmoidal cells. O. Orbit. A. Antrum.

Very often in cases of acute closed frontal sinus disease, the symptoms are referred entirely to the eye. This is well illustrated in the following case: A young fireman, about thirty years of age, thought that he had gotten a cinder in his left eye. He had had intense pain in his eye for several days. His family physician was unable to find anything in his eye and referred him to me. Except for a slight congestion of the conjunctiva, the eye looked normal. The pain seemed to me to be much more intense than anything that could be caused by a foreign body in the eye. Upon asking him whether he had any trouble with his nose he was most emphatic in his denial. The forehead over the region of the left frontal sinus was very tender to pressure. Upon intranasal examination there was discovered a boggy swelling of the left-middle turbinate, completely closing off the middle meatus, and several polpi. The polypi were removed along with the anterior end of the middle turbinate. There was a gush of pus with immediate relief of his pain. Sometimes the only symptom is a supra-orbital neuralgia. Occasionally it is an impairment of vision, which may go on to complete blindness. This is due to a retrobulbar optic neuritis, and occurs in cases of sphenoiditis and posterior ethmoiditis.

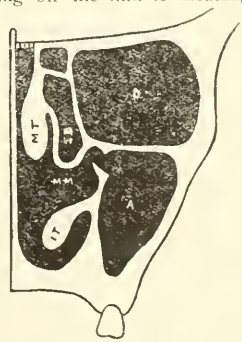

Fig. 11.—EB. Ethmoidal bulla. MT. Middle turbinate. IT. Inferior turbinate. MM. Middle meatus. O. Orbit. A. Antrum.

We see in Fig. 6 how close the optic nerve may lie to the outer wall of the sphenoidal sinus. In some cases there is a dehiscence in the bony wall, so that the nerve sheath lies in contact with the mucosa of the sinus. In those cases where the posterior ethmoidal cells extend backward over

the sphenoidal sinus the optic nerve is in direct relation to the ethmoidal cell, as is seen in Figs. 7 and 8.

Intranasal inspection does not usually show any very striking changes in the acute closed empyemas. We usually find some edema and enlargement of the middle turbinated body with obstruction of the middle meatus. In the chronic open cases which become transformed into the acute closed cases by sudden closure of the ostium we usually find irregular hypertrophies together with polypi in the region of the middle meatus.

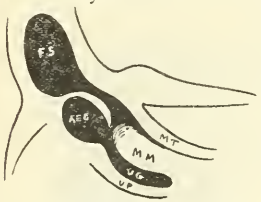

Fig. 12.—(Schematic after Sieur & Jacob.) FS. Frontal sinus opening into top of middle meatus. AEC. Anterior ethmoidal cell opening into unciform groove. UG. UP. Unciform process. MM. Middle meatus. MT. Stump of middle turbinate.

Transillumination gives us confirmatory evidence in disease of the frontal sinus and antrum, but tells nothing positive. The shadow varies with the size of the cavity and the thickness of the walls. Absence of the frontal sinus would give the same picture upon transillumination, as a badly diseased frontal sinus.

A much more valuable aid in diagnosis is the *x*-ray. Pus in an accessory sinus shows as a dis- which is a very valuable aid to us in our operative tinct shadow in the *x*-ray picture. In addition to showing the presence of disease the *x*-ray picture shows the size and outline of the sinuses, work. It is especially valuable to us in cases of frontal sinus disease. It shows whether the frontal sinus is present or absent, and how large it is; whether it is safe to enter the frontal sinus through its anterior wall, above the orbit, or whether the sinus is so small that it must be entered through its floor, in the roof of the orbit. It shows whether one sinus encroaches upon the other side of the forehead. It is very embarrassing for a surgeon, after he has passed a cannula into the frontal sinus and washed out pus, to make an opening through the forehead and find himself in a perfectly healthy sinus. Yet this is just what would happen in those cases where the septum is displaced very much to one side if we were not appraised of this fact by the *x*-ray picture. The *x*-ray picture also shows the presence of orbital recesses and frontal bullæ. Two pictures ought to be taken, one in full face, and the other in profile. In the former you can compare the diseased with the healthy side. This picture shows the lateral extent of the frontal sinus. The profile picture shows the depth of the frontal sinus, the presence of orbital recesses, the relations of the ethmoidal cells to the frontal sinus, and the presence of disease in the sphenoidal and ethmoidal cells.

Even this method does not always show the presence of pus. The only positive diagnostic method is the washing out of pus from the affected sinus. This is done either through the normal ostium or through the bony wall of the sinus. In the acute closed empyemas, it is usually impossible to introduce a cannula into the ostium of any of the sinuses, without removing the anterior end of the middle turbinated body. In order to get at the sphenoidal ostium it is usually necessary to remove the entire middle turbinate. Occasionally, we can succeed in entering the ostia without removing any turbinate tissue by shrinking down the mucous membrane of the middle meatus with cocaine and adrenalin.

As removal of the anterior end of the middle turbinate is usually a part of the treatment for disease of the accessory sinuses, I do not hesitate to resort to this procedure in order to reach the orifice of the sinus in all cases where there is a strong suspicion of empyema, when it is impossible to introduce a cannula otherwise. However, this procedure is unnecessary in the case of the antrum of Highmore as this cavity can easily be entered through the inferior meatus by means of a trocar.

The cases of chronic closed sinus disease are comparatively rare. In this class may be included the cases of so-called mucocele of the frontal sinus. This is not really a suppurative condition. As a result of obstruction in the nasofrontal duct there is an accumulation of mucous secretion in the frontal sinus which takes on a cystic character. There is a gradual thinning of the walls with dilatation of the cavity usually in the direction of the orbit, so that the eyeball is displaced downward and outward. Usually there are no other symptoms beside the deformity. There are usually no marked intranasal changes to be seen.

The open cases of empyema may be acute or chronic. In these cases we find pus in the nasal cavity, and it is very easy to make the diagnosis of empyema, but not always so easy to locate the affected cavity.

The acute cases of empyema are not often open at first. Later on, when drainage is reestablished, either naturally, by a shrinkage of the mucous membrane about the ostium, or through operative interference, they become transformed into the open type. The majority of the open cases are chronic. This class includes by far the largest number of cases that we are called upon to treat, as the acute cases often get well without ever having gone to see a doctor.

The principal symptom in the chronic open cases

Fig. 13.—Nasofrontal duct entirely surrounded by anterior ethmoidal cells. FS. Frontal sinus. AEC. Anterior ethmoidal cells. CUP. Cell in unciform process. UG. Unciform groove. FB. Frontal bulla, with probe R showing its ostium in middle meatus. A. Anterior ethmoidal cell into which frontal sinus opens. O. Probe passing through anterior ethmoidal cell to reach frontal sinus. M. Probe entering anterior ethmoidal cell. PEC. Posterior ethmoidal cell overlying sphenoidal sinus. SS. Sphenoidal sinus.

is a profuse, more or less offensive, nasal discharge. However, in cases of sphenoidal and posterior ethmoidal disease the discharge may pass into the throat through the choanæ instead of out through the anterior nares. On postnasal examination in these cases the pus can be seen trickling over the

tops of the posterior ends of the superior and middle turbinates. In many of the cases of ethmoidal disease, instead of there being a profuse discharge, the pus dries in the nose and accumulates in the form of dried crusts, which decompose and give rise to a very foul odor. This class of cases forms

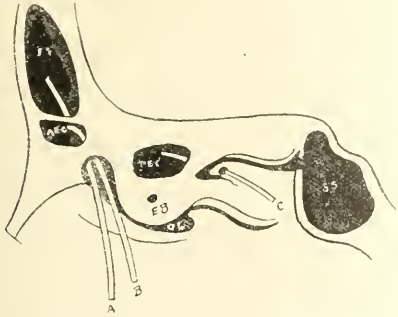

Fig. 14.—FS. Frontal sinus. AEC. Anterior ethmoidal cell lying to the inner side of nasofrontal duct. A. Probe entering frontal sinus. B. Probe entering anterior ethmoidal cell. UG. Unciform groove. EB. Enlarged ethmoidal bulla obstructing unciform groove. PEC. Ethmoidal cell situated in anterior part of ethmoid, but opening into superior meatus, as shown by probe C. SS. Sphenoidal sinus.

one of the types of ozæna. It is possible to have a foul odor in disease of any of the accessory sinuses.

Next to discharge the most common symptom is headache. The headache is usually periodic and may be located in any part of the head. The location of the headache is no guide as to which sinus is affected. The amount of headache is in inverse proportion to the freedom of drainage. The more free the discharge, the less headache. Many cases have no headache whatever.

J. McC., fifty years of age, came to see me about a year ago for an acute infection in his left middle ear. Incidentally, he remarked that he had had a nasal catarrh in the left side for about forty years and asked me whether I wouldn't look at it. He said he had never had a headache or pain in his life, and the only thing that bothered him was the profuse discharge. There was an almost continuous dropping from his left nostril. Examination showed the left naris full of pus and polypi. After removing the polypi and a very much degenerated middle turbinate I was able to wash out a large quantity of foul-smelling pus from the frontal and sphenoidal cavities.

In some of the cases there is a subjective sense of bad odor. Where the middle turbinate is considerably enlarged there is complete loss of the sense of smell. There are often gastric symptoms from swallowing the pus at night. Sometimes the gastric symptoms are the only symptoms present. In cases of gastric disease that do not yield to ordinary methods of treatment it is always advisable to make a nasal examination in order to exclude accessory sinus disease.

On intranasal examination we usually find the changes much more marked in the chronic open empyemas than in the closed acute cases. In addition to the presence of pus, which is usually white and creamy, we usually find a hypertrophy of the middle turbinate, with irregular hypertrophies in the middle meatus, especially about the lips of the unciform groove. In a large number of cases, we find nasal polypi springing from the middle meatus.

In cases of atrophic rhinitis where the atrophy is confined to the inferior turbinate and the middle turbinate is hypertrophied, especially if the condition is unilateral, we usually have to deal with a case of accessory sinus disease.

In making a diagnosis of the chronic open empyemas, we use the same methods as in the acute closed cases, with the additional information that the location of the pus in the nose gives us. In examining a case of open empyema we should first clean the nose of all contained pus, and then place a pledget of cotton soaked in 5 per cent. cocaine into the middle meatus for a few minutes. Upon removing the pledget we should try to determine whether the pus is trickling out of the middle meatus or out of the olfactory fissure; that is, to the outer or the inner side of the middle turbinate. If the pus is coming out of the middle meatus one or more of the sinuses of the first series are affected, *i.e.* antrum, frontal, or anterior ethmoidal cells, as these drain into the middle meatus. If the olfactory fissure is the source of the pus, then we are dealing with disease of one or both of the sinuses of the second series, *i.e.* posterior ethmoidal or sphenoidal sinuses. We should also make a postnasal examination to see if there is any pus trickling on to the roof of the nasopharynx from the choana. If this is found we are dealing with disease of the sphenoid or posterior ethmoid cells.

Now, it is not always possible to tell whether the pus is coming from the middle meatus or olfactory fissure, because we cannot always tell whether the body that we are looking at in the situation of the middle turbinate is really the middle turbinate. We may be dealing with an enlarged ethmoidal bulla, which has crowded the middle turbinate up out of sight, as in Fig. 9, or with an hypertrophy of the unciform process, as in Fig. 10. In either of these cases pus coming out of the middle meatus would appear to be coming from the olfactory fissure. Sometimes we see what appears to be a double middle turbinate, one portion lying external to the other. In such a case, both the middle turbinate and the ethmoidal bulla are enlarged and lying adjacent to each other (Fig. 11).

Fig. 15.—(Schematic after Hajek.) MM. Middle meatus. A. Antrum. O. Orbit. MT. Middle turbinate. IT. Inferior turbinate. W. Outer wall of middle meatus, fused with floor of orbit.

We can only be certain of what we have to deal with if we remove the mass. In order to explore the cells of the first series we need only remove the anterior end of the middle turbinate. To explore the cells of the second series we must remove the entire middle turbinate. This is done by means of the cold wire snare and biting forceps.

The orifice of the frontal sinus is situated at the upper end of the unciform groove, that of the antrum at the lower end of the groove, while the anterior ethmoidal cells open into the middle of the groove or just above it (Fig. 2). Therefore, our guide in exploring these sinuses is the unciform process which forms the lower boundary of the

unciform groove, and stands out as a distinct ledge on the outer nasal wall a short distance above the insertion of the inferior turbinate body.

In order to wash out the frontal sinus we take a cannula of about the size and caliber of a thin Eustachian catheter, and curve the end to an angle of about 145°. This is introduced through the anterior naris with the end directed upward. It is passed above the unciform process so that the end of the cannula lies in the unciform groove. The hand is then depressed and the end of the cannula allowed to slip upward and forward along the unciform groove until it is felt to slip through the orifice into the frontal sinus. This manœuvre is only rarely successful when the middle turbinate is intact. When the anterior end of the middle turbinate has been removed we can usually succeed in entering the sinus. But in about 25 per cent. of the cases we cannot succeed even then for various reasons. It sometimes happens that an anterior ethmoidal cell opens into the upper end of the unciform groove and the frontal sinus opens behind and above this into the anterior extremity of the roof of the middle meatus as is shown in Fig. 12. In such a case, the cannula would be in the anterior ethmoidal cell when we would imagine it to be in the frontal sinus.

Fig. 16.—(Schematic after Hajek.) S. Anterior and inferior walls of sphenoid with ostium in upper part. MT. Middle turbinate. IT. Inferior turbinate. PEC. Posterior ethmoidal cells. O. Orbit. A. Antrum.

Sometimes the upper end of the unciform groove is entirely surrounded by anterior ethmoidal cells which open into the groove from all sides (Figs. 13 and 14). It is very easy for the cannula to slip into any of these cells. Sometimes the frontal sinus opens into an anterior ethmoidal cell, which in turn opens into the unciform groove, so that, in order to enter the frontal sinus, the cannula would have to pass through the anterior ethmoidal cell. Very often the cannula breaks through the thin walls of one or more of the ethmoidal cells before it enters the frontal sinus. Therefore, the results of washing out the frontal sinus are of diagnostic value only where the findings are positive. Where the washings return clear we cannot be sure that we have been in the frontal sinus unless we take an *x*-ray picture with the cannula in situ.

In order to enter the antrum, the cannula is introduced above the lower end of the unciform process, and turned directly outward. This is not a very easy procedure. For practical purposes it is much simpler to enter the antrum through the bony nasoantral wall with a trocar. This is an absolutely painless procedure, if the wall is cocainized by applying a pledget of cotton soaked in 5 per cent. cocaine for several minutes. We can perforate either through the middle or inferior meatus. The middle meatus is the thinnest part of the wall, being membranous in some parts. This is theoretically the ideal site for the puncture, but there is an element of danger. Occasionally the outer wall of the middle meatus bows out and fuses with the floor of the orbit, so that a trocar passing through this wall would enter the orbit instead of the antrum (Fig. 15). My custom is always to puncture through the inferior meatus. If the end of the trocar is turned upward and outward under the inferior turbinate, so that it passes through the upper part of the outer wall of the inferior meatus, just below the insertion of the inferior turbinate, it will always encounter fairly thin bone, through which it can pass without any difficulty. The lower part of the nasoantral wall is usually fairly thick. If the needle were passed through the lower part of the outer wall of the inferior meatus, it would usually encounter considerable resistance. In some cases the floor of the antrum does not reach as low a level as the floor of the nasal fossa, so that the antrum could not be reached at all through the lower part of the meatus.

If both the frontal sinus and antrum are found to be healthy, in a case in which pus is coming from the middle meatus, the disease must be confined to the anterior ethmoidal cells. Often two or all three of the sinuses are affected together. If the pus comes from the olfactory fissure or through the choana on to the roof of the nasopharynx, the disease is located in the sphenoidal or posterior ethmoidal cells.

In order to wash out the sphenoidal sinus, it is usually necessary to remove the entire middle turbinated body, except in well-marked cases of atrophic rhinitis. When this is done the anterior and inferior walls of the sinus are plainly seen 2½ to 3 inches from the anterior naris, with the ostium in the upper part of the anterior wall near the septum (Fig. 16). If the sphenoidal sinus is diseased, we can usually see the pus trickling out of the ostium. The cavity can be washed out through a straight cannula, or a cannula with the end slightly bent downward. If the sphenoidal sinus is healthy then the disease is located in the posterior ethmoidal cells.

Suppurative disease must be differentiated from tumors and cysts of these cavities. Benign tumors of the accessory sinuses are rare. Malignant tumors are somewhat more common. The types of tumors most commonly found are sarcoma, carcinoma, and endothelioma. The antrum is most often involved. These cases are differentiated from the cases of suppurative disease by the deformity, displacement of the eye, and occlusion of the nares. If a trocar is introduced through the inferior meatus it meets a resisting body in the cavity of the antrum. Usually the washings return clear or blood-tinged, although it is not so very uncommon to have pus in an antrum which is the seat of a malignant tumor. The tumor may perforate through the nasoantral wall and project into the naris, where a piece may be removed and examined microscopically.

In a case presented by Dr. Voislawsky and the writer, at a meeting of the laryngological section of the New York Academy of Medicine, in November, 1909, the diagnosis presented numerous difficulties. This was a case of epithelioma of the antrum complicated by suppurative disease of the frontal and ethmoidal sinuses, with marked exophthalmos. The *x*-ray picture showed disease in all the sinuses on one side. Pus could be washed out of the frontal sinus with a cannula. The washings from the antrum were clear. The diagnosis was based on the absence of pus in an antrum which showed a decided shadow in the *x*-ray picture. The exophthalmos was no guide in this case, because it might just as well have been due to the disease in the frontal sinus, as to the condition in the antrum.

The most common form of cysts of the accessory cavities are the dentigerous cysts of the antrum of Highmore. These cysts, especially when they reach a large size, are often mistaken for empyema. The diagnosis is usually not made before operation. If the antrum is washed out through the normal ostium, the washings return clear, because the cyst is closed off from the cavity of the antrum.

My excuse for reading a paper of this sort before a general society, is that it gives me an opportunity of reminding you that accessory sinus disease is a very common condition, and many of these patients come to see the general practitioner, without suspecting that there is any nasal condition. Often they only complain of headache or gastric disturbance. Accessory sinus disease should always be thought of in cases of persistent headache. Every doctor can recognize the gross intranasal changes in these conditions, such as polypi and pus. In every case of headache from grippe one should determine if there is any tenderness over the frontal sinus or antrum. If this is followed out as a routine procedure, one will be surprised to find how many cases of acute sinusitis will be brought to light.

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DRAINAGE AND DRESSING OF WOUNDS IN MINOR SURGERY.*

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When I was honored with an invitation to address this Society and the suggestion was made that I speak on some surgical subject of interest to the general practitioner, I decided on drainage and dressing of wounds in minor surgery, that is of wounds as they come to the general practitioner in his everyday work, as a suitable topic that would be of interest. In these remarks I will not attempt to cover the entire subject, but merely to speak of certain features which appeal to me as worthy of discussion. My observation has been that the underlying principles are frequently overlooked, or possibly not understood, and, therefore, the methods used are not adapted to bring about the results desired. Judging from what I have seen in a long experience, it seems that there is an idea widely prevalent that the treatment of wounds is to pack them as full of gauze as possible. It looks as if a supposed unwritten rule, "When you see a wound, pack it full of gauze," were followed by a large proportion of practitioners. No sense of reason seems to be exhibited and physical and physiological principles are ignored or forgotten. In place of treating wounds by rule or routine, each case should be considered as to its own peculiarities and necessities, and treated accordingly.

To understand the subject and appreciate the reasons for the use of various measures, let us begin with the fundamental principles and consider in the first place, why is drainage needed? What reasons call for packing? And what are the objects of the application of dressings?

Nature's means of ridding the system of objectionable and injurious material is the production of a circumscribed inflammation and exudation of leucocytes with the formation of pus which, when confined, constitutes an abscess. Nature's further process of disposing of these exudates is by furnishing drainage through an opening produced by what is popularly called pointing and breaking of an abscess, or the surgeon's knife anticipates this outcome by furnishing an incision. This opening is the natural drainage channel and, unaided, serves its purpose just so efficiently as the natural conditions permit. But there are various reasons why the opening in itself may not prove sufficient and why artificial assistance may be advantageously employed. The main reasons are the tendency of the opening to close before suppuration has cleared the parts of infection and put them in condition to heal. This closure may be either by adhesion of the raw edges of the wound, or by contraction of the newly formed granulation tissue in wounds of longer standing. In most cases this tendency has to be combated through artificial drainage. Drainage, therefore, is assistance given in providing and retaining an unobstructed outlet for exudate that if not gotten rid of would stagnate or collect under tension.

Packing a wound or cavity is called for under certain conditions; a frequent instance is for control of hemorrhage after incision. Another instance is in the after treatment of certain wounds, after incision for fistula in ano, for instance, where it is necessary to keep the wound edges apart during granulation to prevent their union before thorough healing of the base of the wound. There are certain wounds that may require a packing, if it may be called such, for drainage purposes. An example would be suppurating cavities with comparatively large openings and with rigid walls, which do not allow the cavity to collapse, and are so situated that the accumulating exudate would gravitate into them and have no outlet except by running over. Bone cavities would act in this way, or chronic abscesses whose walls had become thickened and hard as the result of long-standing inflammation. These cavities may be filled loosely with gauze, which displaces the pus, and at the same time soaks it up and carries it into the dressings. When packing is used for the control of hemorrhage or for keeping the sides of the wound from coming in contact, as in the first two instances mentioned, its object is not drainage, and it may be, and in fact, should be, packed as tightly as needed. But in the last instance, when it is intended merely to fill up the space of a patulous cavity, it is important to remember that drainage is also an object and it must, therefore, be placed loosely enough to allow it to soak up and carry away the purulent discharge.

Dressings are applied to suppurative wounds with two main objects: Firstly, to protect the wound from external influences especially from new infection, and secondly, to provide means for the absorption and removal of the exudate from the wound.

Bearing these first principles in mind, we will return to the discussion of drainage. I have laid stress on the recognition of Nature's mode of securing drainage to make it evident that whatever artificial methods are used should be on the lines of assistance of Nature's efforts. This applies not only to this particular subject, for the whole science of medicine is based on the observation and study of the natural processes, and their adaptation or direction along certain lines constitutes the various methods of treatment. Whatever we do, therefore, must be based on Nature's methods because we can

*Read at a meeting of the Williamsburg Medical Society, April 11, 1910.

not change them; all we can do is to interfere with them to a certain extent and such interference may be for good or for harm, and, in instituting such, let us as least endeavor to avoid doing harm. There are many occasions where wounds would do better if not drained or packed at all. If the external wound is a comparatively large one and open, with no tendency to premature adhesion or to retention of discharges, there is no need for drainage, and unless there be some special reason to keep it open, as in cases already referred to, there is no need for packing. Where there are no reasons for drainage or for packing it is better not to use either, for under such conditions they retard healing, and act as foreign bodies, increasing inflammation and suppuration, besides causing needless pain in their application.

The material most generally used for drainage is gauze. This will drain under certain conditions and not under certain others, and on many occasions even when it does drain there are other means that would do it better. Where gauze is serviceable is in large open wounds where the extent of the cavity is not much greater than that of its external opening and where there is a free discharge. Here it will drain, or rather, it will not interfere with drainage, as the copious secretion will keep it moist and pervious and the opening is too large to crust over by drying of the secretions. But under these conditions artificial drainage is hardly necessary. The gauze here rather serves to fill a patulous cavity, and hold its walls asunder, which would be of advantage in the treatment of an infiltrated region shortly after incision and before the tissues have drained out sufficiently to permit the parts to heal. Or, as mentioned previously, the gauze might serve to fill up the space of an open cavity, and thus displace the pus that would otherwise gravitate into it.

But there are wounds that will not drain satisfactorily without assistance and where measures for the establishment of efficient drainage are necessary. This is especially the case where the suppurating cavity is large in proportion to its opening. If a strip of gauze is packed into such an opening what happens? The gauze makes a good beginning at drainage by soaking up an amount of the exudate and, by its capillarity, carrying it outside the wound to be absorbed by the dressings; but this exudate is a viscid liquid and does not follow fast enough to overcome the drying effects of the evaporation which takes place, and which takes off only the water and leaves the mesh of the gauze permeated with, and obstructed by, the solid residue. With its mesh obstructed, the gauze cannot drain any further, as its capillarity is destroyed. Besides this the gauze, especially in a fresh wound, has a way of adhering to the surrounding raw surface and, with the drying of the secretions in and about it, is transformed into a hard impermeable plug securely glued to the skin about the wound and firmly closing up the opening. This is the result and is just the opposite of that desired. In place of providing means of egress for the accumulating fluid it stops up the opening as securely as could possibly be done if the object sought were to seal it, almost as if it were corked up with a plug of gauze dipped in glue. I have seen this sort of dressing many times, a felon, for instance, with a homeopathic incision, and that plugged up literally, as described, and with a collection of pus backed up under tension behind the drain, causing severe pain. Small scalp wounds are also prone to act in this way when infected, the suppurative process spreading under the fascia in all directions from the wound which is sealed up with the bit of gauze which was intended to drain it. Lymphatic abscesses of the neck, axilla, or groin, with small openings, are other instances that frequently come to the surgeon with these conditions. In all of these cases there is no drainage and, consequently, no relief to the pain or other symptoms, and no stop to the spread of the suppurative process. The unfavorable results are especially pronounced if dry dressings are superimposed on this sort of drain; they are not so marked when wet dressings are used because the moisture of the dressing prevents the drying of the secretions on the gauze drain. Yet the character of the purulent discharge, containing, as it does, considerable particles in suspension, is such that the mesh of the gauze becomes clogged and its capillarity destroyed, and while under these conditions it is not as bad as when allowed to dry, it is not as satisfactory as a drain ought or could be. If water were the fluid to be drained gauze would be a satisfactory medium, but under conditions mentioned and for reasons stated it is not satisfactory when the material is a viscid mixture like pus.

When gauze does drain under these conditions it is not because of its capillarity, though that may contribute in inconsiderable amount towards the result. It drains in the same manner as the non-capillary material used for drainage to be spoken of presently, that is by permitting the discharges to exude between its circumference and the drainage tract surface. It cannot act this way in a fresh wound where the gauze becomes adherent to the wound surface; but in a wound or sinus arrived at that stage where its surface is covered with granulation tissue, the gauze does not adhere and it may, therefore, drain in the manner mentioned.

The essential need for drainage is an unobstructed outlet, for, in most wounds, what carries the fluids out is the internal pressure of the tissues, a *vis a tergo*, that forces them out. They are not drawn out by any applications, even by drains except in a comparatively insignificant amount when capillary drains are used. The favorable effects that any applications or drains may have are due to their establishing conditions more favorable to the exit of the fluids, actuated by the internal pressure of the tissues. Conveyance by a *vis a fronte* through capillarity of the drain would be of advantage if it could be secured, but practically except under conditions already referred to, this can not be attained.

Capillarity, upon which the claims of gauze as a drain are based, is, as we have seen, not an essential but is necessary when gauze is used, because this material fills the lumen of the outlet as a cork does the mouth of a bottle, and in fresh wounds adheres to the raw edges. Thus it affords no other outlet to the secretions than that through the capillary spaces of its mesh.

That tubes of rubber or glass drain better than gauze is not due, as popularly supposed, to their draining through their lumen. They do not drain so, at least in the majority of cases, though there may be a minority where the exudate is watery and where conditions favor tube drainage. The lumen in most cases becomes clogged with sloughs or necrotic tissue or the granulation tissue from the wound surface grows into it through its open end, or side openings if it have them, and completely

clogs it up, as observation of a tube *in situ* for any length of time will show.

The reason that tubes drain better than gauze is that they do not become adherent to the raw surfaces as gauze does, and, therefore, allow exit of fluids between their circumference and the wound edges. For the same reason, what is usually called a cigarette drain, that is, a core of gauze with rubber tissue wrapped about it, drains better than gauze would by itself, and has the advantage that it does not become adherent to the raw surfaces. This is of special importance in abdominal drainage, as bare gauze, besides the fact that it does not drain, becomes adherent to the serous surface of the viscera, and is liable to do considerable damage on its withdrawal. The irritation of its presence also sets up an inflammation which is likely to result in troublesome postoperative adhesions. The so-called cigarette drain also has the advantage over tubes of rubber or glass, that it is soft and flexible and not so liable to cause pressure necrosis of the tissues on which it lies for days and sometimes for weeks. In abdominal drainage, especially, is this important, as serious harm is often unnecessarily done by pressure of tubes on the delicate viscera.

In the combination of rubber tissue wrapped about a core of gauze, this so-called cigarette drain, the gauze plays an insignificant part, practically not to be considered, in the drainage process. The great bulk of the discharge finds its way out around the circumference of the drain, and the amount that soaks through the gauze is comparatively so small that it deserves no special consideration. That this is not generally appreciated is evident from the fact that many surgeons construct their cigarette drains with a tuft of gauze protruding from the inner end and with a series of openings cut in the tissue along its course, exposing the gauze for the purpose of giving it more opportunity to soak up and carry away the fluids. But as the gauze does not do this to any appreciable extent there is nothing gained by it, and there is the disadvantage, especially in intraperitoneal work, that the exposed gauze becomes adherent to the raw surfaces with the unfavorable possibilities previously mentioned.

The maintenance of an unobstructed outlet is necessary until the cavity below is in condition for healing to take place over it, and this outlet must be kept from closing by adhesion or pasting of the edges of the wound or by cicatricial contraction of the drainage tract. The means used to carry out these indications must at the same time not obstruct the free outflow of the secretions. Gauze, as we have seen, while it has its uses and advantages in certain cases, does not answer requirements in many others, especially where the drainage tract is long and narrow, or where the opening is small in comparison with the cavity to be drained. Under these circumstances something that will meet these indications must be found to replace it.

Where, as in the majority of instances, simply drainage and not packing is required, gutta percha tissue is the ideal material for the purpose. In a single thickness it is too frail for practical use, but it may be folded into a strip of a suitable number of layers, from four to twelve, according to requirements. The length of the strip should be taken with the grain of the tissue, along which it readily tears. If taken across the grain there is the possibility of the strip tearing transversely on introduction or removal, and the possible unobserved loss of a piece in the wound. In cases where a more bulky drain is desirable, or where it is necessary to maintain some distention of the sinus or superficial opening, the tissue may be wrapped around a core of gauze to give it body.

Guttapercha tissue serves to keep the wound open as any other drain does, but gives more assurance of satisfactory drainage because it does not adhere to the wound surfaces, and does not permit of the discharges drying on it about the outlet and so pasting up the opening. Besides that, it is not so irritating as gauze and its smooth surface permits it, on introduction or removal, to slide along on the raw and sensitive tissues with much more ease of application and with much less pain to the patient than gauze, which catches on the raw surfaces and has to be forced in or out.

The absorptive qualities of the outer dressing are very important in relation to the efficiency of the drain. The discharge, as it exudes from the wound, should be taken up by the dressings so that it does not collect at the opening and dam up the drain. Here again there is seldom any difficulty when the discharge is sufficient in amount to keep the dressings moist, but if the amount be scanty, the small quantity will permeate the gauze directly over the wound and dry in its meshes forming a hard, crusty shield impervious to the discharge that follows. To obviate this the absorptive properties of the gauze must be assured, not only by applying it moist, but by keeping it moist. A wet dressing that will stay wet not only assures absorption, but is comfortable and gratifying to the patient.

As to the choice of an antiseptic solution with which to moisten the dressing, a 1 to 4,000 bichloride is most satisfactory generally, but at times sets up a dermatitis; boric acid solution and liq. alumni acetatis are the mildest and least irritating, and there are very few cases that will not tolerate their continued use. As to carbolic acid, I want to be as emphatic as possible in warning against its use, no matter in how mild a solution, on fingers or toes. Too many have been sacrificed in this way, though generally this fault is found to lie with the patient who uses it on his own initiative or with the counter prescribing pharmacist; physicians' orders are responsible for a few and these few are just that number too many to the discredit of the profession.

One more word, and an important one, in regard to wet dressings, and that is that to be efficient they must not only be applied wet, but must be kept so. There are two ways of doing this. One is by applications of additional solution at intervals; the other by preventing evaporation from the dressing as applied, by covering it with some impervious material, usually guttapercha tissue. In making use of the repeated applications of additional solution, care must be taken, especially if the dressing be a bulky one, that sufficient solution be used to penetrate the dressing before it has a chance to evaporate from the outer layers. When used on the extremeties, an excellent method is to have the part, with the dressings undisturbed, inserted into a basin of solution; hand or foot baths may thus be made as often as necessary to keep the dressing wet. These baths are also grateful to the patient and have the additional advantage, in freely suppurating cases, that they wash away the excess of discharge and with it the odor and dirtiness of its accummulation from one dressing to the next. An objection to this variety of wet dressings is that they wet and soil anything with which they come in contact, and they are, therefore, inconvenient for patients at-

tending to their usual occupations. Even with bedridden patients the bed becomes soiled if not protected with a rubber sheet or some such device.

Envelopment of the dressing in guttapercha tissue permits of the outer bandage being dry, while the inner dressing may be as wet as desired; but to serve its purpose the tissue must be properly applied. There is a right way and a wrong way of using it. My observation has been that the wrong way is that generally used, which furnishes another instance of things done by rote or rule without regard to, or possibly without knowledge of, the purpose of the procedure. It seems to be the idea that if a piece of tissue is applied over a moist dressing, it fills the requirements irrespective of whether it is placed to properly cover in the dressing or not. In many instances it seems that not only is no thought given to the reasons for, or purpose of the application, but no lesson seems to be learned from the observation of its inefficiency which should hardly escape notice when a dressing that should be wet is found dried out under the rubber tissue and pasted to and clogging up the drainage openings. For the dressing to hold its moisture, it is essential that it be thoroughly covered in with the tissue, for if the smallest portion be left exposed, the outer dressings absorb the moisture through this defect, and evaporate it not only from the vicinity of the defect, but gradually soak it up from the entire dressing. The result is that, though it may take a little longer, the dressing dries just as surely as if no tissue were used. To preserve its moisture the dressing must not only be thoroughly covered, but the tissue should extend beyond it on all sides, so as to come in liberal contact with the bare skin all around.

The use of guttapercha tissue in the treatment of burns or other superficial excoriations is not new, but it is not sufficiently in use. Gauze applied directly to a burned surface sticks to it even if applied moist or with salve, and any motion of the part puts a strain on this attachment with consequent continuous irritation or pain. Worse than this is the change of dressings when the gauze has to be torn from its attachment to the sensitive surface causing not only severe pain but traumatism to the wound and often with free bleeding from the granulations. All this can be obviated by the application of guttapercha tissue directly to the wound surface. The same qualities that make the tissue so satisfactory as a drain apply here in making it not only a most efficient application for healing purposes, but the one that will afford the most comfort as well. Its smooth surface is not irritating to the sensitive wound and its flexibility allows it to adapt itself closely to the surface and act as a protection against outside irritation. To permit drainage of the wound discharges it should be applied in strips of one-quarter to one-half inch in width, laid parallel to one another, with minute spaces intervening, just sufficient for the discharges to ooze through. Over this a wet gauze dressing, to assure absorption of these discharges, should be applied and this in turn covered with a sheet of the tissue to preserve its moisture.

Salves or dusting powders may be used directly on the wound, under the tissue strips, if desired for their mental or supposed beneficial effects, but the wounds do just as well, and in most instances, better, without them.

In the daily pursuit of our professional work we accomplish many things that give us inward satisfaction that we have done well. In the majority of instances these accomplishments are such that only we ourselves can appreciate; the layman or patient can not share our satisfaction, for he is not in a position to understand our work. These agreeable experiences serve us in helping to neutralize the ill effects of the unpleasant incidents that must also come our way, and they make life and the practice of medicine more pleasant and agreeable. But these mental effects do not help us in a material way, and material results are necessary to get along. Appreciation of our work by the patient is necessary for material assistance, and when we can obtain that in addition to our own personal satisfaction we have accomplished a double purpose. Relief from pain is one of the things a patient will be most grateful for, and in the dressing of wounds there are many opportunities to afford this. A simple change in the manner of dressing will often accomplish it and it will be evident, even to the patient, that this was the means of relieving his pain. Substitute a slip of guttapercha tissue for a plug of gauze in the small opening of an abscess and apply a wet dressing over it in place of the dry one that probably had to be soaked loose before it could be removed from its fastenings about the wound, and you have accomplished something that the patient will appreciate and which, at the same time, may afford you the satisfaction of knowing that, besides the relief of pain, you have put that wound in a position to heal and probably have averted serious complications that often result from faulty or obstructed drainage.

1325 Madison Avenue.

FISTULA IN ANO: EXCISION AND SUTURE.

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It has always seemed rather unnatural to me to watch the long-drawnout process of healing following the usual method of operation for fistula-in-ano. The wound, which is made by the operator, is in the most unclean locality of the human anatomy, and no matter how sincere the patient may be in his efforts at following the instructions of his medical adviser, there is always the possibility, nay, probability, of infection and interference with quick healing. And that is one thing the patient, especially the business man, wants. Most of these cases occur in persons of sedentary habits or occupations. It was most of all this thought of getting these patients well in the shortest time that urged me on to try a procedure which has proved to be highly efficient, and most satisfactory to the patient.

The name fistula in ano has been used time out of mind to cover a multitude of sins. All sorts and kinds of openings within a short radius of the anus have been so called. "A rose by any other name may smell as sweet," but call a spade a spade. A true fistula in ano to my mind means a communication between the lower end of the bowel and the outer air by an auxiliary and unnatural opening. The anatomists describe a complete and incomplete form. The incomplete has either a blind internal or external extremity. The names easily explain the condition. The principal cause is probably an existing lax condition of the mucous membrane of the gut and often an existing anal or ischiorectal

abscess. It is the ischiorectal abscess that usually causes the incomplete form with a fistula opening externally.

In cases of blind internal fistula the sinus may be felt by digital exploration, and on insertion of a speculum can be seen and a probe inserted into it. Force the probe through the tissues externally and make a complete fistula of it. The same should be done with the blind external variety, so that in the end we shall always operate upon a case of complete fistula. Of course the blind external fistula may simply be a sinus resulting from an ischiorectal abscess. The introduction of the probe will verify the diagnosis and if found advisable on the part of the operator, may simply be curetted and drained.

If a fistula has been existant for some time and we split it open we find that scar tissue has formed and a well-defined channel has been built up. It appeared to me, therefore, that this tube was simply a means to an end and not the exciting medium. Results have confirmed this contention. The method is a simple one, and I am convinced that many have utilized it before me, but were too busy to publish it. I may add that we have given E. Beck's bismuth paste a thorough trial, but failed utterly with it.

The patient is admitted to the hospital on the day before operation and is well purged. He is allowed no solid food whatever, and his colon is thoroughly evacuated by enema one hour before operation. Anesthesia is usually by ethyl chloride, as the operation is a short one, and the patient later on is the better for it. A probe is inserted into the canal and pushed through until it can be felt by the finger in the rectum. A grooved director is now slipped in over the probe. I use it because it is a more powerful instrument and will not bend when traction is exerted with it. Running the tip of the scalpel along the groove the tissues are slit open with one sweep. Be sure to cut through the sphincter at right angles and it will reunite perfectly. Have the wound surfaces spread well apart and carefully remove all scar tissue in view with a sharp, blunt-pointed scissors. If in doubt rather cut away a little too much than not enough. Pay particular attention to the internal end of the wound. When all the offending tissue has been removed paint the whole surface over with tincture of iodine. I am firmly convinced that the highly antiseptic properties of the iodine are the dominating factor toward union by first intention. The scanty bleeding can easily be controlled by sponging.

Great care must be exercised in bringing the severed tissues together closely and accurately. For suturing material I use silk-worm gut and find it excellent for this purpose. The first suture is placed at the inner angle of the wound. The edges of the gut and sphincter are brought together with mouse-toothed forceps and a generous bite taken with the needle. A strong needle is imperative. Be sure you get enough tissue with your suture, as it will form a cushion when you exert pressure and will tend to keep the wound surfaces closely approximated. Sometimes it is necessary to make the suture for the sphincter an extra one, especially in those cases in which the fistula opens fairly high up in the gut. Leave the ends of the suture long, clamp it, and let them hang down out of your way. Sew up the rest of the wound in like manner, placing a stitch about every half inch and burying your needle deeply each time. Leave all the ends long, and when you have finished carry them all to one side and fasten them to the buttock with adhesive plaster. This will prevent irritation of the parts and add to the comfort of the patient. When the operation is completed a T binder is applied.

The patient is kept on his back and in bed, and his peristalsis held in check for at least four days by the administration of bismuth and opium. Only such nourishment is given as will leave the least amount of residue. When the patient begins to complain of cramps and colic his bowels are evacuated by means of an oil enema. He is usually allowed to go home at the end of the seventh day. At the end of ten days I remove all sutures excepting the innermost one, which should remain for two weeks to insure a perfect result.

Since the fall of 1908 I have operated upon 17 cases in this manner and have had only one in which the patient was not discharged as fully cured within two weeks. In that case I employed a curette instead of the scissors for removing the scar tissue and a stitch abscess formed at the outer angle of the wound.

37 East Sixty-first Street.

A PITH-BALL MANOMETER.

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The chief difficulty in taking blood pressure in the past has been in locating the point of minimum diastolic pressure. Determining which is the last of the oscillations of the mercury column is a decidedly unsatisfactory method. Ample evidence of this is furnished by the toleration offered bulky and complicated instruments like the Gibson and Erlanger, whose bulk is mainly for the purpose of simplifying this one point. Everyone recognizes that these instruments have an undisputed place in the laboratories because of their graphic features, but the practitioner who must carry them to the bedside and perhaps to six others where they are not needed before returning to his office refuses to be bothered with more weight than is convenient.

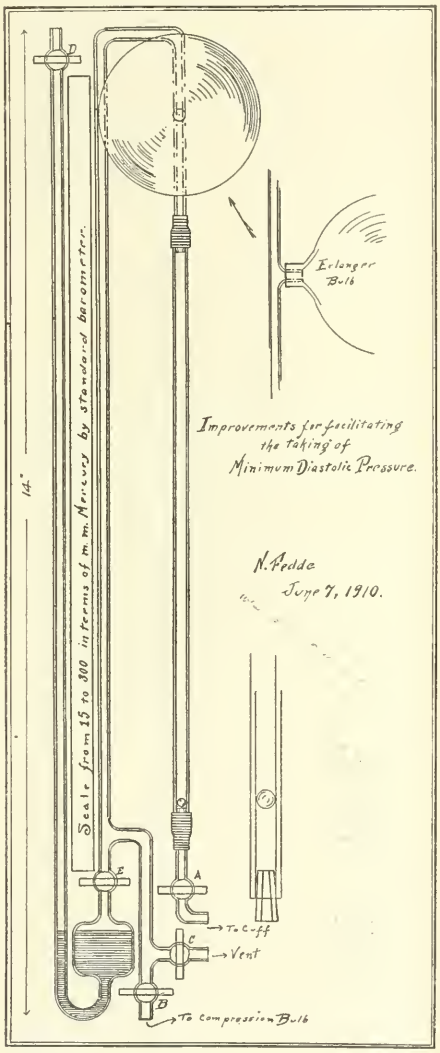
For these reasons I venture to place before the profession an idea that has been tried out by Dr. Sheldon and myself at the Cornell clinic, and found satisfactory. The instrument is portable, compact, and should, if properly made and boxed, not measure over 4 by 4 by 15 inches.

General Principle.—If with each pulse wave a fair volume of air be driven past a light freely moving object that object will move exactly as the mercury in the manometer, but with an exaggerated displacement. To accomplish this I let the air, which comes from the cuff, as a result of the increased pressure there, go past a pith-ball in a glass tube. The ball must be small enough to move readily, but not so small as to allow a too free passage of air. After passing the ball the air goes to an elastic rubber bulb, where it is compressed and the bulb itself expanded by each momentary increase in pressure caused by the pulse wave. In this way more air goes by the pith-ball than would be the case if the system were rigid and contained no more air than the tubing could hold.

Results.—The motion of the ball is, as near as the eye can tell, the exact duplicate of the tracing given by the Erlanger lever when a continuous record is taken during slow discharge of air. The excursions of the ball are larger or smaller than those of a well-balanced lever, depending entirely

on the weight of the ball and how well it fits the tube.

Technique.—Valves *A*, *B*, *D*, and *E* are opened and *C* is closed. (See Fig.) The compression bulb is worked until a point of pressure above the maximum systolic is reached (disappearance of pulse). Valve *B* is then closed and *C* turned so as to allow a steady, slow exhaust, the pressure falling about 1 mm per beat. Slight bounding movements of



the ball give warning when the pulse is about to return. These movements increase rapidly in magnitude, then remain about uniform until the minimum diastolic pressure is reached, when there is a marked diminution in the excursion.

The "Why" of Some of the Details Given in the Drawing.—The exhaust valve *C* is placed between the ball and the mercury so that every particle of air that leaves the cuff must pass the ball. The inlet tube is in the same place so that the pumping process may merely press the ball against the lower buffer rather than maul it against the upper. The two extremities of the manometer have stop-cocks *D* and *E* to prevent loss of mercury in transportation. This feature was seen on the Faught instrument. The tube containing the ball has a short piece of tubing of smaller caliber fused into each end to serve as a buffer. The lower buffer must be grooved so that the pith-ball cannot close the passage to cuff in ball-valve fashion. The mercury reservoir is introduced for two reasons. It brings the *T* for the inlet and vent near the operator's hand, and allows of greater space between each millimeter mark, thus facilitating reading, but requires that the tube be standardized. The tube containing the uith-ball is replaceable.

Summary.—The essential features of this instrument are compactness, portability, small expense of construction, and ease of reading combined with a reliable means of determining minimum diastolic pressure depending on large oscillations of a light pith-ball instead of minute oscillations of an inert column of mercury.

I wish, in conclusion, to express my appreciation of the encouragement and kindly criticism offered by Dr. Sheldon, Prof. Lusk, and Prof. Thompson.

Rectal Myomata.—F. Descoeudres describes a unique case of fibromyoma of the rectum. These growths are rare, only about 80 cases of intestinal fibromata being published, of which 16 involved the rectum. When internal they are polypi with pedicles of varying length. When external they develop upward into the abdomen, or downward and backward into the pelvis. The author's case developed backward under the skin of the region of the buttocks, and was so large that it hung down in walking and the patient sat upon it without any pain. It had a large fibrous pedicle attached to the upper wall of the rectum. These growths develop at the expense of the muscular coat of the intestine. They may be of congenital origin, a development of embryonic tissue, the immediate cause of the growth being irritation. They cause constipation, pressure symptoms, hemorrhage, and edema of the legs. The prognosis is bad aside from removal, since they endanger life by hemorrhage, obstruction of the bowels, or malignant degeneration.—*Revue de Gynécologie et de Chirurgie Abdominale.*

Some Considerations on the Treatment of Tuberculosis in Children.—P. Nobecourt says that fresh air, repose, and good hygiene are the important elements in the treatment of tuberculosis in children. Rest must be absolute whenever there is fever, emaciation, or joint tuberculosis. In others rest may be taken several times a day, interspersed with walks, but all violent exercise must be forbidden. As to fresh air, it cannot be attained in the city, but any climate may be suitable, it being advisable in many cases not to separate the child from its relatives, but to have a sort of home sanatorium in the country. Sea air is especially valuable in joint tuberculosis, in peritonitis, and in glandular cases. Early pulmonary cases, when the bronchial glands are involved, are especially suited to the seashore; in general afebrile cases do well there. The climatic treatment must go on for months in order to establish a cure. Cold sea baths are contraindicated under three years of age and in pulmonary cases. Warm baths may be given in all cases.—*Journal de Médecine de Paris.*

Chronic Ureteropyelitis in Pregnancy and the Puerperium.—O. T. Thomas says that (1) chronic infection of the urinary tract may, during gestation and the puerperium, by rapid proliferation of retained bacteria and the absorption of toxins, lead one to suspect infection of the parturient canal. (2) These infections may be of many years' duration, they may cause, from time to time, disturbances ascribed to the organs of generation. (3) Ordinary chemical and microscopical examination of the urine is not to be depended upon in these cases. (4) The diagnosis is easily made clinically, and readily confirmed by bacteriological examination of the urine.—*Cleveland Medical Journal.*

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RESPONSIBILITY OF ARMY MEDICAL OFFICERS FOR THE SANITATION AND HEALTH OF TROOPS.

MAJOR EDWARD L. MUNSON of the United States Army Medical Corps has dealt with the above question in the Seaman Prize Essay for 1909. The points discussed in the essay are, as to whether army medical officers should be held directly responsible, and the limits of such responsibility. Responsibility is defined by the writer as absolute responsibility.

In the first instance, Munson points out that the duties of a civil medical officer and those of an army medical officer differ somewhat widely. The civil medical officer is entrusted, to the best of his ability, with the safeguarding of the health of a community. His is no divided duty. On the other hand the duty of an army medical officer is divided. In time of peace, his services approach somewhat closely to those of his brother in civil life, except that he is always subject to the commands of his superior officers, and indeed his work is ever subordinated to the good of the army; his real object is economic, to maintain military efficiency, and any other consideration is secondary. Of course, in time of war, medical officers must acquiesce in the disregard for health laws by a commander if actual military necessity so demands. From a perusal of the army regulations it will be gathered that the activities of medical officers with troops in posts or in the field are in a sanitary way officially limited to the functions of investigation, report, and recommendation.

It would seem to be proven with sufficient clearness that a medical officer cannot be held responsible for the health and sanitation of the troops with which he is serving, but that such responsibility is reposed in the commanding officer. This, thinks Munson, is as it should be, and the fault lies not so much in the army sanitary system as in the individual neglect and inefficiency of the officers responsible for its application; and the remedy lies in the creation of a strong central authority keenly alive to the practical military importance of sanitary results—an authority which would at least as quickly cause the court-martial of a commanding officer for maladministration of sanitary affairs as for maladministration in respect of property matters or the nonmaintenance of discipline.

Although Munson is of the opinion that medical officers should not be held directly responsible for the sanitation and health of troops, he yet believes that they should have a measure of power and responsibility. He holds the view that, first, a class of line officers should be developed and educated fully appreciative of sanitation and its results; second, the medical officer should be endowed not with direct responsibility for sanitary results but with executive authority within certain limits delegated to him by the commanding officer for whom he acts as an official but subordinate agent in the management of sanitary affairs. It is pointed out that the importance of good sanitation in an army is freely recognized by officers and that the type of officer who regards sanitary investigation as meddlesome and sanitary recommendations as more or less insubordinate criticism of his administration is fast dying out. According to Munson, then, what is needed to render the work of the army medical officer more effective, in addition to the suggestions quoted above, is that commanding officers should interest themselves personally in matters of sanitary administration equally with other administrative affairs, and that they should consider the surgeon primarily in the light of his military status as a staff officer, whose special technical knowledge, like that of the quartermaster, engineer, or commissary, should largely be drawn upon and used from time to time.

Undoubtedly the main *raison d'être* of the army medical officer is not that of a practising physician or surgeon, but is that of a preventor of disease. By neglect of proper sanitary precautions armies have been decimated by preventable disease. If the Japanese and German army authorities can prevent disease from gaining a foothold among the troops why cannot the American and British army authorities? The truth is that a more intelligent system is in vogue in the Japanese and German armies, and what is more to the point this system is rigidly carried out. Cooperation between the line officers and the medical officers as suggested by Munson would be a long step in the right direction, but unless the necessary sanitary measures are enforced by strict discipline these would be of limited effect.

THE RELATIONSHIP BETWEEN THE THYROID AND THE PARATHYROIDS.

THE importance of the parathyroids is now generally recognized, not only by physiologists and pathologists, but by surgeons. This recognition is, however, of comparatively recent date, as the parathyroid glandules were rediscovered by Gley only in 1893.

In *Surgery, Gynecology and Obstetrics* for May, 1910, Jasper Halpenny writes on the relationship between the thyroid and parathyroids and reviews recent literature on the subject. Escherich says that tetanoid conditions in children receive their explanation from a study of the pathology of the parathyroid glandules, and Berkeley and others claim therapeutic benefit from the administration of an extract of the glandules in cases of paralysis agitans. The operation for goiter is now being carried on

with a view to avoiding injury to the parathyroid glandules. F. Shepherd of Montreal in the discussion which took place on exopthalmic goiter at the recent meeting of the Canadian Medical Association laid stress on the fact that in operating in cases of Graves' disease his object was to interfere with the parathyroids as little as possible. The trend of present day surgeons, indeed, is to regard the ablation of the whole thyroid as a safe procedure, but to leave the parathyroid glandules intact. Halpenny undertook a series of experiments with the object of confirming, or otherwise, the statements of recent authors as to the functional importance of the parathyroids and their physiological relations to the thyroid gland. The views at present held are that parathyroidectomy is invariably and rapidly fatal, while thyroparathyroidectomy is less rapidly fatal than is ablation of the parathyroid glandules alone.

Thyroidectomy alone, in probably all vertebrates, according to Jeandelize, is followed by a series of chronic nutritional changes, and it is held that, though these two organs are functionally associated with one another, neither one can assume the functions of the other, the parathyroid glandule being regarded as having a more vital function than the thyroid gland. Halpenny is unable to confirm some of the statements regarding the relative importance of the two organs and he considers that many of the practical conclusions drawn therefrom seem premature and unwarranted.

In his service, 12 cats, 25 dogs, and 25 rabbits were operated on. In the first instance, he found that it was extremely difficult, frequently impossible, to perform parathyroidectomy without severe injury to the thyroid gland, and in doing a thyroidectomy the parathyroids were almost invariably injured. Furthermore, Halpenny was unable to confirm the statement that complete parathyroidectomy invariably proves fatal. Again, the generally accepted statement that parathyroidectomy alone is a more rapidly fatal operation than thyroparathyroidectomy does not coincide with Halpenny's results. As to the anatomical and physiological independence of the thyroid and parathyroids which is now the current belief, Halpenny points out that these views have been recently subjected to criticism and the old belief is gaining ground, that there is a definite physiological relationship between the two. The results of Halpenny's series of experiments appear to indicate that, in some instances, each gland is able to assume the functions of the other to a greater or lesser extent. The writer concludes that though the parathyroids are not rudimentary thyroids, the whole apparatus is essentially one, and its functions have to do with metabolism.

THE ESTABLISHMENT AND MANAGEMENT OF PUBLIC HOSPITALS.

Because of the very great and rapidly increasing cost of caring for the sick in their homes, due to increased expenditures for nursing and necessary medical attendance, as well as the increasing difficulty in securing sanitary conditions, proper diet, care, and facilities for operation and postoperative care in individual homes, the care of the sick is becoming increasingly a hospital problem. This tendency is further augmented by the fact that people tend more and more to dwell in cities and villages, in quarters so crowded that proper care of sick persons is quite impossible. It is also found increasingly necessary to move many cases from homes to hospitals for the conservation of the health of those remaining at home. It is, therefore, becoming more and more apparent to those who are interested in the problems of public health that hospital facilities for the care of the sick poor must be greatly increased.

In order to meet this necessity a bill was passed at the recent session of the New York Legislature and signed by Governor Hughes on June 21. The bill was entitled "An act to amend the general municipal law in relation to the establishment and maintenance of public general hospitals for the care of the sick." It was prepared by the Standing Committee on Hospitals of the State Charities Aid Association, after an examination of existing legislation of this and other States, relative to the establishment of public hospitals and after a careful study on the part of the committee of the problem of hospital control and management. The purpose of the law is twofold: (1) To facilitate the establishment of public general hospitals by the cities, villages, and towns of the State; (2) To provide a well thought out plan of control and management of such hospitals, and to secure some uniformity of method where no system exists at present. The committee found that the charters of most cities and villages and the general laws relating to them are such that it has been necessary, whenever a city or village desired to establish a public general hospital, for it first to secure a special act from the legislature giving it the authority to do so. This in some instances has resulted in vexatious delays and tends to discourage the development of such hospitals. It is evident, however, that, when it becomes necessary for a city or village to pay considerable sums for maintaining poor patients in hospitals, it is ultimately the best policy for that city or village to establish a hospital of its own, where the expenditure of these funds will be entirely under public control and the hospital under public management.

It was to remedy this defect in the general hospital law and to make it comparatively easy for the small towns to establish and maintain a hospital adequate to its needs that the committee undertook a study of the question and a drafting of the bill, which has just become a law. The bill seems to have been very carefully drawn after a profound study of the question, and it contains promise of a marked betterment of the conditions hitherto existing.

The Treatment of Hemophilia Neonatorum.

Until within the past two years the disease of the newborn known as hemophilia neonatorum, and characterized by general diffuse hemorrhage during the first few days of life, has been an almost universally fatal condition. The bleeding being rapid and due to some chemical change in the

blood which prevented clotting, efforts were made to control the hemorrhages by the administration of calcium, gelatine, and other general hemostatics, but with very slight effect. The injection of saline solution, while temporarily refilling the depleted circulation, in no way stopped the course of the disease, and inoculation with large amounts of animal blood or serum was found to produce a disastrous hemolytic action, causing more damage then benefit. The first real advance was made two years ago, when Carrel, through a delicate technique developed by animal experimentation at the Rockefeller Institute, saved the life of a moribund infant five days old by anastomosing the child's popliteal vein and its father's radial artery, and then transfusing human blood into the exsanguine infant. The new blood not only replaced that which had been lost but so changed the quality of the infant's blood that no further hemorrhage occurred. This operation has been performed a number of times since then by various operators, often with excellent results. It has, however, two serious drawbacks, the difficulty in obtaining a suitable and willing donor, and the extremely delicate technical skill required to operate on the small blood-vessels of the new-born infant. In the *American Journal for the Medical Sciences* for June, 1910, J. E. Welch reports the results of a procedure which in many ways eliminates these drawbacks. Instead of transfusing blood directly into the infant he has drawn off the blood from the donor into a sterile flask, allowed it to clot, and then injected subcutaneously the separated serum in doses of 10 c.c. at a time, the injection being repeated in severe cases as often as every two hours. His results have been all that could be desired. Whereas of eighteen cases of hemophilia neonatorum treated in the New York Lying-in Hospital before this treatment was undertaken seventeen died, the eight children treated with human blood serum have all made rapid recoveries. The reason why the serum should so quickly stop the hemorrhagic tendency he does not attempt to explain, but the fact that he has obtained a cure in eight successive cases of a disease usually considered hopeless is sufficient to encourage others to repeat the method.

The Trachoma Bodies and the Gonococcus.

The discovery comparatively recently of the small granular bodies within epithelial cells in the eye secretions in acute cases of trachoma, variously called trachoma bodies, chlamydozoa, and cell inclusions, and their artificial inoculation into the conjunctivæ of monkeys, have given a great stimulus to the study of this highly infectious disease of the eye. One of the first results of this impetus was the finding of similar bodies in the eyes in supposedly nonspecific blennorrhea neonatorum. This was quickly followed by their isolation from the vagina of the mothers of such infants, and from the urethral secretions of men suffering from non-gonorrheal urethritis. The proof seemed almost conclusive, therefore, that all of these conditions were most closely related, and taken together comprised a new infectious venereal disease. In the *Deutsche medizinische Wochenschrift* for June 9, 1910, Herzog throws doubt upon this venereal disease being a new discovery at all, and he states definitely that the so-called trachoma bodies are but involution forms of the gonococcus. For this belief he gives several reasons. He has produced morphologically identical bodies by prolonged cultivation of a pure culture of the gonococcus. He has found typical trachoma bodies in the eye secretions of undoubted cases of gonococcus blennorrhea making their appearance during the subsidence of the acute stage of the disease. In fresh cases of trachoma he has found intracellular organisms which appear to be transition forms morphologically lying somewhere between the typical gonococcus and the trachoma body. Finally he has tried the experiment of inoculating a pure culture of the gonococcus, isolated from a twelve-day-old gonorrheal urethritis, into the conjunctiva of a blind glaucomatous eye of a man. Fourteen days after the inoculation typical trachoma bodies were isolated from the secretions of the patient's conjunctiva. The relationship between gonorrhea and trachoma has been suggested by various authors for many years, but no satisfactory proof of the unity of the two diseases has as yet been produced. The work of Herzog does not settle the question beyond controversy, but it offers a valuable suggestion for future research.

News of the Week.

Rupture of Reciprocity Between New York and New Jersey.—The following letter has been sent by Dr. H. G. Morton, Secretary of the New Jersey Board of Medical Examiners, to Mr. Augustus S. Downing, First Assistant Commissioner of Education of New York State: Dear Sir—Your communication of June 23, in reply to mine of the 22d ult., in reference to the annulment of the reciprocal relations in medicine between the States of New Jersey and New York, has been duly considered. In reply I am directed to advise you that this Board feels that the Board of Regents of New York, in rescinding the reciprocity agreement between these States acted without sufficient consideration of the subject, or due regard for the interests of the medical profession. This reciprocity agreement was reached after long and thorough investigation of the medical statutes of both States on October 25, 1906, and went into effect January 1, 1907. The medical statutes of New Jersey have not been changed in any respect since that time; nor have the standards of examinations been lowered. This agreement has worked satisfactorily in the past, is highly prized by the medical profession of both States, and promotes the interests of the public and of the profession. This Board, therefore, requests that the annulment be reconsidered and the reciprocity agreement renewed. Knowing that the Medical Societies of the State of New Jersey are opposed to indorsing the license of any State which refuses to indorse the license of New Jersey, the State Board of Medical Examiners of New Jersey this day passed the following resolution: Resolved, That on and after November 2, 1910, further indorsement of the certificates of medical license issued by the State of New York would be discontinued, unless the agreement of reciprocity between the States of New York and New Jersey is renewed in the interim.

Hoffman Island Hospital.—The new hospital on Hoffman Island in lower New York Bay, which the State is just completing for the accommodation of cases of contagious disease coming into the port of New York, was opened for inspection on July 3. To provide sufficient area, Hoffman Island has been

enlarged, by pumping up sand from the channel and filling it in behind retaining walls, to nearly three times its original size. Hospital buildings and pavilions to accommodate 250 patients will soon be ready for occupancy. Provision has also been made for the relatives and friends of patients, and the grounds have been improved with grass, trees, and shrubs. Fresh water is obtained by means of an artesian well, 2,500 feet in depth, with a capacity of 45,000 gallons per day. One of the most interesting features in connection with the new hospital will be the school for instruction in communicable diseases. It is planned to assign two health officers from different parts of the State to the hospital every four days for the study of contagious diseases, and the latest and best methods of treatment. A permanent group of State officers will be maintained to carry on the work of instruction, and a training school for nurses will also be maintained. The hospital is intended only for the milder contagious diseases, and the rare cases of plague, smallpox, yellow fever, etc., which come into the port will, as heretofore, be sent to Swinburne Island.

Fire in a Hospital.—Two fires occurring on successive days recently in the Kings County Hospital, Brooklyn, N. Y., are now under investigation by the Fire Marshall, suspicions of incendiarism having arisen. The first fire, on the night of July 4, was traced to several old mattresses in the basement of Annex I, used as a dormitory for the orderlies of the hospital, and was extinguished with but little difficulty. The second, however, which apparently originated in the same place, damaged the building to the amount of $2,000, and excited the 1,500 patients of the institution, besides causing almost a panic in the Long Island State Hospital for the Insane, situated across the street. The patients in the tuberculosis pavilion, only about fifty feet from the burned annex (were ordered to dress and be prepared to leave, but the fire was fortunately got under control and confined to the building in which it started.

Municipal Bath.—Plans for the new municipal bathhouse at Coney Island were filed recently. A three-story building is to be provided for, having a frontage of 65 and a depth of 400 feet. Locker accommodations for 5,563 men and dressing-rooms for 1,293 women will be provided.

Bacteria in Croton Water.—Dr. Ernst Lederle, Commissioner of Health of New York, is reported to have called attention, recently, to the extraordinary precautions necessary to safeguard the Croton watershed. Following heavy rains recently there occurred a large increase in the number of bacteria in Hunter's brook, which supplies Croton Lake. Although all of this watershed is not owned by the city it has been thoroughly inspected and generally cleaned up; imperfect sanitary arrangements in the laborers' camps have been corrected, and safe methods of disposing of refuse provided; and the city water is said to be again perfectly safe, containing only a normal number of bacteria.

Frozen Eggs.—The confiscation of 25,000 pounds of frozen egg products, said to be the largest seizure ever made by the Government, took place in Brooklyn, New York, on July 7, by order of the Department of Agriculture. Examination of samples of the eggs made by the chemists of the department resulted in the estimation that each gram of the egg product contained 30,000,000 organisms, some gas-producing, and some of the streptococcus group. The desiccated eggs were forwarded by a packing house in Chicago. Permissive to destroy the product according to law has been granted, and unless a legal fight is made the seized eggs will be disposed of by the Health Department.

Five Generations.—Ignatius Neggersmith of the Bronx, New York, who died recently at the age of 101 years, left descendants to the fifth generation, five children, 37 grand children, 27 great-grand children, and four great-great-grand children surviving him.

Miss Mary E. Samuels, supervisor of nurses at the Roosevelt Hospital, New York, has recently resigned her position after many years of service, and, it is understood, will retire from active work. Miss E. B. Ross has been appointed to fill her place.

Summer School.—The College of Physicians and Surgeons, Columbia University, New York, opened its summer session on July 6. Courses are given in bacteriology, clinical pathology, physiological chemistry, and physical and medical diagnosis. The session will close on August 17.

Hospital Attendant Punished.—Convicted of cruel and inhuman treatment of a patient in the Government Hospital for the Insane in Washington, D. C., an attendant at the hospital, has been sentenced to serve six months' imprisonment, without the option of a fine.

Nurses Graduate.—At the Nassau Hospital, Mineola, N. Y., commencement exercises were held on July 6, ten nurses receiving diplomas on the completion of their training.

Marriages in New York.—Statistics of the Department of Health recently given out show that during the first six months of 1910, 22,035 marriages took place, an increase of more than 2,000 over the same months of last year.

Market Licenses.—In an effort to improve the sanitary conditions of Washington Market, New York, the Comptroller has revoked some sixty-three licenses for stands. He promises to clear the sidewalks of all encumbrances, thus permitting both order and cleanliness. The merchants will be restricted entirely to the stands.

Graduating Exercises.—Twenty students of the Maine Medical School, Bowdoin College, Vermont, received their medical degrees recently. One student from Cuba and another from Stockholm, Sweden, were included among the number.

Medical Alumni.—The following officers of the University of Vermont Medical Alumni were elected at a meeting on June 28. *President,* Dr. W. N. Bryant, '73, Ludlow, Vermont; *Vice-President,* Dr. James M. Fay, '75, Northampton, Mass.; *Secretary and Treasurer,* Dr. F. K. Jackson, '99, Burlington, Vermont.

Dr. A. F. King of Burlington, Vt., was the guest of honor at a dinner given recently by his colleagues to celebrate his completion of 40 years of service as professor of obstetrics and gynecology in the University of Vermont College of Medicine. About forty physicians were present.

Prof. Sir William Crookes of London, England, the well-known chemist and authority on sanitation, has received the Order of Merit from King George V. Thomas Hardy, the novelist, was also gazetted a member of the order at the same time.

Dr. Charles M. Rosser of Dallas, Tex., spoke at a meeting of the Taylor County (Texas) Medical

Society on June 27, on Cancer of the Uterus. On the same night a dinner, at which covers were laid for thirty, was given in honor of Dr. Rosser at the Hotel Grace, in Abilene.

Dr. William Stockwell has been appointed resident physician and medical superintendent of the State Tuberculosis Hospital, opened on July 1, at Shelton, Conn. Dr. Stockwell was graduated from the medical department of the University of Pennsylvania in 1904.

Charitable Bequests.—By a decision of the Supreme Court of Pennsylvania the validity of the will of the late Anna T. Jeanes is sustained, and the following bequests became operative: The Incorporated Trustees of the Philadelphia Yearly Meeting of Friends for the establishment and assistance of hospitals and infirmaries, $250,000; the Joint Committee of the Quarterly Meeting House for Aged and Infirm Friends, for the establishment of a hospital for cancerous and nervous ailments, $200,000; the Women's Hospital, $64,000; the West Philadelphia Hospital for Women, $10,000; the Hahnemann Hospital, $10,000; the Philadelphia Home for Incurables, $10,000; the Women's Homeopathic Hospital, $10,000; the Pennsylvania Hospital, $10,000; the Red Bank Sanitarium, $5,000.

By the will of Mrs. Margaret M. Coakley of New York, St. Joseph's Hospital for Consumptives and the Cancer Hospital at Hawthorne each receive $500. St. Luke's Hospital, New York, receives a bequest of $7,500 under the will of the late Mrs. Mary E. Leavitt of that city, who died on June 20. By the will of the late Erskine M. Phelps, the Hahnemann Hospital, of Chicago, receives $25,000, while another $75,000 is left for the benefit of the nurses of the institution.

Berkshire District (Mass.) Medical Society.—A meeting of this society was held in Pittsfield, Mass., on June 30, when a paper was read by Dr. C. H. Bangs of Boston, secretary of the American Health League. A joint meeting of the Berkshire District and the North Berkshire medical associations will be held on August 25.

The Lake Keuka Medical and Surgical Association will hold its eleventh annual meeting at Grove Springs, Lake Keuka, New York, on Thursday and Friday, July 21 and 22, 1910, under the presidency of Dr. Robert M. Elliott of Willard, N. Y.

The Associated Physicians of Long Island held a meeting and clambake at Smithtown, Long Island, on June 25. The guest of honor was Dr. Harvey, who spoke on "Preventive Medicine from a Chemical Standpoint." The president of the association, Dr. James R. French, also spoke, his subject being "The Relation of the Medical Profession to the Public." The next meeting of the association will be held in Oyster Bay in October.

Reduction of Infant Mortality.—Dr. Joseph S. Neff, Director of Public Health and Charities, of Philadelphia, has appointed one supervising nurse and eight assistant nurses, whose duty it shall be to visit mothers in their homes and aid them in the care of their infant children during the summer.

Smallpox in Walden.—Two cases of smallpox have been reported in Walden, New York. The first patient, the health officer of the town, is thought to have contracted the disease while on a visit to the Immigration Bureau in New York.

Cholera in Russia.—The training ship *Newport* of New York has altered its itinerary on account of the presence of cholera in Russia and will not stop at Kronstadt as originally planned. Two fatal cases of the disease have also been reported from Berlin.

The Healthy Philippines.—The Bureau of Insular Affairs reports that the death rate among the more than 8,000 Government employees in the islands for the quarter ended March 31 was 6.9 per 1,000 per year. Of these employees some 3,700 are Americans, including the officials and employees of the insular, provincial, and municipal governments, and the police and fire departments of Manila.

Obituary Notes.—Dr. Asahel Norton Brockway of New York died on July 4 at Clinton, N. Y., where he had gone to attend the commencement exercises at Hamilton College, from which he was graduated in 1857. Dr. Brockway received his medical degree from the College of Physicians and Surgeons, New York, in 1861, and after an interneship at Bellevue Hospital, served as assistant surgeon in the United States Army until the close of the war. He was 74 years old.

Dr. Frederick A. Lyons of New York died at his home on July 5. Dr. Lyons was born in Toronto, Canada, in 1854, and was graduated from the College of Physicians and Surgeons, New York, in 1876. He was at various times connected with Bellevue Hospital, the New York Foundling Hospital, and the New York Throat and Nose Hospital, and was a surgeon of the Fire Department from 1885 until his death. He was a member of the New York County Medical Society, the New York Medico-Surgical Society, and the American Academy of Medicine, and was for several years editor of the *Hospital Gazette*.

Dr. Clement Bloch of New York died at his home on July 3, aged 47 years. Dr. Bloch received his medical education at the University of Koenigsberg, Germany, from which he was graduated in 1890. He was a member of the German Medical Society.

Dr. R. J. Walker of Toledo, Ohio, died suddenly on July 7, aged 48 years. Dr. Walker was graduated from the Columbus Medical College, Columbus, Ohio, in 1885, and was a member of the County and State Societies.

Dr. Frank L. Wood died at his home in Long Beach, Cal., on June 28, aged 36 years. Dr. Wood was graduated from the Harvard Medical School in 1874, and was a member of the County and State Societies.

Dr. Willis S. Anderson of Detroit, Mich., was drowned on June 27. Dr. Anderson was born in 1868, was graduated from the College of Physicians and Surgeons, New York, in 1891, and was a member of the American Medical Association and of the State and County Societies.

Dr. Robert Emmet Burke of Louisville, Ky., died at his home on June 28, aged 26 years. Dr. Burke received his degree from the Medical Department of the University of Louisville, from which he was graduated in 1905.

Dr. John Winthrop Spooner of Hingham, Mass., died at his home on June 26, of cerebral hemorrhage. Dr. Spooner was born in 1845, and was graduated from Harvard University in 1867, and from the Harvard Medical School in 1871. He was a member of the American Medical Association, and of the County and State Societies, and was at one time president of the Medico-Legal Society.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

BIRTHDAY HONORS—SYNTHETIC HYPNOTICS—MALARIA—HEALTH OF INDIA—DENTISTRY FOR SCHOOLS—AMBULANCE WORK—SIR A. KEOGH AT ST. THOMAS'S HOSPITAL—OXFORD'S ELECTRIC LABORATORY—MEDICAL MISSIONS—OBITUARY.

London, June 24, 1910

This being the day set apart for the celebration of the late King's birthday, a long list of honors and promotions conferred on the occasion is issued this morning. Seven peerages, twelve baronetcies, and a great number of knighthoods and promotions in the various orders mark the occasion, and the medical profession is not overlooked. Sir Walter B. Foster is made a Baron of the United Kingdom, and so we have another medical lord. It is true the ex-professor of medicine deserted the profession for politics, in which he obtained ministerial rank, and his present promotion is the reward of placing his seat in parliament at the disposal of a defeated minister at the last election. But his medical record is good, and he has always evinced an interest in the welfare of his profession.

A baronetcy is conferred on Dr. F. H.. Champneys, obstetric physician to St. Bartholomew's Hospital, and chairman of the Midwives Board. Among the new Knights are Dr. A. H. Downes, senior medical inspector for the local government board; John Fagan, F.R.C.S.I., Consulting Surgeon Royal Belford Hospital; John Lentaigne, President of the Royal College of Surgeons in Ireland; Dr. Caldwell McVail, Crown Member of the General Medical Council and of Glasgow University Court; Dr. B. M. Simon, of the Birmingham General Hospital; Dr. H. S. Lunn and Dr. George Hastings of London.

Among Indian orders, Surgeon-General C. P. Lukis, M.D., receives C.S.I. Inspector-General R.. Macrae gets a C.I.E. Surgeon-Lieutenant-Colonel Crooke-Lawless, Surgeon to the Viceroy, is promoted to the knighthood in the same order, of which he was companion.

Besides all these there are numerous steps in rank in the orders of the Balk, St. Michael and St. George, the Victorian and Indian service. Among them are the names of Inspector-General Porter, Surgeon-General Sloggett, Surgeon-General O. E. P. Lloyd, V.C.., Dr. Hodges, P.M.O., Uganda.

The medical department in the territorial force is also recognized in the appointments of Col. Andrew Clark, F.R.C.S., as Honorary Surgeon, and Col. Blandford, Honorary Physician to H. M. the King.

Among the synthetic remedies that have come so extensively into use, the hypnotics are of special interest. Meyer has just forwarded the hypothesis that chemicals soluble in fats or fat-like bodies have a narcotic effect on living protoplasm. Then the most powerful hypnotic would be that having the greatest coefficient of fat solubility. To the practitioner questions of this kind possess a certain interest, but the majority are probably more inclined to compare the effects of the several hypnotics as inducers of sleep. This was the course of a discussion at the Edinburgh Medical Society on the 1st inst., which Dr. Boyd opened. He regarded amyline hydrate and chloralamide as the best mild hypnotics. The former in doses of ½ to 1 dram was not depressant and he had seen no bad effects from it in cardiac cases. The latter acted well, but sometimes there was a latent period before the action began. It should be given dissolved in alcohol, or better still in sp. etheris. nitr. Of stronger hypnotics the safest was paraldehyde, but its taste was a great objection; it was best given in an enema, well diluted, in doses of 2 to 4 drams, which produced sleep in about 15 minutes. It was not suitable for alcoholic subjects. Sulphonal was toxic and cumulative, and he would exclude it from use. Bromural suited emotional patients. As to still stronger drugs, he said, chloral was now generally disused. Veronal was popular but dangerous; in large doses fever, vertigo, etc., were apt to occur. Prolonged use might bring on peripheral neuritis or ataxia. Other dangerous drugs were isopral, chloralose, sulphonal, tetronal and chloral-urethane.

A combination was usually better than a single hypnotic, and when used for a length of time a frequent variation tended to minimize the danger of habit. Another important truth was always to give hypnotics in solution. It was desirable that further restrictions should be placed on the sale of these drugs which was now carried on to a dangerous extent, as many deaths had in consequence occurred.

Dr. Clouston endorsed the value of combination. It was important to consider whether an immediate or a gradual effect was desired. A small dose of sulphonal at 9 p. m. and one of veronal at 10 p. m. was better than a large dose of either. Bromide was a good adjuvant to hypnotics and sedatives; 20 grains added to a dose of paraldehyde gave sleep at once and a quiet state the next day. He disagreed with Dr. Boyd as to sulphonal, of which he found 10 grains with 20 of bromide most valuable in senile excitement bordering on insanity.

Dr. Robertson of Morningside agreed as to combining the drugs. He often gave a dram of bromide potassium at 7 or 8 P.M., and when it began to act, about 10 P.M., a dose of paraldehyde in bed. He discarded veronal long ago. As to trional, it produced degeneration of nerve cells.

Several other speakers agreed as to the value of combination. One remarked that it was usual to combine purgatives, and for the same reason one hypnotic might well supplement another. Change of air and diet were also discussed in relation to insomnia and drugs. A combination of a diaphanetic with a hypnotic was also recommended. Alcohol was said to be a good solvent, as it dilated the capillaries, but spirits of nitre was still better. In no case should hypnotics be given undissolved. For this reason the sale of tablets was condemned as well as for the other objections mentioned.

Resuming my notes on Major Ronald Ross's lectures on malaria, which were illustrated by lantern slides of parasites and of victims, I may say that he dated the birth of modern pathology at 1850 and its progenitors Pasteur, Koch and Lister. Lavaran in Algeria and Golgi in Italy proved that malarial fever began at the moment when the spores of the parasite separated by fission. It became important to estimate the numbers of parasites, and he calculated that there were 15 million millions of blood corpuscles in a man, and a large number were infected in a patient. To examine closely one cubic millimetre of blood took about 12 hours, and this was only one-threemillionth of the average amount in the body. He was now using a new method of examining it. That was washing out the corpuscles, leaving only the leucocytes and parasites in the microscopic field.

Here I may add that Mr. Murray, the publisher, announces that he will shortly issue an elaborate work on "The Prevention of Malaria," by Major Ross, assisted by twenty leading experts on the subject.

The Public Health of British India During the Year 1908, is the subject of a report by the sanitary commissioner, which has just reached this country and demands grave attention. It deals exclusively with British India, the native states not being included. The population in 1908 was 226,409,600. The deaths exceeded the births, notwithstanding the fact that the deaths from pestilences were very few, not more than 5 per 1,000, although they were above a million in the previous year. But the bright spot of the practical absence of plague is blotted out by the excessive mortality from fever and cholera. In 1908 there were 5,425,372 deaths from fever as against 4,464,881 in 1907; and from cholera, 591,725, as against 408,102. Smallpox also proved fatal to 170,694, as against 103,988 in the previous year.

Medical inspection and treatment of school children, say the educationalists, must include dental work. The London county council has sent an officer to Germany to examine its dental clinics, and he has prepared a report for his committee, in which he extols the methods he saw at work. The importance of the teeth is well understood by both doctors and dentists, and the former are by no means inclined to minimize it. The report named favors the plan of the German "town clinics" he saw at work as the best solution of the question which has been raised, and objects to treatment being handed over to private doctors, which he thinks would interfere with school work. The cost of an extra service is gaily put at little, though the county council may consider it heavy. But they lightly add to the burden of the rate payers in so many directions that they may hesitate. Of course, no one cares for the "private doctors," and the duties of parents are not much considered.

The St. Johns Ambulance Association has declined to assist the government scheme for the aid of wounded

and sick territorials. Questioned in parliament it was deemed that the authorities had the faintest idea of lowering the standard of examinations for "aid detachments." But the fact is that the War Office insisted that nurses should teach, examine and certify nurses for these detachments. But the St. Johns Association requires that for pupils in any subject, first aid, home nursing and hygiene, sanitation, rescue in mines—in any part of their duties in fact—should be taught by one medical man and examined by another who was unconnected with the class. The association has refused to consider a nurse's qualification as equal to that of a doctor and declines to be mixed up in a scheme which ignores the difference. The work is being done by the Red Cross Society, of which the London branch is making an urgent appeal for funds.

Sir Alfred Keogh yesterday distributed the prizes at St. Thomas' Hospital, and gave a vigorous expression to his views on medical education in London. In the clinical work nothing was wanting, but the preliminary scientific teaching was inferior to that of the Provinces. What London wanted was a real teaching university, to grant a good degree after a good examination. The present university might be an Imperial institution for examining, but it was not a London university in the true sense.

The new electrical laboratory—the generous gift of the Drapers Company, erected at a cost of £23,000, was presented to Oxford University on Tuesday in the presence of a distinguished gathering by the Master of the Company, Mr. K. R. Fletcher, B.A. of New College, on whom the degree of D.C.L. honoris causa was conferred with the usual ceremony. The same company has presented equally generous gifts to other departments of the university, and with admirable impartiality has done as much for the University of Cambridge.

The World Missionary Conference has been sitting at Edinburgh all the week and has been numerously attended. Medical missions have been discussed from various points of view, and many have urged that all missionaries ought to have some medical training, especially those sent to districts devoid of doctors.

Inspector-General T. Bolster, R.N., has died at the age of 65. He qualified with two Dublin colleges in 1866 and entered the navy the next year. He reached the rank of deputy-inspector-general of hospitals and fleets in 1896 and became inspector-general in 1901, retiring in 1903.

Dr. Claud Muirhead, consulting physician to the Edinburgh Royal Infirmary, died suddenly on the 22d inst., in his 75th year. He took his M.D.Ed. in 1862 and became F.R.C.P. in 1865. Besides the physiciancy of the infirmary, which he held for the full period, he had a number of other appointments in the city. He contributed to the *Edinburgh Medical Journal* and the *Edinburgh Hospital Reporter*, "Relapsing Fever in 1870"; also on "Enteric Fever," and on a number of other subjects.

UNBOILED CONDENSED MILK AS A SOURCE OF SUMMER DIARRHEA.

To the Editor of the Medical Record.

Sir: When I was in a dispensary in charge of the children's department, some years ago, inquiry as to the causes of summer diarrhea elicited the fact that in nearly every case the child's principal diet consisted of condensed milk diluted for use with warm water. In the course of years this became a standard question. The mothers were then advised to boil this mixture as the, for these people, simplest and yet complete sterilization. The objections to feeding boiled milk were not much heard of at that time, and then too they are so easily overcome that the writer has continued this simple but complete method of sterilization in preference to the cumbersome pasteurization with incomplete sterilization.

Incidentally, a simple method of testing milk for its quality may interest your readers. It consists in setting aside in a living room an ordinary drinking glass, wider at the top than at the bottom, filled with milk, and covered with anything, until it has congealed; in summer about one day, in winter two. The milk now presents in one distinct layer its cream on top of the congealed portion, and if good no water underneath; the poorer milk may, however, show up to half a teaspoonful of water, but more water than this is sure not to have come from the cow.

319 West Forty-fifth Street. C. Am Ende, M.D.

Progress of Medical Science.

Boston Medical and Surgical Journal, June 30, 1910.

Elimination of Hexamethylenamine by the Mucous Membranes of the Middle Ear and Nasal Sinuses.—W. M. Barton speaks of the application of the drug named in the title of his paper to the treatment of diseases of these organs, and gives the history of several cases of suppurative otitis media. There is also a brief reference to all the criticisms which have come to the author's knowledge since the publication of a previous report on the same general subject. His conclusions are as follows: (1) Hexamethylenamine is eliminated by the mucous membranes of the middle ear and accessory nasal sinuses (the remedy is given internally in doses one-half to one gram in the course of the day.) (2) Judging from the limited data at hand, it would appear that the drug is of considerable value in cases of acute suppurating otitis media and sinusitis. The chronic forms are apparently benefited. (3) Upon a priori grounds it may be fairly assumed that the remedy may prove to be a valuable prophylactic in those diseases commonly attended by otitis media, perhaps also as a prophylactic to be used prior to surgical operations upon the middle ear, mastoid, and nasal sinuses.

New York Medical Journal, July 2, 1910.

High Frequency Currents in the Treatment of Arteriosclerosis.—After discussing the physics of the high frequency current, T. E. Satterthwaite passes on to its consideration in arteriosclerosis. He figures the apparatus he prefers and which he has used with considerable success during the last nine years. In his experience a diminution in arterial pressure is the regular sequel to the use of the current in the condition named, but the application should not be protracted beyond the time at which the pressure falls to normal. Such protraction might be harmful. The currents alone are not uniformly permanently effectual. While they reduce pressure they may be inhibited in their effects by errors in diet, constipation and various other causes. But the reduction once obtained, it may continue for as long a period as three years. The author says that while the pressure may not be reduced at each sitting there is, notwithstanding, a progressive fall in all instances as the weeks go by. It has sometimes seemed good to him to use the faradic current as an adjuvant. Intestinal atony is sometimes curiously enough a complication of arteriosclerosis. Then the faradic current applied to the abdominal walls may be very helpful to relieve the constipation. In addition he uses as the case indicates mercurials, iron, and the iodides. A course of the iodides is to be followed by a course of iron. In very old people he finds that small doses of arsenic are better than iron.

A Few Observations on the Prostatic Urethra.—J. A. Hawkins refers to several personal cases. He dwells especially on contraction of the internal urinary orifice, suppurative lobular prostatitis and the verumontanum. Suppurative prostatitis is responsible for many cases of "morning drop." Enlargement of the verumontanum with spasmodic contraction of the posterior urethra prevents all pus from passing into the bladder, and it seeps along the urethra to the external meatus. An infected lobule becomes filled with pus caused by its duct becoming plugged and from prostatic muscular contraction or bodily exertion this plug is forced out, allowing the pus to flow into the urethra. Especial attention is called to diseased conditions of the verumontanum. When the deep urethral tube is passed, if the urethra is fairly normal, there is usually no bleeding, but if inflamed the blood will soon ooze into the tube. When inflamed the verumontanum bleeds in proportion to the degree of its engorgement, and as it bobs out into the fenestra of the tube looks very much like an exposed glans clitoridis. Pus is frequently seen in the mouth of the utricle, which is not infrequently seen apparently closed, with the secretion showing through, very much resembling a salivary ranula. This secretion as soon as expressed gathers at the fenestra, solidifies, and resembles slightly softened gum arabic. The treatment in all these cases consists in the judicious local application of nitrate of silver. Other preparations may suffice, but the nitrate is the best of all.

Erroneous Deductions from Physiological Experimentation with Ergot.—A. T. Livingston, who has written several valuable articles on the effects of ergot, insists that in all cases the drug should be given by hypodermic injection. It goes without saying that ergot must be distinctly contraindicated in many states of disease if it uniformly "brings about a long enduring contraction of the walls of arterioles" or produces "powerful and persistent

contraction of bloodvessels." Such effects imply great increase in blood pressure which, in thousands of cases, would be a catastrophe. The truth is that in the applications which the author has made it has more often lowered than raised blood pressure, has calmed tumultuous heart action, softened the hard and bounding pulse, produced calm in place of high tension and excitement, dissipated states of congestion in brain, lungs, abdomen, and pelvis, aborted inflammations, relieved aphasias, promptly ameliorated acute paralyses, quickly terminated the initial chill of developing fevers, abolished pain due to congestion, and even the pang of angina pectoris has promptly yielded to its magic. The truth is, also, that only the clinician who has made large use of ergot and in a great variety of diseases can have even an approximately just conception of its true effect. As to the action of ergot upon the uterus there are two important considerations: First, a changed state of the womb fiber, either pathological or physiological; the latter, like the former, being extended in equilibrium length, and second, the relation, in time, of the periods of especial normal wave (rhythmic) movement to the application of the stimulus. The only instances, five or six, in which the author has produced uterine cramp with ergot were when he gave it at the period of menstruation. Those periods during gestation at which the woman would have menstruated, if she were not pregnant, at which there is an increase of rhythmic movement and the final menstrual cycle of pregnancy and parturition, are the periods when ergot will most likely demonstrate its energy upon the uterus. Except during these cycles of movement, or in states of pathological fiber the uterus is not likely to be affected by any ordinary dose of ergot; especially is this true if there exist elsewhere in the subject areas of abnormal tissue, which would indicate the administration of the drug. With the exception of the consideration which should always be given to the gravid womb, he does not know of any positive contraindication to the hypodermic application of ergot, in reasonable dosage, to any subject in whom exists such abnormal vital contractile tissue as he has before indicated.

Journal of the American Medical Association, July 2, 1910.

Dermatology as a Specialty, and Its Relation to Internal Medicine.—Grover W. Wende makes a plea for the closer relation of the specialty of dermatology to the general field of internal medicine. He believes that the period of infancy of dermatology, a period devoted to the collection of observation and facts, is passing, and that some attempt at the correlation of these facts must be attempted if confusion is to be avoided. The specialist is not equal to this difficult task of correlation except as he cooperates with the general profession. Many crude and mistaken notions on the subject of skin diseases are still prevalent, not only with the laity but also with many physicians, and are the cause of much needless suffering and harm; and only a close professional relation between the dermatologist and the general practitioner will serve to throw light over these old superstitions. As a few among the numerous points of contact between dermatology and internal medicine the writer instances the exudative erythemas, syphilis, leprosy, pellagra, diabetes, punctate telangietases, eczema and psoriasis, parasitic skin diseases, drug eruptions, and the eruptive fevers.

Experiences with the Duodenal Contents.—Max Einhorn gives a table of results of forty cases of examination of the duodenal contents, and calls attention to the fact that this field is entirely new and hardly yet invaded, and further work in it should yield much of value not only with regard to diagnosis but also for treatment. The method of examination is described, and attention called to the following points: Among the seven cases of achylia gastrica trypsin was absent twice and once was only very weak, whereas steapsin and amylopsin were present. An admixture of mucus with the duodenal contents occurs in two ways and is probably of some significance. The mucus may be evenly and intimately mixed with the contents, or it may appear at intervals in the relatively clear contents of the duodenum. The latter would point to the origin of the mucus from the duodenum, whereas its intimate admixture would point to its origin either in the pancreas or the bile passages. Presence of mucus in conjunction with other clinical symptoms (diarrhea, distress some time after meals) would lead us to think of duodenal catarrh. Occasionally we obtain on aspiration of the duodenal contents at first only a clear or slightly amber-colored fluid. It is of alkaline reaction and contains the pancreatic ferments. Usually after waiting a short time and after repeated aspirations a golden yellow fluid (containing bile) appears. If bile is present in the duodenal contents a complete occlusion of the common bile-duct can be excluded. If the bile is entirely missing and pancreatic juice is present, it points to the seat of the obstruction above the common duct.

Inguinal Hernia Following Appendectomy.—Alanson M. Pond reports a case of inguinal hernia following removal of the appendix. He states that the sequelæ of all abdominal operations are increasing, and that this is not wholly due to the increase in the number of operations, but partly to the increase in the number of men who attempt surgery, and is purely a matter of personal equation—of either ignorance or disregard of surgical or anatomic principles. When the operation is dictated by a thorough knowledge of surgical pathology and directed by a perfected mastery of surgical anatomy, the results, both immediate and remote, were never so satisfactory as they are today. The percentage of inguinal hernia after appendectomy is not large, but if the accident occurs at all it is too large, as it can be prevented by sufficient surgical knowledge and proper surgical precautions.

Hyperemia Treatment in Infections of the Breast.—Bertram M. Bernheim claims for his treatment of breast infection that if the patient is seen early enough and pus formation has not started, abscess formation can often be prevented by the institution of cupping for from fifteen to forty-five minutes daily, the breast between treatments being put up in a wet boric dressing, and nursing stopped. If an abscess has already formed, a wide incision is made followed by drainage with iodoform gauze, and the cup is not used until twenty-four hours have elapsed. At the end of the cupping the whole breast is put up in wet boric gauze and very loosely bandaged. The advantages claimed for the method are almost absolute freedom from pain during the whole course of the disease, better preservation of the gland function, the minimum of scar-formation, shortening of the length of the disease, and prevention of abscess formation if the case is seen early enough.

The Lancet, June 25, 1910.

Treatment of the Dysphagia of Laryngeal Tuberculosis by Alcohol Injections into the Superior Laryngeal Nerve.—Dundas Grant thinks this therapeutic procedure worthy of careful attention. He records six cases, all with severe pain, which were greatly benefited and in some instances completely relieved by the injections. An ordinary syringe, strongly mounted, is used, with a needle obtusely beveled so as to avoid the danger of puncturing a vessel. He uses a solution made of two grains of Beta-eucaine in an ounce of 80 per cent. alcohol, and follows Hoffmann's method of injection, viz., the patient is placed in a horizontal position, while with the thumb of the left hand the operator presses the sound side of the larynx toward the middle line so that the affected half projects distinctly. The other fingers of the hand lie on this. The index finger enters the space between the thyroid cartilage and the hyoid bone from without until the patient announces that a painful spot has been reached. The operator now places the index finger on the skin (which has been previously disinfected) in such a way that the point of entrance for the needle lies about at its middle. The needle is pushed in for one and a half centimeters. The distance is marked off on the needle perpendicular to the surface of the body. According to the thinness of the subcutaneous layer of fat the perforation has to be more or less deep. The needle is then carefully moved to seek a spot at which the patient announces that he feels pain in the ear. The syringe filled and its contents warmed to 113° F. is screwed on to the handle and the piston carefully pressed down. The patient feels pain in the ear, the cessation of which he indicates by raising his hand. During the operation he must neither speak nor swallow. If, however, he makes a movement of swallowing the operator must follow the movement of the syringe with a light touch. The injection is kept up until the patient no longer feels the pain in the ear. Then the needle is removed and collodion or sticking plaster is placed on the injection spot without pressure. The average amount of injection is about 2 centimeters.

The Utility of the Autolytic Power of Horse Serum.—The practical utility of this remedy for the purposes indicated is extolled by F. C. Eve from his results with it in two cases of extensive superficial ulceration and one case of severe purpura hemorrhagica. Case I was that of a boy of 6 years operated on for congenital dislocation of the hip by the Lorenz method. He became very thin, developed hematuria and a malignant ulceration of the arm. All these apparently autolytic manifestations were at once arrested by the local administration of horse serum. Conceivably he was sensitized to the formation of these cytolysins by the large hematoma and cell destruction inseparable from the Lorenz operation. Case 2 was a well

nourished boy of 3 years, operated on for non-caseating tuberculous glands of the neck. He did well until the twelfth day, when the wound began to stop its healing and degenerated into a deep, sloughing purulent ulcer. Then the wound was dressed with horse serum soaked gauze and at once began to improve and soon healed. Case 3 was that of an active woman of 75 years, on the inside of whose cheeks and on whose tongue large hemorrhagic spots appeared after the usual symptoms of an ordinary cold. Then petechiæ appeared all over the body and she lost considerable blood from the bowel. Submucous hemorrhage into the laryngeal mucosa caused considerable stridor. Small injections of the serum into the skin over the ribs led to a cessation of the bleeding. It is said that under these general circumstances until blood platelets appear there is always danger of a relapse. Some instructive remarks are added as to the use of the serum in general.

Hypodermic and Intramuscular Inoculation of Bacterial Vaccines as Demonstrated by Experiments with Typhoid Fever.—D. Semple presents tabulated results and says: (1) The immunising response following the inoculation of typhoid vaccine in rabbits as measured by the presence of agglutinins and opsonins in the blood is the same whether the vaccine is given subcutaneously or intramuscularly. (2) In both methods of inoculation the agglutination and opsonic changes when plotted on a chart take similar courses and in both an increase of agglutinins practically means also an increase in opsonins. (3) The intramuscular method of inoculating bacterial vaccines possesses no advantage over the subcutaneous method, and as the latter gives rise to less pain and inconvenience it is to be preferred.

British Medical Journal, June 25, 1910.

The Value of Serums and Vaccines in the Treatment of Disease.—N. Raw discusses this question with reference to acquired immunity and then takes up in turn the antistreptococcic sera as used in puerperal septicemia, erysipelas, malignant endocarditis, acute tonsillitis, diphtheria, tetanus, tuberculosis, and then speaks of the use of vaccines (tuberculin) from human sources for tuberculosis, pneumonia, staphylococcic infections, Coley's fluid and typhoid fever. He considers the vaccine treatment of the latter disease in which Wright was a pioneer as more a prophylactic than a curative measure. The best results are obtained in staphylococcic infections. He is inclined to believe that vaccines do good in pneumonia, but the evidence is still small. In regard to tuberculin from human sources he has used the T. R. in 110 cases, including tuberculous glands in the neck, tuberculous peritonitis, tuberculous joints and sinuses, lupus, tuberculous meningitis, and genitourinary tuberculosis. In the localized forms of the disease, most of which he believes to be of bovine origin and conveyed to children in infected milk, he is convinced that the T. R. has an excellent effect except in those patients in whom there is some pus encysted in the body, whether in the interior of the joint or in a bone under pressure, or as an abscess in a lymphatic gland. In these cases there is a danger of tuberculin causing dissemination of the bacilli, with a resultant blood stream infection. It is a good rule never to give tuberculin if any pus is localized in the body. In many cases a course of tuberculin has had the effect of greatly reducing enlarged tuberculous glands of the neck, by dispersing the periadenoid tissue and causing a general freeing and loosening of the glands themselves, while in some the enlarged glands have entirely disappeared. If, however, there is any tendency to suppuration the glands must be opened, and in all cases the pus should be liberated. He feels convinced, however, that the extensive dissection of glands in the neck is wrong in principle, and sometimes leads to a general tuberculosis which is fatal. In tuberculous peritonitis tuberculin has a splendid effect, and, combined with operation and drainage, many patients have been completely cured. In genitourinary tuberculosis ten or twelve injections of tuberculin have often had an excellent healing effect when everything else has failed.

Ovarian Grafting and Menstruation.—E. S. Chapman says that operation has been successfully done, but that the interesting question at present is this: What actually takes place in a woman in whom both ovaries and tubes have been removed while the uterus has been left in place and in whose abdominal wall one of the ovaries apparently in a healthy state has been implanted. Such a patient after recovery from operation possesses a uterus in a normal position and an ovary in an abnormal position. Is it possible for such a uteroovarian combination to present the congestive phenomena associated with menstruation? He publishes the history of one case in which normal menstruation occurred, accompanied by enlargement of an ovary which had been implanted four and a half months previously. On the basis of this case the author says that the female organism is in the first place under the influence of a toxin the origin of which is at present unknown, but of which the action is elective for the ovary; that the toxin produces an intense congestion of the ovary and perhaps a special metabolism and that then an internal secretion derived from the ovary is formed, which has a special action on the uterus and which determines the discharge of blood. In his own case for a period of four and a half months there were present certain signs, such as swelling of the ovary, flushings and general lassitude, which were evidences of the presence in the organism of a poison having an elective action on the vasomotor system. After this period the grafted ovary had become permeated with vessels from the parent organism, newly-formed vessels had penetrated into the central portion of the ovary and the menstruation, which up to that time had been in abeyance, was influenced by the grafted ovary and occurred again in the usual manner.

A Case of Sleeping Sickness Showing Regular Periodical Increase of the Parasites Disclosed.—The report is made by R. Ross and D. Thomas; their patient was a man of 26 years, admitted to hospital, having acquired the disease in Africa. He was under observation for a period of 73 days. During this time forty-six blood examinations were made, but on several occasions none were made for three or four days in succession, so that, even if the methods of counting had been more accurate, sudden fluctuations might easily have been missed. On admission the blood was reported to contain about 6,000 trypanosomes per cubic millimeter and large numbers, amounting to about 3,000, were found 10 days later and, again, at a third examination one month later. At this time the patient was given the usual treatment with atoxyl and mercury, and received in all ten doses of from two to four grains of the former. Nevertheless, the parasites never fell below 2,000 per mm. It was then found that the atoxyl was injuring the patient's sight, as sometimes happens, and other treatment was substituted. Reference to the statements of the authors shows that during the 73 days mentioned there were eleven distinct rises in the number of the parasites. There were two kinds of rise, viz. high rise and low rise. The regularity in alternation of these two kinds of rises was so well marked as to recall the picture of a double tertian malarial fever and to suggest that two independent sets of parasites might exist in the patient, just as often happens in malaria. A slight rise in temperature was always concurrent with the rise in the number of parasites.

Berliner klinische Wochenschrift, June 13, 1910.

Paratyphoid-A Infection in the Nursling.—Eckert, of Prof. Heubner's Clinic, sums up our knowledge of this subject which goes back some 14 years. We know that these bacteria can set up pseudotyphoid fever, gastroenteritis, meningitis, etc., and that they are invariably to be recovered from the blood. In the majority of cases they enter the system in raw meat, sausage, etc. In most of the older reported cases the germ was *B. paratyphosus-B.*; but the original claim that *B. paratyphosus-A.* was hardly more than a curiosity as a cause of disease has now been superseded. However, the case which is appended is believed to be the first on record to occur in a nursling. The patient was eight months old when he came to the clinic. Four weeks earlier he had gone through a right lobar pneumonia, which later appeared on the left side and was followed by pleurisy. Just before admission meningitis was evident, but whether this was secondary to a purulent otitis media (which was evidently due to infection from coughing) could not be ascertained. The infant lived six days after admission and presented on autopsy purulent meningitis. A bacillus recovered during life by lumbar puncture and after death from the meninges and blood was recognized as the paratyphosus-A. Some enteritis coexisted. The intrathoracic lesions had not undergone resolution and there was bilateral emphysema with hypertrophy of the left ventricle. The relation of the bacillus to the lesions was paradoxical and best explained by the grafting of the paratyphus bacillus on an anteecedent pneumococcus infection; for some pneumococci were cultivated from the blood. The paratyphosus-A was held responsible for the enteritis and probably for the terminal meningitis.

Recognition of the Psychopathic Constitution in the German Army.—According to Staff Physician Stier, the new psychology is being utilized by army medical men in weeding out recruits and soldiers who, by reason of an

inherited psychopathic taint, are rendered less amenable than the average man to military discipline. Neurasthenia is the most common expression of a neuropathic taint and is recognizable by the morbid irritability and the exaggerated mental and physical exhaustibility, by its sensorial and sensible hyperesthesia, its headache and sleep disturbances. The hysterical psychopathic constitution is distinguished by instability in the realm of the affect-life, by disturbances of the ideation and of attention. In contradistinction to neurasthenia, they are somewhat prone to show physical evidences of degeneracy. While neurasthenics can be utilized in certain lines of effort, hystericals should be rejected outright. Those who possess the epileptic constitution are characterized by habitual outbursts of rage and are intolerant to alcohol. These peculiarities may lead to the suspicion of epilepsy, which need not exhibit major paroxysms. There is also the hereditary psychopathic constitution, and the closely related acquired condition, which are characterized by complete psychic disharmony and disequilibrium, affecting the emotions, conduct of life and personality. Superior mental attainments may coexist with gross defects. Physical stigmata are common. The notion of degeneracy naturally stands in close relationship to the moral sphere. More attention than was formerly the case is now bestowed on organic and functional stigmata of degeneration, which are common to most hereditary psychopaths. No heed is taken of some stigmata such as misshapen ears, which are found to have little practical significance. On the other hand, malformation of the head, anomalies of dentition, and of the distribution of hair are of recognized importance. So, also, are malformations of the genitals. Disproportion between age and actual state of development is of value. Of functional stigmata attention is paid to speech defects, squinting of the eyes, and quivering of the eyelids, tic-like movements and disagreeable habits like onychophagy. The manuals in use for selection of recruits have long paid attention to outspoken psychoses and pronounced defects of development; but the kind of material discussed by the present writer is for the most part as yet unincorporated into reference manuals and guides.

Busch's Cosmetic Operation for Facial Paralysis.—Momburg reports a number of cases in which he has made use of this procedure, which, originally devised in 1906, was described before the Berlin Otological Congress last February. The procedure is described by Momburg as follows: A small horizontal incision is made over the malar bone down upon the periosteum and a second one close to the angle of the mouth and parallel with the upper lip. The design of the operation is to do away with the unsightly drooping of the corner of the mouth on the paralyzed side and this is accomplished by passing a double wire of aluminum bronze from one wound to the other so that it forms a loop, with the free ends in the upper wound. By means of traction on the free ends the loop is made to raise the angle of the mouth to a desired height. The wires may then be twisted together and buried. The procedure is purely palliative, for while the wires may remain in place for weeks without causing irritation, the trouble returns with their removal. Many modifications of technique may apply to individual cases. The wires pass through the periosteum of the malar bone and soft parts of the cheek, and Busch introduced them with the aid of a specially devised needle. The operation is performed under local anesthesia.

Münchener medizinische Wochenschrift, June 14, 1910.

Venesection in Circulatory Disturbances and Bloodless Substitutive Procedures.—Von Tabora has to a considerable extent identified himself—in conjunction with his chief, Prof. Moritz of the Strassburg Medical Clinic—with the subject of the unburdening of the venous circulation and the incidental reduction of venous blood pressure, by the combined or alternate use of venesection and the cutting out of the venous circulation of a limb by temporary ligation. When venous stasis is due to uncompensated heart lesions, cardiac stimulants are naturally freely employed. A special phlebotonometer is employed for estimating the venous pressure. It is a self-evident fact, borne out by the author's own statements, that the elaborate manual of procedure involved is of use chiefly in prolonging life in incurable cardiac cases by averting impending edema of the lungs. A question is raised, however, as to the value of the procedures in acute pneumonia. The author hopes to find a definite indication from the venous pressure to interfere systematically in certain cases of the latter disease; and he even believes that he has rescued patients by thus warding off terminal edema of the lungs. He freely admits that such an indication is only exceptionally present in pneumonia. There is no doubt, however, that actual venesection up to 750 c.c. conjoined with temporary ligations of the trunk vein of an extremity (von Dusch's "bloodless venesection") will cause a notable sinking of the venous blood pressure; and if injection of some digitalis or strophanthus preparation is superadded, the unburdening of the venous circulation in venous stasis of cardiac origin is marked and salutary.

Cell-inclusions in Non-gonorrhoic Urethritis.—Siebert refers to the finding by several observers of the v. Prowazek bodies as cell-inclusions in the discharges from blennorrhea neonatorum and gonorrhea in general. The bodies have been found with and without the association of ordinary gonococci, and it has already been inferred that the two types of organism are in some way related. Inoculation experiments have already led to problematical findings. Now, since we meet in practice urethritides which are very resistant toward treatment and yet do not present or at least have ceased to present gonococci in the discharges, a most pertinent question for the investigator relates to the possibility of finding cell-inclusions in such discharges. Lindner having already met this question by finding the cell-inclusions along with granular débris in just such clinical cases, the author has sought to improve his own opportunities for finding such bodies. He selected three cases of urethritis in males which were more or less obstinate, having persisted long beyond the period at which any bacteriologist would expect to find ordinary gonococci. The latter were excluded first by systematic examinations, and it was found as a matter of fact that hardly any bacterial life was present in the secretions.. The author now applied the technique requisite to locate the inclusions, were such actually present, and found them in abundance in the epithelia, though, corresponding to the experience of others, but very sparingly present in the leucocytes.

Family Hemolytic Icterus—Aschenheim refers to the description by French authors of a comparatively new syndrome of family icterus associated with hemolysis and enlarged spleen. During the same period but little has been noted of such an affection in Germany. A general question is incidentally raised as to the relationship between enlarged spleen, hemolysis, and icterus in other diseases, and especially in respect to familial incidence. The author describes a case of chronic icterus, urobilinuria, presence of normal biliary stools, enlarged spleen and liver, which was moreover present in father and son. The case differed chiefly from those described by the French writers in the absence of acute febrile paroxysms. The blood showed the essential fragility of the erythrocytes belonging to the French syndrome. Such a condition is probably described in textbooks with various symptoms and under various designations, which do not refer to essential features. Regarding the hemolysis as a prime factor, the author would introduce a general expression "hemolytic icterus," which may or may not be a familial malady. Naturally such a disease complex would have to be distinguished from or at least contrasted with certain cases of splenic leucemia, with Banti's disease, and other conditions. Icterus alone is hardly sufficient for differential diagnosis, for this may appear as an accidental or terminal symptom in other maladies of this class. The identity of the disease would depend evidently upon its precise seat of origin—and with the association of hepatic lesion with icterus the liver would be the organ first accused—together with the exact order and nature of the blood changes and finally perhaps the tendency to occur in family groups. Typical cases of other affections could hardly be confounded with hemolytic icterus, but it is conceivable that transition forms must be common and perplexing, else the individuality of some of these allied conditions would have been shown long ago.

The Genital Crisis in the New-Born.—Lequeux and Marioton, from the experience of the year 1908-1909, at the Tarnier Clinic, Paris, deduce the fact that the so-called genital crisis of the new-born is comparatively frequent. Out of 1,575 infants born in that year, a crisis was noted in 532. This consists in a swelling of the mammary glands, which is noninflammatory, with a secretion of milky fluid, containing fat globules and epithelial cells. This occurs in both sexes; in boys the testicles, prostate, and tunica vaginalis become swollen and there is secretion; in girls the uterus becomes congested and menstruation may occur; in both there is acne, increase of lanugo hairs, and seborrhea. It occurs about the tenth day, and is entirely physiological, not attended by inflammation, and needs no treatment. It only becomes infected when manipulation causes bacteria to enter from without.—*Bulletin de la Société d'Obstetrique de Paris.*

Book Reviews.

A System of Clinical Medicine. Dealing with the Diagnosis, prognosis, and Treatment of Disease. For Students and Practitioners. By Thomas Dixon Savill, M.D., Lond. Physician to the West End Hospital for Diseases of the Nervous System; Physician to St. John's Hospital for Diseases of the Skin, London; formerly Medical Superintendent of the Paddington Infirmary, Medical Officer of the Paddington Workhouse, Assistant Physician and Pathologist to the West London Hospital, Post-Graduate Lecturer to the London Post-Graduate Association, Examiner in Medicine and Clinical Medicine in the University of Glasgow, Medical Officer to the Royal Commission on Vaccination. Second Edition, Revised by the Author, assisted by Frederick S. Langmead, M.D., London. Casualty Physician to St. Mary's Hospital; Assistant Physician to the Seaman's Hospital; Physician to Out-Patients at the Paddington Green Children's Hospital, and Agnes F. Savill, M.A. St. And., M.D. Glas., Assistant Physician to the St. John's Hospital for Diseases of the Skin. New York: Longmans, Green & Co.; London: Edward Arnold, 1910.

The second edition appears in one large volume which replaces the two smaller ones of the original issue. The main system of its predecessor has, however, been followed and that has been its chief claim to originality. Instead of working backwards the author begins from the bedside symptoms and then works up the differentiations which will afford a diagnosis. That his method has been accepted and appreciated is proven by the rapid exhaustion of the first edition and the production of its successor. For a reference book on diagnosis we know of none which would serve to help the puzzled practitioner out of his difficulties in a better or more thorough manner. The author's large experience at the Paddington Infirmary has given him a distinctly broad view of his subject, has served to make his knowledge practical and personal and the reader unconsciously accepts his views as rational and honest. He considers the methods of history-taking, the fancies, attitudes, etc., assumed in disease, the circulatory, respiratory, and abdominal diseases, a short chapter on gynecology, pyrexia, debility, pallor, emaciation, the skin, and nervous system. The chapters on the nervous system and on the skin are particularly useful and render these diseases into terms which are intelligible to a student or general internist. The author has kept apace with the times in his literature references and has evidently picked wisely from what has been offered.

It is with regret that we have to note the death of the author of this volume within a few months of its appearance. He has left behind him, however, the beginning of a new system of teaching medicine which will probably be followed by many.

A Synopsis of Surgery. By Ernest W. Hey Groves, M.S., M.D., B.Ss. (London.), F.R.C.S. (Eng.); Assistant Surgeon to the Bristol General Hospital; Surgeon to the Cosham Hospital; Senior Demonstrator of Anatomy at the Bristol University. Second Edition, Revised and Illustrated. New York: William Wood and Company, 1910.

In this new edition the author has thoroughly revised the book and brought it up to date. New chapters have been added on asepsis and antisepsis, shock, anesthesia, and diseases of the colon. The chapters on cranial surgery have been rewritten and provided with an illustration of cranial topography; a section is added dealing with surgical affections of the spleen; and the final chapter, or surface markings, is now fully illustrated, thereby adding much to its value. These additions amount to about one hundred pages. Properly used (that is, in conjunction with some standard text-book) this volume cannot fail to be of the very greatest assistance to students; the author has produced an admirable epitome, well arranged, of all the salient facts of surgery.

Transactions of the American Association of Genito-urinary Surgeons. Vols. III and IV. New York: Published for the Society by the Grafton Press, 1908 and 1909.

These two volumes contain papers read at the meetings of the Society, held on May 1 and 2, 1908, and on May 31 and June 1, 1909. The titles comprise many subjects of interest to the specialist in genitourinary diseases. Among the papers the following may be named to represent the contents of the volumes: Common Errors in the Treatment of the Urethra and Bladder, by Dr. James Pedersen; Contribution to the Surgery of the Prostate, by Dr. Samuel Alexander; Observations with the Rogers-Torrey Serum, by Dr. George K. Livinburne; Radical Operation for Tuberculosis of the Male Genital Organs, by Dr. George S. Whiteside; Diagnosis and Treatment of Vesical Tumors, by Dr. Hugh Young. Many articles are fully illustrated with photographs and line drawings.

Manual of Operative Surgery. By John Fairbairn Binnie, A.M., C.M. (Aberdeen), Professor of Surgery, Kansas State University, Kansas City; Fellow of the American Surgical Association; Membre de la Société Internationale de Chirurgie. Vol. II. Vascular System, Bones and Joints, Amputations. Fourth Edition. Revised and enlarged, with 550 illustrations. Philadelphia: P. Blakiston's Son and Company, 1910.

The four editions of this book since its first appearance in a single volume in 1905 attest its popularity. The popularity is deserved. It is an excellent and very practical book, and is the more admirable that though brief it does not lack in clearness. The great fault of most authors who attempt this task of condensation is that they sacrifice succinctness. Five methods of resection of the hip are given so that they can be understood, and the author does not neglect to say which he prefers. On page 438 a statement is made that seems characteristic: "If the surgeon and his assistants use their brains as well as their hands, it is easy to control hemorrhage in the course of the operation" (amputation at the shoulder joint). The chapter on congenital dislocation of the hip by Dr. Gwilym G. Davis is good, though the wisdom of devoting so much space to the various aspects of this deformity in a work like this may be questioned, as the author intimates in his preface. Mr. Robert Jones of Liverpool assisted in the writing of the chapter on club-foot, which is well done. One might criticise the author for his fondness for "swabbing cavities" with carbolic acid, Harrington's solution, etc., and might wonder how the operator is to distinguish diseased granulation tissue on the inside of the involucrum after acute osteomyelitis. These velvety granulations were much better left. The few small faults that one can pick out seem insignificant, however, in contemplating the book as a whole.

Nutrition and Dietetics. A Manual for Students of Medicine, for Trained Nurses, and for Dietitians in Hospitals and Other Institutions. By Winfield S. Hall, Ph.D., M.D., Professor of Physiology, Northwestern University Medical School; Lecturer on Physiology and Dietetics in Mercy Hospital and Wesley Hospital, Chicago. New York and London: D. Appleton & Company, 1910.

In this volume we have the results of a decade of teaching, making it a comprehensive working text-book. Its subject matter, as the writer tells us, represents practically his course for undergraduates in medicine, and for nurses. The material is concisely presented although it satisfactorily covers the field of nutrition and dietetics, meeting the needs of the general practitioner. The most recent researches on animal nutrition have been considered. The text is divided into four general parts: Foods; The Use of Foods in the Body; Diet in Health; Diet in Disease. In the first part are considered the chemical composition of the body, the needs of the body in growth and repair, and the needs of the working body. Then follow the subjects, natural foods for young plants, birds, and mammals, and the characteristics of these foods. The sections on classification and preparation of foods afford interesting reference material. After the section on digestion, absorption, assimilation, and waste products, follow those dealing with diets appropriate to various classes of people in health. The last part of this interesting book is devoted to the consideration of diet, in various disorders and diseases. In the appendix are given a classification of diets, recipes and sections on experimental chemistry in relation to food stuffs, foods, and digestion. This helpful volume supplies a demand that has not before been completely met. An excellent index adds greatly to its usefulness.

La Fonction du Sommeil. Physiologie, Psychologie, Pathologie. Par le Dr. Albert Salmon (de Florence). Paris: Vigot Frères, 1910.

Readers of French will find this an extremely interesting book. Sleep being a physiological phenomenon which occupies so much of our existence, is certainly worthy of serious study. The author presents some original ideas respecting the mechanism of sleep and the role played by the hypophysis and certain secretory glands in the production of sleep, and describes various disorders which disturb its function.

Initialerscheinungen der zerebralen Arteriosklerose und kritische Erörterung ihrer Pathogenese, Von A. Pick. Halle a. S.: Carl Marhold, 1909.

An interesting and suggestive contribution to a very important subject, by the well-known psychiatrist and neurologist, Professor Pick. It is brief, only 32 pages, and worthy of general reading.

Die Diagnose und Therapie des Kopfschmerzes. Von Dr. Med. Franz Windscheid, a. o. Professor a. d. Universität Leipzig. Zweite, völlig umgearbeitete Auflage. Halle a. S.: Carl Marhold, 1909.

This is a second and revised edition of a small brochure of only 68 pages, on headache, preaching throughout the gospel of careful histories and thorough examinations of patients for correct etiology and treatment of a most common symptom.

An Index of Symptoms; with Diagnostic Methods. By Ralph Winnington Leftwich, M. D., Late Assistant Physician to the East London Children's Hospital, Author of Syphonage in the Large Intestine. Fourth Edition. New York: William Wood & Company, 1910.

In this new edition a large number of signs and symptoms have been added, and the space devoted to diagnostic methods has been increased; at the same time the book is smaller in size than before. The introductory sections on art of diagnosis, classification of patients, and fallacies are of unusual value, and will be appreciated by many practitioners as well as by students. The work is complete, compact, and of undoubted value. A good index, coupled with judicious arrangement of type, headings, and indented margins, enables the reader to find any part of its contents without loss of time.

Tropical Medicine and Hygiene. By C. W. Daniels, M.B.Cantab., M.R.C.P.Lond., Director of the London School of Tropical Medicine; and E. Wilkinson, F.R.C.S., Eng., Major I.M.S. In three parts, with colored and other illustrations. Part I., "Diseases due to Protozoa." New York: William Wood & Company, 1909.

The scope of this book is fully set forth in the preface, where it is stated that medical men in the tropics should be practical sanitarians as well as clinicians. With this purpose in view, the present volume gives special attention to etiology and prophylaxis. The diseases are grouped according to their known or probable causation; the present instalment deals with diseases due to protozoa; in the next part, those due to the higher forms of life will be considered; and the third part will be devoted to bacterial diseases, to the effects of certain animal and vegetable poisons, and to diseases whose etiology is imperfectly understood. The present volume treats of Malaria, blackwater fever, piroplasmosis, yellow fever, human trypanosomiasis, kala azar, oriental sore, relapsing fever, tick fever, diseases due to spirochætæ in the tissues, syphilis, yaws, granuloma of the pudenda, and intestinal diseases due to protozoa. As an adjunct to books on Practice, the present volume has a distinct value. It is concise, practical, and accurate; and from a medical standpoint is all that can be desired.

Simon the Jester. By William J. Locke. New York: John Lane Company, 1910.

This book is replete with all the gentle fantastic charm that we have learned to look for from its author's pen, a charm compounded of many elements, among which may be found a kindly humor, the lambent play of a not too abstruse philosophy of men and manners, a comfortable ending, and last but not least, as it is one of Mr. Locke's most agreeable specialties—one or two uncommonly nice women. We are beginning to depend quite a little upon his power of differentiation with his womenkind, and we approve highly of the charming heroine of Simon the Jester. We trust that Mr. Locke may be spared to give us many repetitions of his triumphs.

The Surgery and Pathology of the Thyroid and Parathyroid Glands. By Albert J. Ochsner, A.M., M.D., LL.D., Professor of Surgery in the Medical Department of the University of Illinois, Chief Surgeon to Augustana Hospital and St. Mary's Hospital, Chicago, and Ralph L. Thompson, A.M., M.D., Professor of Pathology in the St. Louis University School of Medicine, St. Louis. With 57 Illustrations in the Text and 40 Full-Page Plates, 4 of the Plates Being in Colors. St. Louis: C. V. Mosby Company, 1910.

This volume is a work on a great and timely subject. It is divided into two parts, the first, "The Thyroid Gland," by Dr. Ochsner, except the chapter on its pathology, of which Dr. Thompson is the author, as also of the second part, "The Parathyroid Glandules." It is largely a treatment of the subject from the experience of the authors, but some space is given to history and to the work of others, especially of Dr. Louis B. Wilson on Pathology, whose excellent studies on classification and illustrations of cases (published elsewhere before) are given full credit. Among the points emphasized are: Diagnosis of exophthalmic goiter from simple goiter; importance of the parathyroid glandules in anatomy, physiology, and operative treatment; the recognition of reversion of a hyperplastic to a colloid goiter. As a contribution to the citation of facts on thyroid disease it is useful, and the plates illustrating steps in operating are helpful, even if too diagrammatic. As a specimen of medical book-making it is faulty, having glaring errors in proofreading, mistakes in punctuation and phraseology too common to be pardonable. It is needlessly bulky and gives one the impression that the attempt was to hurry the work through and to spread the dimensions of the book. We had hoped, too, that literary medicine had heard the last of "operating" a case instead of "operating on" it. With these qualifications the work is to be commended.

The Insanity Law of the State of New York. A Compilation of Statutes Relating to the Insane and to Institutions for Their Care and Treatment; to Which Are Appended the Official Orders and Regulations of the State Commission in Lunacy. By Frank P. Hoffman. Troy: Henry Stowell & Son, 1910.

The insanity laws were consolidated recently (1908) and this publication contains all the changes made at that time by the Legislature, and other matter of general interest respecting the insane in New York State.

The Serum Diagnosis of Syphilis and the Butyric Acid Test for Syphilis. By Hideyo Noguchi, M.D., M.Sc., Associate Member of the Rockefeller Institute for Medical Research. New York, Philadelphia, and London: J. B. Lippincott Company, 1910.

There is probably no man in America who has devoted more time to the study of hemolysis and its relation to syphilis and whose name is better known for his discoveries in this line than the author of this book. Not only has he made a deep study of the Wassermann reaction as described by the original discoverers, but he has by his own work so modified the older method that it is not only rendered much more simple a procedure than formerly, but is by many considered to be more reliable as well. From the pen of a man with Dr. Noguchi's reputation, a textbook cannot fail to attract interest. The present book is intended to be practical rather than academic. It is for the student and practitioner, not for the expert. Beginning with a few chapters upon the theory of hemolysis and complement fixation, written in a manner which makes this most complicated subject comparatively simple and intelligible, the author then goes into detail as to the technique of both the original Wassermann reaction and of his own modification thereof, describing with care and clarity the methods of preparing the solutions required, the apparatus needed and the technique of the actual making of the test. Chapter XI discusses the diagnostic value of the reaction. Chapter XII is a digression, but a most useful one, in taking up the Noguchi butyric acid test for syphilis and the parasyphilitic diseases. A complete bibliography is given for those who wish more than the practical use of the test, and following this is a glossary, a feature of the book of inestimable value to the student, who at first becomes hopelessly confused by the variety of terms used by different workers in the subject to designate the same thing. The book is eminently practical from cover to cover and should go far to make the serum diagnosis of syphilis a possibility even among those who have not the advantage of being near the great medical centers.

The Dietetic Treatment of Diabetes. By B. D. Basu, Major, I. M. S. (Retired). Second edition. Revised and Enlarged. Published by the Panini Office, Bhuvaneshvari Ashram Allahabad, 1909.

In this little volume of fifty pages the treatment of diabetes is outlined as the writer has found it appropriate in managing Indian patients, who are mostly vegetarians and teetotallers. Great stress is laid on the restriction or total interdiction of meat, alcohol, tea, coffee, and cocoa. The preparation and administration of many foods used only in India are discussed and the author emphasizes the statement that practice in India proves that diabetics who are vegetarians live longer than those who are meat eaters.

Society Reports.

AMERICAN GYNECOLOGICAL SOCIETY.

Thirty-fifth Annual Meeting, Held in Washington, D. C., May 3, 4, and 5, 1910.

THE PRESIDENT, DR. EDWARD P. DAVIS, PHILADELPHIA, IN THE CHAIR.

(*Concluded from page* 84.)

Extrauterine Pregnancy of Eleven Months.—DR. E. C. DUDLEY of Chicago said that this was the product of ectopic pregnancy removed July 20, 1909, two months after term. The mass was posterior and to the left of the uterus. The incision was made in the median line. The tumor was almost universally fixed by adhesions or by continuity of development. The adhesions were intestinal, uterine, parietal, omental, and they existed between the mass and all the adjacent structures, especially to the anterior abdominal wall and the sigmoid flexure. The mass, about eleven inches in diameter, was carefully separated from its adhesions and shelled out unruptured. The resulting raw surfaces were equal approximately to a surface not less than twelve inches square. An incision was made back of the uterus into the posterior vaginal fornix, and through this incision a continuous gauze drain was introduced from above downward into the vagina. The upper part of this drain consisted of gauze packing sufficient to fill the field of operation and to prevent oozing. This packing was then covered in by stitching together of the peritoneal surface above it in such a way as to cut off completely the field of operation from the remaining portion of the abdominal cavity, and to cover all with normal peritoneum. This suturing across the pelvis from side to side involved extensively intestinal structures, and especially the sigmoid flexure, which was stitched to omental, parietal, bladder, and other visceral peritoneum, wherever possible to bring the parts together, in order to quarantine the field of operation from the general peritoneum. The abdominal wound was closed without drain and healed promptly. A slight fecal fistula subsequently discharged through the vagina, but closed spontaneously in a few days. Such very extensive enucleation of so large a mass, due to ectopic pregnancy, ordinarily would not be undertaken. The fact that success followed this operation did not necessarily influence the author in recommending the procedure as a routine in similar cases. He reported this method with the suggestion that it might be considered more surgical than the conventional operation of incision and drainage, but, although more surgical, it perhaps might with subsequent experience prove to be more dangerous.

DR. EDWIN B. CRAGIN of New York had operated on four cases of ectopic gestation at full term. Two of the women were delivered of living children at the operation. In one of the four cases he was able to ligate the vessels supplying it and to enucleate the sac, but was obliged to take the uterus with it. All the patients recovered, but in only one case was he able to follow anything like the procedure of complete enucleation.

DR. E. E. MONTGOMERY of Philadelphia said that some fifteen years ago he operated upon a woman who was fifteen months pregnant. The uterus was in front of the sac. After opening the abdomen it was found that the small intestines were so intimately related to the sac that it was impossible to attempt its removal. The fetus was removed, and a communication made between the sac and the abdominal wall. The patient recovered

DR. HERMAN J. BOLDT of New York had had four cases of ectopic gestation at or near term, and in only one was it possible to remove the sac without rupture. He lost one of the four cases.

DR. A. LAPTHORN SMITH of Montreal had had two cases of tubal pregnancy at term. One of the women refused operation and was alive. In the other he removed the child, and when he attempted to enucleate the sac the hemorrhage was so profuse that he stopped and closed her up. The woman died in eight days from exhaustion.

DR. E. W. CUSHING of Boston had one of these cases many years ago, in which he waited until the child died. It seemed a safer thing to wait about a month, which he did, and then opened the abdomen. The sac was thin. The child was found loose in the abdominal cavity, was removed, and the woman recovered.

DR. O. B. MILLER of Washington D. C. had a case of ectopic gestation, about five years ago, on which he operated, delivering a living child at term. The whole sac with placenta was removed, and the woman recovered. The child died of hemorrhage following ligation of the cord by the nurse, to whom the baby was turned over at the time of the operation.

DR. JOSEPH TABOR JOHNSON of Washington D. C recalled a case of ectopic gestation which he had about ten years ago. The woman was supposed by those who saw her before he did to be twelve months pregnant. The nature of the case was clearly undersood, and at the operation doubt was expressed as to whether she was pregnant or not, but there was a large tumor on the side of the uterus, which was enucleated without breaking the sac. On opening the sac it was found to contain a full-grown fetus, weighing nine pounds. The abdomen was closed without drainage. The patient recovered.

Report on Vaccine Therapy in Gynecology and Obstetrics.—Drs. J. WHITRIDGE WILLIAMS of Baltimore, EDWIN B. CRAGIN of New York, and FRANKLIN S. NEWELL of Boston comprised the committee that made this report. The evidence at present available seemed to justify the following tentative conclusions concerning the value of vaccine therapy in gynecology and obstetrics: "1. Opsonins undoubtedly play a part in the production of active immunity. On the other hand, the determination of the opsonic index is technically very difficult, and is subject to such variations that it is not available as a diagnostic or prognostic guide, and even among trained bacteriologists there is considerable skepticism as to its practical value. 2. Immunization by means of vaccines is a well-established prophylactic measure against certain infectious disease, notably typhoid, cholera, plague, and dysentery. Vaccine therapy is undoubtedly a valuable remedial agent in local infections, due to the tubercle bacillus or staphylococcus, less so in local infections, due to other pathogenic bacteria, while there is considerable doubt as to its efficiency in acute general infections. 3. In chronic gonorrheal arthritis and urethritis it is a valuable adjunct to other treatment and occasionally may lead to cure alone. It appears to be useless in the acute infections, while it is more efficient in the treatment of the vulvovaginitis of children than any other means, but even here it does not always result in cure. 4. In infections of the urinary tract, especially those due to the colon bacillus, it sometimes results in symptomatic cure, but rarely relieves the bacteriuria. The scanty reports concerning the pyelitis and the pyelonephritis of pregnancy indicate that vaccine therapy is no more efficient than the usual treatment by rest in bed and the administration of salol or urotropin, as in neither does the bacteriuria disappear until after the termination of pregnancy. 5. In certain cases of endometritis it appeared to reinforce the curative influence of curettage. The reports concerning its use in pelvic inflammatory diseases were too scanty to justify conclusions, but it would seem that it might be of value only in chronic post-operative cases with sluggish fistula formation. 6. As the ordinary localized puerperal infec-

tions, irrespective of the nature of the offending bacteria, tend to spontaneous cure, the field for vaccine therapy is practically limited to acute general infections, whereas they unfortunately appear to be of little value, and the most that can be said from the reports thus far available is that their employment does no harm.

The Use of Vaccines in Septic and Inflammatory Conditions.—Dr. E. W. Cushing of Boston said that vaccines, or killed cultures, acted only by increasing the resistance of the patient. The opsonic index practically was not of much use in acute conditions. Autogenous vaccines were preferable to stock vaccines, except in certain cases of staphylococcus infection. The best results were obtained in the following order: Infection from colon bacillus, pneumococcus, staphylococcus. The results were not satisfactory with streptococcus in rapid virulent infections. In chronic infections and in cases of little virulence streptococcus vaccines gave satisfactory results, especially in moderate puerperal cases. Vaccines were not successful in acute gonorrheal infections, but were of much service in gonorrheal arthritis. Vaccines were useful in the following conditions: Puerperal infections, abortions, infections of bladder and kidneys, appendicitis, abdominal operations, postoperative pneumonia, and abdominal fistula.

The Surgical Treatment of Puerperal Septic Infection.—Dr. E. E. Montgomery of Philadelphia said the most effective safeguard against the baneful influence of sepsis was the practice of such measures during the parturition and puerperium as would lessen the opportunities for its production, but such measures did not properly enter into this discussion, for their careful practice would obviate the necessity for any consideration of surgical measures. The suspicion of sepsis confirmed, the course of the surgeon must very often be a tentative one, and largely dependent on the period at which the patient came under observation. Rarely after the diagnosis was definitely determined was it worth while to resort to the use of the curette. The infective germs very rapidly passed beyond the superficial structures, so that the procedure of curetting was ineffective to limit the progress. The entire removal of the uterus would not always be adequate, so operative procedure should be delayed until it was evident there existed such a localization as shall make operation effectual in arresting further baneful progress. The results of serum therapy were not always so satisfactory, as not infrequently its employment was begun too late, or the virulence of the infection was so marked that the best result to be obtained would be a local manifestation of the poison which would still require resort to the knife for the safety of the patient. A case was cited in point. Extensive peritoneal exudate entirely surrounding the uterus and fixing it and the appendages might be entirely absorbed and the patient restored with functioning organs by rest, regulation of the diet, moderate depletion, and the judicious use of improvised carbonic acid baths. The constant course of the surgeon should be one of watchfulness, utilizing every force at his command to conserve the functions of the patient, yet to proceed unhesitatingly to the most radical measures when such seemed necessary to preserve life.

When Shall We Operate in Puerperal Sepsis?—Dr. John Osborn Polak of Brooklyn, New York, read a paper on this subject, which was based on a study of two hundred consecutive cases. He drew the following conclusions: 1. That each case of post-partum or post-abortal infection must be studied individually, and an accurate diagnosis must be made on the clinical, bacteriological, and blood findings, before any treatment was instituted. 2. Nature was competent in the majority of instances to localize and circumscribe the infection. 3. Curettage, douches, and examinations during the acute stage broke down barriers and opened avenues for the further dissemination of sepsis to the myometrium, parametrium, and adjacent tissues, and that the danger from curettage increased with each month of pregnancy. 4. Enormous pelvic and abdominal exudates may disappear without operation, and that in time enlarged ovaries, tubes, etc., might assume their proper size and function, and further, that as long as the patients' general condition improved, no surgery was advisable. 5. All operations were attended with less risk after the acute stage of the infection had subsided, and an exact diagnosis was more easily made at this time. 6. After the uterus was thoroughly emptied, the pelvis should be left absolutely alone, and efforts should be made to support the patient and increase her natural blood resistance. 7. Extraperitoneal drainage of local foci should be elected when possible, either by incision just above Poupart's ligament, or by posterior vaginal section, and, when this was impossible, because of an inability to determine the exact anatomical relations of the local foci, an exploratory laparotomy was justifiable in order to make an exact diagnosis and determine upon the safest route for drainage. 9. Operative interference in the acute stage of sepsis was only indicated in general purulent peritonitis, post-abortal pelvic peritonitis, infected tumors in or near the genital tract, and uterine rupture, when the rupture had occurred in the course of labor, and had been handled outside of a well-managed maternity, and finally that thrombophlebitis was a conservative process on the part of nature to limit the infection, and that any form of pelvic manipulation only tended to break down and separate parts of these thrombi, extending the infection to the more remote parts, thus jeopardizing the patient's life.

The Surgical Treatment of Puerperal Septic Infection.—Dr. Hiram N. Vineberg of New York said that surgical intervention, if curettage be not included, came into consideration in only a small percentage of cases of puerperal sepsis. The selection of these was difficult for want of reliable guides, bacteriological or clinical, as to the course and prognosis of a given case. Hysterectomy was indicated (a) when the uterus contained putrid placental remains that could not be removed with the finger or curette; (b) when the uterus contained a sloughing fibroid; (c) when the uterus was studded with abscesses; (d) when the uterus had been subjected to severe traumatism and gave evidence of infection. The status of ligation of the pelvic veins in puerperal septic thrombophlebitis was still *sub judice*. The results thus far warranted a further trial with the procedure. In acute puerperal septic peritonitis good results had been obtained by the Germans with multiple incisions and drainage. Perimetric and parametric abscesses should be approached without entering the general peritoneal cavity. In unilateral pyosalpinx or ovarian abscess, the usual median laparotomy incision should be avoided, and, instead of it, one should be made over Poupart's ligament or at the outer ridge of the rectus, so as to avoid entering the general peritoneal cavity. Although the author was an advocate of major surgical intervention in suitable cases, he had had occasion during the past seven years to extirpate the uterus in only six cases. From this it could be inferred that it was only very rarely that major surgical intervention was indicated in acute puerperal septic infection. The vast majority of the cases got well under appropriate general treatment and such minor surgery as the exigencies of the given case might call for.

Is Pubiotomy a Justifiable Operation?—Dr. J. Whitridge Williams of Baltimore read a second communication based upon a series of twenty-five successful cases, and drew the following conclusions: 1. In twenty-five pubiotomies performed at the Johns Hopkins Hospital there were no maternal, but three fetal deaths, only one of which was attributable to the operation. 2. All patients were delivered by forceps or version immediately after pubiotomy.

There were no injuries to the bladder. There were six perineal and five deep communicating vaginal tears, notwithstanding the fact that twelve of the patients were primiparæ. 3. The relative infrequency of injury to the soft parts was attributed to restricting the operation to suitable grades of pelvic contraction, and to the employment of Doederlein's technic, but particularly to extensive manual dilatation of the vagina and perineum prior to operating. The occurrence of such injuries might be still further decreased by making horizontal instead of upward traction when delivering the head through the vulva. 4. The after-treatment was not so onerous as was generally stated, and most of the patients suffered but little. Immobilization of the pelvis was not necessary, a four-inch adhesive strip around the trochanters being sufficient. The patients usually moved spontaneously in bed between the second and fourth days; they got up between the fifteenth and twentieth, and were discharged on the thirtieth day with satisfactory locomotion. Healing generally occurred by fibrous union, so that there was definite motility between the ends of the bone in at least two-thirds of the cases. 5. The maternal mortality should not exceed two per cent. provided the operation was performed by competent operators upon uninfected women, who had not been exhausted by previous attempts at delivery. 6. It was indicated in contracted pelves where the conjugata vera exceeded seven centimeters, and after a test of several hours in the second stage of labor has shown that the disproportion could not be overcome, as well as in certain funnel-shaped pelves. 7. Prophylactic placing of the saw was indicated prior to breech extractions or versions from transverse presentations when it appeared problematical whether the head could pass through the pelvis, and the bones sawed through immediately after discovering the disproportion. 8. In multiparæ with a history of repeated difficult labors, or in primiparæ presenting excessive disproportion, pubiotomy was inferior to cesarean section performed at the end of pregnancy or at the onset of labor; otherwise it did not enter into competition with it, as the former was the operation of choice in border-line pelves after the patient had been subjected to the test of labor, and at that time it was many times less dangeraus than the classical cesarean section. 9. In uninfected women it should replace high forceps, prophylactic version, induction of premature labor, and craniotomy upon the livng child. In how far it might compete with suprasymphyseal cesarean section must be shown by future observations. 10. It should not be employed in infected patients or after failure to deliver by other means. It should be regarded as a primary operation whose dangers were infection, deep tears, and hemorrhage. 11. Where the separation between the cut ends of the bone did not exceed four to five centimeters, the patients recovered perfectly and were able to walk and work as well as previously. 12. In view of the fact that the bone section usually healed by fibrous union, a certain degree of permanent enlargement of the pelvis might follow, particularly in the transverse diameter of the outlet, and less so in the conjugata vera. Under the influence of the hyperemia incident to a subsequent pregnancy, this might occasionally become markedly exaggerated and be sufficient to permit spontaneous labor. Should this not occur, a second pubiotomy might be performed, while cesarean section should be limited to those cases in which the pelvic contraction was marked and the child large.

What Are the End Results of Surgery or Surgical Operations for the Relief of Neurasthenic Conditions Associated with the Various Visceral Ptoses? To What Extent Do They Improve the Neurasthenic State Itself?—The American Gynecological Society and the American Surgical Association devoted one entire joint session to the discussion of this subject.

Dr. Edward Reynolds of Boston, in opening the discussion, took up the etiology of the ptoses and their relation to neurasthenia. He said that satisfactory end results depended upon a successful initial study of the causation of the individual ptosis, and of its consequent relation to the neurasthenia. Technique was a subordinate matter. Ptosis was never a primary affection, but was always secondary to some other condition. The causes of ptosis were (a) local anatomical or developmental anomalies, and (b) general systemic mechanical conditions. The local causes of ptosis of pelvic viscera were inflammatory lesions, trauma, high rectovaginal septum, persistent ileolumbar ligament, and anteflexion of the cervix. Operations should be adapted to these causes. The general predisposing causes of all ptoses were (1) general muscular relaxation, and (2) static abnormalities, such as a round-shouldered, hollow-backed position, pendulous abdomen, the over-feminine figure, and the habitual use of bad corsets. All these static variations were characterized by a forward displacement of the center of gravity. The mechanics of adjustment of posture were comprised in the use of therapeutic shoes and corsets. Mechanical therapeutics was always necessary in static cases. Ptosis was sometimes the result of neurasthenia, sometimes its cause. The main guide was the relative chronological sequence of local and general symptoms. It was important to avoid operation in neurasthenics unless complete relief of the local symptoms could be expected. The importance of subsequent care was emphasized.

Dr. Joseph A. Blake of New York said that patients suffering from visceral ptosis and neurasthenia should be divided into two classes, first, those in which ptosis of the organ or organs contributed to the neurasthenic state simply by the effect produced on the organs themselves. In this category we had displacements of the kidney, uterus, colon, stomach, etc. The results of operations upon this class were dependent upon the degree in which the condition affected the neurasthenic state. In the second class of cases a vicious circle was established, and ptosis increased the neurasthenic state if it was not the underlying cause. Operations undertaken upon patients of this class must have in view the relief of the autointoxication, otherwise they would only be productive of harm. Partial or total exclusion of the colon was a rational procedure in certain cases and good results might be expected, but the greatest care should be exercised in the selection of cases for applying this operation.

Dr. John G. Clark of Philadelphia said that we had a defective individual to deal with from the start, and as the result of this defect we could not hope for the same surgical results as we would get from operating on patients with acute disease. The individual, perhaps, had had autointoxication from the beginning, or was imperfectly developed from the start, and, therefore, a bad surgical subject for immediate or ultimate results, and it was particularly in this class of cases where surgeons should make haste slowly. In the last five or ten years he had tried various types of suspension operations in cases of visceral ptoses, such as the Coffey or the Beyea type of operation, and had not had more than 75 per cent. of functional relief after following these cases carefully. In those cases in which there was a structural defect, as was shown by obstructive and retention symptoms, one did not hope to get more than 50 per cent. of functional relief.

Dr. Maurice H. Richardson of Boston said he approached the treatment of the neurasthenic for whatever cause, whether a definite, unmistakable pathological lesion, or a ptosis, or a slight lesion, like a displacement of the kidney, with the utmost discouragement. One of his recent cases was a woman whose abdomen was covered with scars from repeated operations that had been performed without relief, her last state being worse than the first. Finally, it was found that this woman's gall-bladder was

full of gallstones, which were removed, followed by relief. As to enteroptosis and operations for large dilatations of the intestine, he could recall examples of cases in which he was driven to operation after these patients had gone to the neurologist, the gynecologist, the general surgeon, and had been treated by them without relief, but with the same general results of discouragement. In one instance, eight or ten years ago, he resected the large intestine two or three times with the hope of affording relief, but the patient was in the same neurasthenic condition as in the first place. In addition to the operation on the intestine, she had developed a large ovarian cyst, which was removed. Before operating on these cases, he thought, first, we should be sure that there was a lesion; second, that it was the chief cause of the neurasthenia; third, we should see if it could not be cured without operation, but if operation was to be done, we should see to it that it did not subject the patient to too great a danger. He believed neurasthenia was more of a disease than we gave it credit for, that it was some central, organic, or nervous condition on which operative surgery would have very little or no effect, ultimately.

Dr. Richard R. Smith of Grand Rapids, Mich., confined his remarks to a general consideration of the etiological factors to be thought of in connection with visceral prolapse, and accompanying neurasthenia in women who presented themselves to the gynecologist for the relief of symptoms.

Dr. Lewis S. McMurtry of Louisville said that very often, after difficult manipulations in the abdomen, in the haste of operation, viscera were disposed in every possible irregular manner, and yet they corrected themselves in normal individuals, and they necessarily had no connection with neurasthenia, so that we must have a little more evidence than we had at present that visceral ptoses were the principal factors in the production of this condition of the nervous system and metabolism of the body known as neurasthenia, and he thought that the error in our procedures had been in assuming that these visceral ptoses were in all cases the cause of the neurasthenia. As to the clinical side, his experience was like that which had been related by other surgeons. Operative procedures for all these ptoses, whether of the pelvic organs, the kidney, or the alimentary tract, had been unsatisfactory. Neurasthenia occurred in both sexes in all stations and all conditions of life, among the rich and the poor, and its exact nature or its pathology was as yet unknown, and until it was more definitely known the results were going to be as they were reported to the profession at the present time. What was needed was a definite statement as to the origin or cause of this condition which was known as neurasthenia.

Dr. William M. Polk of New York stated that in patients who presented themselves with ptoses that had been described as belonging to the upper abdominal cavity, we had conditions that unquestionably caused us to balk, but here he was convinced that orthopedics furnished a most efficient aid, and the lines laid down by Dr. Reynolds and by Dr. Lovett of Boston would be the means of benefiting very many of the conditions at the present time for which surgery had been considered the only means of relief. But the psychoneurologist should not be forgotten in connection with these cases. There was no reason why gynecologists and surgeons should bear all the burden in these cases. He had long since come to the conclusion that there was a conspiracy on the part of the neurologist to land on the gynecologist and surgeon a class of cases which he knew full well would test every particle of his acumen, and here was a brilliant opportunity for the psychoneurologist to exploit himself to the fullest extent. When these neurasthenics came to the gynecologist or to the surgeon it should be said to them, first pass through the hands of a competent orthopedist; pass next through the hands of a conscientious self-doubting neurologist, but beware of the over-confident neurologist, and then the surgeon would say: "Madam, or Sir, as the case may be, as you have reached the end of all things, so far as medical investigation is concerned, I am now more than willing to commend all the resources of my refinement of the surgical art."

Dr. A. J. Ochsner of Chicago subscribed to the statements made by Dr. Blake in regard to the surgical care of this class of cases. He said there was no doubt that the condition of neurasthenia could be greatly exaggerated or possibly caused by the results of enteroptosis, particularly when these results produced obstruction either to the alimentary canal and interfered with nutrition and caused autointoxication, or when the condition gave rise to obstruction of the ureter, or caused an accumulation of mucus in the gall-bladder, and secondarily, caused gallstones. The relief, after an operation on such cases, even though the neurasthenia was possibly caused by this condition, must be in most cases exceedingly unsatisfactory, and due largely to two causes. First, we did not mechanically relieve the condition no matter how perfect the operation might be, except in a few instances, as in draining and suspending the gall-bladder in removing a hydronephrotic kidney. Dr. Reynolds' presentation was along the line of observations he had made which caused him to suggest prophylaxis rather than treatment in this way. Many years ago, in studying the treatment of hernia in children, he fould that hernias in children were cured spontaneously, provided conditions were secured in which there was absence of abnormal intraabdominal pressure and traction by placing these children in a position with the foot of the bed elevated at from 15 to 30 degrees. He found that in these children with pendulous bellies the recti muscles came together if they were shortened, that the oblique muscles were strengthened, and that the intestines instead of hanging at the bottom of the pelvis, would, after a few months' treatment, be in normal position. He found that this enteroptosis in children had resulted from improper feeding, from gaseous distention, and from other sources of abnormal intraabdominal pressure. In some of these cases the increased abdominal pressure was due to severe straining from constipation, and with the relief of this the enteroptosis in children was decreased to a very marked extent. He thought by overcoming the causes of enteroptosis in children, we would prevent its occurrence in many adults.

Dr. Howard A. Kelly of Baltimore restricted his remarks to the various types of nervous systems associated with movable kidney. Movable kidney was frequently found in neurasthenics. Movable kidney, associated with renal pain, might exist to such a marked extent as to bring on the neurasthenic state. The symptoms connected with movable kidney sufficient to justify operative procedure, were, as a rule, definite, and of a local mechanical nature. Psychotherapy was of little use as an adjuvant in treating neurasthenics and in relieving either local or general ptoses so long as a displacement of the kidney persisted. On the other hand, psychotherapy and other forms of treatment, which aimed at building up the patient's general condition, might seemingly effect a cure. In an analysis of 245 cases of nephroptosis, 78 or 31.4 per cent. had neurasthenia of varying degrees. Personally, the speaker never operated on neurasthenic patients without definite local symptoms.

Dr. Willis G. Macdonald of Albany said that not all patients who suffered from ptoses were neurasthenic. A very large proportion of them did not present symptoms. In a large number of these cases of neurasthenia associated with ptoses the responsible conditions were autointoxication from the intestinal tube and peripheral irri-

tations from movable organs. He divided patients suffering from neurasthenia and ptoses into two classes. In the first class there were those patients who traveled from rest cures to rest cures, from one climate to another, and who were pretty generally battle-scarred from their conflict with surgery. For this class surgery had no potency. There was no hope for relief from surgical intervention in such cases. On the other hand, there was a considerable group of cases in which the condition could be traced to an overloaded cecum and sigmoid—a constant filling of the intestinal tube, with a large, dilated myasthenic stomach lying upon the symphysis pubis. Operation would relieve successfully a large number of such patients, yet, unfortunately, clinical methods were not sufficient to determine always just which cases would be favorably influenced by surgical intervention and those which would not, and in making statements to physicians and friends of such patients we should, as a matter of common honesty, express some doubt as to the ultimate results in this particular class of cases.

Dr. John K. Mitchell of Philadelphia stated that the whole causation of neurasthenia was bound up in a kind of vicious circle where one symptom produced another until one positively could not disentangle the chain. What did we know about the normal relations of the abdominal organs? What did we know about the position in which the various organs in the belly ought to be in the ordinary upright posture which we maintain a large part of the time? How much mobility should such organs as the kidney and liver have? Apparently, from the manner in which the intestines were distributed in the belly, they were not placed there like articles on a shelf to be maintained in one position, but they possessed a certain amount of give and take. He saw very few neurasthenics in which the kidney did not have more or less play, and slightly movable kidneys sometimes gave worse symptoms and caused more trouble than those which were freely movable, and a floating kidney, unless it resulted in a twisting of the ureter and stoppage in that way, causing pain in the ureter and in other portions of that neighborhood, did not produce so much symptoms as a kidney that was only slightly movable, one in which it would be difficult to determine whether it was movable or not. Before operating on a neurasthenic patient the surgeon should have a definite idea as to whether a pathological condition existed or not, what he was going to do, and what he hoped to accomplish by the operation, otherwise the results from surgical intervention would be unsatisfactory.

Dr. William J. Mayo of Rochester, Minn., agreed with Dr. Clark that these patients were wrong from the beginning, and his own feeling was that but a small number of them should be treated surgically. For some years they had made a careful examination of all patients who presented themselves, no matter whether they had cancer of the breast or gallstones, or what not, and to their surprise they found that about 25 per cent. of the women had retroposition of the uterus. They did not find that retroposition of the uterus was more frequent in the latter decades of life. Even young girls who came to them, in whom pelvic examinations were made through the rectum, had retroversion of the uterus in about the same proportion of cases as those women who had reached the menopause. Again, they found 20 per cent. of the patients had movable kidney, and a very large majority of them did not have any symptoms of that condition. From a surgical standpoint, neurasthenics should be treated like the insane, in that no cognizance whatever should be taken of their general complaints, but if they had sufficient local pathology to warrant operation, they should be operated on, as surgeons had no right to deny this class of patients the relief that came from surgery. Doubtless, many of these patients could be benefited by the Emmanuel movement or by Christian Science, and many practitioners would gladly turn them over to the Christian Scientists if they were convinced that the Christian Scientists were really Christians, because, he said, it really took a Christian to handle them.

Closing remarks by Drs. Reynolds and Blake brought the joint session to a close.

Fibromyomata of the Uterus.—Dr. I. S. Stone of Washington, D. C., gave his views on the various practical points in connection with the general subject, such as the age of patients, the complications frequently encountered in performing hysterectomy, and the pathological changes found in the tumors themselves. He reported 160 abdominal hysterectomies, all of which had been performed in one of the hospitals with which he was connected. Thirty of the number were complete hysterectomies, but the ovaries were not always removed. He thought the operation at the present time was nearly as safe as ovariotomy so far as the saving of life went, but the morbidity was not as low as in the latter operation. The complications resulting from the degenerative changes in the tumor, the danger of sepsis from the proximity to the vagina, and the greater exposure of pelvic connective tissue in hysterectomy would always be considered more productive of mischief than the conditions which followed in the wake of ovariotomy. The author gave the question of mortality much attention and quoted from the reports of operations in various hospitals to show the marked improvement in results during the last decade. The average mortality was now about 4 per cent., but many operators had obtained a much lower rate.

Extensive Malformations and Malpositions of the Urogenital Organs.—Dr. Thomas S. Cullen of Baltimore gave the clinical history of a patient, aged seventeen, white, who came complaining that she had never had her menstrual periods. On examination he fould total absence of the vagina, but by rectal examination was able to detect a mass filling the right half of the pelvis. This mass he thought might be the uterus with retained menstrual flow. An incision was made between the bladder and rectum until the mass was reached. It was found to be hard. The abdomen was at once opened and filling the right half of the pelvis was a somewhat irregular mass. This on its inner aspect had a definite cleft which suggested the pelvis of a kidney. A hand was carried up into the right renal pocket, but no kidney was present at that point. Examination of the left side failed to reveal any left kidney. He was dealing with a right pelvic kidney. There was no uterus. Half of the right tube emerged from the inguinal canal. The remaining portion of the tube and the corresponding ovary lay in the inguinal canal. A small loop of round ligament was seen emerging from the inguinal canal. On the left side the tube and ovary could not be seen, but could be felt in the inguinal ring. A small portion of the round ligament was discernible. He briefly discussed the relative merits of Baldwin's operation, where a vagina was made from a portion of the intestinal tract, and Ferguson's operation where a new vagina was made by turning in skin flaps. Dr. Cullen demonstrated a specimen of adenocarcinoma of the Fallopian tube coming from a patient, forty-six years of age. The chief interest in this tube lay in its immense size. It formed a tumor 14 x 12 x 10 cm. Near the uterus the tube was normal in size. After it had passed out five centimeters, it was five centimeters in diameter, and its outer and occluded end was ten centimeters in diameter. The great distention of the outer end of the tube was in part due to an accompanying hydrosalpinx. The growth was limited almost entirely to the inner surface of the tube. It was of a distinct papillary variety. The left tube was also involved in the carcinomatous process. This was one of the largest carcinomas of the tube on record.

The Repair of Inaccessible Vesicovaginal Fistulæ Following Hysterectomy.—Dr. George Gray Ward of New York described the method he had adopted in two cases, with satisfactory results. The important steps which led to a successful result in the method he employed were: 1. The differentiation from a urethral fistula by distention of the bladder with an anilin solution. 2. The employment of deep paravaginal incisions as described by Schuchardt. 3. A longitudinal incision on the anterior vaginal wall from the urethra to the vaginal vault through the fistula and extending into the posterior vaginal wall, and a lateral incision extending the full width of the vaginal vault. 4. The thorough separation of the base of the bladder from the entire anterior vagina and vaginal vault, being careful to commence the dissection in the lower vagina where there was an absence of scar tissue to establish the line of cleavage. 5. Evisceration of the bladder into the vagina by means of a sound or similar instrument passed through the urethra. 6. The closure of the opening in the bladder separately from the vaginal incision.

The Influence of the Trendelenburg Position on the Quantity of Urine Excreted During Anesthesia.—Dr. J. Wesley Bovée of Washington, D. C., said that after having recently studied eight cases of ether anesthesia and eight of chloroform, he believed the results demonstrated that almost no urine was received in the bladder while the Trendelenburg position was being employed. If it could be concluded that the renal function was greatly lessened while the patient was in the Trendelenburg position, then the dangers of that position were at once appreciated. In renal inefficiency, cardiac and arterial lesions, it would seem the use of the Trendelenburg position would introduce a special element of danger, and this more marked when ether was used than when chloroform was employed as the anesthetic.

The Postoperative Treatment of Abdominal Section for Pelvic Disease.—Dr. Brooks H. Wells of New York said it was found that getting the patient out of bed early after operation encouraged her, lessened nausea, promoted an earlier return of appetite, increased peristalsis, made the use of the catheter seldom necessary, made the bowel movements easier, so that there was less necessity for purgatives, improved the respiration, lessened the tendency to pulmonary complications, prevented loss of muscle tone, and greatly facilitated a rapid convalescence. The only contraindications were (1) shock or general weakness, as expressed in a rapid and weak heart, so that one might fear cardiac failure from the upright position. (2) Cases where, with a long median incision there had been much tension, required in bringing together the fascial edges. (3) Cases that developed septic temperature or deep wound infections. Of the cases that formed the basis of the paper, over one hundred had been operated on through a transverse incision, and of these none had developed hernia. Two of the median incisions were known to have developed hernia, but neither patient was allowed out of bed early.

Report of the Committee of the American Gynecological Society on the Present Status of Obstetrical Education in Europe and America.—This committee, consisting of Drs. E. B. Cragin, J. E. Edgar, C. M. Green, E. P. Davis, J. W. Williams, J. C. Webster, and B. C. Hirst, chairman, recommended that the teaching of obstetrics should occupy at least two years of the medical course, and that those expecting to practise obstetrics should be urged to avail themselves of elective opportunities. That the number of labor cases personally attended by each undergraduate student should be at least six, under supervision and instruction. The committee recommended all the known methods of teaching this branch of instruction, namely, didactic lectures, clinical lectures, clinical conferences, ward classes and touch courses, hospital and out-patient instruction, manikin practice in operative obstetrics, and recitations. Of the first three methods, the committee recommended especially clinical lectures and conferences. It recommended that ample facilities be afforded to make antepartum examinations, including inspection, abdominal palpation, pelvimetry, fetometry, vaginal examinations, etc. The committee recommended that a two weeks' hospital residence should be required before the out-patient practice. It was recommended that as obstetrics at present included pregnancy and parturition, their complications and consequences and the complete recovery of the woman after labor, that obstetric instruction should include the medical and surgical treatment of these conditions. The tendency of obstetrics to become more surgical in practice and to require a surgical training was evidenced by the fact that in the medical schools of Europe, and in more than one-third of the first fourteen medical colleges of this country, the chairs of obstetrics and gynecology were combined under one head.

On motion, the report of the committee with recommendations was adopted.

Cesarean Section for Impassable Contraction Ring.—Dr. Robert L. Dickinson of Brooklyn, N. Y., said that apart from a consideration of contracted pelvis, or a relative disproportion beween the passage and passenger, or blockade by scars or tumors, section for impassable contraction ring was warranted when the following conditions were present: 1. Child living and not definitely enfeebled or endangered by the length of labor or by unskilled attempts at extraction. 2. The ring refusing to relax under morphia or complete anesthesia, or to yield to patient manual dilatation by a skilled obstetrician. 3. Mother in fair condition for a laparotomy and not infected. 4. Request by patient and husband that a somewhat increased risk to the mother be assumed for the sake of obtaining a living child in lieu of embryotomy. These indications were perfected if at a previous labor in expert hands this same condition of the contraction ring had caused the loss of a child not unduly large. This held good whether the ring was in advance of the head or about the neck. The association of a rigid ring with other reasons for section was frequently present. The following case seemed to be the first instance of deliberate section for the indication—rigid ring in advance of the head. Dr. Watts' cases appeared to be the earliest for neck constriction, and these three, the first classical cesarean sections for contraction ring blockade. A healthy woman of twenty-six was delivered at the thirty-second week with forceps. The contraction ring did not relax under chloroform and the death of the child was due to the amount of traction necessitated. Two years later, at the thirty-fifth week, she fell into labor in his care. A thumb-thick circle admitting two fingers lay just above the plane of the pelvic brim. Morphia did not help except to rest the patient. Attempts at dilatation under anesthesia failed. The ring retained its contraction after the emptying of the uterus. Both patients did well. The literature showed five cases, all hysterectomies, two after failure of embryotomy, only one, that of Sinnetamby, for transverse presentation being undertaken for the indication with a living child. The author carefully summarized the literature on the whole subject of the retraction ring since 1899, when it was fully covered in Cheron's book.

Officers.—The following officers were elected for the ensuing year: *President,* Dr. Reuben Peterson of Ann Arbor, Mich.; *Vice-Presidents,* Drs. John F. Thompson of Portland, Me., and John C. Clark of Philadelphia; *Treasurer,* Dr. J. Wesley Bovée of Washington, D. C.; *Secretary,* Dr. Le Roy Broun of New York.

Atlantic City, N. J., was selected as the place for holding the next annual meeting.

THE AMERICAN THERAPEUTIC SOCIETY.

Eleventh Annual Meeting, Held at Washington, D. C., May 5, 6 and 7, 1910.

JAMES C. WILSON, M. D., OF PHILADELPHIA, PRESIDENT, IN THE CHAIR.

Thursday, May 5—First Day.

The address of welcome was made by Dr. HARVEY W. WILEY of Washington, D. C., and the response to it by Dr. ALEXANDER MCPHEDRAN of Toronto, Canada.

Address of the President.—Dr. JAMES C. WILSON took for his subject "The Progress of Therapeutics." In speaking of the universities which sprang up in almost every important city of Europe under the influence of the Renaissance, he said that the faculties of theology, arts, law, and medicine were gradually differentiated, and that medicine was prominent in every school. In some, as Salernum, medicine was long the sole department; a suggestive commentary upon modern university organization, in which sometimes all the faculties were found represented except that of medicine; or, again, with a medical department dragging on an unsatisfactory existence by reason of inadequate equipment and a discouraged and not altogether harmonious faculty. Having traced the history of medicine to later times, he said that with the development of pathological anatomy on the one hand and of clinical methods on the other, came that division of labor to which we owed the specialties, a concentration of energy which might be compared to intensive farming, and which had done more to secure accuracy in scientific observation in clinical work and precision in therapeutic measures than any other event in the history of medicine. Bacteriology, the youngest of the natural sciences, daughter of the genius of Pasteur and Koch, came into being, and thus at the beginning of the last third of the nineteenth century the study of causes found a sure foundation in the facts of science, and empiricism in therapeutics gave way to rationalism. Half a century had not yet elapsed, and the art of healing showed signs of being revolutionized. Many pathogenic bacteria were known to us by specific morphological, tinctorial and cultural characters, but the existence of others which had eluded the known methods of research might be inferred, as in the case of measles, for example, from the constancy of certain associated morbid phenomena. The blood serum, not long ago regarded as a simple solution of albumin and certain salts, was now known to possess properties in health and disease of the most subtile and occult characters and potentialities in regard to infection, immunity and therapeusis equally mysterious. The history of the advance of medicine would be but a series of disconnected episodes were it not that it taught us that here, as in other fields of human endeavor, knowledge ripens slowly and that failures are the stepping-stones to success. It taught us also that the control of effects can be compassed only through a knowledge of their causes. There were more than two thousand years of empiricism before reason came to her own in medicine. Jenner alone in all time before the era of bacteriology—our era—applied the knowledge of causes to preventive medicine and wrought the wonder of a rescued world. To-day we watched the effects of the antitoxin made possible by the work of Klebs and Loeffler, or those which follow the administration of Flexner's serum, and experienced the sensation of having witnessed a miracle. In modern times there had been less and less of indirection and a progressively increasing tendency toward practical results. Specialism and organization were complemental. Without the one the other could not exist, and the new medicine was the product of this union. A comprehensive survey of the work done by the members of the American Therapeutic Society individually and collectively discovered here also a well-defined tendency to specialism. Three main therapeutic trends had been differentiated: first, the Hippocratic medicine in which the forces of nature other than drugs played the most important rôle; second, the subject of psychotherapy and reeducation in the management of functional neuroses; and, third, the general study of therapeutics as comprising the empiric use of drugs on the one hand and the rational employment of causal remedies upon the other. Their work consisted in the application of the means to the end, and the time was now at hand for them to enter upon the latest phase of applied therapeutics, namely rational therapeutics based upon the latest results of the scientific study of the causes of disease, serum therapy, opotherapy and the use of bacterines. A convention for the ninth decennial revision of the U. S. Pharmacopœia was to be held in Washington in a few days, and in view of this fact it had seemed appropriate that a symposium upon matters concerning the Pharmacopœia should form part of the society at this meeting. Those who were to take part in it were men especially interested in the matter, most of them delegates to the convention and all qualified to speak with authority upon the subjects to be discussed, especially from the standpoint of the practitioner of medicine. It was the confident hope of the members of the society that this discussion would exert an important influence upon the transactions of the approaching convention.

The Treatment of Pneumonia.—Dr. ALEXANDER MCPHEDRAN of Toronto pointed out that the disease is a marked general infection, with a very marked local one in the lung, and that the lung infection has already occurred when the symptoms become well defined. This rendered the arrest of the disease a difficult matter. Death from pneumonia was usually due to cardiac failure, which, in turn, was caused by the depression of the circulatory center in the medulla from the toxic albuminoid of the pneumococcus. Cases of cardiac failure might be divided into two groups: (1) The asphyxial, in which there were signs of failure in the right heart, with cyanosis. The great majority of cases belonged to this group. (2) The syncopal, in which there was anemia of all parts, due probably to paresis and consequent dilatation of the splanchnic vessels. In this condition the heart, in common with other organs, suffered from anemia. Since virulent pneumococci were so frequently found in the mouth, it followed that there must be strong resisting power in the body-fluids in health to prevent their invasion of the blood stream. Of late years the disease had been regarded as greatly on the increase, and this was probably due to the prevalence of influenza. Samuel Nest had shown from the Registrar-General's Statistics that there is a remarkably close relationship between the prevalence of influenza and of pneumonia since the first epidemic of the former in 1889. From this we might infer that the first step in the prophylaxis of pneumonia was to maintain rest and good care until complete recovery from influenza and other depressing diseases. We knew of no specific for pneumonia. Anto-pneumococcic serum had not proved effective, and for various reasons could not influence the disease in most cases. Vaccines could scarcely do good in acute cases, especially when the system was so depressed already by the toxins that it could not react. Vaccines would only add to the toxemia. They might, however, prove of benefit in the later stages in cases showing evidences of slow resolution. The symptomatic treatment, or, rather, the treatment of the patient as indicated by his symptoms, was very simple in ordinary cases. He should rest in bed in fresh, cool air, be kept comfortably warm, be given a light diet in moderation, and receive close supervision so that prompt action might be taken in any threatening emergency. Fresh air was of the first importance, and probably better if it was cold, be-

cause it then stimulated respiration and, being more dense than warm air, supplied more oxygen in proportion to its bulk. It could do no harm so long as the patient was kept comfortably warm. If it increased cough, a mild sedative might be required. Its good effect was often shown in the improved breathing, more restful sleep, decreasing lividity, clearer mental state, and better taking of food. If such improvement occurred, the pulse became better with it, and, with the improved circulation, there would be greater excretion of toxins in the urine. The diet was not as important a question as it was in enteric fever, as the disease was of short duration. The patient should be allowed, within reasonable limits, to choose his food, care being taken that his powers should not be overtaxed for fear of abdominal distention. In the great majority of cases no further treatment was called for. The greatest danger in pneumonia was from cardiovascular and respiratory failure, due to depression of the vital nerve centers by the toxemia. The earliest signs were restlessness and insomnia, and they should be relieved as quickly as possible by stimulants, cold spongings, etc. If these means fail, opium was probably the most potent agent at our command; and no remedy was so generally useful as this in relieving cardiac failure from any cause, especially in the aged. It should be given early, preferably as morphine hypodermatically, while the bronchi are still free; since the greatest danger from its use was in permitting accumulation of bronchial secretion. If there was much dilatation of the right side of the heart, it might not be effective until the distention had been lessened. English physicians recommended for the relief of the right heart four or five leeches applied to the right of the sternum. In very threatening cases venesection was certainly more effective. If the blood were drawn in a free stream, four to ten ounces would usually give marked relief. Even in weakly, anemic patients beginning to show signs of cardiac distention much good would result from such bleeding. If thought necessary, saline solution might be given subcutaneously to replace the lost volume of blood. As to the administration of oxygen, reports of the effects were very conflicting. To be effective it should be given early, and possibly the benefit might be greatly increased by having it pass through absolute alcohol. The effect of cardiac stimulants probably depended largely on the integrity of the heart muscle. Cold applications to the chest were strongly recommended by many. Their efficacy was open to question. Not long ago it would have been considered almost criminal to omit the hot poultice. Now few regarded it with favor, and it was quite possible that before long cold applications would suffer the same loss of reputation.

Malarial Infections in the Canal Zone.—Dr. F. N. Shook, U. S. N., said that in this intensely infected focus of tropical malarial fever the most important malarial infection, from the standpoint of diagnosis and prognosis, was the estivoautumnal. Single tertian and double tertian infections were common, but quartan very rare. The principal types of estivoautumnal infections might be classified as (1) mild; (2) severe; (3) mixed; (4) pernicious, including the hyperpyretic type. Children usually stood the effects of malarial infection better than adults, but when they were attacked by a pernicious infection it often simulated cerebrospinal fever, and the autopsy showed the cerebral capillaries filled with sporulating parasites. The experience of physicians on the Isthmus emphasized the following points: (1) In tropical malaria quinine should be given either in solution or capsules, as there is danger of tablets not being absorbed. (2) If properly administered, hypodermatics of quinine rarely cause abcess. (3) Quinine will not stay the fatal termination of some types of malarial fever. (4) In cases of malarial fever in adults in the tropics which do not show pernicious symptoms the treatment with an initial dose of 20 grains of quinine, preferably in solution, followed by 10 grains three times a day, is almost uniformly successful. (5) In the treatment of malarial fever in pregnant women in the tropics the safest rule is to disregard the pregnancy and treat the malaria in the usual manner. (6) After surgical operations in malarial districts in the tropics pernicious malarial fever may develop unless a prophylactic course of quinine is first given. (7) In an examination of five fetuses from cases of pernicious malaria neither malarial parasites nor pigment were found.

Important Therapeutic Indications in the Treatment of Typhoid Fever.—Dr. J. Blake White of New York read this paper. In some preliminary remarks on diagnosis he said he would rather rely on clinical evidences, backed by his own judgment and experience, than wait for confirmation by any one or all combined of the various laboratory tests which had been proposed. While awaiting the result of such tests valuable time was often lost, and after this delay one might be led to incorrect conclusions by the return of a negative report, which was not uncommon in the earlier stages of the disease. To the extent that we succeeded in modifying the intestinal morbific process in typhoid we would not only lessen the thermic changes attending the disease, but also prevent the various complications formerly so often met with The presence of advancing and persistent intestinal lesions rendered imminent the danger of perforation, with its consequent peritonitis and death; while the blood changes, due to the absorption of the increased microtoxins, made pneumonia more probable and also added to the chances of intercurrent cerebral disease. Meningeal complication was especially apprehended in patients having the tuberculous diathesis, but with the specific antiseptic treatment which he advocated this tendency was averted when the diagnosis of typhoid was made early and the treatment promptly commenced. In the many years of his experience with the antiseptic method intestinal hemorrhage had been very rare, but when it did occur, rectified spirit of turpentine, given in five or ten minim doses in soft capsules, had never failed to control it. By judicious attention to the nutrition of the patient, to maintain the quality of the blood, thrombosis and embolism might generally be prevented. At an early stage, about the second week of the disease, when, with rare exceptions, the temperature declined under the antiseptic treatment to nearly normal, he usually gave some alcoholic stimulant, as well as strychnine, believing that, in some cases at least, convalescence was more rapid and satisfactory when alcohol was employed at this period. To await the approach of debility, especially at the decline of the fever, was not advisable; and it had seemed better to him to anticipate this with an early attention to the nutrition and a judicious stimulation. Any process of tubbing was in many instances too exhausting to be of benefit, and in some cases became a positively harmful practice, and the custom of applying chilling hydropathic treatment as a routine procedure could not, in his estimation, be too strongly denounced. His own observation of this means of reducing the temperature had convinced him that it was the most irrational method of treatment which could be devised, as it was not intended to have, and never could have, any effect upon the pathological cause of the hyperpyrexia. He was willing to admit that ablutions had some useful application in strengthening the vital powers, and therefore approved of and practised regular lavations with sterile water and alcohol, but the water must be tempered to the enduring capacity of the patient. He used lavages more as a hygienic measure than for the purpose of merely reducing the temperature, which, he believed, would yield more permanently to medication adapted to the modification of the morbific processes in the intestine which were primarily responsible for the fever. It was of vital importance that regular function of the bowels should

be maintained throughout the illness and convalescence. Under the intestinal antiseptic treatment it was not infrequently necessary to have recourse to means for exciting the bowels, but diarrhea occurring at an early stage and threatening to become an urgent symptom should be controlled.

When it became necessary to overcome intestinal apathy enemata should be given or appropriate laxatives in doses sufficient to induce only one or two movements in the twenty-four hours; or recourse might be had to irrigation of the rectum with mild warm saline solution through a Kemp tube. As to the dietary, he gave eggs, milk and light meat broths. He permitted cereals, well boiled, at any time, and the resort to solid food just as soon as the patient's condition warranted it; generally by the end of the second week, and sometimes sooner. For the causes of the fever, the toxemia from local lesions and the general blood dyscrasia, he believed no better resource was to be found than antiseptic medication. The simple temporary reduction of high temperature had little advantage unless the causes of this were removed. The fever apparently had its origin in the intestinal inflammation and the absorption of specific toxins; the first therapeutic indication, therefore, was in the direction of the use of remedies which have the essential quality of modifying and controlling this condition. No disease, in his opinion, was more manageable than typhoid fever, and he had yet to note as prompt or more constant effects from any kind of therapeutic measures in any other affection than those resulting from intestinal antiseptics in these fever cases. As soon as the diagnosis was made, or earlier if there was any doubt about the matter, the combination used by Woodbridge should be given, but in somewhat larger doses than he recommended. The best manner of administering the remedies was in tablet triturates (so friable as to be easily crushed between the fingers), which should be taken at the rate of from twenty to thirty in the twenty-four hours; each tablet to be followed by two or three swallows of some pure spring water, not aerated. After some modification of the fever had been obtained, and a general improvement observed, he gave larger doses of the antiseptic in soft capsules, one every three or four hours with larger draughts of water. Should a case not be seen until the fever had advanced so far that the patient was delirious and so unmanageable that internal medication was not possible, he gave sodium sulphoborate hypodermatically at intervals of two, three or four hours as the case might require, and subsequently began the internal antiseptic treatment as soon as the patient's condition permitted. Much depended on the nurse, who must show all kindness to her patient, be vigilant, prudent, and alert in the performance of her duty, and pay exact attention to the management of every detail. The ideal treatment of typhoid fever, then, was that which, at as little expense as possible to the patient's vitality, had for its object the reinforcement of the natural powers, thereby affording a successful barrier to the encroachment of disease; to neutralize, if not destroy, and eliminate as far as possible the causes of disease before the products of germ infection have become established in the system to such an extent as to materially impair the vital powers.

The Treatment of Leukemia by the Roentgen Ray.—Dr. Reynold Webb Wilcox of New York reported a case of this kind which he said was presented because of the difference in type based on clinical as distinguished from purely laboratory conclusions, the considerable period of observation, and the fairly constant therapeutic results which it illustrated. The patient was a medical student, Russian, and 29 years old. For ten years he had been pale, but the most noticeable symptom was shortness of breath, commencing eight years ago and lasting about two years. When he arrived in this country, in April, 1906, he considered that he was well. During the next three years he had, at times, constipation, fever (but no chills), shortness of breath, and pain below the shoulder-blade on the left side. When he came under Dr. Wilcox's observation Sept. 4, 1909, the pallor of his skin and mucous membranes was profound. The pulse was 122, compressible, regular and weak. Heart normal; Jaccoud's sign, absent; marked *bruit de diable*. The liver extended to about two fingers' breadth below the free border of the ribs. The spleen occupied the whole of the left abdominal cavity. It extended to two fingers' breadth to the right of the umbilicus; it was hard, not sensitive to pressure, and laterally slightly movable. There was no tenderness over the flat bones, and no enlarged glands were felt. Nothing of note was found in the urine. The record of blood counts, including the differential leucocyte percentage, was given; showing, for the most part, a progressively improved condition of the blood; the urine never showed the excess of uric acid usually so characteristic of the disease, nor, during the treatment by the Roentgen ray, was there observed an excess of phosphates from diminution of leucocytosis, such as had been constant in all Dr. Wilcox's other cases of leukemia.

The treatment was primarily empirical, based on the use of the Roentgen ray, and was carried out under the direction of Dr. Carl Beck. A hard tube was used, with fifteen minutes' exposure over the spleen twice or thrice weekly. On account of a slight erythema which appeared in March and lasted for ten days the exposures were omitted altogether for thirteen days and then directed upon the back for five days, after which they were continued as before. Iron was administered for three weeks in October and November. At other times arsenic, in gradually increasing doses of Fowler's solution, was given until gastric symptoms supervened; when it was omitted for a week, to be commenced in the minimal dose. In making a diagnosis between the recognized forms of leukemia—splenomedullary, lymphatic, and the mixed forms, the speaker said, there was much confusion in the literature, but, clinically, the picture was fairly clear. In this instance the massive enlargement of the spleen, taken in connection with the absence of tenderness over any of the bones, and of any enlargement of the lymphatic glands, would indicate that this particular leukemia was of the splenic type, or possibly of the spleno-medullary form, sometimes designated myelogenous. The differential leucocyte count would seem to indicate the latter. In the slowly progressive types of the affection there was more difficulty in determining where the disease originated than in the more acute forms. The more one studied the patients, the more would he be inclined to believe that the disease is seldom confined to one organ or set of organs; nor, on the other hand, was it ever as generalized as one might expect. On April 28, 1910, the lower border of the spleen was but two fingers' breadth below the free border of the ribs; its consistence was still hard, owing, doubtless, to the hypertrophy of the connective tissue during the long period of its enlargement. The pulse was 72, of good value and tension. The respiration was 22, without signs of dyspnea. The pallor had largely disappeared, and for the preceding two weeks the patient had been engaged in active employment.

What the final results of the Roentgen ray treatment of leukemia would be, no one at present could state definitely. Six years of observation had led him to believe that in this type of the disease, essentially splenic, improvement in the general health was more rapidly and surely brought about by the skilful employment of this agent than by any means which we had hitherto possessed. He also believed that both iron and arsenic still had a place in the therapy of this disease.

(*To be continued.*)

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

BOARD OF MEDICAL EXAMINERS OF GEORGIA.

May 2-7, 1910.

ANATOMY.

1. Name bones of tarsus. What bones form internal malleolus? External? What bones comprise the pelvis? Name divisions of vertebral column, and give distinguishing characteristics of cervical vertebræ.

2. What muscles aid in mastication? In deglutition? Give origin, nerve, and arterial supply of masseter muscle. What muscles compose quadriceps extensor femoris. Give origin and insertion of quadriceps extensor femoris.

3. Name divisions of alimentary canal. Name principal glands found in small intestine. What is average size of stomach? Give blood supply. Name abdominal viscera wholly covered by peritoneum. Partially covered.

4. Name and illustrate by diagram the regions of abdomen. Where in the topography of abdomen is vermiform appendix? Describe briefly Poupart's ligament.

5. Give origin of left common carotid artery. Name branches of left external carotid. Name twelve pairs nerves of special sense. Give origin and cranial exit of pneumogastric nerve. Name the three most important branches.

PHYSIOLOGY.

1. Define reflex action and give example.
2. Describe the functions of the kidneys.
3. Give the normal constituents of the urine.
4. What is meant by digestion?
5. Name the secretions of the alimentary canal, their reactions and functions.

MATERIA MEDICA AND THERAPEUTICS.

1. Ergot; its physiological action; its principal uses.
2. Cocaine hydrochloride; its physiological action; its principal uses.
3. Chloroform; define it; when is it indicated as an anesthetic?
4. Ether; define it; state the conditions that render it preferable as anesthetic.
5. Define a mydriatic, also a myotic; give examples of each, with dose for local application in each case.

CHEMISTRY.

1. Give test for albumen and sugar in urine.
2. Describe chemical test for blood.
3. Is organic material admixed to water always deleterious, and when is it?
4. Define an alkaloid, and name three principal ones used in medicine.
5. How are solutions, suspected to contain arsenic, to be tested?

PATHOLOGY.

1. Give the pathology in simple lobar pneumonia.
2. Give the pathology of pellagra, with etiology.
3. Give the pathology in hookworm disease.
4. Describe the pathological conditions in meningitis.
5. (*a*) How is fibrous tissue formed? (*b*) What tumors are composed largely of fibrous tissue, and in what part of the body do they usually occur?

PRACTICE OF MEDICINE.

1. Give symptoms and treatment of gastric ulcer, and differentiate between it and cancer of the stomach.
2. Give symptoms of appendicitis, and describe and locate the pain in (*a*) appendicitis, (*b*) renal calculus, (*c*) gallstones, (*d*) ovaritis, (*e*) cystitis.
3. Explain how to recognize in a middle-aged person, when found in a comatose state, upon what disease the condition depends.
4. Outline the area of normal liver dulness, and name the chronic diseases of the liver.
5. Scarlet fever: etiology, morbid anatomy, symptoms, incubation, invasion, eruption, complications and sequelæ, diagnosis; differentiate from acute exfoliating dermatitis, measles, rötheln, septicemia, diphtheria, drug rashes, prognosis; treatment.

OBSTETRICS.

1. Would the coincidence of diabetes with pregnancy have a harmful effect on the latter? What would you do for such patient?
2. Give treatment of a subinvoluted uterus.
3. Differentiate between putrid and true puerperal infection and give treatment of each.
4. How would you distinguish between an epileptic and an eclamptic convulsion?
5. What are the indications for the use of forceps?

GYNECOLOGY.

1. Give causes and treatment of uterine hemorrhage.
2. Under what conditions would you prefer vaginal to abdominal hysterectomy?
3. Describe technique of vaginal hysterectomy.
4. Give differential diagnosis between fluids in abdominal cavity and ovarian cysts.
5. Describe ectopic pregnancy, varieties, and operation for same.

SURGERY.

1. What conditions demand amputation of the extremities? How are amputations classified as to time of operation? What period is most favorable for amputation? Describe amputation at upper middle third of thigh, naming arteries and muscles divided.
2. What is understood by abdominal hernia? Describe an oblique inguinal hernia. Give symptoms of strangulation and method of reduction. Described an approved operation for the radical cure of oblique inguinal hernia.
3. Give differential diagnosis between traumatic coma, apoplexy, opium poisoning, and alcoholic intoxication. Describe briefly and give treatment of erysipelas. Give differential diagnosis between fracture and dislocation. Name cardinal principles in treatment of fractures.
4. Name inflammatory diseases of bone. What is understood by ankylosis? Give approved surgical procedure for establishment of joint function in ankylosis. Name and describe briefly the two most common varieties of clubfoot.
5. Differentiate between abscess and aneurysm; between hydrocele and scrotal hernia; describe approved treatment of former. What are the methods of controlling hemorhemorrhage.
Name some of the more frequent causes of secondary rhage? What is understood by secondary hemorrhage?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

BOARD OF MEDICAL EXAMINERS OF GEORGIA.

May 2-7, 1910.

ANATOMY.

1. Bones of the tarsus: Os calcis, astragalus, cuboid, scaphoid, internal cuneiform, middle cuneiform, and external cuneiform. The *internal* malleolus is formed by the lower end of the tibia; the *external*, by the lower end of the fibula. The *pelvis* is made up of the ossa innominata (ilium, ischium, os pubis), sacrum, and coccyx. Divisions of vertebral column are: Cervical, dorsal, lumbar, sacral, and coccygeal. Cervical vertebræ are distinguished by a foramen in the transverse process.

2. *Muscles of mastication:* Masseter, temporal, external pterygoid, internal pterygoid, and buccinator. *Muscles of deglutition:* Buccinator, hyoglossus, styloglossus, palatoglossus, palatopharyngeus, azygos uvulæ, tensor palati, levator palati, stylopharyngeus, stylohyoid, geniohyoid, mylohyoid, thyrohyoid, digastric, constrictors of pharynx, and the intrinsic muscles of the tongue. MASSETER. *Origin:* From malar process of superior maxillary bone and zygomatic arch. *Nerve supply:* Inferior maxillary. *Arterial supply:* Internal maxillary. The *Quadriceps extensor femoris* is composed of: Vastus externus, vastus internus, rectus, and crureus. *Origin:* Anterior inferior spine of ilium, brim of acetabulum, anterior intertrochanteric line, great trochanter, linea aspera, and shaft of femur. *Insertion:* Tuberosity of tibia.

3. *Divisions of alimentary canal:* Mouth, pharynx, esophagus, stomach, small intestine (duodenum, jejunum, ileum), large intestine (cecum, colon, rectum). *Principal glands in small intestine:* Brunner's, Lieberkuhn's, Peyer's, and solitary glands. *Size of stomach* is very variable, about ten to twelve inches by four to five inches; its *blood supply* is: Gastric, pyloric, right and left gastroepiploic, and vasa brevia arteries. *Viscera wholly covered by peritoneum:* Liver, stomach, spleen, jejunum, ileum, transverse colon, sigmoid flexure. *Partially covered:* Duodenum, ascending and descending colon, rectum, bladder, and uterus.

4. See Cunningham's "Anatomy" (1909), page 1046; or Gray's "Anatomy" (1908), pages 1244 and 1246. The vermiform appendix is in the right inguinal region. For *Poupart's ligament* see Cunningham's "Anatomy" (1909), page 422; or Gray's "Anatomy" (1908), page 438.

5. The left common carotid artery arises from the arch of the aorta. *Branches of external carotid* are: Superior thyroid, lingual, facial, occipital, posterior auricular, ascending pharyngeal, superficial temporal, and internal maxillary. *Twelve pairs of cranial nerves* are: 1. Olfactory. 2. Optic. 3. Motor oculi. 4. Trochlear or pathetic. 5. Trifacial. 6. Abducens. 7. Facial. 8. Auditory. 9. Glossopharyngeal. 10. Pneumogastric or Vagus. 11. Spinal accessory. 12. Hypoglossal. The nerves of special sense are numbers 1, 2, and 8. PNEUMOGASTRIC. *Origin:* Between olivary and restiform bodies, and beneath floor of fourth ventricle. *Exit:* By jugular foramen. *Three branches:* Superior laryngeal, recurrent laryngeal, and pharyngeal.

PHYSIOLOGY.

1. *Reflex actions* are involuntary or unconscious movements, due to suitable stimuli. They depend upon the integrity of the *reflex arc*, which is a complex made up of: (1) A surface capable of receiving an impression; (2) an afferent nerve; (3) a nerve cell capable of receiving and also of sending out impulses; (4) an efferent nerve, and (5) a surface capable of responding in some way to the impulse conveyed by the efferent nerve. *Example:* The patellar reflex consists of a contraction of the extensor muscles of the leg and a movement of the foot forward when the ligamentum patellæ is struck; the quadriceps extensor must first be slightly stretched by putting one knee over the other. Its integrity depends upon a healthy condition of the entire reflex arc, consisting of tendon, afferent or sensory nerve, posterior roots, and anterior horn of the spinal cord, the efferent or motor nerve, and the muscle itself.

2. The *functions of the kidney* are: (1) To secrete (or excrete) urine; (2) the production of an internal secretion. The mechanism of the *secretion of urine by the kidneys* is twofold: (1) By filtration, most, if not all, of the fluid is eliminated, and also inorganic salts; this depends upon blood pressure, and takes place in the glomeruli. (2) By cell activity and selection, in the cells of the convoluted tubules, the urea, and principal solids are eliminated.

3. The normal constituents of the urine are: Water, urea, uric acid, urates, hippuric acid, kreatinin, xanthin, hypoxanthin; sulphates, chlorides, and phosphates of sodium and potassium; phosphates of magnesium and calcium; nitrogen, and carbon dioxide.

4. Digestion is the process by which food is converted into material suitable for absorption and assimilation.

5. The secretions of the alimentary canal are: Saliva, gastric juice, pancreatic juice, bile, and succus entericus. Of these, the gastric juice has an acid reaction; the others, alkaline.

The functions of the saliva are: (1) To moisten the mouth, (2) to assist in the solution of the soluble portions of the food, and thus (3) to administer to the sense of taste, (4) to lubricate the bolus of food, and thus (5) to facilitate the acts of mastication and deglutition, and (6) to change starches into dextrin and sugar.

The functions of the gastric juice are: (1) To change proteids into proteoses and peptones, and (2) to curdle the casein of milk.

The functions of the pancreatic juice are: (1) To change proteids into proteoses and peptones, and afterwards decompose them into leucin and tyrosin; (2) to convert starch into maltose; (3) to emulsify and saponify fats; and (4) to cause milk to curdle.

The functions of the bile are: (1) To assist in the emulsification and saponification of fats; (2) to aid in the absorption of fats; (3) to stimulate the cells of the intestine to increased secretory activity, and so promote peristalsis, and at the same time tend to keep the feces moist; (4) to eliminate waste products of metabolism, such as lecithin and cholesterin; (5) it has a slight action in converting starch into sugar; (6) it neutralizes the acid chyme from the stomach and thus inhibits peptic digestion; (7) it has a very feeble antiseptic action.

The functions of the succus entericus are: The secretion of enterokinase, secretin, and erepsin, which assist the pancreatic juice in digestion.

MATERIA MEDICA AND THERAPEUTICS.

1. ERGOT. *Physiological action:* Ergot stimulates and causes contraction of involuntary muscle fibers, hence it is a vasoconstrictor, hemostatic, and oxytocic. It is also a cardiac sedative, it raises the blood pressure, it increases peristalsis, and is an emmenagogue. *Principal uses:* To promote uterine contractions during third stage of labor; fibroids, menorrhagia, postpartum hemorrhage. Some forms of amenorrhea and dysmenorrhea, dysentery, arterial hemorrhage, congestive headaches, laxity of sphincters, of bladder or rectum, hemorrhoids, aneurysm, diabetes, urinary incontinence, direct paralysis of the sphincter vesicæ, atonic spermatorrhea.

2. COCAINE HYDROCHLORIDE. *Physiological action:* Local anesthetic (externally); internally it is a muscular, cerebral, circulatory, and respiratory stimulant, also a mydriatic. Its *principal uses* are: As a local anesthetic; also in paralysis agitans, chorea, and alcoholic tremors.

3 and 4. *Chloroform* is a colorless liquid, of sweetish, peculiar odor and taste, with anesthetic properties. Chemically it is trichlormethane. *Ether* is a colorless liquid, of peculiar odor and taste, with anesthetic properties. Chemically it is ethyl oxide. As a general rule, ether would be the anesthetic of choice. But chloroform may be used: (1) In hot climates; (2) when large numbers of persons have to be rapidly anesthetized; (3) in brain surgery; (4) in labor; (5) in patients who are known to take ether badly; and (6) in the conditions mentioned below, in which ether is contraindicated. The following *contraindications* for ether and chloroform are from Hare's "Practical Therapeutics": "*Ether* should not be used by inhalation in bronchitis or acute nephritis because of its irritant properties; in peritonitis or gastritis, because it is apt to induce vomiting; in aneurysm or in the presence of marked vascular atheroma, because it may rupture a blood-vessel by raising arterial pressure; nor in diabetes, lest it produce diabetic coma; and if anemia is present and an examination of the blood shows that the hemoglobin is below 50 per cent., the use of the drug should be avoided if possible. *Chloroform* is not to be used in cases of fatty heart or dilatation of the heart, in those with a known idiosyncrasy, nor in the so-called lymphatic persons with overgrowth of lymphoid tissues, as, for example, adenoids. In the latter case it is particularly apt to cause sudden death. In valvular disease of the heart chloroform may be used with caution, although ether is preferable. Given a case of valvular disease that must be subjected to operation, the chances are bettered with an anesthetic than without it, as the pain and mental shock are worse for the heart than is the anesthetic."

5. A *mydriatic* is an agent which causes dilatation of the pupil of the eye. A *myotic* is an agent which causes contraction of the pupil. EXAMPLES: *Mydriatics:* Atropine, homatropine, daturine, hyoscyamine, coniine, cocaine; and probably gelsemine, muscarine, hydrocyanic acid, aconite, and amyl nitrite. *Myotics:* Pilocarpine, physostigmine, and probably nicotine. Atropine sulphate, 1 per cent. solution; homatropine hydrobromide, 2 per cent. solution; cocaine hydrochloride, 4 per cent. solution; pilocarpine, 1 per cent. solution; physostigmine, ⅛ to ½ per cent. solution.

CHEMISTRY.

1. *Test for albumin in the urine:* The urine must be perfectly clear. If not so, it is to be filtered, and if this does not render it transparent it is to be treated with a few drops of magnesia mixture and again filtered. The reaction is first observed. If it be acid, the urine is simply heated to near the boiling point. If the urine be neutral or alkaline, it is rendered *faintly* acid by the addition of dilute acetic acid and heated. If albumin be present a coagulum is formed, varying in quantity from a faint cloudiness to entire solidification, according to the quantity of albumin present. The coagulum is not redissolved upon the addition of HNO_3.

For sugar: Render the urine strongly alkaline by addition of Na_2CO_3. Divide about 6 c.c. of the alkaline liquid in two test-tubes. To one test-tube add a very minute quantity of powdered subnitrate of bismuth; to the other as much powdered litharge. Boil the contents of both tubes. The presence of glucose is indicated by a dark or black color of the bismuth powder, the litharge retaining its natural color.

2. *Chemical test for blood:* Boil a fragment of dried blood with a drop of glacial acetic acid on a slide; on cooling, hemin crystals separate out. If the blood stain is not recent a crystal of sodium chloride should be added with the acetic acid.

3. Organic matter in water is not necessarily deleterious; but when it is derived from sewage or other animal matter it is dangerous. The presence of nitrites is a pretty sure indication of danger.

4. An *alkaloid* is a basic, nitrogenous substance, consisting of C, H, N (and sometimes also O), capable of acting with an acid to form a salt in the same way that ammonia does. They generally have a bitter taste and an alkaline reaction. *Three examples:* Morphine, strychnine, and quinine.

5. Solutions suspected of containing *arsenic* may be examined by the *Reinsch's test*, as follows: To the suspected

fluid add a little pure HCl; suspend in the fluid a small strip of bright copper foil, and boil. If a deposit forms on the copper, remove the copper, wash it with pure water, dry on filter paper, but be careful not to rub off the deposit. Coil up the copper, and put it into a clean, dry glass tube, open at both ends, and apply heat at the part where the copper is. If arsenic is present there will appear in the cold part of the tube a mirror, which will be found on microscopical examination to consist of octahedral crystals of arsenic trioxide.

PATHOLOGY.

1. See French's "Practice of Medicine" (1907), page 154; or Osler's "Practice of Medicine" (1909), page 170.

2. See French's "Practice of Medicine" (1907), page 968; or Osler's "Practice of Medicine" (1909), page 384.

3. See French's "Practice of Medicine" (1907), page 497; or Osler's "Practice of Medicine" (1909), page 44.

4. See French's "Practice of Medicine" (1907), page 141; or Osler's "Practice of Medicine" (1909), page 159.

5. (*a*) "Fibrous connective tissue is developed from embryonic connective tissue cells, *i.e.* from spindle-shaped or branched nucleated protoplasmic cells of the mesoblast. The former are met with isolated or in bundles, as in the umbilical cord or embryonic tendon. The latter form a network, as in the fetal skin and mucous membrane. In both instances the protoplasm of the embryonic connective tissue cells become gradually transformed into a bundle of elementary fibrils, with a granular-looking interstitial substance. The nucleus of the original cell finally disappears."—(Klein's *Histology.*) (*b*) Fibromata or Fibroids. They *usually* occur in: Uterus, periosteum, ovary, mamma, testicle, tendons, aponeuroses.

PRACTICE OF MEDICINE.

1. See French's "Practice of Medicine" (1907), pages 748 and 751; or Osler's "Practice of Medicine" (1909), pages 473 and 477.

Gastric ulcer is generally caused by injury or bacteria, is most apt to occur between the ages of twenty and forty-five; after eating there is pain localized in the stomach, vomiting occurs soon after eating, hematemesis is common, there is localized tenderness over the stomach, and examination of the gastric contents shows an excess of free HCl. *Gastric cancer* does not usually occur before forty years of age, is more common in males, the pain is localized and constant, vomiting is copious and occurs some time after eating; the vomitus contains "coffee ground" material; hemorrhages are common; a tumor may be palpated, and examination of the gastric contents shows absence of free HCl and presence of lactic acid; severe anemia and cachexia are also present.

2. See French's "Practice of Medicine" (1907), page 791; or Osler's "Practice of Medicine" (1909), page 514. (*a*) See French, page 792; or Osler, page 514. (*b*) See French, page 911; or Osler, page 711. (*c*) See French, page 852; or Osler, page 550. (*d*) In *ovaritis* the pain is in the ovarian region, and radiates to the back, thighs, umbilicus, and breasts; on pressure over the ovary, nausea is produced. (*e*) In *cystitis* the pain is referred to the perineum and hypogastric region, and may radiate to thighs and sacrum.

3. The following table (from Eisendrath's *Surgical Diagnosis*) gives the diagnosis:

		Middle Line	Mammary Line	Mid-axillary Line	Scapular Line
Upper limit	Deep dullness	Blend with heart dulness	4th space	7th space	9th space
	Superficial dullness		6th rib	8th rib	10th rib
Lower limit		Hand's breadth below base of xiphoid	Costal margin or some what above or below it	10th space	Blends with kidney dulness

4. The area of liver dullness is shown in the table (from Hutchison and Rainy's *Clinical Methods*):

Chronic diseases of the liver: Chronic hyperemia, chronic interstitial hepatitis (cirrhosis), echinococcus cyst, chronic perihepatitis, gallstones, amyloid liver, chronic atrophy, fatty liver, syphilis of liver.

5. See French's "Practice of Medicine" (1907), pages 315 to 325; or Osler's "Practice of Medicine" (1909), pages 130 to 140.

OBSTETRICS.

1. See Williams' "Obstetrics" (1909), pages 493 and 380.

2. See Williams' "Obstetrics" (1909), page 904; or Hirst's "Obstetrics" (1909), page 647.

3. See Hirst's "Obstetrics" (1909), pages 728 to 752, and 764 to 766.

4. For *eclamptic convulsion* see Williams' "Obstetrics" (1909), page 525; or Hirst's "Obstetrics" (1909), page 630. *Epilepsy* is not accompanied by albuminuria, has different prodromata, there is no rise of body temperature, and there is apt to be a history of previous attacks.

5. *Indications for the use of forceps* are: "1. *Forces at fault:* Inertia uteri in the presence of conditions likely to jeopardize the interests of mother or child. (*a*) Impending exhaustion; (*b*) arrest of head, from feeble pains. 2. *Passages at fault:* Moderate narrowing, 3¼ to 3¾ inches, true conjugate; moderate obstruction in the soft parts. 3. *Passenger at fault:* A. Dystocia due to (*a*) occipito-posterior, (*b*) mentoanterior face, (*c*) breech arrested in cavity. B. Evidence of fetal exhaustion (pulse above 160 or below 100 per minute). 4. *Accidental complications:* Hemorrhage; prolapsus funis; eclampsia. All acute or chronic diseases or complications in which immediate delivery is required in the interest of mother or child, or both."—(From Jewett's *Practice of Obstetrics.*)

GYNECOLOGY.

1. The following (from Gould and Pyle's *Cyclopedia of Medicine and Surgery*) is a useful classification of uterine hemorrhages, and also gives the causes of the same:

I. *Hemorrhages complicating pregnancy, labor, or the puerperium:*

A. Hemorrhages of pregnancy: Caused by (1) placenta prævia; (2) premature separation of a normally situated placenta; (3) apoplexy of the decidua or placenta.

B. Hemorrhages of labor: Caused by (1) placenta prævia; (2) premature separation of a normally situated placenta; (3) relaxation of the uterus; (4) laceration of the cervix; (5) rupture or inversion of the uterus.

C. Hemorrhages of the puerperium: Caused by (1) re-

COMA FROM INTRACRANIAL INJURY.	APOPLECTIC COMA.	UREMIC COMA.	ALCOHOLIC COMA.	OPIUM POISONING.	DIABETIC.
Deep coma; may have history of onset after fall or injury. Evidence of fracture of vertex or base.	Deep coma; sudden onset. If any injury, only a scalp wound.	Deep coma. Slow onset unless convulsions have preceded the coma.	Can be aroused by supraorbital pressure unless very profound.	Can be aroused unless very deep.	Deep coma. Sweetish odor to breath.
Pupil dilated on side of lesion. Choked disc.	Pupils unequal or dilated. Contracted in hemorrhage into the pons.	Albuminuric retinitis.	Pupils normal or somewhat dilated.	Pupils contracted to pinpoint size.	
Pulse very slow.	Pulse full and slow, often arteriosclerotic high-tension pulse.	Pulse rapid.	Pulse more rapid than normal and full.	Pulse rapid, may be irregular.	
Respiration slow and stertorious.	Respiration slow and irregular.	Respiration frequent and irregular.	Regular respiration.	Respiration very slow —may be 6 to 8 per minute.	
Temperature higher—101°	Temperature higher on paralyzed side, but lower in rectum.		May be low or normal.		
Urine normal or contians trace of albumin.	Urine contains trace of albumin, but may be same as in uremia.	Urine shows albumin, casts, and low urea percentage.	Normal.	Normal.	The urine contains sugar and diacetic acid.
Hemiplegia on opposite side to that of injury. If contusion of brain is also present, may have generalized convulsions.	Hemiplegia with convulsions on one side.				

tained secundines; (2) displaced uterus; (3) displaced thrombi; (4) fibroid tumors; (5) hypertrophied decidua; (6) carcinoma.

II. *Hemorrhages occurring in the non-pregnant woman:*

A. In virgins before the age of thirty: Caused by (1) uterine congestion, the result of cold or exposure; (2) endometritis; (3) polypi and fibroid tumors.

B. In married women before the age of thirty: Caused by (1) subinvolution; (2) laceration of the cervix; (3) endometritis; (4) retrodisplacements of the uterus; (5) polypi and fibroid tumors.

C. In women after the age of thirty: Caused by (1) carcinoma of the cervix; (2) carcinoma of the body of the uterus; (3) sarcoma of the uterus.

The *treatment* depends on the cause. For details see any work on obstetrics or gynecology.

2. The INDICATIONS FOR HYSTERECTOMY are given as follows: *For the abdominal operation:* All solid or cystic tumors of the uterus; cancer; uterine rupture during labor; certain conditions of puerperal sepsis; pregnancy complicated by pelvic deformity, cancer, or other serious obstacle to the passage of the child; uterine prolapse or inversion, and, incidentally, as a step in the removal of complicated suppurative conditions of the uterine appendages.

For the vaginal operation: Bilateral suppurative conditions of the appendages; prolapse, cancer, pregnancy with cancer before the sixth month; certain septic conditions of the uterus; certain rare conditions which may require the ablation of a small movable uterus.

For the combined operation: Cancer, certain complicated fibroids; failure to secure hemostasis from below.—(From *Reference Handbook of the Medical Sciences.*)

3. *Vaginal hysterectomy:* "The patient is catheterized and placed in the lithotomy position and the external genitals are thoroughly disinfected. The vagina is held open by broad retractors and the uterus is pulled down by volsella forceps grasping the cervix, while the adjoining mucous membrane is cut well clear of the disease by blunt-pointed scissors. Keeping close to the uterus, the dissection is continued on its anterior and posterior surface by the tip of the finger and short snips of the scissors, but at the sides, after division of the mucous membrane, the cellular tissue is simply pushed up as high as possible, or till the pulsations of the uterine artery are felt. The finger is finally thrust through the uterovesical fold of peritoneum, and after cleansing the vagina flat sponges are poked in around the uterus. Douglas' pouch is entered in the same manner, hemorrhage from the vaginal wound being controlled by a few catgut sutures through its cut edges, and then the finger is hooked over the fundus, pulling it down into the posterior opening and thus bringing within reach the upper border of the broad ligaments, which are seized by long-bladed clamps and divided on the uterine side. Other clamps are placed on the remaining tissues close to the uterus, which is then excised."—(Stimson's *Operative Surgery.*)

4.

ASCITES.	OVARIAN CYST.
1. Previous history of visceral disease.	1. No such history.
2. Enlargement comparatively sudden.	2. Gradual.
3. Face puffy; color waxy; early anemia.	3. Facies ovarian. Anemia absent, or later.
4. Patient on back; enlargement symmetrical; flat in front.	4. Asymmetrical until tumor is quite large; prominent in front.
5. Sitting up, abdomen bulges below.	5. No appreciable change
6. Navel prominent and thinned.	6. Navel usually unchanged.
7. Fluctuation decidedly clear, diffuse throughout abdomen, but avoids highest parts in all positions, and always has a hydrostatic level.	7. Less clear; limited to cyst; not modified by change of position. No hydrostatic level.
8. Intestines float on top of fluid; hence percussion gives clear tympanitic note over the highest parts of abdominal cavity, and dullness in lowest parts for all positions, *i.e.* areas of resonance and dullness change with position.	8. No change in areas of dullness and resonance with change of position. Dullness over cyst. Clear resonant note in all parts beyond cyst limits, *i.e.* in flanks and toward the diaphragm.
9. Vaginal touch detects fluctuation, bulging into vagina.	9. Vaginal fluctuation less clear or absent.
10. Uterus in prolapsed location, but position unchanged. Size and mobility unchanged.	10. Uterus displaced forward or backward, or laterally by pressure of cyst.
11. Hydragogues and diuretics temporarily remove the fluid.	11. Medicines have no effect.
12. Fluid light straw color and thin. Coagulates spontaneously.	12. Fluid light or dark and of varying consistency; albuminous, but does not coagulate spontaneously; may contain colloid matter.

—(From Dudley's *Gynecology.*)

5. See Williams' "Obstetrics" (1909), page 623; or Hirst's "Obstetrics" (1909), page 284.

SURGERY.

1. *Conditions which justify amputation of a limb* are: "Any injury, disease, or malformation rendering retention of the limb incompatible with life or comfort; avulsion of limb; compound fracture; compound dislocation; fracture with great comminution of bone; laceration of important vessels; extensive contusion; extensive laceration; gunshot injuries; aneurysm; effects of heat and cold; gangrene; extensive bone disease; tumors; elephantiasis; tetanus; snake bite; deformities."—(Bickham's *Operative Surgery.*)

Amputations are classified in regard to time of operating, as follows: (1) *Primary,* which is performed soon after the accident, as soon as the patient reacts from shock and before there is any fever. (2) *Secondary,* which is undertaken some time after the injury, when suppuration or bone or joint disease have supervened. (3) *Intermediate,* which is performed during the existence of the fever, but before suppuration or bone or joint disease have appeared.

The *most favorable period of amputating* is after moderate reaction has been established; in the primary period.

See Da Costa's "Surgery" (1908), page 1221. In a cross section of the thigh, at the middle third, there are severed: *Muscles,* Vastus internus, Rectus femoris, Crureus, Vastus externus, Biceps, Semitendinosus, Semimembranosus, Gracilis, Sartorius, Adductor magnus: *Arteries,* superficial femoral, anastomotic, deep femoral, perforating.

2. See Rose and Carless' "Surgery" (1908), pages 1068, 1073, 1096, 1100, 1103, and 1081; or Da Costa's "Surgery" (1908), pages 971, 999, 994, and 978.

3. See above, PRACTICE OF MEDICINE, No. 3. For *erysipelas,* see Rose and Carless' "Surgery" (1908), pages 119 and 122; or Da Costa's "Surgery" (1908), page 200.

FRACTURE.	DISLOCATION.
1. Crepitus may be present.	1. Crepitus never present.
2. Preternatural mobility.	2. Rigidity rather than mobility.
3. Easily reduced—but	3. Difficult to reduce—but
4. Deformity more liable to recur after reduction.	4. Deformity less liable to recur after reduction.
5. The head of the bone is in its proper place.	5. The head of the bone is not in its proper place.
6. The socket containing the head of the bone is not empty.	6. The socket which should contain the head of the bone is empty.
7. When rotated the bone does not move as one piece.	7. When rotated the bone moves as one piece.

The *cardinal principles in the treatment of fractures* are: Reduction, coaptation, immobilization, and suitable measures for promoting the nutrition of the part and for preventing adhesions in the neighboring joints and muscles. Compound fractures, in addition, demand: Asepsis, removal of foreign matter or damaged tissues, stopping the hemorrhage, and measures to combat shock.

4. *Inflammatory diseases of bone:* Osteitis, periostitis, osteoperiostitis, and osteomyelitis. For *ankylosis,* see Rose and Carless' "Surgery" (1908), pages 676 and 678; or Da Costa's "Surgery" (1908), pages 575 and 576. For *club-foot,* see Rose and Carless' "Surgery" (1908), page 450; or Da Costa's "Surgery" (1908), page 662.

5. For *abscess and aneurysm,* see Rose and Carless' "Surgery" (1908), page 311; or Da Costa's "Surgery" (1908), page 361. *Hydrocele:* Is pyriform in shape; the swelling is first noted at the lowest part of the scrotum; it is tense, smooth, and fluctuates; it is dull on percussion; it is *translucent;* the testicle is behind the tumor; there is no impulse on coughing. *Scrotal hernia:*

Is sausage-shaped; the swelling begins above; it is *not translucent;* the testicle is below the tumor; there is an impulse on coughing, as a rule.—(*Treatment of Hydrocele.*) See Rose and Carless' "Surgery" (1908), page 1267; or Da Costa's "Surgery" (1908), page 1201. Method of *controlling hemorrhage: Mechanical,* elevation, pressure, torsion, ligation, compression, acupressure, and forced flexion of limb. *Therapeutic,* heat, cold, styptics, and the cautery. The constitutional symptoms must also be treated: lower the head, inject normal salt solution, administer alcohol, strychnine, digitalis, morphine. For *secondary hemorrhage:* See Rose and Carless' "Surgery" (1908), page 290; or Da Costa's "Surgery" (1908), page 394.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION	
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan. ..
Arizona*	Ancil Martin, Phoenix	Phoenix	Oct. 3
Arkansas	F. T. Murphy, Brinkley	Little Rock	Nov. 8
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco	Aug. 2
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	Oct. 4
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov. 14
Delaware	J. H. Wilson, Dover	Dover	Dec. 13
Dist. of Col'bia.	Geo. C. Ober, Washington	Washington	Oct. 11
Florida*	I. D. Fernandez, Jacksonville	Palatka	Nov. 9
Georgia	T. H. Goss, Athens	Atlanta	Oct. 11
Idaho*	W. F. Howard, Pocatello		Oct. 4
Illinois	J. A. Egan, Springfield	Chicago	July 20
Indiana	W. T. Gott, Crawfordsville	Indianapolis	Oct. ..
Iowa	Louis A. Thomas, Des Moines	Des Moines	
Kansas	H. A. Dykes, Lebanon	Topeka	Oct. 11
Kentucky	J. N. McCormack, Bowling Green	Louisville	
Louisiana	E. L. McGehee, New Orleans	New Orleans	Oct. 18
Maine	F. W. Swarle, Portland	Portland	July 19
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec. 13
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Sept. 13
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Lansing	Oct. 11
Minnesota	W. S. Fullerton, St. Paul	St. Paul	Oct. 4
Mississippi	S. H. McLean, Jackson	Jackson	Oct. 11
Missouri	Frank B. Hiller, Jefferson City	Jefferson City	Sept. ..
Montana*	Wm. C. Riddell, Helena	Helena	Oct. 4
Nebraska	C. A. Carr, Lincoln	Lincoln	Aug. 10
Nevada	S. L. Lee, Carson City	Carson City	Nov. 2
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	
New Jersey	H. G. Norton, Trenton	Trenton	Oct. 18
New Mexico	J. A. Massie, Santa Fe	Santa Fe	Oct. 10
New York	C.F.Wheelock, Univ.of State of New York, Albany	New York Albany Syracuse Buffalo	Sept. 27
N. Carolina	B. K. Hays, Oxford	Charlotte	June 14
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	Oct. 4
Ohio	Geo. H. Matson, Columbus	Columbus	Dec. 13
Oklahoma*	F. P. Davis, Enid	Guthrie	Oct. 11
Oregon	B. E. Miller, Portland	Portland	Jan. 3
Pennsylvania*	N. C. Shaeffer, Harrisburg	Philadelphia Pittsburg	Dec. ..
Rhode Island*	G. T. Swarts, Providence	Providence	Oct. 6
S. Carolina	H. H. Wyman, Aiken	Columbus	June 13
S. Dakota	H. E. McNutt, Aberdeen	Watertown	Jan. 11
Tennessee	C. A. Abernathy, Pulaski	Memphis Nashville Knoxville	May 28
Texas	M. E. Daniels, Honey Grove	Austin	
Utah	R. W. Fisher, Salt Lake City	Salt Lake City	Oct. 3
Vermont	W. Scott Nay, Underhill	Montpelier	Jan. 10
Virginia	R. S. Martin, Stuart	Lynchburg	Dec. 20
Washington*	T. C. McFadden, Seattle	Spokane	Jan. 3
W. Virginia	H. A. Barbee, Point Pleasant	Charleston	
Wisconsin	J. M. Beffel, Milwaukee	Milwaukee	Jan. 10
Wyoming	S. B. Miller, Laramie	Laramie	

* No reciprocicity recognized by these States.

† Applicants should in every case write to the secretary for latest details regarding the examination in any particular State

Mississippi.—In the May examination there were 192 applicants; either the candidates were poorly prepared or the examination was very severe, for of this number only 59 were licensed.

Louisiana.—In the May examination there were 122 candidates, 29 of whom failed to pass.

State Medical Board Upheld.—The Supreme Court of Arkansas has recently issued an opinion of considerable importance to the medical profession, in which the action of the State Medical Board in revoking a license to practise medicine in the State was upheld. A lower court had enjoined the board from taking this action, but the Supreme Court reverses it and holds that the Medical Board has the right to control its membership at all times, either by granting or refusing to grant a license, or by revoking a license already granted. The license in this case was revoked because of what the board considered improper advertising on the part of the holder.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of July 9, 1910.

	Cases	Deaths
Tuberculosis Pulmonalis	452	149
Diphtheria	418	36
Measles	434	12
Scarlet Fever	177	15
Smallpox	—	—
Varicella	31	—
Typhoid Fever	51	10
Whooping Cough	48	15
Cerebrospinal Meningitis	5	5
Malarial Fever	—	—
Totals	1,616	242

Disseminated Lupus in a Child.—Little reports a girl of four and one-half years, who developed a disseminated lupus when convalescent from measles. The largest patch was on the cheek and was the size of a sixpence. There were twenty-five such lesions scattered over the back and trunk. Most of them were the size of a split pea. There was no history of tuberculosis in the family.—*Proceedings of the Royal Society of Medicine.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, during the week ended July 8, 1910.

		CASES.	DEATHS
CHOLERA.			
China, Swatow	May 10–23	..	250
In vicinity from 3,000 to 4,000 deaths.			
Germany, Berlin	June 23–27	..	..
Two deaths at Ruhleben station among Russian emigrants.			
India, Calcutta	May 8–14	..	74
Madras	May 21–27	..	1
Moulmine	May 1–7	1	1
Negapatam	April 16–29	..	34
Rangoon	May 15–21	..	2
Java, Batavia	May 1–21	3	2
Samarang	May 15–21	42	32
Soerabaya	May 15–21	12	5
Russia, general		..	..
From the beginning of the epidemic in May to June 16, cases 1,491, deaths 573.			
Straits Settlements, Singapore	May 8–14	7	5
YELLOW FEVER.			
Costa Rica, San Jose	May 28–June 29	2	..
Case May 28 from Barranquilla. Case June 20 from Siguires.			
Ecuador, Guavaquil	June 1–15	9	8
Sierra Leone, Sherboro	May 20	..	Present.
PLAGUE.			
Chile, Iquique	May 22–June 4	10	3
China, Amoy	May 8–31	..	..
From 10 to 15 deaths daily.			
Chao Yang district	May 5–19	..	3,000
Mainly at Ho Peng. Present also at Chelin, Feng-chow-so, Taipushien, and Tsai-tang-shi.			
Hankow	May 15–28	2	1
India, Calcutta	May 8–14	..	87
Kurrachee	May 22–28	58	53
Rangoon	May 15–21	..	33
Japan, Formosa	May 8–28	5	4
New Zealand, Auckland	May 23	1	..
Peru, Arequipa Department—Mollendo	May 16	..	Present.
Callao Department—Callao	May 12	1	..
From *S. S. Victoria*			
Straits Settlements, Singapore	May 8–14	1	1
Turkey in Asia, Loheia	May 1–24	25	27
And vicinity.			
SMALLPOX.			
Canada, Fernie	July 15–25	3	..
Halifax	July 19–25	4	..
Pictou	July 19–25	5	..
Chile, Valparaiso	May 19	4	..
China, Shanghai	May 22–June 5	2	13
France, Paris	June 5–11	3	..
Germany, general	June 12–18	1	..
Hamburg	June 5–11	1	..
India, Kurrachee	May 22–28	2	3
Rangoon	May 15–21	..	7
Italy, general	June 6–12	10	..
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Original Articles.

THE ETHICAL ASPECTS OF EXPERT TESTIMONY IN RELATION TO THE PLEA OF INSANITY AS A DEFENCE TO AN INDICTMENT FOR CRIME.*

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THAT existing methods of presenting medical expert testimony in the trial of criminal causes is not only imperfect, but is attended with serious evils which tend to bring the medical profession into disrepute with the public, with the bar and with the courts, there can be no question. Such being the case, it logically follows that there is need of reform in this matter, and the question at once arises, How can that reform best be brought about? The method which as true physicians we would naturally adopt, in a case of this kind, would be to seek out the cause of the malady and then to endeavor to secure the removal of that cause by appropriate treatment. In looking for the causes of the evil complained of we shall not have far to seek. They will readily be found, first, in the usage of courts which permits of the selection of experts by counsel on either side without regard to their qualifications and standing, usually the only requirement being that the expert selected is willing to give an opinion in favor of that side of the case; and, second, in the absence of any standard of qualification, fixed by the medical profession, as regards special study and experience, in a given branch of medical science, which would, at least theoretically, render the would-be witness sufficiently skilled in that branch or subject to justly constitute him an expert.

The first mentioned evil could doubtless be corrected by statutory provision, not for the appointment of a "Board of Official Experts," but for the selection of experts by the Court in each case; and while it might occasionally happen that a judge in selecting an expert or experts would be influenced by other than meritorious motives, I think, as a rule, the courts could be relied upon to appreciate the responsibility attaching to their action in the matter, and to endeavor to select only men of skill and repute in that particular branch of medicine—men whose opinions would be respected by the bar, the jury and the general public as well. Indeed, the very fact that the experts had been thus selected would tend to give dignity to their position, and weight to their opinions. The experts thus selected should be permitted to have free access to all the evidence in the case, also to examine the accused, and then to state their opinion, whether orally or in writing, subject to cross-examination, the cross-examination to be limited to the matters embraced in the opinion. Their compensation also should be fixed by the court, at a rate per diem or by fee, which should be sufficient to induce qualified men to accept such service. Experts selected and paid by this method would be free from suspicion of being biased or influenced in their opinions by pecuniary considerations, while the character and the standing of those who would be likely to be selected would tend to establish confidence in the correctness of their conclusions.

In a very instructive and able paper on the subject of medical expert evidence, Honorable Willard Bartlett, Associate Justice of the New York Court of Appeals, says:

"In considering the various projects which have been put forward for improving the administration of justice, so far as expert evidence is concerned, it must be borne in mind that no matter what provision is made for the appointment of official experts, the litigants in an action at law cannot be prevented from availing themselves of the testimony of other expert witnesses. To prevent that, and restrict parties solely to the evidence of the official experts, constitutional amendments would be necessary, involving changes so sweeping as to be antagonistic to the spirit which now pervades our judicial institutions. And, if such changes in the fundamental law were possible, is it at all certain that they would be desirable? I believe that justice in the United States is generally well and honestly administered; but such a thing is conceivable as that a judge might unwittingly appoint incompetent official experts who were anything but representative of the best element in the medical profession. In what position, then, might a physician, sued for malpractice, find himself, if condemned by their opinions and unable to exonerate himself by calling as witnesses his non-official brethren whose testimony would demonstrate that the appointees of the court were wilfully wrong, or ignorantly mistaken? A man may be a good judge of law, and yet be a very poor judge of doctors. I should be sorry to have to be treated by the physicians of several able judges whom I have known in past years, and yet I am certain that in each case his physician would have been the first either of these judges would select for any official or medico-legal preferment within his power to bestow."

Respecting the second source of the evil, that is, the absence of any standard fixed by the medical profession by which the qualifications of a member to give expert testimony may be determined, the cure for that lies in the hands of the profession itself, namely, to fix a standard of qualifications based on special study and experience in a particular branch of medicine which shall entitle a member to rank as an expert in that branch, and at the same

*Read at the Annual Meeting of the American Medico-Psychological Association at Washington, D. C., May 4, 1910.

time putting its seal of disapproval and condemnation on the practice which now too frequently obtains of physicians posing as experts upon subjects respecting which they have no special knowledge or experience, relying upon their wit and the ignorance of counsel to save them from exposure.

The writer fully realizes that the present method of presenting expert testimony is by no means perfect, but he believes it is far better and more practical than any of the visionary schemes which have been brought forward from time to time by medical societies, by bar associations, and even by certain alienists. Such, for instance, as the appointment of a "Board of Official Experts" by the courts, or by medical societies, or by the Governor of the State, etc. In the writer's opinion it would be difficult, if not impossible, to devise any method that will supplant the present one short of a change in our Federal Constitution. This opinion is sustained by many if not most of the judges, who hold that a defendant on trial has a constitutional right to present any proper evidence that might aid him in his defense.

It would doubtless simplify matters, were it feasible to do so, to provide that questions of expert opinion should be passed upon by the court instead of, as is now the case, by a jury of laymen, who are not supposed to be familiar with the intricacies of psychological medicine. The spectacle of a jury of laymen being called on to decide as to which of the opinions of opposing expert witnesses respecting an obscure and difficult question of disease is correct is a *reductio ad absurdum* which has been too often pointed out to call for more than a passing mention here. This practice, unfortunately, is one that cannot be abolished for the reason that the terms of our Federal Constitution confer upon every citizen when charged with crime the sovereign right of trial by a jury of his peers.

Respecting the propositions to provide for the appointment of a Board of Official Experts, whether by the Governor of the State, by the courts, or by a State Commission in Lunacy, it is the writer's opinion that none of these methods would be desirable or acceptable, either to the medical or legal professions, or to the public, for the reason that it would savor of class legislation, which is against sound public policy. Furthermore, the prospective advantages through professional prominence and pecuniary gain, whether in fees or in salary, which such appointment would offer would lead incompetent and unworthy members of the profession to seek appointment thereon through partisan or other questionable influences. Moreover, such a board, even if fairly representative in its make-up, would be a ready target for unfriendly or hostile criticism by their less fortunate brethren in the same line of practice, who might, whether justly or unjustly, regard themselves as being discriminated against. Then, too, it would require either a very large board, or numerous boards, to provide a sufficient number of experts in the various branches of medicine, surgery, and chemistry, in which medico-legal questions arise. Says Mr. Justice Bartlett, in the paper referred to: "There is not likely to be any radical change in a matter of legal procedure like this, without the approval of the bar, and I doubt very much whether the bar would approve any legislation which would enable the courts or any other appointing power to create a privileged class of expert witnesses."

For the reasons herein set forth, it would seem to the writer that the most practical solution of the difficulty would be to make statutory provision for the appointment by the court of from one to three experts whenever occasion arises, the law to provide that only physicians of repute in the particular branch of medical science to which the question for expert opinion relates shall be appointed, these experts to have full and free access to all the evidence in the case as well as to the defendant, for the purpose of examination, and then to submit to the court for transmission to the jury a written report, setting forth their conclusion and the facts in evidence on which such conclusion is based, the cross-examination of the experts to be restricted to matters embraced within their direct statement of facts and opinion, and the compensation of the experts to be fixed by the court. The writer is well aware that lawyers would raise objection to this manner of selecting experts, on the ground that a defendant is constitutionally entitled to the selection of his own witnesses and to call any witnesses whose testimony would tend to sustain his case—a right which can neither be taken from him nor abridged. This objection, however, would be met by the fact that counsel would still be permitted to call experts in addition to those selected by the court; though it is safe to say the opinion of the official or court experts would far outweigh any differing opinion that might be offered by experts selected by counsel. It goes almost without saying, too, that this method of selecting experts would always be satisfactory to prosecuting attorneys.

There is another point in connection with this subject, which in the writer's opinion should receive not only the attention of this association, but of the general medical profession as well, for the reason that it is frequently a source of discredit to our profession. This refers to the unprofessional practice of certain medical men—mostly pseudo-experts—acting as medical advisor to counsel and expert witness in the same case. To observe, as the writer has often done, medical men sitting in court at the elbow of counsel, actively engaged in taking notes and preparing or suggesting questions for the latter to put to the witness; also framing questions for the cross-examination of a fellow practitioner and otherwise openly assisting counsel in his efforts to break down the opposing side, and subsequently taking the witness stand for that purpose, is, to say the least, deplorable. If a physician is to appear as an expert witness, he should keep away from counsel while in court and take no part in the conduct of the case which would put him in the attitude of assistant counsel or of a biased or interested party. In the first trial of Thaw the writer was selected by District Attorney Jerome to assist him in the preparation of the medical branch of the trial, a service which he accepted with the distinct understanding that he would not appear as a witness in the case.

Anent this subject Mr. Justice Bartlett in the paper referred to says: "In my opinion the law can do very little toward making experts or anybody else honest or upright or capable in their particular pursuits. I look for reform rather in the direction of the development of a higher sensibility on the subject in the medical profession itself. It is entirely possible for the doctors of this state or country to so frown upon the practice of acting as medical counsel and medical witness in the same case as to stamp it out completely. There is nothing to prevent a physician who is asked to see a case with reference to giving testimony as an expert from exact-

ing an agreement that his remuneration shall in no wise depend upon the opinion which he may form upon making the desired examination; or in other words, that he shall be paid just the same and just as much whether his conclusion is agreeable or disagreeable to the attorney who seeks his services. No attorney will refuse to consent to this course unless he is desirous of influencing the doctor to take one view of the case rather than another, because in that event he will get paid while otherwise he may get nothing. A tempter of this sort should be shut out of the doctor's office with no gentle slam of the door. And so in many other ways which might be suggested some of the most serious evils of medical expert evidence may be effectively dealt with by 'reform within the party.'"

Respecting the sweeping condemnation of medical expert testimony in which the courts, the public press, and to some extent the medical press are wont to indulge Mr. Justice Bartlett, referring to the common assumption by lawyers and doctors that courts and juries would be sure to get at the truth if the expert witnesses on one side could only be induced to agree with the expert witnesses on the other, cites a case in point which occurred in California, in which the plaintiff, a married woman, was injured in an accident upon the defendant's railroad. In the suit which she brought against the railroad company to recover damages, one of the principal questions was the extent of the injuries which she had sustained. She had been examined by three or four medical men in her own behalf and by three or four other medical men in behalf of the defendant. Both those who testified for the plaintiff and those who testified for the defendant agreed that the plaintiff was suffering from a uterine or ovarian tumor, but there was a difference of opinion as to whether the tumor could have been produced by the plaintiff's fall. A verdict of $20,000.00 was rendered against the railroad company. Ten days after the trial the plaintiff gave birth to a child at full term, although still-born, and it was admitted that there had been no tumor whatever! 'Since the time of Mr. Pope,' says the Supreme Court of California, "it has often been inquired "Who shall decide when doctors disagree?" This case shows that serious error may lurk in their conclusions even when they have agreed. Such an occurrence, if narrated in a work of fiction, would be criticized as so improbable as to be ridiculous; but there is no romancing in the cold type of a volume of modern law reports. The possibility of so serious an error being committed by so many respectable members of the medical profession—for the court speaks favorably of their standing—tends to afford some justification for the popular distrust with which medical expert evidence is often regarded." Continuing, the learned justice says: 'In reference to this matter, however, I desire to express my dissent from the sweeping condemnation of medical experts in which the courts so often indulge. There is scarcely a case where expert evidence is taken in which some of the experts are not perfectly honest. They do not deserve denunciation merely because other experts are dishonest, or because it is often difficult to tell the false from the true. The medical profession itself must help us to make the distinction between the two classes easier. However objectionable are some of the aspects of medical expert evidence, it cannot be dispensed with in the administration of justice. Let us remedy the evils, but, while we are endeavoring to do so, let us avoid that exaggerated denunciation which is calculated to convince the community that no surgeon or physician who takes the witness stand as an expert is worthy of belief. Such teaching is a libel on the most unselfish profession in the world.

"What I have said thus far has been so largely in the nature of destructive criticism that I may naturally be asked whether I have no remedy to suggest for the manifold evils in regard to medical expert evidence which are generally recognized in both professions. In concluding this paper, let me add a few observations in answer to this question. I should be sorry to feel that the prospect of reform was hopeless. There is one direction in which it seems to me brighter than any other. You have a code of medical ethics which every physician and surgeon is bound in all professional honor to observe. By that code you regulate your own conduct in the practice of medicine, and insist that those who join the ranks of your profession from year to year shall agree to regulate theirs. No statute could practically be more binding. Why may you not extend its provisions so as to embrace the conduct of the medical man when he assumes the rôle of the expert witness? The matter is absolutely within your own control. You can declare in your code that a certain course of action on the part of a medical expert shall be deemed honorable and professional, and that a certain other course of action shall be dishonorable and unprofessional. The first steps in enacting such amendments in your professional law would necessarily be tentative. Mistakes would be made which you would have to correct. Rules from which the most good was expected might prove useless, and others which promised much less might prove to be the most effective of all. But in making them and changing them you would be independent of the Legislature; you could act solely for the good of your profession, untrammeled by official influence or power; and so far as you desire advice from the bench or bar I am sure it would be gladly afforded. A signal advantage of dealing with the subject in this way is that it would involve no interference with existing rules of judicial procedure. The rights of litigants or the manner of trying lawsuits would in no wise be affected. The needed reforms would be brought about by the compulsory operation of your own code of ethics acting personally upon each member of your profession. That code, amended as I am sure it might be if the physicians and surgeons of this country took the matter seriously in hand, by commanding medical experts to do what is right and subjecting them to professional censure and obliquy if they did what was wrong, would be more efficacious than any law on the subject which any legislature could enact. It would be your own law, adopted by yourselves for yourselves, and it would have that powerful sanction which belongs alone to laws which are a natural growth out of the conditions which lead to their adoption. To the action of your profession in some such way as this I look with more confidence than anywhere else for the ultimate accomplishment of all that is desirable in the improvement of medical expert evidence."

In connection with this branch of the subject the writer would take occasion to suggest that it is the duty of the medical profession to raise its voice in solemn protest against the tendency which has lately grown up to heap upon it ridicule and abuse because "doctors disagree," and that consequently all, or substantially all, doctors are dishonest. As a matter of fact, doctors are no more prone to disagree than

any other class of individuals where matters of opinion are involved. On the other hand, lawyers are notorious for their disagreements. In fact, in every case that is tried in court we find the contention of counsel on one side is diametrically opposed to that of the other side; and this, too, on substantially the same state of facts. Then, too, judges are also notorious for their disagreements, the higher courts frequently reversing the court below, clear up to the court of last resort; and it is safe to say if there were still a higher court it would be found overruling the Court of Appeals. How frequently, too, we find the body of judges constituting the appellate courts divided in the decisions they render, the issue being decided oftentimes by a bare majority of one. And yet nobody would think of suggesting that these judges are dishonest simply because they happen to disagree.

Mr. William A. Purrington, an eminent member of the New York bar, and one of large experience in medico-legal matters, in a recent paper referring to the disagreements of judges whom he characterizes as "that great body of experts who rarely if ever go upon the witness stand, yet are always under a continuing oath, and in every case from the facts before them render their opinions as to the law. When they give an opinion, whether it be right or wrong in our opinion, it is of binding force until set aside; and that is more than can be said of yours of the faculty, or ours of the bar. I have sometimes wondered whether those judges who have been most denunciatory of the differing conclusions at which reputable medical experts have arrived upon the facts in evidence have reflected that they, too, belong to a body of experts in the law, whose members often differ, very honestly and ably, in drawing conclusions, even from agreed facts." Mr. Purrington then goes on to cite, in illustration of his point, "The recent medical case of the People vs. Hawker (14 App. Div., 188; 152 N. Y., 234; 170 U. S., 189) wherein the facts were agreed upon, and the only question involved was one of law, whether a statute forbidding one convicted of felony to practise medicine could apply to a licensed physician so convicted prior to its enactment; in other words, whether the statute was *ex post facto*. The trial judge decided negatively. The Appellate Division of this department, by a vote of three to two, reversed him; the Court of Appeals in turn reversed the Appellate Division, two of its judges dissenting; and finally, the Supreme Court of the United States, after two arguments, affirmed the Court of Appeals, three of its members dissenting. Surely no one would presume, because of these differences of opinion, to doubt for a moment the ability, the learning, the absolute honesty of these various experts of the law; and it is equally manifest that the frequent differences of opinion among medical experts—the only class we are now considering—should not of themselves alone justify the criticism so freely made."

District Attorney Jerome, in a recent public utterance, declared "No man has had more experience with experts than myself during the eight years I was district attorney, and during that time I recall only one man whose testimony was radically dishonest. Only one of these cases received great public attention, and that was on account of the scandals connected therewith. These scandals were not, however, save with one exception, due to dishonest expert evidence, but to judicial incompetency. It does not follow because there are alienists who lie on the witness stand that all medical expert evidence should be abolished, any more than that because some lawyers coach witnesses to a point that amounts to subornation or perjury, the conduct of criminal cases should be left entirely to the judge. I have referred to the Thaw case and you all know whom I mean when I say that there was one man who testified on that occasion, who, in view of his testimony in that case, and in view of his evidence since and his own written report, would be expelled from the profession, if you gentlemen had the power to disbar him. I may say that in every case during my term of office the opinion of the experts retained by the State was justified by the subsequent clinical history."

The Hypothetical Question.—Respecting the hypothetical question it must be conceded that it is a very difficult proposition with which to deal, especially so far as relates to any improvement or proposed modification of existing rules of practice relative thereto. The rules of evidence provide for the hypothetical question and the courts have held that while such questions must contain nothing that is not contained in the evidence they do not prohibit the omission of any facts in evidence which counsel may in their discretion see fit to omit. Hence it frequently occurs that counsel sifts and omits from his hypothetical question certain important facts in evidence which if incorporated therein would tend to weaken or discredit his contention, and he is prone to include in his question only such facts in evidence as he thinks will tend to prove his case. Consequently, the hypothetical question usually is a one-sided affair. The writer has frequently suggested, and sometimes insisted, that the question to be submitted to him should embrace a fair résumé of the whole evidence, and when this plan has been followed he has usually found that he could answer the question thus constituted as consistently and to the same effect as he could have answered what might be termed an *ex parte* question. This, it seemed to the writer, has tended to strengthen his testimony in the estimation of the court and of the jury, and at the same time to relieve him from appearing to be an unfair, one-sided and partial witness.

The Legal vs. the Scientific Definition of Insanity.—The legal definition of insanity as a test of responsibility for criminal acts, that is, the so-called "knowledge of right and wrong" test, presents a feature of the administration of the criminal law in which the legal profession has made little or no progress for more than half a century, or since the legal definition of insanity was formulated by the English judges in their decision in the celebrated McNaughten case, in 1843. In fact, the Criminal Code of the State of New York to-day defines insanity in substantially the same language as that used by the judges in the McNaughten case, namely: "A person is not excused from criminal liability as an idiot, imbecile, lunatic, or insane person, except upon the proof that, at the time of committing the alleged criminal act, he was laboring under such a defect of reason, as either (1) not to know the nature and quality of the act he was doing; or (2) not to know that the act was wrong."

As alienists we can hardly accept this "right and wrong" test as regards responsibility for crime. But as this is the law of the State of New York, and in many other states of the Union, we are obliged to abide by it. In fact, as experts, we have nothing to do with the law. Our function is simply to de-

termine, if possible, the mental condition of the accused at the time the act was committed—a purely scientific question. Now every alienist knows perfectly well that this so-called legal definition is unscientific and way behind the age, and that, in this matter, the law has not kept pace with the progress of medical science. Those who are familiar with the phenomena of mental disease know perfectly well that in a large majority of cases in which the plea of insanity is offered as a defense to an indictment for crime the accused knows the difference between right and wrong in the abstract—a large majority of the so-called "dangerous" or "criminal insane" being paranoiacs. We know that paranoiacs as a rule converse coherently and plausibly and that they reason logically respecting their delusional ideas, but that they always reason from wrong premises, the mental condition being one of gradually developed delusional ideas of the systematized variety, without marked mental deterioration or clouding of consciousness. So that, in most cases, with us the question is, not whether the individual knew the nature and quality of the act he was doing and knew that it was wrong, but whether he had the power to control his act and to resist the impulse to do the wrong, or whether he was actuated by delusion which supplied the motive, impelling him to do the act.

Now, if every form and stage of mental disease were invariably attended by a loss or suspension of the knowledge of right and wrong, such as usually occurs in extreme types of mania, melancholia, paretic-dementia, etc.—forms or stages of the disease which are usually characterized by mental aberration so marked as to bring them easily within the ken of unskilled observers who would readily recognize the symptoms which in themselves furnish presumptive evidence of a lack of power to distinguish rationally between right and wrong, no valid objection could be raised to the present legal test of insanity, wrong in principle though it be, for the reason that its practical effect, as applied to the class of cases referred to, would be to establish irresponsibility, in substantially every case, regardless of the nature of the act committed. Unfortunately, however, but a small percentage of the insane who come within the jurisdiction of our criminal courts belong to the types of insanity referred to; this class of persons, being, usually, not homicidal, seldom commit, or attempt to commit, homicide, or what is technically known as crime against the person. In other words, such persons do not belong to the "dangerous insane," consequently there is little or no difficulty in such cases in determining the question of responsibility, for the reason that they readily fall within the legal conception and definition of mental disease. It is the obscure and doubtful cases that so frequently puzzle our courts of criminal jurisdiction, and these are drawn almost wholly from the ranks of the paranoiacs; and this class, as we all know, frequently commit crime from motives similar in character to those which actuate sane persons, namely, revenge, vindication of personal honor, defense of life or property, etc. But if we seek the bases of these motives we shall find that, unlike the motives of the sane, they are not founded on reality, but are the offspring of a diseased or disordered intellect, a psychopathic state which has deranged the psychical apparatus, so to speak, and left it awry, even though the logical apparatus remains intact. The paranoiac is prone to premise falsely and to morbidly misinterpret the conduct and motives of those about him. And while he may reason logically, he reasons from wrong premises and in a way that a sane man would not do. Such being the case, it frequently happens that, under the requirements of our criminal code, we are put in the false position of testifying in effect that a defendant was sane legally, that is, that he knew the nature and quality of the act he did, and knew that it was wrong, when, as a matter of fact, we know that he is insane and irresponsible, according to the teachings of medical science.

It has been suggested that the most satisfactory way to deal with criminal cases, especially capital cases, in which insanity is pleaded as a defense, would be to keep the question of insanity out of the case entirely during the trial, and to allow the jury to pass only on the question of the guilt or innocence of the accused, irrespective of his mental condition; then, if the defendant be convicted, let the court appoint a commission of competent alienists to determine his mental condition, and whether he is punishable by reason of mental disease or not. Such a commission could be relied upon to reach a sound and harmonious conclusion. The writer does not pretend to say that this method would be feasible, but it would at least seem to offer an improvement on the present method of determining the mental condition of a defendant which puts upon a jury of laymen, who, presumably, are not familiar with the phenomena of mental disease, a responsibility which they should not be called upon to assume. If the function of the jury were restricted to a finding on the facts, that is, if the defendant committed the act as charged, and, subsequently the question of his mental condition were determined by competent alienists appointed by the court, it is believed that the finding of such a commission would be accepted by the public, both lay and medical, and that there would be no danger of a miscarriage of justice. If this method were feasible under the constitution it would seem to furnish the best solution of expert testimony in criminal cases in which the mental condition of the accused is in issue.

"So long as mind and intention shall be held to constitute the foundation of legal responsibility," says Ordronaux,* "so long will their absence be likewise held to exonerate from all imputability of crime." In other words, before there can be guilt, there must be mental competency to concoct it. And yet despite this truism, there still exists in both lay and medical circles a wide diversity of opinion as to how far insanity should be held to absolve from criminal responsibility. These diverse and even opposite views have existed from the time that Lord Hale undertook to define the exact extent to which the mental movements were influenced by insanity and its consequent effect in impairing the responsibility of its victims down to the present time. As a result of his investigations, Lord Hale concluded that, while the milder forms of insanity might not be sufficient to excuse one from responsibility for criminal acts, a sufferer from the severer types of the disease would be excusable for any crime he might commit under its influence. Subsequently, in 1843, the English judges, in response to questions put to them by the House of Lords, in connection with the celebrated McNaughton case, formulated a definition or test of insanity which

*Judicial Problems Relating to the Disposal of Insane Criminals, by John Ordronaux, M.D., 1881.

was substantially the same as the one put forth by Lord Hale. In the language of the learned English judges: "To establish a defense on the ground of insanity, it must be clearly proved that at the time of committing the act the accused was laboring under such a defect of reason, from disease of the mind, as not to know the nature and quality of the act he was doing, or, if he did know it, that he did not know he was doing what was wrong." From the time this judge-made law was promulgated down to the present day our criminal courts, with their traditional regard for precedent, have generally accepted it blindly and propounded it to juries in almost identical language, notwithstanding the emphatic protest of medical men that such test is in direct conflict with the teachings of medical science and false in its application to the mentally unsound. As before stated, the Revised Code of Criminal Procedure of the State of New York, Section 21, defines insanity in precisely the same terms as those used by the English judges in the McNaughton case. Thus it appears that our lawmakers, blindly following the dictum of Lord Hale and his successors on the English Bench, and ignoring the teachings of medical science, have undertaken to determine by statutory enactment what insanity is and to define the conditions of responsibility in mental disease by declaring in law what shall be rather than what is, and have thus given us a test which is based on a misconception of the true nature of insanity, and so narrow in spirit and so untenable in reason that every experienced alienist must regard it as artificial, arbitrary, and fraught with danger to humanity and to the ends of justice. "The true test of irresponsibility," says Forbes Winslow, "should be, not whether the party accused is aware of the criminality of his actions, but whether he has lost all power or control over his actions." "Make the man's power of controlling his actions the test," says Clouston. "With that view every medical man will agree."

Hence it would appear, if medical science is correct, that the real question of fact for the jury to determine in criminal trials where insanity is alleged is: Did the accused at the time he committed the act of which he is charged have sufficient mental capacity to appreciate rationally the nature and consequences of the act he was committing, and, if so, had he sufficient power of will to enable him to choose between doing it and not doing it? It must be admitted that a correct solution of this question, involving as it does human life and liberty, is of vital importance; and, inasmuch as it relates directly to disease, the facts upon which its solution depends can properly be interpreted for the jury only by competent medical testimony. If this were done it is believed that much of the conflict of opinion in our law courts respecting the question of responsibility in criminal cases where insanity is offered as a defense would disappear.

15 East Forty-eighth Street.

Thyroid Enlargement in Rheumatism.—Clemens calls attention to the frequency of enlargement of the thyroid gland in rheumatism in childhood, and suggests that this is a diagnosis sign of value. The time of appearance of the thyroid enlargement varies. In some cases it precedes all other manifest signs of rheumatism. Again it appears as the fourth or fifth link in the rheumatic chain, and at other times it persists in association with established chronic endocarditis after all other rheumatic manifestations have disappeared. The degree of enlargement while not great, is sufficiently pronounced to give an unnatural fullness to the neck, which is unmistakable when viewed laterally.—*Archives of Pediatrics.*

THE ANOMALIES OF OCULAR DOMINANCE.

By GEORGE M. GOULD, M.D.,

AND

A. C. DURAND, M.D.,

ITHACA, N. Y.

If one alternately closes or covers the eyes while looking at an object in the room he will notice it "jump," or change position. It is easy to demonstrate the fact that the eyes, being two or more inches apart, must form two images of one object, differing topographically in certain ways and relations. The fact has many startling, practical significances, as was long ago pointed out.

One constantly observes that many people, especially presbyopes, or those over 40, habitually close one eye, usually the left, when looking definitely at some object or when observing something with care. When the hunter sights his gun, when the boy uses his spyglass, when the carpenter sees if his board is level or straight, when the young microscopist or ophthalmoscopist uses his instrument, the disused eye is closed. And it is "the dominant eye," usually, that is put to single use, the poor image of the nondominant one being wholly excluded by closure. There are more blind or half-blind, more injured, left eyes than right eyes, and the vast majority of righthanded people have, of the two eyes, poorer-seeing left ones. These facts should have led oculists to the truth, and to its significance, the law of righteyedness and lefteyedness, or of what we have called the "dominance" of one eye.* In athletic and sporting circles the crude recognition of the truth has resulted in the term "the master eye," the single eye which governs and rightly estimates acts, and the exact localization of objects, and which coordinates all bodily actions with accuracy and speed. One may even catch glimpses of the unconscious knowledge or experiences which have brought into use such colloquial or proverbial expressions as "Keep your eye on him," "Keep your eye peeled," "A beautiful eye," "Mind your eye," "All in your eye," "Run your eye along the line," "An eagle eye," "The eye of faith," "A spiritual eye," "The eye of the law," "Your weather eye," "An eye to the blind," "At first eye (or sight)," "God's eye," "The common eye" (of the people), "He has him in eye," "A friendly eye," and a thousand such expressions of poets and writers in all time. The great superstition of "the evil eye" will be found to have arisen from a similar source.

From the prior and subsequent histories of perhaps a hundred such patients as will be described in later pages we conclude that:

1. Perhaps 3 per cent. of eyestrain sufferers are troubled with the disorders consequent upon the anomalies of ocular dominance. Possibly 8 per cent. of little children are at first lefthanded. Of these, in about 75 per cent., there has been a mistaken and harmful attempt on the part of parents, teachers and school-fellows, to make the child write, sew, or hold the knife, with the dextral hand. In the larger portion of this class the attempt has been harmfully, partially, and awkwardly successful. In a smaller number of cases this, despite all punishment and suffering, has been unsuccessful, and the child has luckily remained normally lefthanded.

*See "Righthandedness," etc., J. B. Lippincott Company, 1908.

2. Except in so far as it has influenced the primary shapes and sizes of the eyeballs, heredity has no influence in the production of righthandedness and lefthandedness. Left-handed parents will have right-handed children and grandchildren in about the same proportion as righthanded parents—*i. e.*, approximately 92 per cent.

3. Righthandedness and lefthandedness arise in the first year or two of life, and are caused by the dominance respectively of the right or of the left eye.

4. Dominance is dictated and established by the better vision of the right or of the left eye, in the great majority of cases, by the less incapacitating ametropia existing at the time of the beginning of the habits of willed arm-and-hand actions. In relatively 92 per cent. of infants the right eye is the better or easier seeing eye, and in 8 per cent. it is the left.

5. The attempt to change the establishing or established habit of lefthandedness in a child inevitably produces disease of many kinds, awkwardness, liability to accidents, incapacities, and it handicaps in all the subsequent life. It decidedly lessens the validity of the person in the civilized "struggle for existence." The difficulty and partial or complete unsuccess of the attempt shows that something far more than mere "handedness," or handiness, is at work to prevent it. This something is the preceding and causal dominance of a single eye. It would be a crippling disadvantage to be "ambidextral," and fortunately there is no person in the world who is really so. All that is usually attempted—and at what a reckless cost—is to make a left-handed child write with the right hand. There might possibly be a somewhat less hurtful success if the training of righthandedness were begun at the age of six months or a year. But even then no attempt would be entirely sucessful except it were begun by the attempt to make the naturally better left eye into one seeing less correctly and easily than the right eye. This would be a pretty hard job! More fundamental, also, is the necessity of governing dextral and sinistral actions of one side of the body by motor and sensory centers in diverse cerebral hemispheres. Since evolution of the bodily organism began vertebrate action has depended upon the government, innervation, and coordination of dextral bodily organs by centers located in the sinistral side of the brain, and of sinistral bodily organs by brain-centers gathered in the dextral hemisphere. The ambidextralists and other trainers of the poor lefthanded should start by rearranging and fusing into unity the dual brain. Their present aim is in fact an attempt to make two speech-centers instead of a single one. But the writing center is, and must be, in close contiguity to the speech-center, so that also must be doubled. One fancies that God is wiser, and that their interference is quite futile. The public-school laws (of New York City, for instance) should be repealed which forbid a lefthanded child to write with the left hand.

6. Reversals of dominance in a relatively small number of individuals, as life goes on, are inevitable. Plainly, if the hitherto dominant eye is lost or blinded by disease or by injury, the remaining eye must take up dominancy as best it may. And there follows the certain revolution in brain-function, the awkwardness, the dangers, slowness of mental and physical action, the inadaptabilities, which must then be slowly and imperfectly overcome as the patient best may effect. There is necessarily a greater or less incompatibility in all expert tasks, in fact, a halting and difficult readaptation to the old duties and necessities—old habits must be undone, and new habits slowly established.

The effective life-problem at once becomes a very different one. But the decided lessening, from any cause, of the greater ease and acuteness of vision of the hitherto dominant eye, to a great extent brings about exactly the same results as the absolute loss of the eye. Dominance is then transferred to the previously second best eye, especially if this occurs early in life, when less fixity of habits and of cerebral mechanisms make the transfer more easy. A hundred practical problems and considerations arise at this point. Organisms, of course, differ, even at the same relative age of the life, in plasticity and possibility of changing habits. Occupations also make myriads of grades and kinds of exactions upon workers.

A frequent cause of reversals of dominance is the changing of the errors of refraction during youth, so that the visual acuteness of the hitherto dominant eye becomes relatively so poor and unreliable that dominancy must be transferred to the other. The tragical results will then depend upon the time of life at which this occurs, the plasticity of the neurological and the habit-mechanisms, the occupation, etc. These refractional changes account for most of the anomalies of dominance. We have had about a dozen patients who are right-handed but left eyed, because of much higher and incapacitating refraction error in the right eye; two or three others were lefteyed with the higher defect in the left eye; while there have been about a dozen with righthandedness and lefteyedness, but with the errors about the same in each eye. Careful refraction under mydriasis is of course necessary to ascertain the facts with accuracy.

In general, one may say that the established dominance will persist even though the visual handicap of the dominant eye is one-quarter or one-third less than that of the nondominant one. In the beginning of the growing handicap of ametropia in the dominant eye, scientific spectacles, which restore or retain its former ease and certainty of visual sharpness, will, of course, keep it in dominance, and avoid the otherwise certain ensuing troubles. If only 1 per cent. of those wearing or needing correct spectacles have not exactly the kind that will preserve the habitual dominance, there must be hundreds of thousands of American, and more of foreign, patients who are needlessly suffering reversed dominance.

Other agencies which may affect the vision of the dominant eye and transfer its dominance to the other eye are: Keratitis, or leucoma; iritis, cataract, retinitis of any kind; ophthalmovascular choke with fading image worse in the dominant eye; heterophoria, surgical operation, etc., etc. Sometimes, indeed, the surgeon may be able to preserve the old dominance of an eye by excessive attention, by choice of an operative procedure, etc.

Lastly, to be remembered are the cases of injury, disease, etc., of the hand, arm, etc., habitually coordinated under the direction of the dominant eye, whereby the writing, sighting, localization, etc., have been compulsorily transferred to the reverse hand or side of the body, leaving the established ocular dominance unchanged. In such cases the patient must play billiards and other games, sight a gun, write, etc., with the hand hitherto unused for

such expert tasks, and under the greatest difficulties. So great are such handicaps that a number of patients, although lefthanded or lefteyed, still shoot from the right shoulder, but sight with the left eye, the right being awkwardly depressed below the level of the gun.

The symptoms of anomalous dominance are peculiarly subtle and hidden and hard to elicit, because difficult for the patient to remember or even to bring to consciousness. And they are rendered more difficult of discrimination because they are almost always interwoven with and concealed by the thousand peculiar and ever-variant symptoms of ordinary eyestrain. In children, especially, there is likely to be such an inability to see objects in their proper relations and placings that there is much tearing of clothes, stumblings, hurtings, and accidents of many kinds. As caution is learned there ensue a halting and slowness of action, a seemingly unnatural and even stupid lack of decision or action, especially of speech. This may develop into stammering or stuttering, due to the necessity of correlating the centers of articulate speech, sight, etc., located in opposite cerebral hemispheres. There may be an astonishing fatigue in reading or even positive inability to read. All sorts of awkwardness and impossibilities of doing certain things may become manifest. We could list a hundred odd symptoms—inability to think and write at the same time; becoming "dazed" or blank-minded when trying to write, or to do certain things; absurd hesitation and long calculating in sewing, or playing games, in waltzing, etc.; confusion of mind, inversion of words or letters; willing one thing and doing another; mirror-writing; lapses of memory and attention; inexplainable awkwardness and absent-mindedness; sulkiness; explosions of temper, "nervousness," morbid aloofness, even "hysteria," etc., etc. For instance:

Y. J., a girl of 12, had two years ago a moderate compound hyperopic astigmatism, alike in the two eyes, with fair acuteness of vision. She was lefthanded, but was compelled to write with the right hand. She had a good mind, but was one or two years behind other girls of her class and age in all school studies except arithmetic. She reversed words having similar letters or sounds, saying *was* for *saw*, *on* for *no*, *of* instead of *for*, etc. For four years she had stuttered or stammered badly, or had a most noteworthy slowness of speech, a preceding period of provoking silence, preparation, and difficulty in bringing thought to speech. We asked her to try to write with her left hand, and in two weeks she could write as well with this hand as with the right after the years of conscious effort. She sewed with the right hand, brushed her hair with the left, threw ball equally badly or well with either hand, etc. The most noteworthy and illuminative symptom was this: When asked, or trying to read, the first two or three lines are got through with at a good rate of speed; then the reading becomes slower and more difficult, and before the bottom of the page is reached she has to spell each letter of every word before she is able to understand or speak it. She has 1.50 D. subnormal accommodation and moderate compound hyperopic astigmatism alike in the two eyes. With the bifocal spectacles ordered most of her symptoms have disappeared, and others lessened. Some "confusion" persists, however, and mixing of words. Where before there was morbid sobriety and joylessness, there is now normal gaiety and laughter. This girl is still a righthanded writer, by preference, but is now right-eyed for writing; she does not stutter, has "caught up" in school, etc.

M. P. J., aged 37, was a left handed child, but by a vast deal of trouble her mother compelled her to write and sew righthandedly, and to hold the knife in the right hand, in eating. When grown up she began sewing with the left hand, and now "hates sewing." Her husband is lefthanded, but their three children are righthanded. In speaking there is always noticeable a hesitancy and halting, especially when giving orders or directions. As a child she had many accidents owing to awkwardness, and faulty localization of objects, and was always tearing her clothes. She has exceptionally great fatigue in going to picture galleries, stores, etc. Her error of refraction is at present:

R. + s. 1.25 + c. 0.25 ax. 50° = 20/20
L. + s. 1.25 + c. 0.25 ax. 130° = 20/20 +

K. K., aged 32, has had a life of strange and great suffering—migraine, vomiting, insomnia, swooning, "swelling of eyes," and of flesh about eyes, suicidal attempts, "nervous prostration," trial at convent life, at insane asylum, etc., etc. She has always had great confusion of mind, of speech, and of action, for instance, "putting flowers into the ice-box instead of the butter." She has been drinking excessive amounts of coffee. She was lefthanded as a child, but was forced into righthanded acts and habits, especially as regards writing. By our advice she undertook lefthanded writing again, after we had given her correct spectacles, which brought the left eye into possible function. Formerly she wrote a very large or coarse hand, but now writes very fine or small letters. The style of the writing or shapes of the letters also differ markedly. She is now using the left hand more unconsciously. She does not get confused or "mix up her acts," as formerly, and there are less mistakes in the choice and use of words. Her memory is greatly improved. Her error of refraction at present is:

R. + c. 1.50 ax. 105° = 20/20 +
L. + s. 0.12 + c. 1.87 ax. 90° = 20/20 +

She had been wearing lower power cylinders at axes 140°—lenses that increased instead of diminishing eyestrain, and which threw the left eye out of function.

Two patients are righthanded but lefteyed. They shoot from the right shoulder but sight with the left eye, the right being depressed below the level of the gun and out of use. Two other patients thoroughly lefthanded and lefteyed also shoot from the right shoulder with the left eye, the right depressed in the same way.

R. W. has a very high degree of compound hyperopic astigmatism and perfect visual acuteness of both eyes with accurate correcting lenses. Without these lenses she is lefteyed, but with them right-eyed. The higher defect in the right eye without proper ametropic correction had evidently but recently turned the dominance over to the left eye. Just in time, therefore, it has been retransferred to the right.

M. K. has now, at 22, R. + cyl. 1.00 ax. 75° = 20/20 +, L. + cyl. 1.87 ax. 105° = 20/20. She was naturally lefthanded, but was forced to write with right hand. She sews, uses knife at table, throws ball, etc., with her left hand. She can still write as well but not quite so fast with the left as with right. She sometimes misses her mouth in

eating, plunging the food or fork against the lips or cheek. She puts away the thing she wished to keep, and *vice versa*. She has been much laughed at all her life for doing such awkward and unintended things. When talking she often "gets ahead of herself." She often blunders, in this way, for instance: "What is the capital of Paris?" In playing the piano the left hand follows the right as a "trailer." She has had a long, tragical life of suffering, migraine, spinal curvature, vomiting, etc., etc.

M. M. was a lefthanded child compelled to write with her right hand. She tried to learn to play the piano, but could not do it. She often calls well-known persons by the wrong name, misnames objects, etc., and instantly knows she is wrong. She has spinal curvature, subnormal accommodation, and has had a life history of sickheadaches, dizziness, confusion, lack of power of concentration, etc.

E. A. O. was a lefthanded child, compelled to write with the right. She gets confused in speech, mixes her words, etc. She is righteyed when holding the test-instrument in the right hand, but lefteyed when holding it in the left hand. The error of refraction is the same in both eyes.

R. E. T. was a lefthanded child, trained to write with the right hand. He has been a lifelong sufferer, sickheadaches, insomnia, dizziness, unsteadiness, chorea, "faint spells," swoonings and fallings, etc. He stutters badly, this symptom beginning in youth. He is now entirely relieved of all these symptoms, except stuttering. He is still a righthanded writer, but is lefteyed.

E. L., at 12 years of age, is lefthanded, but righteyed. She now has over two diopters more of unsymmetric hyperopic astigmatism in the left eye than in the right, and from lack of proper glasses this left eye has an incapacitating amblyopia. Correction of the ametropia in the left has in a few months doubled the visual acuteness.

F. O., aged 20; his right eye was injured by a blow with a hoe, ten years ago, so that at present it has an error of about 4 diopters of compound myopic astigmatism, with 20/40 visual acuity with accurate correcting lenses. He is righthanded, but has been compelled by the injury to become consciously lefteyed, shooting from the left shoulder, awkwardly, slowly, and with conscious difficulty, and, of course, aiming with the left eye. He plays billiards lefthandedly with the same trouble. He is practically blind with the right eye at near range.

W. R. O., when first tested without a mydriatic or any correcting lenses, was righthanded and lefteyed. After mydriasis, under correcting lenses, he was as clearly and persistently righteyed, with better acuteness of vision also in the right. He has always been righthanded. The anomalous lefteye dominance has therefore been reversed by correction of ametropia.

H. J. H. is righthanded, and remains righteyed despite the higher astigmatism of the right eye, measured as follows:

R. + cyl. 1.75 ax. 180° = 20/20.
L. + sph. 0.37 + cyl. 0.75 ax. 15° = 20/20.

This is probably because the axis of the astigmatism in the left is oblique.

C. N. K. was lefthanded as a child, but was compelled to become a righthanded writer. She still remains lefteyed, although her error of refraction is greater in this eye than in the other.

M. A. H. is lefthanded, but was forced to write with the right hand as a child. He is now righteyed. His present ametropia, at the age of 52, does not account for his righteyedness, as, although his astigmatism is unsymmetrical, it is of too low a degree, and too near alike in the two eyes to explain the reversal. Originally, therefore, his defect must have been greater in the right eye, and under the influence of severe eyestrain (with local ocular, not systemic reflexes), the ametropia became about equal in the two eyes, and thus permitted the transfer of dominance to the right eye.

H. D. A. is lefthanded, forced as a child to write with the right hand, and is now righteyed. The higher ametropia in the left facilitated the transfer of dominance to the right eye. Another patient (S. L.) had the same condition, and the extremely high hyperopia of the left has rendered the eye almost blind because of amblyopia from lack of correcting lenses.

C. H. E. is righthanded in writing, using a screwdriver, sighting a gun (from right shoulder), testing levels, violin-playing; but he is lefthanded in eating, hammering, sawing, planeing, microscopy, and billiard-playing. He is certain that, as a child, he was not trained to be a righthanded writer, but always unconsciously chose the right hand for writing. Either without a mydriatic, or with it, he is, by all tests, clearly lefteyed, and whether with or without ametropic correction. His visual acuteness is sharper with the left eye than with the right, either with or without the mydriatic, and whether with ametropic correction or not. His present ametropia does not explain the choice of the dextral or the sinistral eye for expert tasks. As a child he was, of course, righteyed. He may have some time temporarily lost the superior acuteness of the right eye from ametropic changes, or passing inflammation, etc., and subsequently regained it. More probably, there has some time been some injury to one arm that made the other arm and hand do certain tasks more easily, and these were consequently transferred. Even a sharply localized cerebral injury may have been the cause of the replacement of one hand by the other for certain tasks.

N. S. C., 18 years old, always righthanded, was struck in the right eye three and one-half years ago by a stone. The retina was injured by *contrecoup*, reducing the central acuteness to 20/200, after correction of his compound myopic astigmatism. After wearing correct spectacles for a year this eye has now 20/70 visual acuteness. He has, of course, become a lefteyed man since the accident, and has slowly learned by experience that he must shoot from the left shoulder, that he must play billiards lefthandedly, and to throw a ball with the greatest accuracy he must use the left hand. He has practically become a lefthanded man in the few years since the accident. His error of refraction at present is:

R. — sph. 0.62 — cyl. 1.25 ax. 90° = 20/70.
L. — sph. 0.62 — cyl. 0.75 ax. 75° = 20/20 +

W. A. F. is lefteyed by all tests, and yet he is normally righthanded and has always been so. His static error of refraction is:

R. + sph. 0.87 + cyl. 0.75 ax 80° = 20/20 +
L. + sph. 0.62 + cyl. 0.62 ax. 95° = 20/20 +

L. M. A. is lefteyed and righthanded. The peculiarity of the right axis of astigmatism explains the anomaly. She was wearing simple spherical

lenses (+ sph. 0.50) alike in the two eyes, when her real error is as follows:

R. + cyl. 0.50 ax. 25° = 20/20 +
L. + cyl. 0.62 ax. 180° = 20/20 +

J. S. B. is righthanded but lefteyed, because of two reasons: She has been wearing, *for reading only*, B. E. + sph. 1.50 + cyl. 0.50 ax. 180°, which aided in excluding the right eye from use, and because it did not aid it in overcoming the following defect:

Distance.

R. + sph. 0.37 + cyl. 1.50 ax. 180° = 20/20
L. — sph. 0.25 + cyl. 0.37 ax. 165° = 20/20

R. + sph. 2.50 & cyl.
L. + sph. 1.75 & cyl. } Near. In bifocals.

To order a presbyope with such ametropia as this to go without distant glasses altogether, and to miss the presbyopic diagnosis of the right eye by two diopters was more than enough to bring about the unfortunate result.

L. B. is righthanded and lefteyed, because the extremely high degree of malcorrected astigmatism in the right eye threw it out of use.

S. R. G., although naturally a lefthanded writer, was, as a child, compelled to write with the right hand, and, with the exception of billiards, is now habitually righthanded. Without a mydriatic, or correcting lenses, he has about 20/40 visual acuteness. His postmydriatic ametropic error is:

R. + sph. 0.37 + cyl. 2.62 ax. 95° = 20/20 +
L. + sph. 0.50 + cyl. 2.50 ax. 95° = 20/20 +

G. H. is a common laborer, righthanded for everything, but lefteyed. This was caused by the existence of an enormously high compound hyperopic astigmatism, for which he had been wearing atrocious glasses which threw his right eye out of use. With + sph. 5.25 + cyl. 3.50 ax. 8° this eye was given nearly perfect vision. He may in time regain his righteyedness.

M. A. G. is righthanded for all tasks, but lefteyed. He has never had the use of his right eye, especially since wearing such glasses as these:

R. — cyl. 1.00 ax. 90°
L. — cyl. 0.50 ax. 180°

With the following correction he gets back a second eye, has binocular fusion and may possibly regain righteyedness:

R. — sph. 8.00 — cyl. 1.00 ax. 45° = 20/40 +
L. — sph. 0.12 — cyl. 0.62 ax. 180° = 20/20 +

M. K. C., 14 years old, was early compelled to use her right hand for writing, when she was naturally lefthanded. The ametropic defect being almost exactly the same in the two eyes, "Nature" evidently found it also possible to reverse the ocular dominance in a naturally lefthanded child, and righteyedness was established.

R. L. C. has developed one or two diopters of mixed astigmatism in the right eye above that of the left, and this has given the left the dominance, while he remains righthanded.

R. D. E. is righthanded and lefteyed. Her error of refraction (at 35) is:

R. + sph. 2.25 — cyl. 5.50 ax. 15° = 20/25
L. + sph. 0.75 — cyl. 3.50 ax. 175° = 20/20 +

M. G. F. is righthanded but lefteyed, because a choroiditis (of nephritic causation) has reduced the acuteness of the right eye to less than one-half the normal.

H. J. F. The axes of his astigmatism are 65° in the right and 90° in the left. Correct spectacles would have doubtless preserved his righteyedness. He is now righthanded and lefteyed.

J. G. B., a woman of 41, became lefteyed in childhood and youth because of several diopters of uncorrected hyperopic unsymmetric astigmatism, higher in the right eye than in the left. The glasses which she has worn during the last twelve years have increased instead of lessened the handicap of the right eye.

H. J. C. is lefteyed because of five diopters of uncorrected hyperopic astigmatism, with resultant amblyopia, but he is so decidedly righthanded that he tried to shoot, in hunting, from the right shoulder and sighting with the left eye; he had to give it up because the "kick" of the gun hurt his face so much.

A. F. C., while righthanded, is lefteyed, because, since the establishment of righthandedness, a high (uncorrected) myopic astigmatism has developed in the right eye at an oblique axis, which has thrown it out of dominance.

G. L. E., when a boy, fell in lime, and the resultant inflammation of the right eye ended in a leucomatous cornea, one-half normal visual acuteness, and the transfer of dominance to the left eye. He still remains righthanded. The accommodation in the right eye is paralyzed, but that of the left eye is normal.

H. G. was a lefthanded child, trained to use the right for writing, and is now lefthanded for all other acts. He shoots from the left shouder, aims with the left eye, plays ball lefthandedly, etc. He now writes lefthanded mirror-writing with ease, unconsciously, and at the first trial. His refraction error is a moderately high compound hyperopic astigmatism, the astigmatism higher in the right, with good visual acuity of each eye.

The only patient we have ever had who in the least approximated "ambidextrality," is a young woman who, lefthanded as a child, was early forced to write with the right hand, and to do a small number of other things with this hand which she had preferred to do with the left. She can now, actually, write equally well with either hand, but preserves her natural lefthandedness in the performance of several other tasks.

The explanation of this anomalous condition, however, is evident: She was and remains a person of wonderful plasticity and adaptability of character and of physiology; and she was precocious in intellectual development and exceptional in acquirement; but more conditioning and illuminative still is the fact that the two eyes have the same amount and kind of ametropia, the slightest possible, and the least handicapping we have ever found, with equal acuteness of vision, etc. The probably unique result is that the girl is righteyed when using her right hand or with the attention directed to the work of this hand, and just as clearly lefteyed when attention is directed to the task of the left hand. Even in holding the instrument for testing dominance in the right hand she is as decidedly righteyed as she is lefteyed when holding the instrument in the left hand. It is safe to say that such a nearly perfect pair of eyes does not exist in the multitudes of pitiful martyrs whom barbaric prejudice has tried to make into sadly unsuccessful "ambidextrals."

THE NOGUCHI METHOD OF SERUM DIAGNOSIS OF SYPHILIS; ITS PRACTICAL VALUE.*

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Syphilis can be detected to-day by means of the laboratory method discovered by Wassermann, Neisser, and Bruck, without clinical observation of the patient. The technique of the reaction, which is based upon the principles of the Bordet-Gengou phenomenon of complement-fixation, is very complicated and calls for much skill to perform it properly. It requires a competent laboratory worker and a fully equipped laboratory, because of the difficulty in preparing the reagents necessary for the test and in their preservation, and the necessity of standardizing and adjusting the dosage of each required reagent—namely, amboceptor, complement, antigen, blood corpuscles, and patient's serum.

These five reagents or factors should be employed in definite quantities for the accomplishment of which a thorough serological knowledge is demanded. It is only necessary at present to indicate that the method originally described by Wassermann was available to a limited number of workers only, and it is not surprising that various investigators attempted to simplify the technique, so that a larger group of workers might avail themselves of the test. It is my purpose in the present article to relate my experience with one of the modifications recently advanced, which appears to be more practical than the original, and at the same time reliable and accurate.

Before describing this method, it may not be superfluous to review, briefly, certain other modifications, in order to show why this particular one was followed.

There are, generally speaking, two principal groups of methods by which the complement-fixation test is carried out, the essential difference being in the use of foreign or human blood corpuscles as a hemolytic indicator.

Among the first group, in which foreign corpuscles are used, may be mentioned the original method of Wassermann and its modifications by various investigators. For example, Bauer, Hecht, and Stern use sheep's corpuscles, as in the original method, while Boas uses the corpuscles of a goat, Browning the corpuscles of an ox, Detre of a horse, Foix of a rabbit, and Tschernogubow of a guinea-pig. These methods, considered from a practical and theoretical standpoint of use, may again be subdivided, according to the source of complement and amboceptor that are to constitute a part of the hemolytic system, together with the foreign blood corpuscles. Thus, some modifications rely upon the natural hemolytic amboceptor preexisting in the serum of the patient under examination against the foreign corpuscles chosen for the hemolytic indicator. Speaking more specifically, the method of Bauer or Hecht or Foix or Tschernogubow utilizes the natural amboceptor for the corpuscles of a sheep, rabbit, or guinea-pig, respectively. Some of the modifications rely entirely upon the natural hemolytic property of the serum of a given patient utilizing at the same time the complement and the amboceptor; such is the case in the modifications proposed by Hecht, Foix, or Tschernogubow. A slight deviation from the last-mentioned ones is to be noticed in that of Stern, who adds a certain amount of an immune hemolytic amboceptor (for sheep's corpuscles) in addition to the natural amboceptor and complement of the serum of a patient, to render the test possible in such cases where the natural amboceptor may be absent. When carefully considered, one will discover that in order to gain in more or less simplification in these modifications there is a singular lack of the quantitative aspect of the subject. They seem to disregard the necessity of employing definite amounts of four out of five factors, while attempting to discover the amount of the remaining one. A simple equation would convince one that in finding out one unknown factor from a total sum of 5, one should know the amounts of 4 factors, definitely. It is evident that in the methods in which native hemolysins, no matter whether the complement or amboceptor, or both, are used, the determination of these factors would be impracticable, and, indeed, are not demanded by those who advance these methods. Now, the amount of natural hemolysins in human blood serum is variable, and often one (amboceptor) of the two factors is absent or present in excess. The above show the theoretical defects in these modifications.

Practically considered, we must first mention that the examination by these modifications must be done within 24 hours after the blood is drawn from the patient, since the complement becomes gradually weakened after the lapse of 48 hours, and deteriorates rapidly after a few days. A specimen that has been kept at room temperature for 24 hours is unsuitable for examination in any of the above modifications.

Regarding antigen—recently an alcoholic extract of normal or syphilitic tissue was proven to be as reliable as the aqueous extract originally described by Wassermann. And yet certain discrepancies existed as to the reliability of the alcoholic extracts. Why should they act in the same way, and why, then, may they not act differently?

It is known that extraction of certain tissues by means of alcohol gives rise to various results, as, for instance, the amount of autolysis an organ undergoes before extraction—the proportion of alcohol to the tissue—the temperature—length of time—and the varieties of the tissue, all may contribute to this difference. One organ may contain a group of fatty substances which will counteract the effect of other sets of lipoid substances and obscure the antigenic property of the latter. Therefore, it is inadvisable to use the unfractionated alcoholic extracts for any comparative study, because none of these conditions can be controlled. In the scrutiny of the methods, it will be seen that none of them can fulfill these essential requirements as well as Noguchi's.

Upon critical consideration of this method, it will be observed that each reagent can be used in a separate case, and is capable of being titrated before use; the complement is from a guinea-pig; the patient's serum can be used not only in an active state, but also after the lapse of an indefinite period of time, as well as after inactivation. This condition is more advantageous than the other methods in that in them the serum must be used either in an active state (before the rapid deterioration of its own complement) or in an inactivated state.

From the standpoint of the convenience of the

*Read at the Forty-third Annual Meeting of the Canadian Medical Association in Toronto, June, 1910.

method, that of Noguchi offers the use of dried reagents to those desiring to avail themselves of the simplification. This at first may appear to be more of a commercial factor, but the principle is fundamentally different. The drying of the amboceptor renders it invulnerable to bacteriolytic decomposition. It retains its activity much longer than in the liquid form, not only when preserved in a refrigerator, but likewise when exposed to any climate. Liquid amboceptor deteriorates rapidly in transportation through mechanical agitation, from which disadvantage the dried preparation is free. It is easily titrable, adapted to quantitative work if desired. As for antigen, Noguchi eliminates various disturbing constituents of whole alcoholic extracts by a subsequent fractionation with acetone, obtaining the insoluble portion as antigen. This fractionation makes the extract more uniform in action, irrespective of the source, and offers the advantage of being durable. Besides, the papers can be impregnated with a concentrated etheral solution of this fraction, and in this state it keeps for a very long time—possibly a year. Noguchi had one preparation which showed no appreciable deterioration at the end of a year. An alcoholic solution of this fraction can be made, from which a definite quantity is measured and emulsified in a physiological salt solution before use.

As will be shown later, Noguchi makes a distinction between the use of an acetone insoluble fraction of lipoids and an entire alcoholic extract. The former, which is a method of his own, can be used for both the active and the inactivated serum, while the latter is not recommended for active serum. The method which I employ is as follows:

Complement.—The fresh serum of a guinea-pig, in the strength of two units, usually 0.1 cc. of a 4 per cent. dilution of serum for each tube. It is best to use the serum after twenty-four hours' contact with the clot kept on ice, and, if possible, to mix more than two sera, in order to obtain uniform results, because guinea-pig sera, while fresh and normally reactivating for the amboceptor, may sometimes show a variation in regard to its fixation quality. Some sera may be highly insensitive to fixation, thus giving a negative reaction in a syphilitic case. The dried complement offers no advantage, and is difficult to prepare.

Amboceptor.—The serum is obtained from rabbits sufficiently immunized with washed human corpuscles. When it is dried on filtered paper it retains its activity for a long period of time, and this dried amboceptor offers no possibility of being spoiled by bacteria or by exposure to a tropical temperature, as in the case of liquid serum. Titration of a dried amboceptor paper is just as simple as the liquid amboceptor, and can be carried out with equal precision. The liquid amboceptor is equally as convenient as the paper form for those who are using a considerable amount of amboceptor and who have a good refrigerator. Another advantage of the paper form is the omission of strict asepsis in collecting the immune serum from rabbits, because the serum can be dried on paper before bacterial infection takes place. Before impregnation, the serum should be inactivated. For a fixation test, two units for each tube are used.

Corpuscle Suspension.—One cubic centimeter of a 1 per cent. suspension of washed human corpuscles in 0.9 per cent. salt solution is the standard. The blood should be obtained from non-syphilitic individuals. It is first defibrinated, or collected in a sodium citrate solution and washed by centrifugalization, and then made into suspension. The corpuscles of a given patient may be utilized in testing the same serum if the specimen is fresh (24 hours). The collected blood is allowed to coagulate, the serum is then slightly mixed with corpuscles by stirring the clot gently with a capillary pipette. The amount of corpuscles to be stirred should be sufficient in that one capillary drop of the serum will make approximately a 1 per cent suspension when mixed with 1 cc. of a 0.9 per cent. salt solution. If one intends to employ inactivated serum, the washed corpuscles of a non-syphilitic person are employed. One cubic centimeter of defibrinated blood is sufficient to perform about 50 examinations. Human corpuscles are sometimes good for about three days, if kept in a refrigerator. When the supernatant fluid of this suspension becomes tinged with hemoglobin, it cannot be utilized.

Patient's Serum.—This can be employed in two different ways, namely, unheated (active), and in the inactivated state. Active and inactivated sera give the same results when properly used. One of the most essential conditions to obtain reliable results with active sera is to use antigen prepared by the Noguchi method, in which pure lipoids (acetone insoluble-fraction) of normal tissues is used, and the indiscriminate use of all so-called syphilitic antigen preparations, such as aqueous or alcoholic extracts of syphilitic liver, should be avoided. Noguchi's recent experimental studies show that active sera have often a peculiar property of binding guinea pig's complement when mixed with various proteins, such as albumoses, peptone, nucleoproteins, certain cleavage products of proteins, glycogen—while such a false fixation phenomenon does not occur when mixed with pure lipoids (acetone-insoluble fraction). Inactivation removes this non-specific "proteotropic" fixation property from such sera. This explains why one should not use certain other syphilitic antigens in combination with active human sera, and accounts for the interesting observation of one author who employed alcoholic extract of the liver of a dog or of a syphilitic fetus. But this restriction in the antigen preparations does not affect the practicability of the Noguchi system.

These aqueous or alcoholic extracts of syphilitic fetus tissue can readily be abandoned, since they are noted for their variableness, instability, and difficulty of preparation, unless used with inactivated sera. Inactive as well as active sera can be used with equal reliability. The use of active sera in a test calls for less amount of blood. Moreover, the native corpuscles of the specimen, as already mentioned, can be utilized, for the hemolytic indicator. There is no necessity of inactivation. Inactivation, however, is sometimes necessary when human sera becomes old—about one week—in which case it often becomes anticomplementary, which must be corrected by means of inactivation. It is extremely rare that human sera not over forty-eight hours old contains an anticomplementary property. The quantities used in the test differ according to whether or not the sera is inactivated. With active sera 0.02 cc., and with inactivated, 0.08 cc. is used; with cerebrospinal fluid, 0.2 cc., while for ascitic fluid, 0.1 cc. is advised. In testing serum, a capillary pipette that measured about 0.02 cc. in one drop is employed, while in special quantitative work regular graduated pipettes are used. The capillary pipette is sufficiently accurate for general routine work.

Antigen.—For active sera, only acetone-insoluble

fraction of pure tissue lipoids should be used. Extract one part of minced tissue (liver, heart, kidney), with nine parts of 95 per cent. alcohol for several days at 37° C. Filter the extract through filter paper. The filtrate is evaporated in a flat dish by the aid of an air current. The sticky mass is then extracted with ether, and this ether solution is filtered through paper. The filtrate is condensed to a small volume by evaporation. Lastly, it is mixed with acetone (about 10 volumes). A precipitate will then be formed. The precipitate is collected and used as antigen. The modes of its use are as follows: First, to impregnate filter paper with concentrated ether solution of this substance. The impregnated paper is afterwards titrated to determine the dimension necessary for the test. Secondly, the other, which is in liquid form, is prepared by dissolving 0.3 gram of this substance in about 4 cc. of ether, and then mixing with 100 cc. of a 0.9 per cent. salt solution. Usually 0.1 cc. to 0.2 cc. is sufficient. Thirdly the substance may be dissolved in methyl alcohol (0.75 gram in 50 cc. of methyl alcohol). One part of this solution is mixed with 4 parts of salt solution (0.9 per cent.) and 0.1 cc. of this emulsion is used for each test. The original solution is retained for further use because it is advisable to make this emulsion freshly before use.

Regardless of the mode employed, the antigen preparation should be titrated before its strength is determined, and the quantities mentioned refer merely to the average preparation, and cannot be accepted as a standard. For transportation in ready form, the paper is absolutely the best. Oxidation seems to affect both the paper and the liquid forms.

For inactivated sera, aqueous, alcoholic, and pure lipoids (acetone-insoluble) may be used. The quantity of antigen must of course be determined with each preparation. Acetone-insoluble fraction of tissue lipoids, in liquid or paper form, is preferred on account of uniformity of action.

In making the test, do not under any circumstances omit the necessary controls: Postive syphilitic serum, normal serum, and hemolytic system, each set with and without antigen. Noguchi usually adds washed corpuscles to the mixture from the beginning, but they may be added after the first incubation at the same time as the amboceptor. In the latter case, the factors for the first incubation (patient's serum, complement with and without antigen) are in 1 cc. of 0.9 per cent. salt solution instead of a 1 per cent. suspension of washed human corpuscles, as in the first procedure. At the end of incubation 0.1 cc. of a 10 per cent. suspension of washed human corpuscles is added, thus rendering the entire mixture approximately a 1 per cent. corpuscle suspension. For routine work, a concentrated suspension of washed human corpuscles is prepared, so as to make one drop from a capillary pipette (made when needed) 1 per cent. suspension in 1 cc. As long as every tube of the entire series receives a uniform quantity of corpuscles, a slight variation in percentage, such as 0.1 per cent. more or less than the prescribed 1 per cent., cannot alter the test. The more vital factors, other than corpuscles, are beyond perfect control at best. First of all, complement of various guinea-pigs is variable in fixability. The equally vital factor, the amboceptor, has been made controllable only in the Noguchi system.

The importance of this unknown quantity of amboceptor can now be appreciated in the complement fixation test. A serologist who uses a heterohemolytic system may measure very carefully 1 c.c. of a 5 per cent. suspension of washed sheep's corpuscles with all technical care—but does he realize that this is actually the same as measuring blindly any quantity from that suspension? In making up a hemolytic system, units of complement, amboceptor, and corpuscles in their relative proportions must be employed. Supposing the quantity of amboceptor is increased by 10 times the unit without changing the quantities of the other two factors (complement and corpuscles) what will be the result? By this partial change, changes in the other two units are produced. The latter do not longer stand to one another as units, since a condition is produced similar to that which will arise from an increase of complement or from a reduction of the quantity of corpuscles, without changing the quantity of amboceptor. Thus, the serologist is working with the conditions comparable in results with those arising from the use of unknown, arbitrary, highly variable quantities of corpuscles, and a condition may be confronted equivalent to the use of one unit, or that of a fraction of the unit. This uncontrollable condition is enhanced by another fact—that there may not be a single set in the entire series, say of 20 tests, the conditions of which can be compared with each other.

The contents of the various test tubes are indicated in the following table:

Rear Tubes

Unknown Serum	Positive Control	Negative Control	Hemolytic Cont'l
Patient's serum (active 0.02 cc., inactive 0.08 cc.)	Positive syphilitic serum (active 0.02 cc., inactive 0.08 cc.)	Normal serum (active 0.02 cc., inactive 0.08 cc.)	No serum (hemolytic system).
Complement (40 per cent) 0.1 cc.	Complement (40 per cent) 0.1 cc.	Complement (40 per cent) 0.1 cc.	Complement (40 per cent) 0.1 cc.
Corpuscle suspension (1 per cent) 1 cc.	Corpuscle suspension (1 per cent) 1 cc.	Corpuscle suspension (1 per cent) 1 cc.	Corpuscle suspension (1 per cent) 1 cc.

Front Tubes

Same as above with antigen.	Same as above with antigen	Same as above with antigen.	Same as above with antigen

(1) First incubation for one hour at 37 C. (2) Addition of 2 units with antihuman amboceptor. (3) Second incubation for 2 hours at 37 C., then at room temperature. (Reading the reaction after several hours. With inactivated sera the results can be taken immediately after second incubation.)

I have just completed, by the above method, the examination of 410 cases, including various forms of skin diseases, of patients at my clinics. The results of 180 cases of syphilitics agree with those of other investigators:

	No. of cases.	Positive	Percentage
Primary syphilis	29	25	86
Secondary syphilis	48	45	93
Tertiary syphilis	60	48	80
Latent syphilis	53	23	69.6
Hereditary syphilis	10	10	100.

It will be noted that the highest percentage was obtained in the second stage, the negative cases being those which were under treatment. The positive percentage of primary syphilis is not as high as in the secondary stage: the negative reactions were obtained too early in the disease. Hereditary syphilis invariably gave a positive reaction.

The remaining cases—236 non-syphilitic—gave negative results, as follows:

Acne Vulgaris, 18; Acne Rosacea, 6; Alopecia Areata, 10; Dermatitis Herpetiformis, 3; Dermatitis Traumatica, 6; Dermatitis Venenata, 4; Eczema, 25; Epithelioma, 30; Erythema Multiforme, 5; Erysipelas, 3; Erysipeloid, 3; Favus, 2; Scabies, 6;

Herpes Zoster, 10; Hydrocystoma, 3; Ichthyosis, 4; Impetigo Contagiosa, 14; Lichen Planus, 10; Lichen Rubra Pilaris, 1; Lupus Erythematosus, 10; Lupis Vulgaris, 4; Mulluscum Contagiosum, 3; Nævus Pigmentosus, 3; Pityriasis Rosea, 4; Pityriasis Versicolor, 3; Psoriasis, 15; Purpura, 5; Trichopytosis, 10; Tiberculosis Cutis, 3; Urticaria, 13.

Conclusion: The object in making the above test was to determine whether the reaction is present in diseases other than syphilis, when tested by Noguchi's method. Among the cases thus examined, it will be noted that a positive reaction was obtained only in syphilis. In regard to the positive results in certain cases of leprosy, yaws, etc., this modification is similar to the Wassermann method. The investigations of Boas, Sachs, and others show that the use of unheated serum causes nonspecific complement-fixation in some nonsyphilitic cases, while this does not occur when one employs inactivated serum. But this difficulty can be avoided by adopting the method of preparation of antigen described by Noguchi, as already stated. The recent reports of some investigators, to the effect that the use of active serum in Noguchi's system sometimes causes positive reaction in nonspecific cases, can be attributed to their indiscriminate use of antigen. These authors almost invariably used unfractionated whole alcoholic extract of macerated liver, which, of course, is rich in undesirable proteins and glycogens.

From my experience I feel justified in stating that the Noguchi method is simple, delicate, and gives reliable results.

159 West Forty-ninth Street.

SOME REMARKS ON DEAF-MUTISM.*

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By deaf-mutism we understand a condition of deafness, either total or partial, followed by failure to learn to speak or by loss of speech already learned. The inability to speak is the result of the deafness and not of any defect in the speech mechanism. Congenital deaf-mutism is attributed mainly to heredity and consanguinity, also to alcoholism, syphilis, difference in the ages of the parents, and to diseases of pregnancy. Acquired deaf-mutism is due chiefly to meningitis. It also frequently follows scarlet fever. Other diseases, like measles, diphtheria, typhoid fever, mumps, influenza, etc., sometimes produce it.

What is to be done with the deaf mutes? The one thing of supreme importance is to teach them to speak. Mental awakening is the first step in the training. The mind of the deaf-mute is often in a backward condition because he does not fit with his surroundings. The exercises include mimetic movements, following the teacher in running, walking, sitting, blowing feather, etc., also games (such as catching ball, tossing beanbag, hiding thimble, etc.). Thus the child's attention, observation, imitation, and imitative construction are developed.

The speech development proceeds along lines that will now be illustrated in an abbreviated form by exercises with a group of three deaf mutes. Of these, two were born deaf. The other one became totally deaf at the age of three years; through lack of use of the vocal organs he lost what speech he had; he has attended a school for deaf-mutes where the sign language was used. The following exercises are typical of those used in the best schools:

1. Breathing through the nose and mouth are first taught. The teacher breathes through the nose on a slate or a mirror and shows the two moist

spots; the child learns to imitate this. The mouth breathing produces one spot.

2. The low position of the tongue is necessary for proper speech. It is taught by showing the position and using the mirror, and by a breath exercise. This latter rests upon the fact that the child cannot produce a good-sized spot on the slate unless he keeps his tongue down.

3. Tongue gymnastics are next used to limber up and train the muscles which have never received the proper development. The tongue is protruded, retracted, moved to each side, turned up, etc.

4. Tongue training preparatory to various consonant sounds is introduced. For example, the child is taught to put the tip of the tongue against the teeth; this gets him ready for the letter "t." He learns to draw it back and close it against the hard palate, thus getting ready for "k."

5. Vibration of the vocal cords is taught by feeling. The pupil puts his hand on the teacher's chest and also on his own. He thus learns to make a tone. He learns to raise and lower the voice, and by careful drill is able to make a fairly good tone.

6. The physiological alphabet consists of a set of diagrams giving the typical positions of the tongue and lips for the chief sounds of the language. Here for example are the diagrams for "t" and "k." The child learns these diagrams just as we learn the alphabet, so that he can both make the sound and write the letter or group of letters for it.

7. Combinations of consonants and vowels are now read at sight. Through these combinations words and sentences are developed.

8. Lip-reading of words and sentences is taught by having the patient watch the teacher's lips while she distinctly enunciates some word. Thus he learns to pick up objects off a table, to point out parts of the body, to obey commands, etc.

When deafness is acquired after the person has

learned to speak, the teaching of lip reading should begin at once. The voice then retains its natural character and the person can go right along with his education. Here are two boys who became deaf at the ages of thirteen and eight, respectively; they are now seventeen and twelve. They understand nearly everything that is said to them and are able to talk fluently.

*Address before the New York County Medical Society, February 28, 1910.

The unnatural character of the voice which the congenital deaf-mute acquires is the one drawback; still it is immensely better to be able to understand well and to speak fairly well than not to be able to do either. There is, however, a series of methods recently developed by the science of experimental phonetics by which the niceties of pronunciation are studied and taught. Foreigners are enabled by these methods to acquire a correctness of pronunciation otherwise impossible. The person is taught exactly how to place his tongue, to produce his nasal breathing, to regulate the length and intensity of his vowels and consonants. Here the work of special private instruction may begin for those deaf-mutes who wish more than the schools can offer.

In closing, I wish to report a curious case of sensory aphasia coming on at seven years of age after scarlet fever. The man's hearing is perfect but he has no understanding for the words he hears. His intellectual condition is excellent. He did not go to school and never learned to read and write. Apparently he has motor aphasia. Some questions he understands, if he can see the lips of the speaker; he has thus of his own accord begun to learn lip reading. It is my belief that he has no motor aphasia, but that he simply never learned to speak. He should, therefore, be taught lip reading just as if he were a deaf-mute.

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FURTHER OBSERVATIONS ON THE PATHOLOGY OF JOINT TUBERCULOSIS AND PRACTICAL DEDUCTIONS THEREFROM.*

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One year ago it was our privilege to read a preliminary paper on the pathology of joint tuberculosis before this association, giving the results of our study of some forty-three joints.[1] We have continued the work, and have added to our collection nineteen more specimens, bringing our total up to sixty-two. We have submitted the new joints to a thorough laboratory examination, and have also reexamined the old joints, cutting and staining many new sections in a search for possible errors in our former conclusions. The subject broadens as one pursues it, and in the limited time allowed to us to-day, we shall endeavor to bring out some of the more important points, sacrificing fullness of argument to brevity, and beginning by a statement of the definition of the term "joint tuberculosis." It is the reaction of the tissues in and about a joint to the presence of tubercle bacilli and of their toxins.

There are four essential elements of a joint, viz., bone, cartilage, ligament, and synovial membrane. These are all connective tissue structures and are formed from the mesoblast. Virchow's original definition of a tubercle limited it in its occurrence to connective tissue, but ordinary fibrous connective tissue is seldom, if ever, involved in tuberculous disease. There must be some peculiar cellular element in addition.

We find tuberculosis in those connective tissue structures which contain epithelial, epitheloid, and lymphoid cells. As a matter of fact, ligaments and cartilage are never involved either early or late. They suffer purely from interference with their nutrition. The bone structure itself, the trabecula, also escapes, and also suffers by interference with its nutrition. The disease appears in the marrow and spreads in the marrow. The term "bone tuberculosis" is confusing. It would be much better to say tuberculous myelitis. (Myelitis as applied to the spinal cord is a misnomer.) Cartilage is fibrous connective tissue plus a cement substance, and bone is fibrous connective tissue plus lime salts. In both the fibrous structure can be seen in their degeneration. The synovial membrane is lined in places by epithelioid cells, especially the portions of it forming the fringes, and the "synovial villi" consist largely of small round cells with granular protoplasm.[2] The synovial membrane therefore answers in structure to the conditions we usually find in the tissues of the body subject to tuberculosis. As to the marrow, that in the shafts is largely fat, that in the cancellous ends of the long bones and in the short and flat bones, the sternum, ribs, cranial diploe and vertebræ is of the red or cellular variety, with various kinds of cells. Where this marrow occurs in bone we find tuberculous disease, where it does not, we do not find it. Hence the occurrence of tuberculous disease in the epiphyses and not in the shafts, heretofore never satisfactorily explained. Hence also the frequency of the disease in children. Their bones contain more red marrow. Study of our specimens teaches us that only two elements of a joint, then, are subject to tuberculosis, the synovial membrane and the red marrow in the bone. This is important and will be referred to later.

As to primary involvement we reaffirm our opinion, stated last year, that it may be either of bone marrow or of the synovia. Our arguments have already been given. We have seen several specimens during the past year that confirm this view. We quote one case—a knee joint in a patient of twenty-four years, who had suffered moderate pain and disability in his knee for seven years. This joint contained fluid, and was somewhat limited in its flexion. There was no circumarticular swelling, no angular deformity, and little if any atrophy. At operation the cartilages appeared perfectly smooth, and the synovial membrane appeared normal except for the presence of numerous pedunculated bodies hanging from it. Some of these were cut off, the joint was sewn up, and plaster-of-Paris was applied. The diagnosis was changed to chronic inflammation, but a laboratory examination of the tissue removed showed tuberculosis. Some weeks later the plaster was removed, and the joint grew rapidly worse. Two months after the first operation a resection was done. The cartilages were found extensively eroded at their sides and the synovial membrane badly diseased; in its substance could be felt hard bodies the size of a small bean, which on section proved to be collections of cheesy material, and some of the enlarged villi contained areas of necrosis. Microscopical examination showed extensive tuberculosis of the synovial membrane, but no bony involvement. This case also exemplifies the aggravation of the disease in a tuberculous joint by a partial operation. Our opinion is that primary disease is about equally common in the synovia and in the bone marrow, at least in adults, from whom our specimens were almost exclusively taken.

The percentage of errors in diagnosis found last year (33⅓) was so disquieting, that we submitted

*Read at the annual meeting of the American Orthopædic Association, Washington, May, 1910.

the specimens to a second thorough examination, cutting many new slides from different parts of the joint. No material change resulted. The percentage of error in the sixty specimens in which the clinical diagnosis was given is exactly thirty-five. Either a pathological examination is unreliable or else our diagnostic methods need improving.

We consider that the erosion of the cartilage by the "tuberculous pannus," on which König laid such stress, is of slight importance. The damage to the cartilage is done from beneath. "Layers of fibrin" on its surface will usually be found to be frayed out ends of the fibres in its structure. This fibrous structure can be well seen as the cartilage degenerates. In places it is hard to tell where the homogeneous cartilage ends and where the fibres begin. They run more or less perpendicularly in the deeper parts and parallel to the surface superficially. Our conclusions agree in many respects with those advanced last year by Dr. Nathan. Not only does the synovia extend over the surface of the cartilage superficially in immobilised joints, but normally in the deeper layers the transition from one to the other is gradual. The branching connective tissue cells of the synovia gradually shade off into the cartilage cells. In addition, the hypertrophied tuberculous synovia hides the peripheral parts of the cartilage, but is not adherent to it. König was wont to trace the entire pathology of the tuberculous synovia from the effusion in the joint, to make the effusion the starting point of the disease, but we believe that it is only a symptom, not a cause. The disease produced in the joint of an animal by the injection of a pure culture of the tubercle bacillus is essentially a tuberculous abscess, and does not imitate Nature's process. The phenomena here are different.

Tuberculosis may be found in one spot in a joint and not in another; hence the unreliability of a pathological examination of a clipping for diagnosis. The whole joint must be examined. In some of our specimens the reports from two laboratories have differed. Tuberculosis does not, except possibly in very rare instances, attack a joint and spread immediately to all its parts. The tissues offer a certain amount of resistance, and as the disease spreads in one place it heals in another. Repair and invasion are going on at the same time. In children, under favorable conditions, the reparative forces prevail and the joint recovers under conservative treatment; in adults, not often.

We have never seen bony union effected by Nature in an adult tuberculous joint. The cure is always produced by fibrous tissue, and we believe that it is never complete. Motion is always possible to a slight degree, at least, and motion lights up the disease sometimes after years of quiescence. We have observed this in several instances. We quote one case—a clinically tuberculous ankle of eight years' duration. A resection of the talus showed that the joint was a mass of fibrous adhesions. The laboratory report read "chronic inflamation, no tuberculosis." A diligent search revealed at length a small cheesy nodule in a joint recess, that under the microscope proved typical tuberculosis. The operation of mobilising an old tuberculous joint therefore by any means is to be undertaken with great caution.

The enlarged villi found in a tuberculous joint often differ in no respect from those found in other inflamed joints. They are a result of joint irritation, and not a clinical entity. There is no such disease as "villous arthritis."

We come now to the practical results of our investigations, and shall state our conclusions in order: 1. We noticed in our specimens of joints a remarkable effort of nature to effect a cure by depriving the joint of motion. 2. In adult joints this effort is never completely successful. 3. Pain is a conservative symptom and tends to healing by decreasing function in the joint. 4. Conservative treatment simply aids Nature by decreasing function. 5. No operation except an amputation above the diseased joint, ever eradicates the tuberculous tissue. 6. An operation to be successful must deprive the joint of function, and must not be followed by secondary infection. 7. If an operation does not deprive the joint of function it will rarely effect a cure. 8. The joints that can be most easily destroyed are the easiest to heal by operation. 9. There are only two tissues in a joint vulnerable to tuberculosis, the synovia and the red marrow. 10. If these two tissues can be eradicated the disease will disappear. 11. A successful operation will cause them to disappear; the synovia will degenerate into fibrous tissue, and the red marrow will lose its characteristic cellular structure and will become ordinary fatty or yellow marrow, practically immune to tuberculosis.

Therefore, the way to cure a joint conservatively is to deprive it of function temporarily. This is rarely successful in an adult, therefore, the way to cure a joint in an adult is to deprive it of function by operation.

As to the operation of curetting tuberculous joints—"bone scraping," etc., we mention but to condemn it. Let us not deceive ourselves, however, with the idea that it has fallen into disuse. A study of hospital statements as well as an inquiry into general methods of procedure, will reveal the fact that it is being practiced every day throughout the country. The custom of opening, scraping, and draining these joints is wide-spread. The use of carbolic acid, iodoform, or iodine with the object of affecting disease in the bone is not rational. Synovectomies have not justified the expectation of those who formerly advocated them, and are nowadays rarely done. Resection is the operation that holds first place. Let us see how the results of this bear out our theory.

Resection of the knee. The knee is the joint that is most easily cured by a resection. If the condition of the patient is good the operation will almost invariably effect a cure. Now, the knee is the one joint in the body in which firm bony ankylosis can usually be secured. A cure is not effected by removing all tuberculous tissue. This is well-nigh impossible. The ends of the bones (cancellous bone with red marrow) are brought together. Bony ankylosis is secured. The joint ceases to exist. The synovia atrophies. The spongy bone is changed to dense bone, the red or cellular marrow gives place to yellow marrow, and the field for the existence of tuberculosis is abolished. The disease disappears because it has no tissue in which to exist. Eventually a central medullary canal is established, surrounded by hard bone. The femur and tibia become one long hollow shaft.[3] In one of our patients, a case of spontaneous bony union following a mixed tuberculous infection of a child's knee, two *x*-ray photographs taken at an interval of about a year, show clearly this canalisation taking place.

We have seen this theory of operation carried out in three knees, operated upon respectively thirteen months, four months and two months ago. The

results confirm our theory. We saw through the patella, but do not divide the lateral or crucial ligaments. The patella may be disected out or left. The tips of the condyles are sawn off, and the tibial cartilages chiseled away. Only about ⅝ of an inch are removed instead of the usual two inches. The wound is sewn up tight, no attempt is made to dissect out the diseased synovia, nor are nails, wires or bone sutures necessary.

Resection of the hip. Whatever method of resection is done, no pretense can be made of eradicating the disease from the pelvis and yet the results are usually good. A dislocation of the hip takes place. The joint as such ceases to exist, and therefore the elements of the joint subject to tuberculosis disappear. We obtain what the French call "Articulation par suspension." Consequently, it seems unwise to adopt any operation that sacrifices the head, neck, and trochanter, when a simpler procedure would suffice. We have proved our theory in two cases.

Resection of the wrist and tarsus. If tuberculous disease in a small bone can be diagnosed in time to remove the bone before the joint is involved the disease may be cured by operation. Otherwise the unfavorable outlook is well known. Why is this? Because no operation has ever been devised that will completely deprive the joint of function and so cause the disappearance of the two elements in it that are subject to tuberculous disease, the synovia and the red bone marrow.

These examples will suffice. We sum up as follows: All treatment of tuberculous joints should be directed to depriving them of function. In children conservative treatment planned on this basis will usually effect a cure. In adults an operation is usually necessary, and the object of this operation should usually be to deprive the joint of function.

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LUPUS—ITS TREATMENT BY THE ROENTGEN RAYS.

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The prognosis in lupus vulgaris by other methods of treatment than the Finsen light and Roentgen rays is well summarized by Prof. Jacobi, who says: "The prognosis as regards life is favorable, apart from the occurrence of general tubercular infection, but as regards cure it is absolutely unfavorable in extensive cases. Permanently successful results have hitherto been attained only in recent, limited cases suitable for excision." He further states that it is hoped that better results will be obtained by the Finsen treatment.

The results obtained by the Finsen light treatment have been highly satisfactory so far as their permanence is concerned. It has, however, been found that the maintenance of the costly Finsen lamps and of the staff of nurses necessary to their employment, is a great drain even upon a well-endowed hospital. Not only is the constant attendance of a nurse demanded during each treatment to produce a mechanical anemia of the area treated, but also an area of only half an inch in diameter can be treated at one time. Thus the whole area must be gone over, time after time, in these small areas. The time consumed in treating an extensive case of lupus is, therefore, very great. Since the smaller ultra-violet lamps have been proved to be practically worthless in treatment, the effective treatment by the Finsen method is confined entirely to hospitals having the original Finsen lamps and an endowment capable of maintaining them.

In conjunction with many other dermic lesions lupus was subjected to experimental treatment by the Roentgen rays. To-day its successful treatment by this method is acknowledged as a demonstrated fact, as is likewise the treatment of epitheloma and rodent ulcer, while in the severer forms and rebellious cases of eczema and acne the Roentgen rays are found to succeed where all other methods of treatment have failed.

It might be said of all these dermic lesions, as well as of tuberculosis cervical adinitis, that they are more amenable to Roentgen treatment in their earliest stages, that they would all, at that time, yield to fewer treatments, and that in every case the results, especially the cosmetic results, are better the earlier the patient is sent for treatment.

The Roentgen treatment has the particular advantage over the Finsen treatment of lupus, in that it is more rapid in its effects and consumes less time in its application, since it can be applied over the whole area and its rays have greater therapeautic power. In consequence, the treatment is more expeditious, and less expensive, but it should not be supposed that it is inexpensive. The maintenance of the Roentgen equipment, and the renewal of apparatus, resulting from the rapid advances which this department of scientific medicine has made, have shown both to hospitals and private individuals that the necessary chemical energy employed in this treatment can only be produced at the cost of mechanical wear and tear upon appartus which is intricate and expensive.

The Roentgen treatment has been employed successfully not only in lupus vulgaris, but also in lupus erythematosus. It is also effective in the early stages before ulceration has taken place, the deep-seated areas disappearing without the production of ulceration or scarring. This is in marked contrast to the Finsen treatment where sloughing and ulceration are necessary before the deeper portions of the lesion can be affected by the ultra-violet rays. The Roentgen rays, therefore, have the advantage of reaching the superficial and deep portions of the disease at the same time and over the entire area without the necessity of breaking down the skin over the diseased area where it is intact, and thus producing an ulcer and scar tissue in securing a healing.

It must be self-evident that the achievement of valuable results with this therapeutic agent depends largely upon the experience of the individual employing it, and his ability to adapt to the patient the quality and quantity of radiation which the lesion demands in each stage of recovery.

The three cases cited below are illustrations of the results which are produced in severe cases, and show that since the advent of this method of treatment the prognosis as regards cure is favorable even where the lesion is extensive and rebellious to all other forms of treatment.

The cases, seen early, when there is only a small area involved, with only four or five lupus nodules, are readily cured and leave little or no evidence of their having existed, if the surface of the skin is not already broken. Two of the cases are of extensive

lesions of lupus vulgaris of the face, both involving the nose, while the third is a rebellious case of lupus erythematosus. It is particularly noteworthy that in these cases where there is great deformity and loss of tissue by ulceration, nature will, when aided by the alterative and stimulant action of the Roentgen rays, produce a restoration so near to the normal as to seem almost impossible.

This was particularly noticeable in the case of Miss Catherine B., Aet 33, who presented a typical lesion of bat-wing lupus. The nose was eroded down the cartilage, while the disease extended in two wings beneath each eye to its outer side. In addition, she had an area of ulceration two by four inches, involving the scalp upon the top of her head, which presented typical lupus nodules in its base. In the process of healing upon the nose, new skin did not form until healthy granulations had raised their level to that of the surrounding normal skin so that the original form was restored.

The new skin covering the entire diseased area was soft, pliable, and more nearly like normal skin than scar tissue. Upon the scalp the disease had reached and denuded the bone, so that an area was left bare.

In the second case, that of Mrs. E. Y., Aet 38, the disease involved the end of the nose, but was seen before much loss of tissue had taken place. The entire end of the nose, including the alae, was intensely swollen and dark red in color, the inflammation extending in a less degree to the cheeks and lip. On the nose there were three ulcers, each one-half inch in diameter, but superficial. After the nose had healed and had assumed a nearly normal shape, the patient first called attention to a fissured ulcer in her tongue, that extended on its dorsal surface from tip to base. There was no glandular involvement, although the ulcer had been present for over a year, while a dark area showing lupus nodules in the soft palate made its etiology evident.

Under Roentgen treatment the ulcer in the tongue healed except that portion low down forming the anterior wall of the throat, which the rays did not reach. The ulcer in the soft palate perforated and its margin healed. An intercurrent attack of erysipelas prevented the patient, who lived out of town, from reporting for some weeks, but had the beneficial effect of healing the ulcer at the base of the tongue. She has been seen five years after the cessation of treatment and has remained perfectly well.

The following case of lupus erythematosus, although not so severe a lesion, is reported because of the rebelliousness to radical treatment of other kinds. Miss J. T., Aet 28, was referred for treatment five months after the diseased area had been curetted. She presented upon the temporal region a patchy area one by two inches, with bright red margin covered with adherent scales. The centre of this area was covered by atrophic cicatrical tissue, through which visible darkened areas were seen. Under the Roentgen treatment there were repeated desquamations over the entire area, and a final healing with no discoloration of the skin.

The progress which has been made in the treatment of lupus by the Roentgen rays is made evident by such results in these grave cases, and shows that the prognosis for recovery is not "absolutely unfavorable in extensive cases as regards cure," and that "permanently successful results" are attained in all cases, and are not to be expected "only in recent limited cases suitable for excision."

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OBESITY: ITS RELATION TO OTHER DISEASES AND ITS SIGNIFICANCE; ALSO SOME OBSERVATIONS ON PROPHYLAXIS.

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We frequently meet with a certain class of patients, usually past middle age and above the average in weight, who suffer from a syndrome of symptoms so diversified and indefinite that we are puzzled as to how to classify them properly on our case-record cards. These symptoms are referred to different parts of the body and to various organs, and are often severe enough to suggest serious organic disease. But when we find on careful examination that the important organs are apparently in normal condition, and no one symptom, or set of symptoms, sufficiently prominent to indicate at least where the enemy might be lurking, we are pretty apt reluctantly to index the case as neurasthenia, neuralgia, rheumatism, etc., being conscious at the same time that we are merely indexing a symptom, or group of symptoms, and not the disease itself.

These patients usually complain of shortness of breath, dizziness, headache, backache, lack of energy, constipation, loss of appetite, "indigestion," puffiness of face, swelling of the legs and feet, insomnia, irritable temper, indefinite aches and pains in different parts of the body, commonly referred to as "rheumatic" or "neuralgic," and a great number of other symptoms that, although they apparently bear no relation to each other, we feel sure are all due to one common cause. And yet these cases receive so little attention in the text-books and medical literature generally that we don't even know how to classify properly a case presenting this particular combination of symptoms.

If the patient happens to be very stout we diagnose the case as obesity. But very often the patient's weight is not sufficiently above normal to account for any symptoms at all, and even in those cases that properly come under the head of obesity it would be unreasonable to assume that the mere presence of an excessive amount of adipose tissue is, in itself, responsible for all the symptoms that may be present. It is obvious, then, that there must be some underlying pathological condition that is responsible for all the mischief; and when obesity is present it must be regarded as merely a symptom of this general condition rather than a disease in itself.

Faulty metabolism is the etiological factor in all these cases; and just as any other disease of a known origin finds expression in different forms—the symptoms in any given case being modified by the age, habits, temperament, etc., of the patient—so the symptoms of faulty metabolism differ according to the same conditions.

Metabolism is the highly complicated chemical process going on in the body in the assimilation and utilization of ingested food. The ultimate uses of food are two-fold: First, to supply the body with materials for growth or renewal of tissue; second, for the production of energy, in the form of heat and motion. During infancy, childhood, and adolescence a considerable part of the food taken is used up in the development of the body. When the body has attained its full growth the requirement of food for this purpose is greatly reduced, and any excess of food taken, as a matter of habit, is

at this period generally disposed of by work or exercise. But after middle age the functional activity of the body is much diminished, requiring much less food for the production of energy. And if, as is often the case, the habit for satisfying a vigorous appetite is continued, it is obvious that much more food is taken than is required for maintaining the bodily functions, and a great deal of it will be stored up in the body as unused energy, in the form of fat.

Now, there are certain noxious by-products formed as a result of tissue combustion, which are eliminated by those organs whose function it is to dispose of this waste-product. And as muscular exercise is a very essential aid in the proper elimination of these poisonous materials, it can be readily seen that if the proper amount of exercise is not taken, and the circulation of the blood is allowed to become sluggish, these substances will, of course, accumulate within the body. It follows, then, that the same conditions, or habits, that encourage the development of obesity also favor the accumulation within the body of certain poisonous irritant materials which, in the course of time, will pave the way for one of several evils.

The kidneys are put under a tremendous strain, and are likely to break down. The arteries become affected through the presence of toxic substances in the blood circulating within them; they undergo some changes in structure, both as a result of this irritation, and also because the arterioles are in a state of spasmodic contraction (probably a provision of nature to raise the blood-pressure and propel the blood more rapidly to the organs of elimination—the kidneys, lungs, etc.) which weakens their muscular coats. Arteriosclerosis develops, together with its concomitant train of trouble.

The heart also is affected in two ways. First, being itself a part of the circulatory system it, too, is apt to share in the changes taking place in the arteries. Second, as the blood-pressure is generally raised under these conditions, the heart is forced to pump the blood through greater resistance, and if it is unequal to the task heart failure is likely to result. The nervous system, too, is affected by the irritation of these products of faulty metabolism. Ill-temper, nervousness, insomnia, etc., are some of the earliest indications of trouble, and many cases of neuralgia are due to this cause. These patients suffer from aches and pains in different parts of the body; and many cases of so-called muscular rheumatism, rheumatic gout, etc., are really cases of autointoxication, and these different pains that migrate from place to place, affecting first a joint and then a muscle, then another muscle, or a group of muscles supplied by a certain nerve, are produced by the presence of these toxic materials in the system and their irritating effect upon the various nerves.

As already observed, these conditions are primarily caused by improper elimination of waste products from the system, and sedentary habits and over-indulgence in food and drink favor the accumulation of these substances within the body; it is plain, then, that obesity is merely one of the indications of faulty metabolism, and a patient who accumulates much more fat than is normal for his height, race, and family peculiarities will, sooner or later, show other evidence of the disease.

About a year ago the writer started a series of experiments in the treatment of obesity with electricity and other physical methods, the details of which, together with case records, results, etc., will be described in a future article. The subjects for these experiments were comparatively young people (mostly women) who, aside from being stout were apparently in perfect health. And yet, when putting these subjects through an examination before starting treatment, we so often found evidence of Bright's disease, diabetes, high arterial tension, etc. (a number of them presented the condition commonly spoken of as "plethoric") that the relation of these conditions immediately became apparent. And, indeed, upon closer inquiry we frequently found that the patient had noticed a little shortness of breath, swelling of the limbs, weakness, nervousness, etc., for some time, but did not consult a physician as she attributed all symptoms to her burden of adipose tissue, for which she knew "there was no cure except starvation."

In making examinations for life insurance companies we are also occasionally surprised to find evidence of diabetes, disease of the heart and kidneys, etc., in persons who are apparently in good health, but not nearly so often as in examining patients affected with obesity. In connection with this point the writer is at present gathering statistics from the records of life insurance companies for future publication, but the following quotation from a paper by Dr. J. W. Fisher, Medical Director of the Northwestern Mutual Life Insurance Company, will serve our present purpose. He says, "The weight of an applicant for insurance is an important factor. A record of 120,000 insured lives, covering a period of thirty years, demonstrates that the death loss is excessive on persons whose weight is 20 or more per cent. above the average. The statistics derived from the records referred to demonstrate that the greater the weight, the greater the death loss. * * * Persons of excessive weight, as a rule, are sub-standard risks * * * except in exceptional cases where the excessive weight is a family trait and longevity is shown in the family record, and weight but slightly over 20 per cent. in excess of the average. Over-weights are prone to disease of the arterial system, diseases of the heart, apoplexy, and premature arteriosclerosis. They are peculiarly liable to contract diabetes and rheumatism. They usually take insufficient exercise, are generally high livers, and are frequently free users of stimulants, particularly malt liquors. They succumb easily to accidents, surgical operations and, as a rule, to acute diseases."

The relation of these conditions to obesity was further emphasized by the therapeutic test, for they were always improved, and in some cases, cured, (particularly the diabetic cases) as progress was made in the reduction of excessive weight.

Now, we know that many people owe their lives to examinations for life insurance, when some conditions were discovered in the incipient, and often curable, stages that would have terminated fatally if left untreated. We also know that many dangerous and incurable diseases can be prevented if the conditions leading up to them are recognized in time, and the proper means taken to check them. Isn't it our duty, then, to devise some means by which we should be able to discover these troubles early and warn our patients in time, instead of leaving them to the mercy of a possible life insurance examination?

Prevention is the highest aim of modern medicine, and all our efforts are mainly directed to the

prevention of disease. But under the present conditions we can only control diseases of extrinsic origin, *i. e.* diseases originating from causes outside of the body (*e. g.* infection) because in those cases the physician is called early, and by the use of quarantine, vaccination, etc., he prevents the disease from spreading to other persons; and the progress of the disease in the person already affected is modified, and complications avoided by the proper management of the case. Whereas in diseases of intrinsic origin, that is, those originating within the body (*e. g.* chronic Bright's disease) the onset is extremely insidious and gradual, with no symptoms of sufficient importance, as the patient thinks, to require medical attention until the disease has reached a dangerous stage. The question, then, naturally arises how is the physician to know of the existing trouble in time to warn his patient of the impending danger.

The only hope of solving the problem, it seems to me, is in the general adoption of a prophylactic system similar to the one now used for prevention of puerperal eclampsia, for the two classes of cases are very similar. Having learned from sad experiences that a pregnant woman is peculiarly liable to kidney break-down, and knowing that there are no marked symptoms to indicate any kidney trouble until the explosion occurs, when, only too often, it is too late for help, we do not wait until we have reason to suspect albuminuria before making a test, but explain to the patient the necessity of such precaution and have her submit a specimen of urine for examination at proper intervals. So, in the class of cases under discussion, we know that such a catastrophe as apoplexy, uremic convulsions, or heart failure, that so often carries off people who are comparatively young, is merely the culmination of a series of pathological changes that have been going on for some time; that in a majority of cases a careful medical examination would have disclosed these changes quite early; and that by correcting the errors in the person's mode of living, regulating his diet, exercise, sleep, etc., and proper medication and physical treatment when indicated, we can cure a great many of them and certainly prolong the lives of a majority of them. Knowing, also, that these changes are apt to begin any time after the age of 40 or 50 (much earlier in men who are high livers, and spend much time in their office under great business strain) and that faulty metabolism is the chief factor in starting almost all these troubles, and that obese persons are more prone to develop these conditions than persons of average weight. Would it not be a wise and beneficent plan, then, to educate our patients who have passed middle life, and especially those affected with obesity, to the importance of periodic examinations, the same as we have educated our obstetric patients? Of course, there will be many who will disregard our advice, being unable to see the necessity for such examinations. But the same indifference is often encountered in obstetric practice, and yet, in spite of occasional neglect and carelessness, we feel confident that many useful lives are saved each year through this precaution.

The writer happens to be acquainted with the recent case of a young woman, about 28 years old, intelligent and a member of a wealthy family. This young woman was the personification of health and vigor, had passed through one normal pregnancy and confinement, but during the fourth or fifth month of her second pregnancy she was suddenly seized with uremic convulsions and died in a few hours. Her attending physician, a man of the highest professional standing and among the leading medical men in this city, sadly declared that he had repeatedly asked her to send a specimen of urine for examination, but she thoughtlessly neglected it.

In speaking or reading of a case like this, do we get discouraged and say "there is no use trying?" Certainly not! We rather hold up the case as an example, in speaking to other patients, to show the terrible price they are liable to pay for neglecting the "ounce of prevention." So, too, we read in the newspapers almost daily of men prominent in business, politics, and science, often in the prime of life, dying suddenly of heart failure, apoplexy, or "acute indigestion" (?), and it is generally reported that these men were never sick, and that neither they or any member of their families had the least intimation of anything being wrong with the heart or arteries!

In the course of conversation, a few days ago, with a man prominent in the financial circles of this city, this man remarked to the writer, "Why is it that I get my teeth examined regularly but never get *myself* examined?" The answer, to my mind, is quite plain. The value of such physical examinations has never been pointed out to him, and relying on the old saying that "a man is as old as he feels," he never thought of going near a doctor so long as he felt well. But, as we know that after middle life this is not a true guide to the actual physical condition, and that, in fact, "a man is as old as his arteries," we should cultivate this new and promising field of preventive medicine, and explain to those members of our families who have passed the half-century mark, particularly if they are burdened with superfluous flesh, the necessity of a physical examination at least twice a year, and we shall certainly be rewarded for our labors by good results accomplished.

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AN HISTORICAL NOTE ON THE SO-CALLED LUDWIG'S ANGLE OR THE ANGLE OF LOUIS.*

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Our slavish following of German thought is well illustrated by the nomenclature given to that prominence of the thorax corresponding to the junction of the manubrium with the body of the sternum. It will be a matter of more than passing interest to many physicians to learn that Ludwig's angle is so called not after any German "Ludwig," but in honor of the great French clinician, Louis. "Ludwig" is the German translation of the French name, and so the real identity of the original discoverer of the prominence has been masked.

Ludwig's angle is so called in honor of the great clinician (born April 14, 1787, died August 14, 1872), who is supposed to have described it for the first time. I say "supposed" advisedly, for heretofore writers on the subject have been unable to locate the place in Louis' writings where the pathological prominence of the sternal angle was first described. Ebstein (*Münchener medizinische Wochenschrift* 1909, 46, p. 2377) is the latest writer on this anatomical landmark, and he states he was unable to find any discussion of this angle in the writings of Louis.

*Read before the College of Physicians, March 2, 1910.

Earlier writers have reached the same conclusion, as the following from Ebstein will show:

Braune, in 1888, having in preparation a paper on the anatomical and clinical importance of the so-called "Ludwig's angle," searched carefully the works of Louis for the original description. "To my great disappointment and astonishment," he writes, "I could find nothing pertaining to the sternal angle and its relation to phthisis." Accordingly he applied to his teacher, Thierfelder, at that time director of the medical clinic in Rostock. The latter was unable to give any information, as the following will show: "The statement that you have been able to find nothing in Louis' writings concerning the sternal angle seems extraordinary. I learned from Bock and Oppolzer (his former professors) that the sternal angle consisted in a sinking in of the manubrium in phthisis, as well as a protuberance in emphysema, but that the former was the real "Ludwig's angle." I was naturally under the impression that Louis had first called attention to its semeiotic importance in phthisis. I could not help, therefore, searching Louis' writings and the text-books on special pathology and physical diagnosis, but I found nothing which throws light on the name in question." Braune remarked after hearing this, that he believed the place would be found where the reference is made to this sign, for he felt the name was not "rein aus der Luft gegriffen."

Hyrtl (1882), one of the acknowledged bibliophiles of his time, simply states, "Louis first called attention to the pathological significance of this angle, and he has been honored by Conradi in having it called "Angulus Ludovici." Conradi (1848), in turn, describes the angle as "the more or less marked protuberance of the junction of the manubrium with the body of the sternum, to the development of which by retraction of the upper thorax, the attention of pathologists was first called by Louis."

Ebstein states that there is really nothing in the writings of Louis, which deals with the clinical importance of the sternal angle in any disease. He seems on this account to advocate the dropping of the name angulus Ludovici, and the substitution for it of the term "sternal angle."

Feeling that Louis must have called attention to some relation between the upper part of the sternum and a morbid condition, and that this description must be somewhere in his writings, I began a search of Louis' works. No description of the condition was found in any of Louis' writings, but in a work on emphysema I found the description of a bulging of the upper part of the chest, usually unilateral, and usually extending to the third or fourth rib.

The French article is to be found in the Mémoires de la Société Médicale d'Observation, 1837, Tome premier, p. 194, and is entitled, "Recherches sur l'Emphysème des Poumons." It was translated into English in 1838 by T. Stewardson, Jr., a Fellow of the College of Physicians of Philadelphia, whose translation I found in the Library of the College of Physicians in a book called "Medical and Surgical Monographs," p. 512.

"Configuration of the Chest.—I. In the patients who quitted the hospital more or less relieved, the form of the chest was carefully examined in 37 cases, and in every one it had undergone some change from the natural condition. This change was uniform throughout the whole chest in a young woman 23 years old, whose dyspnea dated from early infancy, and had become paroxysmal about three months before her admission into the hospital. Her chest was everywhere more prominent than in the normal condition, approaching to a globular form, and equally so in corresponding points. This prominence was formed by the ribs and the intercostal spaces, which latter were not depressed as they are in the natural condition, especially in thin persons. In the other cases, the change of form was similar in character but partial in extent, the prominence being limited to one side of the chest except in three persons, where two prominences were observed, whose surfaces were irregular, the one being on the right side and the other on the left, and not precisely in corresponding points.

"The prominence alluded to commonly commenced under one or other clavicle, and extended downward to near the mamma, or even a little beyond in some cases, its breadth being three or four inches. It is impossible, with a little attention to have mistaken this prominence, when it was well marked, for an original defective organism, since both the ribs and the intercostal spaces contributed to form it. It was likewise impossible to have attributed it to a pleuritic effusion, because the dilatation of the chest which sometimes accompanies the latter, is general, and also more above than below. It could not, moreover, have been confounded with that which results from a collection of liquids, except when it existed over the precordial region, and was limited to it, which occurred in three cases, and in which it might have been asked whether it was not owing to an effusion into the pericardium. But the absence of the other signs of pericarditis did not allow us to remain very long in error upon this point. The prominence which is consequent upon an aneurysm of the aorta is generally more circumscribed and better marked; so that the observation merely of the prominence which we have described, of its form and extent, has pointed out to us almost certainly the existence of an affection of the chest, which was neither phthisis, nor dilatation of the bronchia, nor pleurisy, nor aneurysm of the aorta, nor even a pericarditis (except the few cases in which there might, at first, be some doubt upon the subject). The dyspnea, too, having been present for a certain length of time in these cases, and with the characters noted in the preceding paragraph, we are obliged to consider them as so many examples of emphysema of the lungs.

"Three times only out of six cases, where the back was examined, was a prominence similar to that which has been described found posteriorly. The preference which this elevation appears to have for the anterior of the chest, is in accordance with that we have already stated as regards the lungs, viz., that their free border and the neighboring parts were the principal seat of emphysema, and the point where the latter was most developed.

"Further, the prominence we have been speaking of was not equally frequent on both sides; it occurred eleven times only on the right, and twenty-three times on the left. Notwithstanding that the numbers are small, it is not easy to suppose that the above difference is altogether accidental, since we arrived at a similar result, or thereabouts, by consulting separately the cases recorded by Jackson and myself. In fact, the proportion of the elevations on the left side to those on the right, is 15.7 for the one, and 8.5 for the other.

"This result, however, is, to a certain extent, in opposition to one which was announced in the chapter on pathological anatomy, viz., that both the

amount and frequency of emphysema appeared to be the same in each lung. But may it not be that the unequal frequency of the elevations on the left and right side, among the patients of the first series, was temporary, and that it disappeared in proportion as the disease became more advanced? By this supposition the above contradiction would only be apparent and opposite results would be harmonized. But it is merely a supposition and experience must determine the question.

"In emphysema there is also found another prominence, different from the one above described, and which I have already observed, occurring in a different part of the chest, behind the clavicles. This elevation existed in every case where it was looked for, with one exception, which presented itself in a thin man, aged 43 years, and in whom the supraclavicular regions were both hollow, although there can be no doubt of the existence of emphysema in his case, there being a slight prominence anteriorly on one side.

"This last mentioned elevation, the presence of which might have been readily inferred from that on the other, was mostly confined to one side, or that upon which the first existed. The only exceptions to this were found in four cases, where the emphysema was remarkably developed, and where both supraclavicular regions were manifestly less depressed or more prominent than in the natural state, though in different degrees. The elevation now alluded to was especially observable in old men, in whom the side of the neck corresponding to it, in cases where the change of form was considerable, appeared, if we except the flaccidity of the integuments, like that of a young man, presenting a convexity superiorly, while on the opposite side there was a more or less decided depression. This double elevation, which is found only in emphysema, has enabled me to recognize this affection in more than one case, where subsequent examinations have confirmed the first diagnosis.

"II. In those who died, the form of the chest was attended to and in every one it was found to have suffered some change anteriorly. In seven the prominence was simple—*i.e.* limited to one side. It was present both at right and left in the eighth part of the cases, and at different points.

"Three times out of seven it was remarked on the left side—a result the inverse of what was found in those who left the hospital more or less relieved, and which is to be accounted for, no doubt, by the smallness of the numbers; for in the patients of the present series, when regarded anatomically, and in greater number, both lungs appeared to be equally affected, or thereabouts. Further, in the class of cases now under examination, the greatest development of the emphysema corresponded to the prominence, or prominences, indicated; so that it is impossible to have any doubt as regards their importance, or the cause producing them, in the disease before us.

"As for the supraclavicular regions they were more prominent on one side than the other in the three cases where they were described, and, as in the patients of the preceding series, this elevation was found on the same side as that which had its seat on the anterior portion of the chest, or on the side where the emphysema was most marked."

Further on we learn the method Louis adopted for the proper recognition of this deformity.

"As regards the two forms of prominence which we have been considering I will observe that the greater their importance in reference to the diagnosis of emphysema the greater should be the care in determining their existence in individual cases, in order to avoid the mistakes into which we might fall in this respect. For this purpose, if we wish to determine the form of the chest anteriorly, the patient in bed, he should lie upon his back and be inclined to neither side; without which latter precaution the anterior part of the chest might appear prominent when it was really not so. If on the contrary we wish to determine the form of the supraclavicular region, the patient should sit upright without bending to either side, the arms hanging along the side or crossed in the same position, and if the difference between the two regions is not evident the patient must stand up out of bed, taking care not to support himself on one hip and with his arms placed as before mentioned. In fact, it would be proper in every case to place the patient in this position, in order to determine more accurately the various alterations of form which the chest may present." (P. 521.)

My search, so far as finding any direct reference to the articulation between the manubrium and the body of the sternum, was a failure, but I believe an important fact has been brought to light. It is most probable that Louis never mentioned this articulation in his writings, certainly not in the work on phthisis, where, according to Anthony (quoted by Ebstein), the original description appears. It is improbable that any work of Louis containing such a fundamental discovery as this could have been lost sight of. Cannot it be that the pathological prominence of the upper part of one side of the chest above described, is the original angle, and that anatomists have wrongly called the projection formed by the union of the first and second portions of the sternum, Ludwig's Angle? There must necessarily result from a unilateral bulging of the upper four ribs, some prominence of the sternum, presumably at the articulation with the manubrium. In course of time the unilateral prominence has received less notice, and attention has been drawn instead to the projecting sternum. Pathologists first, and then anatomists have named the manubrium-gladiolus articulation, Ludwig's angle, wrongly as it appears to me. If any prominence should be called Ludwig's Angle or Angle of Louis, it should be the abnormal prominence seen as the result of disease, and not the normal joint.

These quoted descriptions are, I believe, sufficient to justify the honor bestowed on Louis' name in calling the peculiar prominence of the sternum and ribs seen in disease, the Angle of Louis. This article on emphysema has apparently been overlooked by earlier German authorities and now recently by Ebstein. A perusal of Louis' great "Recherches anatomico-pathologiques sur la Phthisie," published in 1825, revealed no mention of any particular deformity of the chest, and this was likewise the reward of Ebstein and his predecessors. It is only fair to suppose, therefore, that Louis had not observed it in phthisis (in fact throughout the article on emphysema this is so stated), and that it first attracted his attention in emphysema.

Louis appears to have been the first to describe this peculiar contour of the upper sternum, and therefore is entitled to the honor of having this prominence named "Angulus Ludovici." But it is preferable to discard the term "Ludwig's Angle," and I would suggest the adoption of the term "sternal angle," or "Angle of Louis."

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CHRONIC PROGRESSIVE PRIMARY POLYARTHRITIS IN CHILDHOOD.

A DOUBLE tendency in clinical medicine is in evidence at the present day, manifested respectively in the separation of new syndromes and the identification of widely differing complexes under a common pathogenic conception. New syndromes, usually connected with the name of the describer, are mentioned with ever-increasing frequency. From the opposed standpoint we have whole series of clinically dissimilar processes united under such designations as parasyphilis and paratuberculosis. Many acute processes having at first sight little in common are now familiarly spoken of as forms of sepsis. Where once we recognized as sepsis only certain forms of surgical or puerperal infection, the term is now used indifferently for typhoid fever, generalized pneumococcic infection, or any actual or conceivable condition in which bacteria enter the blood in a virulent condition and proliferate therein. All bacteriemias, whether intense or mild in degree, may present certain traits in common.

New syndromes are fully represented in the domain of the locomotor apparatus, and in lesions of the serous and synovial membranes. The late Prof. Hoffa described some three years ago a multiple affection of the joints in children, characterized by premature atrophy of the bones and muscles. This disease began as a rule in the phalangeal articulations. No doubt the Röntgen rays were of material assistance in isolating the syndrome. The joints appeared to be enlarged, but the intimate alterations consisted of atrophy of both cartilage and bone, the articular surfaces being simply compressed together with resulting fusiform enlargement. The original seat of the mischief appeared to be the joint capsule, which in turn led to atrophy of the articulating surfaces. To the joint alterations succeeded muscular atrophy, first of the extensors and then of the flexors. The condition was eminently progressive, extending from the smaller to the larger joints, as from the hand to the elbow.

In the *Münchener medizinische Wochenschrift* for June 14, F. Brandenberg describes cases of this syndrome, and his attempts to treat them with thiosinamine, thyreoidin, etc. He also discusses the intimate nature of the malady. In its inception it may be complicated with inflammations of the great serosæ and endocardium. In other words it presents some points of analogy with Bamberger's disease, or polyserositis, which, occurring under numerous clinical forms, tends to affect the serosæ essentially and the joints only incidentally. In the syndrome at present under discussion, these conditions are apparently reversed, for the joints are involved primarily, the large serosæ only incidentally. Brandenberg regards chronic progressive polyarthritis of childhood as a condition *sui generis*, which is in no wise related to acute polyarticular rheumatism. It shows no tendency to respond to salicylic acid and other antirheumatic remedies. Naturally it possesses only limited analogy with arthritis deformans in advanced life. The treatment must be wholly symptomatic, designed to prevent muscular atrophy and ankylosis. It will be remembered that polyserositis with occasional incidental implication of the joints is a multiform affection. Occurring as an acute process it may be said to represent a generalized acute articular rheumatism, in which the large serosæ are attacked with the joints. Such cases are extremely rare, although it is not uncommon for a single serosa like the pericardium to participate. Chronic polyserositis, which presents a number of individual syndromes, is regarded by some as a paratuberculous process. In all cases of such type we are forced to assume the existence of some infectious principle or product in the circulation.

THE PREVENTION OF TYPHOID FEVER.

AT the annual convention of the Carolina Municipal Association, held in Winston-Salem, N. C., June 2 and 3, 1910, Dr. L. L. Lumsden of the Public Health and Marine-Hospital Service discussed what the mayor and city council can do in the prevention of typhoid fever. The disease is especially prevalent in the South, a fact which, according to Lumsden, may be attributed to the following conditions: 1. Faulty sewage disposal, incident to the relatively large rural population, and particularly, as pointed out by the investigations of Stiles, to the large percentage of negroes in the population. 2. Climate, the long periods of warm weather when there are additional agents for the transmission of the infection, such as flies and other insects and when greater quantities of uncooked foods and beverages are consumed, and there is probably increased individual susceptibility to the infection.

Lumsden tabulates the preventive measures which the mayor and city council may take as follows: (1) Become informed as to the nature of the infection, its modes of spread, and the methods to prevent it. (2) Make disease prevention a conspicuous policy of the administration. (3) Make efficiency the primary basis of appointments to positions in the health office. (4) Provide adequate salaries for health officers. (5) Appropriate funds for sanitary improvement as liberally as the taxation rate will allow. (6) Provide for the collection of mortality and morbidity statistics so that the results of sanitary work may be known. (7) Provide for the proper care of the sick. (8) Keep in close touch with and support the health officer in his work.

(9) Cooperate with the authorities of other municipalities of the State and of the nation. (10) Teach by precept and by example the precautionary measures.

No argument is required to drive home the fact that the prevention of typhoid fever in cities rests mainly with the municipality. If a mayor and city council are indisposed to insist that the sanitary arrangements are properly supervised, then diseases, and typhoid fever in particular, are certain to occur and to spread. There was a time when politics held so large a sway in the government of American cities that sanitation was neglected and the health of the community was at the mercy of men ignorant of and indifferent to the laws of hygiene. A remarkable change in this respect is now taking place. The question of public health is beginning to loom large in municipal, State, and national politics, and those in office are afraid to offend too obviously the growing health sentiment of the people. So far as typhoid fever is concerned much headway has been made in preventive measures in the Northern States. The population generally has decided to have an unpolluted water supply and a fairly pure milk supply, and although neither of these supplies is wholly satisfactory, yet great progress has been made and is being made in this direction. Lumsden shows how municipalities can assist further in safeguarding the public health by paying particular attention not only to the water and milk supplies, but to sanitation in general. It must be borne in mind that there are other means of conveying typhoid fever than milk and water, and that the fly, the typhoid fly, is more dangerous than the most heavily sewage-laden stream.

The Tubercle Bacillus in "Cured Cases."

The identification of a single tubercle bacillus in the sputum of a patient suffering from a cough is by most people considered quite sufficient for a definite diagnosis of tuberculosis and for the institution of systematic treatment even in the complete absence of all physical signs in the lungs. Such an attitude is unquestionably correct, and the immediate beginning of treatment in such cases has probably saved many from chronic invalidism or an early death. Such patients as a rule, however, do not feel especially ill, are fairly strong, are ambitious, and especially if they have been told that a few weeks in the mountains will cure them, are apt to be restive under the prolonged rest and absence from their daily work. The important question then arises as to when such patients are to be declared to be cured, and whether or not they may be permitted to return to their former life in the city. As they at no time have shown physical signs more than could be explained by a mild bronchitis, examination of the chest is of little value in deciding the question; absence of fever and gains in weight are so commonly present in those with active processes during the life in the sanatoria that they are of but little value as evidence. In the majority of cases the final decision rests upon the presence or absence of the tubercle bacilli in the sputum, and a not uncommon routine procedure has been that other signs being absent the failure to find the organisms in the sputum on three successive examinations is sufficient evidence upon which to declare the patient "a cure." During the last few years, however, great advances have been made in the technique of sputum examination. By the introduction of the antiform and other homogenizing and digesting methods the search for the tubercle bacillus has become a much less haphazard method and a much more thorough procedure. These various methods vary in detail, but all seek for one result, the destruction of mucus, cells, and in fact all of the contents of the sputum except the tubercle bacilli themselves, and then their concentration by centrifugation so that all of the organisms in a specimen of sputum may be collected upon one or two microscopic slides. In the *Berliner klinische Wochenschrift* for June 6, 1910, J. A. Finkelstein has made a careful comparative study of the ordinary smear and that prepared by the antiform method and has found that by the newer method the organisms appear from eight to ten times as numerously as by the older and simple process of smearing. Of especial interest, however, is the report of fifty-two patients who, though they at one time had had tubercle bacilli in the sputum, had been declared cured on the grounds of the absence of symptoms and signs and negative sputum examinations. Whereas the usual smear confirmed the cure in every case, the antiform method of preparing the specimen demonstrated the organisms still to be present in twenty-one of these fifty-two cases, in numbers varying from seven in the entire preparation to an average of six to a microscopic field. In the face of such findings it is apparent that more care is required in declaring patients cured of tuberculosis, that many cases which are overlooked by the ordinary methods of sputum examination are in reality harboring bacilli in large numbers, and that repeated examinations of the twenty-four hours sputum by some of the newer methods should be negative before a patient is declared cured of the disease. On the other hand one must be certain that the organisms found in the sputum are really tubercle bacilli and not mere simulacra.

Preventable Causes of Insanity.

In the June issue of the *Popular Science Monthly* Dr. Thomas W. Salmon of the Public Health and Marine-Hospital Service writes on two preventable causes of insanity. It is almost needless to say that these causes are syphilis and alcohol. During the past year 664 patients, or 12 per cent. of all the 5,301 new cases admitted to the New York State hospitals had general paralysis, and 638 cases of the alcoholic psychoses were admitted to the same institutions in the same period. This is to say that more than one-fourth of all first admissions were due to these two causes. Considering the 1,302 cases of general paralysis and of alcoholic psychoses in detail Salmon brings out certain significant facts relating to sex and environment. With regard to the male admissions, environment does not appear to have had a very marked influence upon the prevalence of the alcoholic psychoses, but the percentage of cases of general paralysis in men was nearly three times greater in the admissions from cities than in those from the country. For women the percentage of cases of general paralysis from cities was twice that from rural communities, but the percentage of admissions with alcoholic psychoses was seven times greater for cities than for the country. As Salmon remarks, this is elo-

quent testimony to the influence exerted by the back room and the "ladies'" entrance of the city saloon, but the most striking feature of these figures is that 42 per cent. of all the male admissions from cities were for general paralysis and the alcoholic psychoses. Possibly Salmon somewhat overrated the influence of alcoholism of parents upon their offspring. At least his figures are in direct opposition to those recently got together by investigators connected with the "Francis Galton Laboratory" in England, which seemed to support the proposition that parental intemperance had no causal relation to filial degeneration. Another British authority, Archibald Reid, propounded similar views in his work on alcoholism published in 1901. Indeed, in spite of the opinions of German authorities the question of the influence of alcoholism in parents upon their progeny has not been by any means finally settled. Nevertheless, there is no doubt that syphilis and alcohol are directly responsible for more cases of mental derangement than any other two causes. Salmon, too, is absolutely correct when he says that the lesson of the statistics referred to is full of hope and encouragement as showing that a large proportion of all cases of insanity is found to be due to causes within our own control, since it is justifiable to speak of syphilis and alcohol as two preventable conditions.

Socialism and Medicine.

As a rule the socialist is antagonistic to the medical profession. One cannot take up a socialistic organ that one does not find therein a gibe or a sneer directed towards the profession. In a very well known British weekly, the editor of which is considered to be quite in the front rank of literary persons, a venomous and inaccurate sketch of the life and work of Koch appeared soon after his death. It stated that he was chiefly known as the discoverer of tuberculin, a remedy which although now discredited had wreaked much harm. When an editor of fame can allow such stuff to be published in his paper, no surprise can be felt when the lesser lights follow in his footsteps. However, the editor in question is not known as a socialist but as an advanced radical. Bernard Shaw has ofttimes flouted medical men and has attempted to raise a laugh at their expense by means which, if not unfair, have at least been open to suspicion. However, it is thought that as poseur, farceur, and philosopher Shaw has shot his bolt and that in future his remarks will not be received with the open-mouthed admiration which has greeted them up to the present. Nevertheless, the fact remains that socialism and medicine do not assimilate. The *Medical Press and Circular* of June 15 refers to the teaching existent among socialists in regard to hospitals. One of the lessons from the "Red Catechism" used in the socialistic Sunday schools, sets forth that in hospitals students and doctors make experiments upon poor patients in order that they may sell the knowledge thus gained to the rich. Therefore, the poor must avoid hospitals. Further it is stated in the *Social Democrat* that "in spite of the doctor being paid to cure disease, he actually profits by its continuation, and his economic incentive is to reverse his *raison d'être*." It is argued that the system of payment makes unscrupulous practices possible and, in short, that a doctor's trade consists in preying cruelly upon suffering and weak humanity.

Direct and Anaphylactic Toxicity of Hydatids.

For a long time in the history of a case of hydatids of any internal organ the effects are purely local and mechanical, due to pressure alone. Late in the disease, however, there comes a time when a species of slow poisoning develops, causing a cachectic condition. Earlier, in any case, there may supervene sudden severe poisonous symptoms due to the opening of the hydatid sac by trauma, the contents of the sac being suddenly thrown into the circulation. It is found, however, that this fluid is not always poisonous, and if the contents of an hydatid cyst be injected into animals no toxicity is shown in many cases, while in a few it results. L. Boudin and Guy Laroche, in an article in *La Presse Médicale* for May 4, 1910, explain this state of things as due to anaphylaxis. The small amount of poison that is slowly absorbed from the closed sac makes the system of the patient unduly sensitive to the toxin of hydatids, and a sudden dose of these poisons in the circulation causes symptoms of severe poisoning and even death. A large number of eosinophile cells are found at the periphery of a hydatid cyst, which probably form in the pericystic tissue as a result of the dialyzation of poisons through the walls of the cyst. The new researches with reference to anaphylaxis will doubtless explain a number of previously not understood phenomena in disease, for example, the idosyncrasies in respect of food-poisoning from which some persons suffer. Cyclic vomiting seen in children may perhaps be explained in the same way.

News of the Week.

Ambulance Accidents.—Two more accidents to ambulances responding to calls, one in New York, the other in Jersey City, revive the question whether more serious trouble is not caused by the rapid driving through the city streets than is prevented by the prompt attention. In the first case, a Bellevue Hospital ambulance was struck by a recklessly driven express wagon and completely wrecked, the surgeon, the patient, and the driver all being rendered unconscious. In the second case, an ambulance from the Jersey City Hospital collided with a trolley car and the surgeon was badly bruised and cut. Neither the driver nor the patient was hurt. The driver of the ambulance charges that the gong of the trolley car was not rung, while the motorman makes a similar complaint against the ambulance.

Accident Prevention.—The National Association of Manufacturers has recently appointed a commission to study the prevention of accidents and the operation of industrial indemnity insurance in Europe. The commission believes that fully 50 per cent. of industrial accidents are preventable, and will pay especial attention to this subject, visiting the museums of safety devices in various foreign cities.

Scarlet Fever in a Home.—The Pelham Summer Home, used as a fresh-air retreat for New York children, was closed recently by order of the Board of Health because of an outbreak of scarlet fever among the inmates. The health officer will enforce a six weeks' quarantine.

Inspection of Dairies.—Acting under the supervision of the State chemist of Michigan, sixteen chemists will tour that State during the summer

months inspecting the dairies and testing the milk produced and supplied to the large cities. The cause of impurities in the milk will be determined and the dairymen advised as to means of correcting the evil. The regular State inspectors will follow them up closely, and where dairymen have failed to comply with the directions given by the chemists, their cases will be referred to the State Commissioner. It is hoped that a large reduction in infant mortality during the summer may be the reward of the experiment.

Ice Cream Cones.—Two seizures in New York within a few days of large numbers of ice cream cones show the operation of the pure food law in a new direction. On the second occasion four and a half million cones were seized on one of the North River piers en route to Galveston, and condemned as containing boric acid and unfit to eat. Government officials say that their investigations into the cones served with ice cream to the small boy on the street for a penny show that sawdust, shavings, and even wrapping paper have entered into their composition.

Crocker Cancer Fund.—The sale of the estate of the late George Crocker at Darlington, New Jersey, has been announced. This is one of the two pieces of property which Mr. Crocker left to Columbia University with the direction that the proceeds of their sale constitute the Crocker Fund for Cancer Research. The price paid for the estate is said to be about one million dollars. The second piece of property consists of Mr. Crocker's town house with its contents.

City Birth Rate High.—During the month of June the number of births in New York State was 16,760, of which 10,352, or nearly two-thirds, were in New York City. The total number of deaths in the State was 11,901, of which 6,323, or only a little more than one-half, occurred in New York City. In other words, in New York City the excess of births over deaths was 4,029, while in all the rest of the State the excess was only 830. Deaths due to violence numbered 769, of which 34 were homicides and 137 suicides, and 135 were due to railway accidents. Old age was given as the cause of death in 161 cases.

Diphtheria on Ward's Island.—The Manhattan State Hospital for the Insane on Ward's Island, New York, has been under quarantine for a couple of weeks owing to an outbreak of diphtheria among the patients. It is thought that the disease was carried to the Island by one of the employees from whom it spread until sixty patients were ill with the disease, in addition to a number of suspected cases. Although the first patients developing the symptoms were removed to the Willard Parker Hospital, the spread was so rapid that it was feared the hospital would be overcrowded, and the Manhattan Hospital staff undertook to care for those stricken. A prompt and rigid quarantine has been effectual in stamping out the infection, and careful treatment has limited the number of deaths to one.

Dr. W. W Hawke has resigned as Chief Resident Physician in the Philadelphia Hospital for the Insane, to accept the position of superintendent of the State Hospital for the Insane at Warren, Pa.

Chattanooga Medical School.—At a meeting of the executive board of the University of Chattanooga on July 12 it was decided to suspend the medical department of that institution. While the action was based upon several reasons, the chief one, it is asserted, is that the university has no endowment for the medical department and finds it impossible, therefore, to provide the equipment or maintain the standard necessary to place it in the front row of medical colleges to which it aspires.

University of Pennsylvania Medical School.—The trustees of the University of Pennsylvania announce the following changes in the personnel of the Medical Faculty, to go into effect at the beginning of the session in September, 1910. Dr. David L. Edsall has been transferred from the Chair of Pharmacology and Therapeutics to the Chair of Theory and Practice of Medicine made vacant by the resignation of Dr. James Tyson, and the former chair will be filled by Dr. A. N. Richards, now professor of pharmacology in the Northwestern University Medical School. The endowment of a Chair of Physiological Chemistry has been made possible, and Dr. Alonzo Englebert Taylor of the University of California will be the first incumbent. Dr. Richard M. Pearce of the University and Bellevue Hospital Medical College of New York has been appointed Professor of Pathology, and will also head the department of research medicine recently established by an endowment of $200,000. Dr. Allen J. Smith, the present dean of the Medical School, will be the occupant of the new Chair of Comparative Pathology, and will also be at the head of the newly instituted courses in Tropical Medicine. Dr. Paul Lewis, until recently connected with the Rockefeller Institute of New York, has been elected Assistant Professor of Pathology, and will have charge of the laboratory of the Phipps Institute for the Study, Prevention, and Treatment of Tuberculosis, now an integral part of the University.

The American College of Medicine of St. Louis, Missouri, announces the appointment of Dr. Frederick A. Baldwin (University of Michigan, Medical Department, 1898) as Professor of Pathology and Clinical Medicine. Dr. Thomas G. Atkinson has been elected Professor of Neurology, and Dr. George M. Heath, Professor of Physics and Physiological Chemistry in the same institution. The college opens on September 6.

"Death Avenue."—In response to the request of the Mayor of New York, the Public Service Commission of this city has submitted tables showing the number of persons killed and injured on the surface railway lines of the city as compared with number of accidents on the street tracks of the New York Central Railroad below Sixtieth street. The figures are for the consideration of the Board of Estimate which has taken up the agitation for the removal of the railroad's tracks from the city streets, particularly Eleventh avenue, which has long been known as "Death Avenue." The report shows that the number of casualties on the trolley lines is far greater than those on the Central's tracks. During the first six months of this year there were eight fatal accidents on the trolley lines and only one on the Central's; in 1909 forty-three persons were killed on the trolley tracks and eight on the Central's. While it was to be expected that the accidents on the combined trolley lines would exceed those on the Central's Eleventh avenue tracks, since the mileage of the former is so much greater, yet it is doubtful whether the proportion justifies the exclusive application of the name "Death Avenue" to Eleventh avenue. It would seem that almost any of the streets on which the

trolley cars run might compete for the distinction. The lower figures for the first six months of 1910, however, hold out hope for the future.

Waterless Hospital.—It is reported that the Government Hospital for the treatment of tuberculosis, at Fort Stanton, New Mexico, may have to be abandoned because of the failure of its water supply. The hospital, which is under the jurisdiction of the Public Health and Marine-Hospital Service, had until recently an abundance of water, but the supply has, it is said, been virtually cut off by the action of a railroad in the vicinity which is piping the water to a point thirty miles beyond for use in locomotives. The Secretary of the Treasury has been informed that unless some means of supplying water is found the hospital, in which the Government has invested nearly a million dollars, will have to go out of commission.

The American Public Health Association will hold its thirty-eighth annual meeting in Milwaukee, Wis., September 5 to 9 next. Representatives from many of the national organizations working in the interest of the public health have been invited to be present and to discuss methods for the correlation of the work of such organizations, and for cooperation with a view to increasing efficiency and economy. Sanitary engineering will occupy a conspicuous place on the program. This Association is the oldest national sanitary organization in the United States. Its membership extends over the United States, the Dominion of Canada, Mexico, and Cuba. Information concerning it can be obtained by addressing Dr. Wm. C. Woodward, Secretary, Washington, D. C.

The Fifth International Congress of Obstetrics and Gynecology will be held under the patronage of His Majesty, the Emperor of Russia, at St. Petersburg, September 22-28, 1910. The Russian Committee on Organization, representing every part of the Empire, has effected an organization with Prof. Dem. d'Ott, President; Prof. P. Sadovski, Secretary-General; Prof. H. Zamchine, Treasurer. The special questions to be considered by the Congress are: (1) "Cesarean Section," by Baum, Brandt, Doleris, and Routh. (2) "Non-Operative Treatment of Cancer of the Uterus," by Mangiagalli, Betrix, and Meyer. (3) "Comparative Value of the Different Procedures in the Treatment of Displacements and Deviations of the Uterus," by Schauta, Westermark, and Hofmeier. (4) "The Vaginal Route in Accouchement and Gynecology," by Martin, Jung, Treub, and Wertheim. (5) "Influence of the Nervous System in the Origin and Control of Uterine Hemorrhages," by Macnaughton-Jones, and others. The registration fee is $5.25, payable before the meeting to the chairman of the respective National Committee, through whom cards of admission and all information relative to the Congress will be forwarded. Contributions to the program are subject to acceptance by the Executive Committee of the Congress, to which titles will be forwarded by chairmen of the respective national committees. The time limit on formal reports is 20 minutes; on special communications, 15 minutes; on remarks, 10 minutes. A résumé of all communications accepted under the rules of the Congress, if furnished by authors, will be translated and published in the different languages in advance of the meeting. All the modern languages will be permitted, but reports and discussions submitted in any one language will be translated into the other languages for publication in the Transactions. The committee for the United States is as follows: Charles A. L. Reed (Chairman), Cincinnati; Robt. T. Morris, New York; Howard A. Kelly, Baltimore; Lewis S. McMurtry, Louisville; Matthew D. Mann (Secretary), Buffalo. An exhibition, for which contributions from all parts of the world are solicited, will be held in connection with the Congress, and will include surgical instruments, ancient and modern; apparatus for the equipment of laboratories, operating and lying-in rooms, etc., plans for obstetrical clinics and gynecological hospital wards; portraits of men who have distinguished themselves in the subjects of gynecology and obstetrics; books on the same subjects; pharmaceutical preparations, etc.

Bequests to Charities.—The Babies' Hospital of New York receives $3,000 under the will of the late Mrs. Margaret A. Bromley, who died recently.

By the will of the late Charles S. Ward, who died recently in Roseville, N. J., the Presbyterian Hospital of New York will receive $10,000 on the death of one of the legatees.

The will of Henry Dexter of New York, who died recently, provides for bequests to a number of charities after the death of his daughter. Of these, St. John's Guild receives $10,000;; the Home for Old Men and Aged Couples, $100,000, and St. Luke's Hospital, $1,000.

New Jersey State Pediatric Society.—The first annual meeting of this society was held at the Hotel Chalfonte, Atlantic City, on June 27, 1910. The officers of the society are: *President,* Dr. H. L. Coit, Newark; *Vice-President,* Dr. Alexander McAlister, Camden; *Treasurer,* Dr. B. Van D. Hedges, Plainfield; *Secretary,* Dr. M. J. Synnott, Montclair; *Council,* Drs. J. Finley Bell, Englewood; Thomas N. Gray, East Orange; Burdette P. Craig, Jersey City; Emery Marvel, Atlantic City, and F. N. Glazebrook, Morristown. At the afternoon and evening sessions the following fourteen papers were presented in addition to the presidential address by Dr. H. L. Coit, on "Factors in the Conservation of Child Life:" "Treatment of Typhoid Fever with Special Reference to the Use of Hydrochloric Acid," Alexander McAlister, M.D. "Acute Nephritis in Children," Arthur W. Bingham, M.D. "The Status of Children's Wards in General Hospitals," J. Finley Bell, M.D. "Some Points in the Diagnosis of Pleuritic Effusion in Infancy," D. J. M. Miller, M.D. "The Relation of Orthopedic Surgery to Pediatrics," Sidney A. Twinch, M.D. "Infant Mortality in Summer, How to Conduct a Successful Campaign Against It," Arthur Stern, M.D. "The Dietetic Management of Children During Sickness," Floy McEwen, M.D. "A Method of Dealing with Illy-Nourished Infants," Francis H. Glazebrook, M.D. "Malarial Fever in Children," Elmer C. Wherry, M.D. "A Present-day View of Infant Feeding," Thomas N. Gray, M.D. "Practical Points in the Management of Poliomyelitis and Its Sequelæ," Henry Ling Taylor, M.D. "Tuberculous Peritonitis in Children," John H. Bradshaw, M.D. "Infectious Arthritis," David T. Bowden, M.D.

Connecticut State Board of Health.—At a recent meeting of this board the following officers were elected for the ensuing year: *President,* Dr. E. K. Root, Hartford; *Secretary,* Dr. Joseph H. Townsend, New Haven; *Water Supply and Sewage Committee,* Drs. Root, Townsend, and McKenzie;

Laboratory Committee, Drs. Root, Phillips, Wolf, and Townsend; *Director of the Laboratory*, Dr. H. W. Conn. In reviewing the work of the past quarter in the laboratory, Professor Conn stated that 847 samples of milk had been received for examination. He considered the milk supply of the State as a whole only fair.

The Nova Scotia Medical Society held its annual meeting at Yarmouth on July 6 and 7. Officers for the ensuing year were elected as follows: *President*, Dr. James Ross, Halifax; *First Vice-President*, Dr. Kennedy, New Glasgow; *Second Vice-President*, Dr. McLean, New Glasgow; *Secretary-Treasurer*, Dr. J. R. Corston, Halifax. The next annual meeting will be held in Halifax.

The Torrington (Connecticut) Medical Association at a recent meeting elected the following officers: *President*, Dr. Thomas L. Thomson; *Vice-President*, Dr. Abram J. Barker; *Secretary*, Dr. D. P. Platt; *Treasurer*, Dr. George Streit. The following committees have been named: *Executive*—Drs. Thomas L. Thomson, George Streit, and H. B. Chapin; *Literary*—Drs. D. P. Platt, A. J. Barker, and W. E. Hoffman. The association is said to be in favor of a local hospital.

The Spokane County Medical Society has completed arrangements for the erection of a suitable building to be used as a home for the society.

Obituary Notes.—Dr. Mihran K. Kassabian of Philadelphia, Pa., died at the Jefferson Hospital in that city on July 12, as the result of *x*-ray burns. Dr. Kassabian's name must be added to the already long list of those experimenters with the powerful rays whose lives have been the price of their devotion to science. Born in Cæsarea in Asia Minor in 1868, Dr. Kassabian came to the United States in 1894, and four years later was graduated from the Medico-Chirurgical College of Philadelphia. Immediately after his graduation he was made instructor in electro-therapeutics and *x*-ray treatment in the college, a position which he resigned in 1902 to become director of the Roentgen ray laboratory in the Philadelphia General Hospital, remaining in the latter position until his death. The injurious effects of the rays were first noticed in 1902, when the finger nails were affected, and two years later it became necessary to amputate two fingers. The operation, however, did not check the spread of the disease and second and third operations were performed, still without effect. As an authority on the subject of *x*-ray treatment, Dr. Kassabian had been a delegate to many conventions and was the author of several books dealing with electrotherapeutics. He was a member of the American Medical Association, of the Philadelphia County and Pennsylvania State Societies, and of the Roentgen Society and the Medical Club of Philadelphia.

Dr. Walter W. Snyder of London, Ohio, died suddenly on June 26. He was a graduate of the Starling Medical College in the class of 1901, and was 34 years of age.

Dr. Charles B. Richmond of Denver, Col., died at his home on July 1, aged 56 years. Dr. Richmond was a graduate of the Northwestern University Medical School of Chicago, in the class of 1878, and was a member of the American Medical Association and of the county and State societies.

Dr. Thomas R. Newman of Nashville, Tenn., died at his home on July 4, after a short illness, aged 42 years. He was graduated from the Medical Department of the University of Nashville in 1897.

Correspondence.

THE UNION OF MEDICAL COLLEGE AND HOSPITAL.

To the Editor of the Medical Record:

Sir:—In the Medical Record of July 9, 1910, Jacob Gould Schurman, D. Sc., LL.D., President of Cornell University, in an article on "Progress in Medical Education," after dwelling with proper emphasis upon the necessity of medical schools owning, operating and controlling hospitals entirely under the management of the medical schools and subject to regulation by the faculty, makes the following statement: "No first-class medical school in the United States to-day possesses such a hospital of its own." As this statement, coming from so distinguished an authority, may receive general credence, I beg leave to call attention to the fact that, for more than a quarter of a century, the Jefferson Medical College has, to the minutest detail, owned, operated and controlled its hospital. The same board of trustees has charge of college and hospital, both operated under one charter, receives all funds, and disburses all income from both departments.

Election to a clinical chair in the college carries with it a corresponding position on the staff of the hospital, rules for which provide that the "Attending physicians shall consist of the professor of the practice of medicine and of clinical medicine, the professor of materia medica and therapeutics, and the professor of clinical medicine," and the attending surgeons shall consist of the professors of surgery and of clinical surgery," and so on through the entire faculty. The same rule applies to all members of the teaching body including the professor of pathology who is pathologist, and the professor of bacteriology who is bacteriologist to the hospital. The arrangement of clinics in the hospital is made by the faculty without the necessity of obtaining the consent of the house officers of the hospital, and the same is true of ward section work, classes in the operating rooms, and scheduled attendance in the out-patient departments, clinical laboratory and post mortem room.

The hospital also maintains a maternity department of which the medical director is professor of obstetrics. Every clinical facility at the command of the general hospital is available for teaching purposes, and subject to the requirements of the faculty. The curriculum committee of the college may at any time inquire into the facilities of the hospital or submit to the board of trustees requests for organization of a new department to improve the teaching, and so far as I am aware the Board of Trustees has in every instance provided the facilities requested. In other words, the desirabilities upon which President Schurman lays special stress, have been recognized and supplied by the Jefferson Medical College.

In reporting the budget of the Jefferson Medical College the Carnegie Foundation took no cognizance of the fact that in addition to the income from students—no part of which is devoted to the hospital maintenance—the hospital expended (last year) $228,387.07. There were admitted (last year) to the house, 5,199 patients; 9,160 emergencies were cared for in the accident department; 24,812 patients paid 114,702 visits to the dispensaries; 4,041 of the in-patients and all the accident and dispensary patients were available for teaching purposes.

It is well known that there are other medical schools in this country possessing similar advantages.

W. M. L. Coplin,
Philadelphia, July 12, 1910. Medical Director.

POISON IVY RASH.

To the Editor of the Medical Record:

Sir—I recently passed through an interesting experience with poison ivy rash, acquired during a day of strenuous trout fishing. I have had an attack every year for many years, but since boyhood the attacks have been very mild; so I ignored the ever-present ivy this year in my keen interest in the art of catching a few nice trout in a stream that is fished to death. Two days after my return the rash appeared over my left wrist—I scratched it freely and it extended freely to the hand and half way up the forearm. In a few days I realized I was thoroughly poisoned by that despicable vine, so I at once began to experiment with

various remedies for the sake of suffering humanity as well as for my own relief.

I first tried iced cloths squeezed out in a saturated solution of hyposulphite of soda, but I soon lost faith in this. I next tried a saturated solution of borax, but soon changed to lead and opium wash. By this time my face was badly swollen—eyes about closed and a general erythema clearly seen. Now I knew I was in for it, for the typical ivy eruption appeared wherever I scratched, and I certainly desired to scratch everywhere. I realized then that ivy poisoning is a self-limited disease, and that I should help nature as much as possible, so I ordered for myself a milk diet (after a dose of Rochelle salts) and constant attention to the rash, the itching, and the general erythema. I moved my home to the bathroom, and there for a week I had an interesting fight. Talcum powder, carbolic acid ointment (1-30), iodine ointment and camphorated phenol ointment, acetate of lead solution, sulphate of zinc solution and thymol iodide were all tried but soon given up.

I found it necesary to lie in cool water frequently, after which I poured a saturated solution of bicarbonate of soda all over the body. A kind physician suggested an ointment which I used freely all over the face and chest with considerable relief for a day, but the itching and the erythema would "break through," so I finally tried carron oil poured frequently all over the body and more frequently patted over the worst places. This gave such relief that I continued its use till the end—whenever the itching became severe, I rubbed dry bicarbonate of soda into the skin, covered as it was with the carron oil. This seemed to be the best combination—the dry powder rubbed into the itching places would bring relief after the smarting sensation had subsided.

A second kind physician gave me the following prescription which I used with great benefit:

℞

Zinc oxide, ʒii.
Magnes. carb., ʒii.
Thymolis iod., ʒi.
Aquæ calcis, q.s. ad ʒiv.
M. sig: external use.

After three weeks of suffering the rash disappeared, but scratching could easily bring back the typical rash. I certainly was saturated with the poison which left me with three small carbuncles and a good-sized one on the neck—my first experience. In conclusion, I advise physicians to try ice cold compresses—carron oil, bicarbonate of soda and the above prescription in their treatment of ivy poisoning.

New York. Richard Ellis, M.D

OUR LONDON LETTER.

(From Our Regular Correspondent.)

WAR AGAINST TUBERCULOSIS—DISCUSSION ON SYPHILIS—WASSERMANN REACTION—OPTIC ATROPHY FROM ARSENICAL PREPARATIONS—BATTERSEA HOSPITAL—AMERICAN GUESTS—LIVERPOOL TROPICAL SCHOOL—OBITUARY.

London, July 1, 1910.

The war against tuberculosis is going strong. Today the Countess of Aberdeen, whose work in Ireland I have previously described, is to open an exhibition in Edinburgh, where for the coming week the campaign will be vigorously carried on. Among the movements arranged for is an important conference on tuberculosis at which experts from Europe and America are to assist the deliberations which comprise such subjects as the avenues of infection, preventive measures, prevalence in childhood and the working man in relation to the disease. There is to be a special service for the university students and visitors and an address by Professor Osler, a reception by the Lord Provost, magistrates and council of the city, the annual meeting of the National Association for Prevention of Consumption, addresses by distinguished visitors and the inauguration of the Royal Victoria Farm Colony. A full program—to say nothing of the many hospitals and other institutions which those who can attend the conference will desire to visit.

During the month just ended the surgical section (R. S. M.) devoted two sittings to a discussion on the present position of the treatment of syphilis. It was opened by Mr. Ernest Lane, who thought that the decrease in the last 10 years reported in the public services was also observable in the civil population, though there was in increase among hospital patients. He relied on injection in emergencies. Calomel two-thirds grain suspended in oil, at intervals of a week, for 12 weeks was the most potent. Pain was the most common disadvantage (for which reason grey oil was better for routine work) the others being pulmonary embolism, acute mercurialism and local abscess. Soluble mercurial injections were objected to on the ground of frequent dosage being necessary. Inunction was repugnant to most patients. As to duration of treatment he put it at 5 years, which sometimes should be extended to 7 years, as only so could late affections of the higher nerve centres be certainly averted. Capacity to transmit ceased before immunity to nerve lesions was established. The intervals of treatment should be gradually lengthened. He did not think iodipin of much service. Arylarsonates were dangerous.

Dr. Fletcher said serum diagnosis gave him a positive reaction in 30 to 40 per cent. of primary cases. In other cases the results were reliable, but energetic treatment destroyed the reaction, though if stopped too early a positive result would again be obtained. A negative result, confirmed a few months later on, was evidence of cure. Grey oil was the most effective.

Major French extolled inunction and said there was no evidence that arsenical irreparations prevented relapse. Captain Harrison found three calomel injections to commence sufficient, grey oil being substituted for further treatment. Wassermann's original method gave him useful information employed in a roughly quantitative manner.

Mr. McDonagh recommended excision of the primary sore. Mr. Marshall favored the oral method of giving mercury, but Dr. Pernet said "pills and potions" had undoubtedly failed. Calomel injections, he said, were most potent, followed by grey oil. Treatment should be continued vigorously for two years; afterward mildly up to seven years. Iodides suited patients over forty. In mixed infections a vaccine, if a complicating organism could be isolated. Mr. Bayley said there was no reason to look on the disease as surgical, for the pathologist was as much concerned as the surgeon or physician in its treatment. He would make it notifiable and try to isolate and stamp it out.

Mr. Hutchinson was not so convinced as some of the speakers of the value of injections. The iodides were useful, not only in the tertiary, but in some secondary, lesions, *e.g.* intractable ulcers of the tonsils. Further evidence was needed to establish the alleged fact that in congenital cases the Wassermann reaction would not be abolished by intramuscular injections. Nine out of ten, if not nineteen out of twenty, cases could be cured by the oral method. This seemed proved by the occurrence of fresh infection. Arsenic preparations were extremely dangerous. Cases which did not respond to the oral administration were often as obstinate to intramuscular injections.

Mr. Godlee said the disease had, to a great extent, passed out of the realm of surgery; he no longer saw in hospital or private practice the cases he saw ten or fifteen years ago.

Mr. E. Lane, in reply, said he could not accept the extreme view that the oral plan was useless, for the cases treated during the last fifty years did fairly well. Though iodides did not affect the virus, they were useful adjuncts in treatment.

The Wassermann reaction, several times mentioned in the foregoing notes, has also been discussed at the West London Medical Clinic, but only in relation to eye work. Mr. Bishop Harman presented a paper based on forty cases, the pathological examinations having been performed by Dr. Blunt. The patients comprised both adults and children, and Mr. Harman considered the results, added to the evidence in favor of the reliability of the test, a good point, for it was that it entailed no risk and no inconvenience save the abstraction of a few drops of blood. When standardized, as proposed by pathologists, the value of the test would be increased, for it would not only indicate a general infection, but would point to the nature of a given local inflammation.

Mr. McAdam Eccles suggested testing the parents of the patient and their other children. Mr. McDonagh mentioned cases under his care in which the mother and child both gave the reaction.

Another subject mentioned in the previous discussion was the danger of arylarsonates. This point has been confirmed by yet another society, viz., the Ophthalmological, at which Mr. Ernest Clarke related two cases of optic atrophy, which he had no doubt were

caused by the treatment. He therefore urged extreme care in the administration of arylarsonates, the eyes being carefully examined before resorting to them, and as carefully watched during the treatment. The dose must be regulated with regard to body weight and age; he doubted if it would be safe after forty. Disease of arteries, kidneys or liver contaminated it. Colonel Lambkin had used the treatment of which he was the chief advocate, mostly, if not entirely, in young patients. When the limitations and dangers were fully recognized, possibly these remedies may prove as useful as is hoped by many. Meantime, it must be remembered that to the risk of blindness in a fatal disease like sleeping sickness is a very different thing from exposing a patient to such a risk who is suffering from a disease which is amenable to other and well-tried remedies.

Another research expedition from the Liverpool Tropical School of Medicine sailed on Saturday for Malta. This is the twenty-third expedition of the school, and Mr. Newstead goes to investigate the habits of the sandfly with a view to its destruction in the larval stage. The Colonial Office contributes from its Disease Research Fund to the cost of the expedition.

A party of American surgeons landed at Liverpool on Tuesday, and are visiting our hospitals in London and various towns.

Battersea Borough Council has been reported by the Auditor to have gone "beyond the reasonable limits of discretion" in support of the antivivisection hospital. It seems this hospital had the free use of the Town Hall on five days, equal to the total use granted for other philanthropic purposes during the whole year. Horses, vans and charged electric accumulators were also loaned free for demonstrations or processions. Money collected as cloak room fees was given as a donation, and this, but no other, hospital received a subscription out of the Borough funds.

Department Inspector-General G. Jackson, R.N., has died at the age of seventy-eight. He took L.R.C.S.I. in 1854 and joined the medical service of the navy, serving in the Baltic campaign, for which he received the medal. He then saw considerable service on the West Coast of Africa, 1855-1857; in the Abyssinian campaign of 1868, being awarded a medal, and in the Persian Gulf in 1872. He was awarded a Greenwich Hospital Pension in 1905.

Dr. Alfred Francis Thompson, senior anesthetist in the Manchester Royal Infirmary, lost his life on Saturday from an accident. He was motoring home when his car was overturned in a collision. Dr. Thompson was thrown out and sustained a fracture of the skull, and died at once. He was elected to various posts in the infirmary soon after taking his M.B., Ch.B., in 1903, and eventually became senior anesthetist. He leaves a wife and two young children.

The death has taken place of Surgeon-General P. G. Fitzgerald at the ripe old age of ninety. He served in the Indian Mutiny, was present at Cawnpore and the capture of Lucknow, for which he was awarded the medal with two clasps. He retired in 1880.

Mr. Ralph Keyser, Surgeon to the Cancer Hospital, died at sea on the 17th of June, aged thirty-six. He was a St. George's student, and there held various minor appointments after qualifying at the two colleges in 1896. He proceeded to the Fellowship of the College of Surgeons in 1899.

Dr. F. S. Stanwell, late Medical Officer of the East Riding Lunatic Asylum, died on the 26th of June, aged thirty-seven. He was M.D. of Edinburgh, where he was educated, and had been resident Medical Officer at the Royal Infirmary.

Progress of Medical Science.

Boston Medical and Surgical Journal, July 7, 1910.

Hemorrhage from the Kidney.—A general article is written by P. M. Pilcher, who says that before the cystoscope came into use there were certain rules laid down for determining the source of the hematuria. These were the color of the urine, the time of appearance of the blood, shape of the clot, facts learned from irrigating the bladder and microscopical examination of the urine. The author says that when inflammation of the bladder is not present the recognition by the cystoscope of blood spurting or oozing from the mouth of the ureters is unmistakable. Hematuria may arise from trauma and from taking cantharides or turpentine. Of the foods, rhubarb, gooseberries, unripe apples and asparagus may all be followed by blood in the urine. In disease blood may appear in the urine as an expression of intense congestion of the kidney, in malignant fevers and may occur with or without other symptoms. The most common causes of the symptomless form are acute and chronic nephritis, calculus, renal tuberculosis and congestion of the kidney, renal varix, an angiomatous disease of the papillæ renales and papilloma or malignant disease of the kidney. Six clinical histories are given. As to treatment, if the bleeding is due to trauma, expectant treatment is indicated in cases of slight injury in which there is only a moderate or transitory hemorrhage of short duration. Operation is contraindicated when both kidneys are extensively injured, but it is strongly advised when there is progressive, recurrent, or persistent hemorrhage; also when infection has taken place. If due to drugs or diet, remove them and treat as in any acute inflammation of the kidney. In disease no treatment is of any avail in the intense congestion of malignant fevers. If due to nephritis, medical treatment will usually bring about a cure. If conditions persist, decapsulation and fixation of the kidney are indicated. In rare conditions when the disease is unilateral and threatens life the kidney may be removed. In cases of renal varix, nephrotomy is the operation of choice, because it allows a thorough examination of the kidney, and also for the reason that it accomplishes exactly what the operation of ligation does in the treatment of varicosities in other parts of the body—in that it cuts six of the main connecting venous radicles of the kidney and in this way destroys the varicosities. Malignant growths call for removal of the kidney, tuberculosis for removal of both ureter and kidney, calculus for removal and sometimes nephrectomy, nephralgia for renal decapsulation and the fixation of the organ.

New York Medical Journal, July 9, 1910.

Determinable and Indeterminable Factors in the Etiology of Typhoid Fever.—After an elaborate consideration of this subject, L. L. Lumsden offers the following conclusions: (1) Typhoid fever is a disease which is communicable from person to person. The infective agent is effective immediately upon being discharged from the bodies of diseased persons; and anything that will serve to convey the living organisms having the biological features of bacteria of the so-called typhoid bacillus group from the excreta of such diseased persons to the alimentary canal of healthy persons may be a factor in the transmission of the infection. The most common and therefore the most important factors in transmission are personal contact, water, milk, raw fruits and vegetables, raw shellfish, flies and other insects. If there be any as yet unknown factors in the transmission of the infection, their operation is prevented by the same measures which will prevent the operation of the known factors. (2) The factors concerned in the establishment of individual susceptibility to invasion by the infective agent are so far undetermined. It is possible that there is some specific factor so concerned, but the evidence in favor of such a view is very little if at all stronger than the evidence that there are specific factors similarly operative in the causation of diphtheria, tuberculosis, lobar pneumonia and other diseases generally regarded as resulting from bacterial invasion. (3) The bulk of evidence supports the view that the Eberth-Koch-Gaffkey bacillus or "typhoid bacillus" is the essential if not the exclusive factor in the production of typhoid fever and in the adoption of practical measures to prevent the disease this organism may be and at present should be regarded as the specific infective agent in the causation of typhoid fever.

The Quest and Winning of a Vesicle Calculus.—M. W. Ware refers to the diagnosis as made first by the cystoscope, second, by the searcher and, third, by the *x*-ray. He says that the general practitioner when he has a vesical stone to deal with can more readily and sooner get the patient to submit to the introduction of the searcher and thereby pave the way and gain his confidence for a cystoscopy subsequently. Stones that are too small to be revealed by the searcher, hidden in diverticula, their number, size, shape, and all concomitant conditions of the bladder are at once revealed by the cystoscopic searchlight; and though it is beyond cavil that the most painless and harmless and innocuous way of detecting stones in the bladder is by the use of the *x*-rays, there is so much more brought to light by the cystoscope that the use of radiograms could be subordinated and judged superfluous were it not that encysted stones as well as those concealed by an overgrowth of the prostate are invisible with the

cystoscope but revealed by the *x*-rays. Moreover we should have radiograms of the upper part of the urinary tract as well as of the bladder. Particularly imperative is the use of a radiograph of both renal regions, even in the absence of symptoms pointing thereto, where the stone lodged in the bladder is of small size and entitled to be therefore regarded as not autochthonous, but a wanderer from the hinterland of the bladder. A stone, if small enough, may be passed per vias naturales, and hence it led Sir Henry Thompson into sophistry when, in his article, "What Is a Stone in the Bladder?" he laid down the axiom: "Any calculus which can, by any means, be removed entire through the urethra, including one impacted therein and removed thence by the knife, cannot be admitted to rank as a vesical stone."

Vaccine Therapy in Serious Infections of Aural and Nasal Origin.—Two case histories are given by C. Graef and R. B. Wynkoop. Their interest comes from the fact that in one, a clearly established case of septic thrombosis of the lateral sinus, recovery was secured without exsection of the jugular vein, while the other is, so far as can be learned, the first recorded case of meningitis due to streptococcus infection cured by vaccines. Case 1 was that of a boy of 12 years with a suppurative inflammation of the right middle ear of several weeks' duration. Mastoiditis was evidently present and operation was at once done. During convalescence evidences of the inflammation of the appendix came on and it was removed. Pus taken from it showed the *B. coli communis* only. Later streptococci were obtained from the blood and then a stock vaccine was procured and treatment with it begun. Recovery ensued. Case 2 was that of a woman of 24 years who had been operated on for a deflected septum, the nose being packed for 24 hours. At the end of this time she gradually developed evidences of infection which ran on to a well-developed meningitis. Cultures taken from spinal punctures showed the streptococci. An autogenous vaccine was made and under its use this patient, too, recovered.

Journal of the American Medical Association, July 9, 1910.

Radium's Contribution to Surgery.—Robert Abbe says that in epitheliomas of all grades, ulcerated or not, when situated on the skin, a healing and disappearance of the growth promptly follow a correct dosage of radium rays. No such results can as yet be claimed for epithelial cancer of the wet surfaces, although there is a growing hope that its sphere may be increased in this direction. In cancer of the esophagus, stomach, rectum, and uterus, although radium can claim no cures, its use has retarded and given relief, especially as regards cachexia and hemorrhage. The writer reports two cases of pure round cell growth. In Case 1 a tumor had grown on the lower eyelid of a man for a year. It had resisted the faithful application of the Roentgen rays for six weeks, and was still growing. Under radium treatment shrinkage began in two weeks, and in eight weeks no trace of the growth was left. Now, after a lapse of five years, it is impossible to say in which eye the tumor has been. Case 2 was an inoperable renal sarcoma in a child of 4 years. Radium treatment was instituted six months ago, and resulted in great shrinkage of the growth, coupled with an apparent restoration to health. In this case, however, extension in mesenteric lymphatics is now progressing slowly and is uncontrolled by radium. Out of 14 cases of giant-cell growth treated by radium eight remain as cures, though two have died from other causes. The remaining six, though showing characteristic changes, are too recent to report yet as cured. To sum up, it is claimed that "there has been shown the existence of a subtle force latent in radium, resembling that in Roentgen rays, but unlike it and supplemental to it, with specific action for certain cells found in specialized tumors, which causes retrograde degeneration and atrophy.

Purpura from Iodides.—Frank Crozer Knowles, summarizing from his own cases and those reported by others, says that purpuric eruptions caused by the ingestion of the iodides may be divided into two provisional groups: The first includes the extensive petechial, hemorrhagic, bullous cases, which occur in those with organic disease, particularly of the kidneys or the heart, or with a lowered condition of the general economy which makes them more susceptible to the drug, or with a strong idiosyncrasy to the same. The second group includes all cases with a localized distribution, particularly those in which the eruption is limited to the lower extremities, which occur in individuals in perfect health, and can only be explained on the theory of a mild idiosyncrasy. In the hemorrhagic bullous cases the face and extremities were mostly involved, particularly the face and arms. In the petechial type the eruption in a great majority of cases was limited to the lower extremities. The various salts of iodin are all capable of causing a purpuric eruption. The pathologic changes of the skin were noted in the immediate vicinity of the blood-vessels and in the walls of the vessels themselves. Iodin is rapidly absorbed by all mucous and serous surfaces and rapidly eliminated, chiefly by the kidneys and also through the skin itself. The leucocytes play a distinct rôle in the absorption of the drug. Hemorrhagic bullous cases of extensive distribution are frequently fatal, seven out of eleven in this series ending fatally. Petechial, nonbullous cases rarely terminate in death, unless there is marked disease of the heart or kidneys or a very extreme intolerance to the drug.

Excessively High Temperature in a Case of Incipient Pulmonary Tuberculosis.—O. H. Brown reports the case of a patient in the Missouri State Sanatorium in whom the mouth temperature registered 109 to 110, or higher. The rectal and arm temperatures were normal. The observation was made on several different days and with different thermometers, and the writer suggests in explanation that the abnormality may have been caused by the presence of several small sublingual ulcers.

The Lancet, July 2, 1910.

The Tuberculous Gland; Its Significance and Treatment.—R. W. Philip gives the summary of his views from many years' study. He says that suppuration is merely an incident, a relatively uncommon accident in the course of progressive involvement of the glands by tuberculous infection. Far more common is the infiltration in varying degree. The author follows out the course of tuberculous infection, speaks of its relation to childhood, and then passes on to treatment. This should be directed chiefly to the essential lesion rather than to the incidental occurrence. The ordinary surgical treatment is of local and only partial value. Superficial lesions are indeed removed, but the infection is deeply seated in the lymphatic system and only some general measure will meet the emergency. Here the outlook for vaccine therapy with tuberculosis is most encouraging. Dr. Philip details his experience with it, cautioning against too large a dose at first. His conclusions, drawn from prolonged observation and treatment of such cases, are thus given: (1) Watch for the earliest indication of spreading involvement of lymphatic glands in young children. Especially have regard to distribution downward from the extratonsillar gland into the supraclavicular triangle. (2) Regard such a process as of an almost certainly tuberculous nature. If in doubt make use of the tuberculin test. (3) Treat as soon as may be with tuberculin as indicated, at the same time carefully cleansing the throat and correcting faulty environment. (4) If incidentally one or other gland suppurate simply evacuate, continuing the use of the tuberculin.

Points in Favor of Early Operation in Appendicitis.—A. H. Buck says the prognosis in any case of inflammatory appendicitis is absolutely uncertain. If an operation has to be undertaken in advanced stages drainage will be necessary and probably prolonged. If the appendix is not removed the patient lives on the edge of a precipice. If the appendix is removed in the first 24 hours we know where we are. Uncertainty is removed with the appendix. The majority of cases will heal by first intention. Those that do not are certainly such as would need surgical intervention during the attack. Drainage, if necessary at all, is necessary for a far shorter period. If it is necessary, one is only too pleased to have gotten at the trouble so early. The earliest possible knowledge of the exact nature of the case will be obtained. A stock vaccine can be injected if necessary, to be followed within a few hours by an autogenous vaccine. This plan is, according to the author's view, the only way in which to save a case with a virulent streptococcic or other invasion. He insists that an operation in the first 24 hours in cases of inflammatory appendicitis is the only rational treatment.

A Note on the Distribution of Treponema Pallidum in Congential Gumma.—E. A. Shaw refers to studies made in the autopsy room on livers removed from children with undoubted congenital syphilis. A common finding in all the cases is thus described: In a section of this small liver gumma (which was about ⅛ inch in diameter) there was the appearance of a dense black band disposed more or less concentric to the center of the gumma but at its periphery. This band occupied the position of a boundary zone between the healthy liver tissue and the gumma tissue; it was, in fact, the periphery of the gumma. This was seen with a 1-3 inch objective. On applying the 1-12 inch oil

immersion, this black band resolved itself into a dense felted network of spirochetæ which were lying at every possible angle to the plane of section, and overlying each other like handfuls of pins. Proceeding inward from this band toward the center of the gumma there were many more, but proceeding outward from the black band above mentioned they rapidly diminished in number as healthy tissue was reached, till at a distance from the gumma of about a millimeter they were very infrequent indeed. A study of these sections led one to the conception of gumma growth in this type of case, commencing as a small colony of spirochetæ, gradually enlarging in all three dimensions and ultimately developing an encasing capsule, more or less spherical, of thickly agglomerated spirochetæ; then growth proceeding from this peripherally by multiplication of its component individuals, with the spirochetæ inside the gumma multiplying at the expense of the tissue territory thus gradually acquired, until its nutritional possibilities had been by degrees exhausted and it became that half-necrosed area with which we are familiar as the middle of a gumma, and in the center of which spirochetæ were no longer recognizable as typical. If this conception of gumma growth be true, it naturally follows that smears on glass slides made from the surface of a section taken tangentially to the gumma at its junction with healthy tissue should be exceptionally rich in spirochetæ. The author tested this, fixing the smears with methyl alcohol and staining for half an hour with heated Giemsa, and found spirochetæ varying in number from 12 to 30 in every field, instead of, as before, a few in each slide.

Notes on Some Obscure Cases of Extrauterine Gestation.—Three clinical histories are given by T. B. Broadway. In two of them the patients felt "something give way." The first one went into a condition suggesting internal hemorrhage but would not, on recovery from her primary shock, submit to operation. The symptoms returned in a few days, but operation failed to save her, she dying on the third day. In the third case there was a similar history, but operation was refused. The patient gradually recovered, but there were left a fullness over the hypogastric region and a definite bulging in Douglas' pouch and the right lateral fornix. Pieces of membrane were passed, but as the patient had done this during previous menstrual periods a positive diagnosis of pregnancy could not be made. The third case presented symptoms of pelvic inflammation coming on gradually and for some time not appreciated as to their nature. Incision into Douglas' pouch evacuated a macerated fetus of about three months' gestation. This patient recovered. In the first case the abdominal cavity was found full of clots and contained an embryo.

British Medical Journal, July 2, 1910.

Snuffed Powders in Coryza ex Feno.—J. Sawyer refers to a powder mixture made of one ounce of allspice with three drops of oil of eucalyptus used frequently as a snuff. This mixture does not carry the suggestion of mere sneezing but is rather a true errhine producing a substitutive discharge of healthy pituitary mucus in which the materies morbi is killed and washed away. Pimento is a local stimulant and antiseptic and the latter quality is accentuated by the cooperation of the eucalyptus.

Treatment of Chronic Bright's Disease.—W. P. Herringham refers to the usual dietetic and diuretic treatment. He says that he does not hesitate to look upon the excretion of chlorine as more important for prognosis than that of urea, but he cannot speak quite so strongly of the value of the treatment based upon it. The urine always contains some chlorides also and if they are cut off from the food they are drawn from the store in the body and take with them a certain proportion of fluid. Not only should this be done so far as concerns salt itself, but simple articles of diet, as bread and butter, should be made without it and meat and vegetables, if taken, should be cooked without salt. The author says that whatever the blood pressure he has come to regard high pressure as a conservative effort. In old people it undoubtedly brings dangers of its own, especially cerebral hemorrhage. Endarteritis is not the same thing, for it is due to changes in the media and depends chiefly on age. The author is inclined to regard uremia as due to the absorption of some product of renal cells destroyed in the progress of the disease and he compares it to the condition called cholemia in which many cases of hepatic cirrhosis terminate. The symptoms of each are not unlike and the morbid process is similar, also.

Results of the Pancreatic Reaction.—P. J. Cammidge discusses this question and as well the diagnostic value of an analysis of the feces in disease of the pancreas. Pancreatic disease may be divided into (1) acute, (2) chronic, associated with gall stones or local malignant disease, secondary to intestinal disease and gastric or duodenal ulcer, associated with disease of the heart, vessels, or lungs, or finally secondary to metastatic deposits, (3) pancreatic calculi, (4) pancreatic cysts, (5) pancreatic infantilism, (6) malignant disease, and miscellaneous. The various chemical abnormalities found in the urine are discussed in turn. Concerning occult blood in the stools he says that the guaiac and aloin tests are about equal in sensitiveness, both responding to dilutions of 1 to 25,000, and are useful as controls for the simpler and more sensitive benzidine test, which reacts with 1 part in 200,000 of blood. If the benzidine test is negative, it may be concluded that no blood is present, and it is not necessary to proceed further, but if it is positive, it is advisable that the result should be controlled by the aloin or guaiac test. If these are also positive, the presence of occult blood is indicated, but if, on the other hand, they are negative, the presence of occult blood should be regarded as doubtful, and a further examination be made on a future occasion. Hence, a positive benzidine test shows nothing unless corroborated by one or both of the other tests, but a negative benzidine test is proof positive of the absence of occult blood. He has examined 579 specimens of feces with these tests, and obtained evidence of the presence of blood in 89. It has been said that occult blood is found in the feces constantly in malignant disease of the gastrointestinal tract, whereas in simple ulceration it is only met with at intervals. His experience would tend to confirm this, for out of 25 cases of malignant disease of the intestine he found it in 22, in 23 of growth of the stomach it was present in 18, but in 21 cases of duodenal ulcer a positive result was only obtained in 5, and in 16 cases of ulcer of the stomach in 5. In several of the cases of simple ulcer a series of five or six examinations on succeeding days was made before a trace of blood was found. Cancer of the pancreas is very frequently associated with the presence of occult blood in the stools. In 25 of his 38 cases a positive result was obtained. The hemorrhagic tendency that is known to be present in chronic pancreatitis is sometimes shown by the presence of blood in the feces, and in advanced cases serious hemorrhage may take place from the intestinal and other mucous membranes; in 2 of his cases such hemorrhage was the cause of death. This hemorrhagic tendency was the probable explanation of the positive reaction for blood given by the stools of 2 of his cases of chronic pancreatitis associated with jaundice and the presence of gallstones in the common duct, and 4 cases of pancreatitis in which there was no biliary obstruction. He was able to detect blood in the feces of 4 out of the 7 cases of malignant disease of the gall-bladder, and in 2 out of the 6 cases of growth of the common duct that he has examined.

Berliner klinische Wochenschrift, June 20, 1910.

Experimental Syphilis in Rabbits and Apes.—Uhlenhuth and Mulzer find that next to the lower apes the rabbit is better suited for the experimental study of this disease than any other animal. In a recent series of experiments virus both from human and animal sources was inoculated into the rabbit's scrotum, and propagated from one animal to another. The original source of the virus was aspiration-serum, containing spirochetes, from fresh chancres and moist mucous patches, which was inoculated directly into the testicle or beneath the scrotal integument. Animal virus was implanted into the tissues in fragments, into openings previously made with a trocar. Thus material from a rabbit's cornea was passed through many generations of scrotal lesions. The corneal material was itself the result of a long series of inoculations. The virulence seemed to be increased by the continued transmission, as shown by the progressive shortening of the incubation period. The lesions which appeared in the scrotum and testicle occurred in some three forms. First a cutaneous sore, not necessarily in the point of inoculation, the glands being intact. This sore resembled in general a human chancre, appearing in some cases as an erosion, in others as an ulcer with steep borders and an indurated floor and wall. In other cases, the skin remaining immune, either a diffuse or circumscribed orchitis developed. In a third series a fibrous induration of the testicular coverings, especially of the tunica vaginalis, resulted. All these lesions contained the spirochetæ. A slight or limited tendency to general infection was shown by isolated facts—implication of the regionary lymph-ganglia and of the opposite testicle, and by appearance in some cases of circumanal lesions. There is also more or less natural tendency to localization, and to self-limitation, and resolution of the

lesions. A general infection was produced in the ape by intravenous inoculation of material from the rabbit's testicle, a papulocircinate eruption appearing on the trunk and limbs, with general adenopathy.

Aspiration-Drainage of the Pleural Cavity.—Härtel of Professor Bier's clinic has added one more to the numerous devices introduced during the past generation for draining empyema cavities and the like. An ideal apparatus for this purpose must fill three requirements. First, there must be an air-tight isolation of the pleural cavity; second, the derivation of the pus, etc., must be complete, and third, the power of suction must be definitely measurable. Perthe's well-known apparatus comes nearest to filling these requirements, but can only be worn in bed, while the expense is considerable. The author recommends the use of a dentist's rubber dam—a piece 10-15 sq. cm. in area—through which is passed a soft rubber catheter or other drainage instrument. During aspiration, the rubber dam accurately seals up the orifice, and its edges may be fastened to the chest by adhesive plaster. To collect the pus a two-necked flat bottle is used, which should contain from 80 to 200 c. cm. The rubber drainage tube is attached to one orifice, while the tube of an aspirator bulb is similarly made fast to the other orifice. This bulb is of the type used in the "hyperemic treatment" of diseases, and requires no manometer, its aspirating quality having been tested in advance. The so-called Klapp bulb has a negative pressure value of from 100 to 200 mm. of mercury. Its full power is exerted if the bulb is first collapsed to one-half its normal size. The bulb is first applied with a certain degree of collapse, and the amount of aspiration and sensations of the patient serve to control this. When the depression becomes effaced the bulb should be detached and a fresh depression made. The entire apparatus is carried in a sort of linen sling or pocket fixed to the thorax. The apparatus is by no means intended to do away with radical operative procedures, to which it can only act as an accessory; in one case perhaps forestalling an operation and in another serving as after treatment.

Deutsche medizinische Wochenschrift, June 16, 1910.

Treatment of the Hemorrhagic Diathesis.—Amsperger states that true hemophilia is distinguished from all symptomatic forms in being inherited, and inherited through the female members of a family, who themselves may remain immune. On account of the numerous fatalities among bleeders, the females, even if themselves sound, should never marry. Once a bleeder is born he must be constantly protected against trifling injuries, although vaccination is said to be unattended with risk. Stimulants and purgatives are contraindicated. Lime and calciferous substances are believed to be of benefit in that they increase the coagulability of the blood. Hence milk and vegetables should enter largely into the diet and salts of lime may be given internally. The efficacy of gelatin as a hemostatic is believed to be due in part at least to its lime content. Any one of the blood serums used in therapeutics facilitates coagulation of blood when injected subcutaneously. They may be injected once a month in a single dose up to 40 c.cm. and should be varied in kind. This is often necessary, because some of them may set up serum-disease. A selection may be made between horse serum, rabbit serum, diphtheria antitoxin, etc. While a permanent cure is not to be expected, each injection may fortify the patient against bleeding for several weeks. The best results have naturally been obtained in symptomatic hemophilia. It is going too far to claim that this resource is to be depended on in essential hemophilia, but there is no doubt as to its specific power over that condition.

Occurrence of Tubercle Bacilli in the Circulating Blood and the Practical Significance of the Same.—F. Jessen and Lydia Rabinowitsch have studied this subject at the former's Davos Sanatorium. The soundness of the older view that tubercle bacilli were present in the blood only in cases of miliary tuberculosis has been impugned by the alleged discovery by Rosenberger and later by Liebermeister that bacilli are to be found in the blood not only of advanced consumptives, but even in the earlier stages of the malady. It is self-evident that the sanatorium material examined by the authors ought to consist of the latter class; but numbers of advanced cases were also tested as controls. Sediments obtained from venous blood were examined, the technique consisting of steps for obtaining precipitates and the proper staining methods. There were no cultural or inoculation tests made. In a certain percentage of cases either fully formed bacilli or granular débris or both were recognized in the sediment. It would seem from the limited number of observations that the more advanced the disease the greater the likelihood of finding the bacilli, and in an intact condition. The bacteriolytic property of the blood is naturally more in evidence early in the disease. The question suggested by these findings refers to their diagnostic value or absence of the same. If bacilli are likely to occur for the most part in the blood of those already clinically tuberculous, the diagnostic value cannot be great. Hence research should be restricted to suspected and early cases, if practical bearing is to be considered; and, as already implied, the occasional finding of bacilli, perhaps in a disintegrated state, would possess significance in the individual case, but would add nothing to our routine procedures. In the individual case the presence of granules alone might be a rather favorable prognostic, just as the presence of intact bacilli might be construed as unfavorable. In cases with complete negative results, technique having been perfect, the absence of granules would suggest complete bacteriolysis. But it must not be forgotten—and the author's individual cases appear to bear this out—that entry of bacilli into the blood may be due to purely local conditions present in individual lesions in the lung. Thus compression by adhesions of the veins proceeding from cavitary lesions could help prevent the entrance of bacilli into the circulating blood. So also artifically draining a cavity would antagonize a bacteriemia from that source. It is evident that for the present each case must be interpreted for itself alone, and much weight attaches to the exact status of the tuberculous focus.

Present Status of the Wassermann Serum-Reaction for Syphilis.—Stern, who has written at intervals on this subject, has the following to say concerning its latest developments. First, we must look upon the test as corroborative only of the clinical and historical findings. Second, one positive result is not to be too hastily accepted as proving the existence of syphilis. A second test should be made several weeks later. Third, not one of the modifications of the original technique enables us to discriminate with any greater certainty between syphilis and its absence. In cases proved to be syphilitic some of the modifications may add somewhat to the volume of our knowledge of such cases.

Heterochromia of the Iris.—Lutz (Prof. Haab's Zürich Clinic) states that this is a very rare occurrence (1-5 of 1 per cent.), and represents an anomaly of development. The pigmentation of the lighter eye may never have been normal as compared with the other, and this defect may be apparent in the newly born child, or only in after years when the irides tend to become darker (up to the fifteenth year). On the other hand, in some cases the irides were originally pigmented alike and one eye loses some of its pigment. Heterochromic eyes frequently exhibit a tendency to a special form of cyclitis. The coincidence is present in about one-half of all cases. The cyclitis develops in the light eye only, and relatively late, its full development being manifest toward middle life.

Modifications of Glycosuria in Diabetes Produced by Irradiation of the Liver.—Ch. Aubertin and E. Bordet state that irradiation of the liver causes a marked increase in the amount of sugar in the urine. They have irradiated the liver of a patient in whose urine there was twelve grams of sugar per day. The sugar was increased in amount, and the patient dying a few weeks afterward it was found that there was a hyperplasia of the liver corresponding with the hyperfunction during life. In the pancreas there was little change. The increase in the size of the liver was due, not to cirrhosis nor to congestion, but to hypertrophy and cellular hyperplasia.—*La Tribune Medicale.*

Relations of Graves' Disease to Pregnancy.—E. Bonnaire discusses the relations of enlargements of the thyroid to pregnancy. He finds that exophthalmic goiter is six times as frequent in women as in men. A moderate degree of enlargement of the thyroid is normal in pregnancy. Goiter may appear in pregnancy and disappear after labor, it may be permanent, or the elements of Graves' disease may be added to a simple goiter at the time of pregnancy. Graves' disease occurred twice in 30,000 cases at the Lariboisière. This is because marriage is contraindicated in Basedow's disease, as well as pregnancy and lactation. The author reports the two cases observed by him. The dangers to be feared are cardio-pulmonary, and hemorrhage incident to relaxation of the uterus before or after labor. Opotherapy does not give uniformly good results in these cases. In severe cases early emptying of the uterus is advisable. It may become necessary to ligate the arteries supplying blood to the thyroid.—*La Presse Medicale.*

Society Reports.

THE AMERICAN THERAPEUTIC SOCIETY.

Eleventh Annual Meeting, Held at Washington, D. C., May 5, 6 and 7, 1910.

JAMES C. WILSON, M.D., OF PHILADELPHIA, PRESIDENT, IN THE CHAIR.

(*Concluded from page 127.*)

Thursday, May 5—First Day.

High Frequency Currents in the Treatment of Arteriosclerosis.—Dr. THOMAS E. SATTERTHWAITE of New York said that his attention was first called to the beneficial effects of high frequency currents in arteriosclerosis in 1901. Unless one had a static machine, a high frequency coil was best adapted for this kind of treatment. With the use of the static machine there should be a revolution of the plates of at least 350 to 400 per minute. The outsides of the Leyden jars should be connected with a d'Arsonval solenoid or an Oudin resonator. In employing the former the patient was to be connected with both poles by means of a fiber seat, one wire going into it and the other connected with a metal electrode placed in the patient's hand. With the Oudin resonator only one pole was used, a wire running from the binding-post in the resonator to the fiber seat. The Oudin in this way gave the same high frequency on the d'Arsonval, but a much higher voltage. This treatment should last twenty minutes; after which the glass vacuum electrode, attached to either a solenoid or resonator, was applied to the patient, a spark gap being used that would not be painful to him. The treatment should be given two or three times a week for about six weeks, or until the blood-pressure had fallen to the normal or nearly to it. A good method was as follows: The patient is subjected for a few minutes to the high power incandescent lamp, by which means the blood is brought to the surface and a sedative effect produced. Then the static breeze may be given. The sliding holes are pulled apart, so that there will be no spark, the negative side of the machine connected with the insulation platform by the long brass shepherd's crook, and the positive pole grounded. The metal standard is placed near, with the crown over the patient's head, and the negative electricity then streams over his face, so that he feels the breeze. There is also an odor of ozone, which gradually fills the room. This treatment, which is very soothing, and helpful in nervous conditions, is continued for from five to ten minutes, when the patient is subjected to the high frequency current. In this case the plant consists of a resonator combined with a d'Arsonval solenoid, an adjustable spark gap, and a pair of condensers of the Leyden jar type, and the apparatus is operated by a static machine. The patient reclines on a "condenser couch,' which is insulated by glass feet. The cushion has on its under surface a fine metal plate, which runs its entire length and is connected with one pole of the resonator, while the other pole is connected with a vacuum electrode and the fluorescent spark discharge is applied through the clothing to the body. The seance lasts from ten to fifteen minutes. The powerful waves of the static form of electricity, the speaker said, caused short waves of vibration in the capillaries, promoted metabolism in an extraordinary way, and did no harm. In his experience, a diminution in arterial pressure was the regular sequel to the use of the high frequency current, but the seances should not be protracted beyond the time at which the pressure fell to the normal. The high frequency currents alone, however, were not uniformly permanently effectual, though he had found that while the pressure might not always be reduced at each sitting, there was in all instances a progressive decline as the weeks went by. It had sometimes been advised to use the faradic current as an adjuvant. Intestinal atony was often a complication of arteriosclerosis, and this current, applied over the abdominal walls, might be very helpful in relieving the constipation. In addition, he used, according to the indications present in any given case, mercurials, iodides, iron and arsenic.

Further Study of Diabetes as an Infectious Disease.—Dr. ALFRED KING in this paper said that at the last meeting of the American Therapeutic Society he had ventured to express the opinion that diabetes mellitus is an infectious disease, due to the presence of the yeast fungus, *Saccharomyces cerevisiæ*. He recapitulated the arguments on which this opinion was based, and stated that the only link which had seemed lacking to the absolute establishment of the theory was the fact that he had not produced the disease in the lower animals by injecting the fungus, though he had shown that Leo was able to cause glycosuria in dogs by the administration of fermented diabetic urine containing no glucose. During the year that had now elapsed he had not yet had the opportunity, in a somewhat busy life, to experiment on lower animals or complete his investigations; but, with considerable additional experience, he had found nothing to disturb his confidence in the theory or his faith that it would be established. He had now examined forty patients, and had obtained a pure culture of the fungus from the blood of every one with a single exception, that of a little boy of three years in whom the attempt to sterilize and prick the finger excited so much nervous disturbance and resistance that it seemed wiser to desist. In treating an infectious disease he believed that the whole physical condition should be considered; also the methods of treatment which had been found beneficial in the past. The treatment of diabetes should be hygienic and medicinal; it must aim at removing and controlling the injurious effects, as well as the cause. Antiseptics had proved useless for retarding its action and growth or destroying the fungus and the vaccine treatment alone was most effective. This restored the strength and sense of well-being, relieved the thirst, reduced the sugar content of the urine, and checked the polyuria. All this it did by increasing the resisting power and destroying the cause, and its employment twice a week soon brought the opsonic index above normal. He was aware, he said, that much was still to be learned as to the preparation and use of vaccines for treatment of infectious diseases and in the study of immunization, but he believed that Wright's work was epoch-making in medicine. His own work on diabetes had given him increasing confidence in the truth of the theory and in securing still better results. He cited a number of cases, and stated that those taken early had given the quickest and best results.

The Preparation of Thyroid Glands for Use.—Dr. S. P. BEEBE of New York said that the usefulness of the thyroid gland as a therapeutic agent in other conditions than those of the classical myxedema had been demonstrated so thoroughly that the demand for a standard preparation might no longer be ignored. The manufacturers at the present time supplied a variety of thyroid products prepared by different methods, and undoubtedly of differing therapeutic effects. During the last three years he had had many opportunities to compare upon human subjects the effects produced by administration of various forms of thyroid preparations, and from these observations the only possible conclusion was that the human thyroid extract, administered hypodermatically, was by far the best for the human subject. When we gave this we gave a substance ready for instant use, and a comparatively small quantity would act more effectively from the qualitative and quantitative standpoint than a larger quantity of any other kind of thyroid material. These other forms probably acted very largely by stimulating the gland of the individual to whom they were administered. In its effects

upon simple goiter, myxedema, cretinism, athyroid symptoms occasionally found in the later periods of exophthalmic goiter and various metabolic disorders associated with hypofunction of the thyroid, there was no other substance which acted so economically and efficiently as the proteid precipitated from extracts of normal human thyroid glands by acetic acid and heat at 44° C. Therefore, we should use only the proteid obtained by a similar method from animal glands. Accordingly, the original precipitate was washed repeatedly with normal saline by decantation or centrifugation until the wash water was free from biuret substances. It was then dissolved by the addition of a little sodium hydroxide, and the solution filtered through a thick paper mat and again precipitated by acidifying with acetic acid. Heat was rarely required for the second precipitation. The washing process was repeated, and more proteid-like material removed from the precipitated globulin. The final washed precipitate was centrifugated or filtered out and dried at a low temperature, or it might be kept in solution and, after filtration through a Berkefeld, reserved for hypodermatic administration. The prepared protein showed quite as wide a variation in its iodine content as did the fresh glands; and before being used therapeutically it is essential that the proteid should be standardized on the basis of its iodine contents, and a uniform intelligent dosage regulated thereby. For the standard, the proteid obtained from normal human thyroid glands had been selected. The average figures of a large number of iodine analyses of the proteid obtained from normal human thyroid glands by the process described showed that one gram of the purified proteid contained 3.384 milligrams of iodine. After the purified proteid from the animal glands was obtained, the iodine content was determined by the method devised by Dr. Riggs, and, regardless of whether this proteid was richer or poorer in iodine than the standard, it was considered that each 3.384 mgs. of iodine represented 1 gm. of the active thyroid proteid. For the purpose of administration the proteid was diluted with the appropriate amount of lactose, and made up into two-grain tablets by the usual method. Tablets of different strengths were prepared, and 1, 2 and 5 per cent. tablets had been found to give a sufficiently wide variation in strength for all the usual requirements. By one per cent. tablet was meant that one per cent. of the dried weight of the tablet was made up of the purified thyroid proteid according to the standard described. It would be observed that by this method of standardizing and preparing the proteid for therapeutic administration a uniform physiological activity might be expected, regardless of the character of the glands from which the proteid had been obtained. For hypodermatic use, solutions of the proteid in varying strengths, standardized on the iodine basis, had been put up in sealed glass tubes. The products prepared according to the method mentioned had now been employed for about two and a half years in a wide variety of conditions by a considerable number of experienced clinicians; and the results had demonstrated their value to such an extent that he had no hesitation in saying that this method of preparing and standardizing thyroid, giving as it did all of the physiologically active portions of the gland, with none of the toxic, deleterious substances contained in the whole extract, was superior to any method now in vogue.

Friday, May 6—Second Day.

Asthenia Universalis Congenita.—Dr. Charles Lyman Green of St. Paul, Minn., reviewed the characteristic features of the affection, as described by Stiller, and stated that his own studies of it had for the most part fully confirmed the correctness of Stiller's contention. The treatment, he said, was largely a matter of building up the vital powers of the patient, and incidentally he deprecated surgical interference in the treatment of enteroptosis, which was a common practice in the condition. In many instances the physical characteristics are such that the subjects were likely to become victims of tuberculosis unless extreme care was taken.

Dr. Edward D. Fisher of New York said he did not take as unfavorable a view of the prognosis as had been expressed by Dr. Green. Much depended on the management. He was fully in accord with him as to the inadvisability of operation in enteroptosis; an opinion which had been concurred in at the meeting of the American Surgical Society just held in Washington. This applied also, he thought, to many conditions of the female pelvic organs where needless operations had often been performed.

Dr. Alexander D. Blackader of Montreal said the condition described in the paper was far from uncommon. It had not been adequately appreciated, especially in children. He was fully convinced that careful treatment would do much to promote the well-being of the subjects of this affection.

Dr. Oliver T. Osborne of New Haven, Conn., said that almost every person suffering from neurasthenia had some abdominal disturbance. There was one point on which he desired very much to gain information, and that was whether a loose kidney ought to be hitched up or not. It had seemed to him that some patients were not really better after fixation of the kidney.

Dr. Robert T. Morris of New York said he had seen many cases subjected to operation where no operation should have been done. We should carefully separate the cases due to congenital deficiences from those dependent on more recent causes, such as traumatism, etc. Among the stigmata of this affection he thought ought to be classed lack of development of the thyroid and high-arched palate. As to loose kidney, if the organs were pressing upon the pylorus or the vessels of the omentum, or, in short, if it were producing definite symptoms, fixation ought to be practised. Otherwise, this might not be required. The diagnosis was the important thing here.

The President, Dr. Wilson, said nothing could be more timely than this discussion. For twenty-five years the gynecologists and surgeons had been generalizing about operations upon the abdominal and pelvic organs for the relief of certain symptoms, and it had often been found that not only did such operations not afford relief, but actually increased the symptoms. Now the pendulum was swinging back the other way, and scientific physicians were realizing that, while gynecology had its legitimate field, the essential point was the individual examination and diagnosis of each particular case.

Dr. Thomas E. Satterthwaite of New York referred to the frequent relationship found between mucous colitis and neurasthenia, and said that if in such cases proper attention were devoted to the intestine, by the use of high irrigation, etc., it would have a marked effect in relieving the nervous condition.

Dr. A. Ernest Gallant of New York said that if the stomach and colon were prolapsed, and one were pressing upon the other, it was no wonder that we had colitis. The cases which were incurable without operation were those with adhesions which kept the stomach dilated, and in such the patient was very apt to end in an insane asylum if no operation was done. He had now under his care a case of this kind, in which signs of mental aberration had already appeared, and as all other treatment had failed, he intended to operate without further delay.

Dr. Green, in closing, said that as Stiller had pointed out, there was a condition of low vitality, of subnutrition througout the body, and this, he thought, would serve to explain the misplaced colon and the mucous colitis. Deficient development of the thyroid he had not found sufficiently frequent to classify it among the distinctive characteristics of the affection, but arched palate was extremely common.

In regard to operative procedures, he had formerly been very generous to the surgeon, but of late he had found it increasingly difficult to find cases which required operation. If these cases were properly treated it was only rarely that surgical interference was necessary. The essential feature of the treatment was to raise the nutrition, and the weight of the patient constituted the key-note of the whole matter.

Further Uses of Solution of Calcium Creosote in Medicine.—This paper, by Dr. Louis Kolipinski of Washington, D. C., was supplementary to one on this remedy which he read at the preceding meeting of the society. In addition to its use as a surgical fluid, on account of its antiseptic properties, he said it could be applied with great advantage in acute and chronic inflammatory processes of mucous membranes and in different ulcerative lesions of the same. Thus, he had found it of service in catarrhal, follicular, and suppurative tonsillitis and various forms of nasal catarrh, and as an analgesic in laryngeal tuberculosis and cancer of the tonsil or fauces. In syphilis, besides healing the primary lesion, it was beneficial in the sore throat and in necrotic gummatous ulcer of the skin. In dematological practice it would be found to have varied and useful properties. Internally, it was very efficient in the treatment of gonorrheal arthritis. Having referred to its employment in various other conditions, he said that under its use in lupus vulgaris, if the process was broken down and suppurating, the discharge became greatly diminished, and raw ulcerated excavations appeared which were prone to bleed and which were buried under a thick, hard incrustation that repeatedly dropped off and reformed; finally healing and leaving red and very shallow cicatrices, which ultimately turned white. It could not be said that calcium creosote cured lupus, but rather that it destroyed the developed neoplasm. Time and cases had been wanting in which to observe the ultimate results with it. In ulcer of the stomach it might be used, in aid of the milk died treatment, as an antiseptic and antacid. In cancer of the esophagus and stomach, where surgery had failed, it afforded much relief; checking vomiting and obtunding the pain. In connection with the paper several cases of lupus under the calcium creosote treatment were shown.

The Range of Activity and the Untoward Effects of Certain Spinal Analgesics, Based on Two Thousand Administrations.—Dr. W. Wayne Babcock of Philadelphia said that the two thousand cases included all kinds of operations in all parts of the body. This kind of anesthesia should properly be called nerve-root anesthesia, rather than spinal, as it was the nerve roots which were affected. Its safety depended largely on the height of the nerve-roots which it was necessary to narcotize for any given operation. The higher up they were, the greater the danger. It was a true anesthesia that was produced, and not merely analgesia. The delicate thing was to have the solution sufficiently light to affect the sensory nerves, without affecting the motor ones. It could be made lighter by adding 10 per cent. of alcohol to 4 per cent. of solution. By regulating the position in which the patient was placed it was possible to arrest the anesthetic at any point of the spine desired. The speaker considered the doses used by Jonnesco as unnecessarily large, and said that the same results could be obtained from half the doses which he employed. In all operations in the upper part of the body it was necessary to be prepared to perform artificial respiration at any moment. It was not practicable to have the solution of the same specific gravity as that of the cerebrospinal fluid. In the cases embraced in the report various anesthetic agents were employed.

Senile Epilepsy.—Dr. Edward D. Fisher of New York in this paper said that the underlying etiological factor of affection was arteriosclerosis, which distinguished it absolutely from essential epilepsy. The majority of cases coming under his observation were men who had been very active in professional or business life. There might have been few, if any, preliminary symptoms, outside of some fatigue formerly unusual or a slight weakness of memory, until, as out of a clear sky, an epileptic attack took place; perhaps following an exhausting day's work or a heavy dinner. While as a rule the arterial tension was ordinarily rather low in these patients, just preceding the attack it became very high, and was apparently the exciting cause of the seizure. He had not included in this class of cases those of either alcoholic or syphilitic origin. The course of the disease varied somewhat with the course of life followed by the patient after his first attack. The succeeding attacks varied very much in frequency in different instances, and in the intervals the symptoms were not marked, being mostly those of impaired memory, with perhaps some dull headache and dizziness. The arteries involved were probably cortical, and the attacks were no doubt due to temporary occlusion of the vessels—possibly to venous stasis. There might be a localized edematous or serous effusion, but this afterwards cleared up, leaving no trace of paralysis or other impairment. There was probably a general sclerosis of the cerebral arteries, and the general tendency of the disease was towards dementia or premature senility, frequently accompanied by depression. The seizures might at times be very severe and suggestive of apoplexy, and, in fact, they might end in cerebral hemorrhage of the usual type. The differential diagnosis had to be made, especially in the younger cases, from general paresis and cerebral syphilis. It was peculiar how few conditions were present indicative of organic changes in the nervous or arterial system, and yet how marked the clinical symptoms were in this progression towards mental deterioration. Four illustrative cases were cited.

The Routine Use of the Autogenous Vaccines (Bacterins) in the German Hospital, Philadelphia.—Dr. J. C. Da Costa, Jr., of Philadelphia, said that the clinical data of this report related to 94 patients treated during the past year in the inoculation department of the hospital, and the final results were either undecided or equivocal in 44 of this number, still under treatment or but recently discharged. His remarks, therefore, referred to only the first 50 inoculation cases, which could be classified and spoken of with reasonable accuracy. These might be grouped under two headings (1) septicemia; (2) local suppurative lesions. Series I. Septicemia, 17 cases. The vaccine used was autogenous in all instances except two, in which stock vaccine was given in the face of an emergency forbidding delay. Nine were bacteriemias, with 5 deaths, and 8 toxemias (with negative blood cultures), with 3 deaths. Series II. Local suppurative lesions, 33 cases, as follows: Furunculosis, 13 cases; carbuncle, 9 cases; suppurative otitis, 11 cases. Analysis of the foregoing data, correlated with the individual case histories, suggested the following conclusions as to the utility of vaccine therapy in bacterial infections: (1) Autovaccines are of distinct service in the treatment of general septicemia, especially in postoperative cases in which surgical measures have been inoperative. Vaccines are useless in combating sepsis so intense as to stifle resistance, and in such instances the clinical severity of the infection, rather than the identity of the offending bacteria, is the criterion of prognosis. (2) From a laboratory viewpoint the prognosis is better in toxemias than in proven bacteriemias, and the outlook is hopeless when streptococci invade the circulating blood. (3) Autovaccines produce the best results in local infectious lesions. (4) In the class of infections under consideration autogenous emulsions should be used invariably, except when some acute emergency calls for the immediate use of a stock preparation, in the meager hope of tiding over a crisis. (5) The opsonic index cannot be relied upon as an indicator for inoculation and reinoculation, the employment of which should be governed

by the general condition and local signs. (6) The best results follow a moderate initial dose of vaccine, with subsequent doses of greater potency, and intervals of from three to seven days between the inoculations. (7) The longer one's experience with inoculation work, the more must one realize how imperfectly the true scope and limitations of vaccine therapy are understood.

Some Points in Bacterial Therapy.—Dr. F. E. Stewart of Philadelphia discussed the following points: The nomenclature that should be adopted for bacterial vaccines; the diagnostic value of tuberculin reactions in tuberculosis; the value of typhoid vaccine as an immunizing and curative agent; the value of gonococcic vaccine as a remedy and as a diagnostic agent; the therapeutic value of acne-bacterin, staphylobacterin, and staphyloacnebacterin, of stock streptococcus vaccine, and of pneumococcic vaccine; the causes of failure in bacterial therapy; the keeping properties of bacterial vaccines and tuberculins. In conclusion, he called attention to the value of the working bulletin system, whereby manufacturers of new materia medica products might place valuable information concerning these in the hands of the medical profession. This system, if properly employed, would consist of information relative to the manufacture and standardization of the products, together with abstracts from the reports of competent clinical observers, impartially selected from the medical press throughout the world.

The Delayed Menopause; Its Dangers and Therapeutic Indications.—Dr. A. Ernest Gallant of New York said that in women with healthy reproductive organs the menopause should be established abruptly, at an age dependent upon the age at which menstruation had been begun; early, if begun late, and late if begun early. This could be approximately determined and used as a guide to the age at which the menopause might be expected to occur. The menopause was "delayed" whenever menstruation was continued after the "approximate age" and associated with uterine flexion, version, fixation or neoplasm or with tubal disease, syphilis, etc. In delayed menopause the greatest pathological danger lay in the presence or promotion of the growth of fibroid or malignant tumors. The contributory dangers were due to delay: (1) The patient failed to consult a physician, refused examination, or refused operation. (2) The physician delayed examination, failed to diagnose the condition or failed to recognize the importance of early operation; deluding himself and the patient with the idea that the flow would cease, that the fibroid would shrink, unmindful that the grave only could silence and conceal the victim of his delay. The danger signals in delayed menopause were (1) atypical hemorrhage; (2) discharge and (3) pain; signals which, if disregarded, would lead to disaster and death. At the "approximate age" the woman had reached the limit of fecundity; therefore the prophylactic removal of a useless and probably tumor-breeding organ was wholly justifiable, and the one sure method of putting an end to all the threatening dangers. The large number of incurable cases of carcinoma uteri, degenerated fibroids, and malignant cystoma of the ovaries and broad ligaments met with (in some instances occurring as early as the twenty-fourth year) warned us to instruct mothers to inform their daughters of the dangers of delay whenever they suffered from dysmenorrhea, menorrhagia, metrorrhagia, leucorrhea, abdominal tumors, etc.

The Treatment of Parasyphilis in the Light of Recent Research; Paresis and Tabes Dorsalis.—Dr. Tom A. Williams, Washington, D. C., said he regarded these cases as always preceded by a leptomeningitis. In the treatment of syphilis the tendency now was to rely almost exclusively upon mercury. The iodides were of service only in dealing with gummata. This certainly was the practice in France and on the Continent generally. The English, under the influence of Jonathan Hutchinson, still relied considerably on the iodides in the general treatment. The speaker cited seven cases, four of his own and three reported by Charles L. Dana of New York, treated by means of mercurials. His contention was that many incipient cases of paresis and tabes might be cured under adequate mercurial treatment. The important point was that they should be seen early by the neurologist. It was essential that as promptly as possible as large amounts of mercury should be gotten into the system as the patient could tolerate. This should be done by inunction or hypodermatic injection. Administration by the mouth he had not found efficient.

Dr. Edward D. Fisher of New York said the essential point was the matter of diagnosis and this could not be too strongly emphasized. Most of the cases of this kind represented a stage of the disease at which there was still some room for doubt. In Dana's cases the question arose as to the differential diagnosis between cerebral syphilis and paresis. If the condition were that of cerebral syphilis, the patient would be likely to respond to treatment. Many such cases, however, eventually went on to paresis. When a case of paresis was well established, we certainly were not apt to get the good results that the speaker had mentioned. Here was the whole crux of the position. But, as long as there was any chance of affording relief, he was thoroughly in favor of giving energetic antisyphilitic treatment. The tonic effect of mercury was often very marked.

The Present Status of Drug Addictions.—Dr. L. F. Kebler of Washington, D. C., Chief of the Drug Department in the Government Bureau of Chemistry, read this paper, which comprised the results of a series of inquiries sent out to physicians, druggists, and managers of sanatoria. The replies indicated that drug addictions were on the increase in this country. The speaker stated that owing to the strict regulations enforced, these were unquestionably now much less common than formerly in Germany, Austria-Hungary, Holland, and most European countries except England. All advertised drug cures, he said, were a delusion and snare, containing morphine, cocaine, cannabis indica, etc.

Other papers read on this day were: "Bacterins, their Present Status in Therapeutics," by Dr. Noble P. Barnes, Washington, D. C., "The Immediate and After Management of the Puerperant," by Dr. Jesse Stroup of Washington, D. C., and "Hexamethylenamine in the Treatment of Otitis Media," by Dr. Wilfred M. Barton of Washington, D. C.

Saturday, May 7—Third Day.

U. S. P., 1910. How May It Be Constructed?—Dr. Oliver T. Osborne, New Haven, Conn., in opening a discussion on revision of the Pharmacopeia enunciated the following propositions:

1. Let the new Pharmacopeia contain such drugs only as are of positive therapeutic value. If we were in the age of scientific beliefs and research, he could not see how this preamble could be objected to by any one. But the crux of the matter now was to determine what drugs were valueless.

2. When a drug or preparation of a drug is presented that is not official in the Pharmacopeia of 1910, let it be officially declared that the standard of purity and the method of making preparations not recognized in the Pharmacopeia of 1910 be the standard set and the methods of preparation ordered in the last Pharmacopeia in which the preparation was recognized. There was absolutely no satisfactory outcome to be expected from any circulation of requests for approval or disapproval of the various drugs contained in the present Pharcacopeia. The decision for deletion should be left to the judgment of a committee

of five clinical men selected by the U. S. P. Revision Committee. If a deleted drug were valueless, how could a certification to that fact be better made than by omitting it from the Pharmacopeia of 1910? If a deleted drug were really of value it would survive in spite of such deletion, and might be incorporated in the Pharmacopeia of 1920.

3. Let it contain such new drugs as have been proved to be of therapeutic value.

All honest practioners of medicine, he thought, must approve of this recommendation. And here, again, a committee of five clinicians appointed by the U. S. P. Revision Committee should decide what drugs were eligible, and then what drugs were of sufficient therapeutic use to be officialized.

4. Let there be issued a supplement to the Pharmacopeia, in 1915, which shall make official such new drugs as have been proved to be of therapeutic value during the years 1910-1915.

5. Let it give the most simple titles possible to all new drugs, especially synthetic drugs; and an official abbreviation should follow the name of the drug. Every writer of a prescription, and most assuredly every teacher of materia medica, would approve of this. The terrible heart-rending and brain-splitting attempt to prevent all possible advertisement of a proprietary drug had caused a continuous storm of protest over the country, and had forced the ordering of the drug by its proprietary name, much to the profit of the drug promoter.

6. Let it give official approval to the best only of the preparations of the official Galenic drugs, and not officialize the little used and useless preparations of these drugs. As to who should determine which are the most efficacious preparations, this could best be left to the decision of a committee appointed by the U. S. Revision Committee consisting of five clinicians and five pharmacists. Whatever such a committee should decide would be damned anyway, but it was certainly supposable that one or two preparations of a Galenic drug were better than the others, and the best was none too good.

7. Let it not give official approval of all of the known salts (of iron and mercury, for instance), but officialize only the best. This was similar to recommendation 6, and should be decided by the same committee.

8. Let the average adult dose appear after each drug and each preparation of it, not the range of dose, *i. e.* minimum to maximum, as there is no exact under limit or over limit of dose. The dose is enough to accomplish the object aimed at by the prescriber, and all he cares to know is the average dose. It certainly could not be dictated how small a dose a prescriber might order; nor should he be officially limited to a given dose when, in his judgment, with a particular preparation, in a particular condition, in a particular patient, a larger dose was required. There should be no translation of metric to Troy doses. Each dose (and both should be given) should be smooth for each system.

9. As the U. S. P. gives the official titles of drugs in Latin, it should give also the genitive after each title. This would be of special value in teaching the correct writing of prescriptions. It is not always easy to determine the declension to which a Latin noun belongs, or whether it may not be indeclinable.

10. Let the official preparations of a drug be enumerated after the title of that drug. This was an omission from the last Pharmacopeia which had been considered a mistake, and the next Revision Committee would, no doubt, be willing to rectify it.

Later on in the session the recommendations made by Dr. Osborne, with some slight modifications, were formally endorsed by the society and ordered to be transmitted to the new U. S. P. Revision Committee.

Dr. Reynold Webb Wilcox of New York, vice-chairman of the U. S. P. Revision Committee of 1900, said that ten years ago he was in favor of a majority of the recommendations now presented, and he was in favor of them now. While at work on the present Pharmacopeia he had sent out circular letters far and wide, inquiring what drugs and preparations it was desired should be left out and what retained, but the response was so inadequate as to be of no value whatever. He would be glad to see everyone of Dr. Osborne's recommendations carried out, but how could this be accomplished? The thing was all right, but to make the U. S. P. a doctor's book, instead of a druggist's book, was the difficulty.

Dr. Spencer L. Dawes of Albany, N. Y., was of the opinion that the carrying out of these improvements was more practicable than Dr. Wilcox seemed to believe. Not more than one in a hundred physicians possessed a copy of the Pharmacopeia, and the great majority of physicians had no idea what was in it. Of late, however, there had been a very marked awakening of interest in regard to it, and this was largely due to the indefatigable labors of Dr. Osborne.

Should the Pharmacopeia Contain Only Useful and Efficient Drugs?—Dr. N. S. Davis of Chicago answered this question in the affirmative, and said he believed it quite possible for a group of physicians to say authoritatively what drugs were useful. Hitherto drugs had been judged by their use, not their utility. He would like to see also an epitome of the physiological action of the various drugs inserted in the Pharmacopeia, but supposed we could hardly go as far as that at present. Such a thing would be of equal service to pharmacists and physicians. For the good of the physician, as well as of the patient, he was of the opinion that all compounds should be omitted. How many drugs at present in the Pharmacopeia would be affected if only those were admitted which were known to be useful and efficient. He did not believe that more than about twenty-five, though he would like to have a larger number than this left out upon other grounds.

Dr. Howard Van Rensselaer of Albany, N. Y., said the U. S. P. had to be regarded from two points of view, that of the physician and that of the pharmacist. What we ought to have in it was drugs which had a pharmacological action. There might, however, be published in the work a supplementary list of other drugs.

Revision of the U. S. Pharmacopeia.—Prof. Joseph P. Remington, Ph. M., of Philadelphia said that more interest would be taken by physicians in the approaching revision of the Pharmacopeia than ever before—except in the very first years of the life of the U. S. P. when the American Therapeutic Society was aroused from its former state of inactivity—was shown by the fact that one session in its deliberations this year had been devoted to a symposium on matters relating to the revision of the Pharmacopeia. The greatest difficulty to be encountered from the awaking of interest in the Pharmacopeia by physicians was the tendency, especially marked among the younger members of the profession, never to use an old remedy in a prescription if they could possibly think of a new one to answer their purpose. The obliging commercial houses were always ready to take advantage of this tendency to try some new remedy, and the universal hunt for a panacea was always in evidence. While in music, art, and literature something new and fetching must always be provided the masterpieces still lived. To draw a parallel regarding the use of drugs for the treatment of disease seemed like an anachronism, but the law of the survival of the fittest applied to everything. That there was a marked change in the attitude of physicians throughout the country must be apparent to all. The members of the profession were going back rapidly to the use of pharmacopeial prepara-

tions, but the young physician was taking up the subject *de novo*. He knew comparatively nothing about the Pharmacopeia, so that to him the matter was a mystery. He could not understand the why and wherefore of the renaissance. Was not this almost solely due to neglect on the part of the professors in our medical schools, who had for years failed to impress upon their students the necessity for studying and using the ethical preparations of the Pharmacopeia? Progress and research must, of course, ever be carried on if life were desired, but until the time arrived when therapeutics approached a condition of greater exactness and accuracy empirical results must be retained. The controversy which had been going on recently in the medical and pharmaceutical journals, and even in the public newspapers, concerning the scope of the Pharmacopeia had developed two clearly marked views. On the one hand, there was a decided movement to curtail the list of articles to be admitted to the new Pharmacopeia; but a powerful counter-movement had been set on foot greatly to enlarge the list of remedies. Both of these ideas would undoubtedly be ably championed in the coming convention, but it did not need the foresight of a seer or prophet to foretell that neither extreme would ultimately prevail, and that when all were heard, the next Committee of Revision would admit a selected member of the newest articles and would delete many of the older ones which, in the opinion of many members of the medical profession, had outlived their usefulness. The controversies, which had been carried on in an admirable spirit, for the most part devoid of bitterness and hard words, had been of great value in clearing the atmosphere; and both physicians and pharmacists would take up their responsibilities with much clearer conceptions of the magnitude of the task before them; while they would have, to guide them, a vast amount of information, gathered from all sources. While it would be difficult for the next Committee of Revision always to make wisely a proper selection, he had faith to believe that out of the multitude of counsellors there would come wisdom, and that the Ninth Revision of the United States Pharmacopeia would prove to be the best that had been written. After concluding his paper Prof. Remington expressed his gratification at the recommendations which had been adopted by the Society, and said that, coming from such a source, they would undoubtedly have great weight with the Committee of Revision.

Suggestions for the Pharmacopeia of 1910: a Brief Consideration of the Subject in Its Relation to the Federal Food and Drugs Act.—Dr. Francis P. Morgan of Washington, D. C., having stated that by the Act of June 30, 1906, the Pharmacopeia and National Formulary were made legal standards for drug products in the United States, quoted from sections 6 and 7 of the act and regulation 7 of the rules and regulations for the enforcement of the act, which is entitled "Standards for Drugs." He then went on to say that the Pharmacopeia had thus become a legal standard in this country for the strength, quality, and purity of drugs, and it had assumed a close relation to the Federal food and drugs act. With comparatively few exceptions, all drugs bearing the names of preparations described in the Pharmacopeia were required to conform to the standards therein set forth. The exceptions comprised drug products the labels on which contained statements with regard to their own standard of strength, quality, and purity. From this it was evident that in order to secure the highest degree of efficiency for the food and drugs act adequate legal standards were necessary. The standards should be sufficiently high to insure a product of the greatest possible value for the purposes for which it was intended. They should not be unreasonably high, or so low as to fall short of the attainment of the objects in view, and they should be clearly set forth in the Pharmacopeia in language free from ambiguity. Experience had shown that standards which at first sight appeared to be excessively high were sometimes found to be well within the bounds of reason and possibility. Instances of this were seen in the case of asafetida and of hyoscyamus. The three years which had elapsed since the enforcement of the act had afforded an opportunity to test the efficiency of the Pharmacopeia as a legal standard in the case of many drugs, and, as might have been expected, instances had occurred in which the official standards had not proved all that could be desired. It was hoped that this matter would be brought to the attention to the Committee of Revision, with appropriate suggestions for the Pharmacopeia of 1910. The speaker then proceeded to indicate some of the changes which, in his opinion, would be desirable. The proportion of foreign matter permissible in the crude vegetable drugs should be definitely fixed. The quantity of such matter varied with different drugs and in different samples of the same drug, and in most instances its presence was purely accidental. In some, however, the foreign element was intentionally added for the purposes of adulteration. The need of a standard of this character was strikingly seen, for instance, in the case of senna. Owing to the persistent refusal of the authorities to permit the importation of grossly adulterated shipments, the quality of the senna upon the market had very materially improved, but there was no definite pharmacopeial standard by which the line might be drawn between satisfactory and unsatisfactory samples of the drug, so far as inorganic constituents were concerned. A definite requirement with regard to the ash limit would go far toward solving this problem. The experience of the last three years indicated that from the standpoint of the efficiency of the food and drugs act the addition of powdered vegetable drugs was desirable. Colocynth, for example, was defined in the Pharmacopeia as the peeled dried fruit of *Citrullus colocynthis* deprived of its seeds, and in the light of this definition there would seem to be no difficulty in determining what constituted powdered colocynth. As a matter of fact, however, this question had given the authorities much trouble. Samples of powdered colocynth taken for investigation had repeatedly been proved to consist of official colocynth mixed with a variable proportion of powdered seeds, and when the matter had been called to the attention of the dealers they had, in most instances, claimed that the shipment into interstate or foreign commerce of a powdered colocynth consisting of fruit and seeds constituted no violation of the law, because powdered colocynth was not described in the Pharmacopeia, and because, consequently, there was no legal requirement with regard to the quality or purity of this article. Again, it had been shown that the requirements with regard to hyoscyamus should be made more definite in one particular at least. In the official definition of this drug the expression "of mydriatic alkaloids," without further specification as to name or kind, afforded a loophole of escape for those who desired to evade the law. Much of the commercial henbane examined had been found to be adulterated with stramonium, a weed containing mydriatic alkaloids, and considerable difficulty in carrying out the law had been encountered in the case of hyoscyamus so adulterated when the presence of hyoscyamus leaves or tips could be established only with difficulty microscopically or otherwise, as, for instance in fluid preparations and extracts; and especially in instances where the total percentage of mydriatic alkaloids present equaled or excelled the required 0.08 per cent. From this it would appear that in the next Pharmacopeia the requirements relative to hyoscyamus should, if possible, be made more specific as regards the particular mydriatic alkaloids which official hyoscyamus should contain. This suggestion ap-

plied also to belladonna, which was sometimes adulterated with scopola leaves, poke root, and stramonium. The chief difficulty met with in enforcing the law in the case of copaiba concerned the source from which the drug was derived. The Pharmacopeia defined it as "an oleoresin—derived from one or more South American species of copaiba," but, in addition to South American copaiba, many shipments of the African variety, an inferior product, had come to this country, and to distinguish between the two by the tests laid down in the present Pharmacopœia was a difficult matter. Methods by which they could be readily differentiated, however, had been worked out, and the question whether or not these tests should be made official was for the Committee of Revision to determine. As regards balsam of Peru, the object of standardization would be to facilitate the differentiation between the pharmacopeial product and an imitation product which was being offered for import and which could be distinguished from the former only with difficulty by present methods. Other suggestions also were offered by Dr. Morgan.

Officers Elected.—President, Harvey W. Wiley of Washington; *First Vice-President,* Alexander D. Blackader of Montreal, Canada; *Second Vice-President,* Howard Van Rensselaer of Albany, N. Y.; *Third Vice-President,* Robert T. Morris of New York, N. Y.; *Secretary,* Noble P. Barnes of Washington, D. C.; *Treasurer,* A. Ernest Gallant, New York, N. Y.; *Editor of the Transactions,* P. Brynberg Porter of New York.

Next meeting to be held in May, 1911, at Boston, Mass.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

THE EXPECTATION OF LIFE OF THE CONSUMPTIVE AFTER SANATORIUM TREATMENT. By NOEL D. BARDSWELL. 8vo; cloth; 130 pages. Henry Frowde and Hodder & Stoughtonm, London (Oxford Univ. Press, New York).

STATE BOARD OF HEALTH, Mass., 1908. 8vo; cloth; 876 pages; illustrated. Wright & Potter Printing Co., Boston, Mass.

CONGENITAL DISLOCATION OF THE HIP JOINT. J. JACKSON CLARKE. 8vo; cloth; 92 pages; illustrated; 3/6 net. Bailliere, Tindall & Co., London, England.

THE SCIENCE OF LIVING. By WILLIAM S. SADLER, M.D. 12mo; cloth; illustrated; 420 pages; $1.50 net. A. C. McClurg & Co., Chicago, Ill.

DAS TRACHOM IN OSTPREUSSEN. Von Dr. KÜSEL. 8vo; paper; 80 pages; 1.80 marks. Carl Marhold, Halle, Germany.

DIE AMBULANTE BEHANDLUNG DER UNTERSCHENKELGESCHWÜRE. Von Dr. JESSNER. 8vo; paper; 52 pages; marks, .90. Curt Kabitzsch, Würzburg, Germany.

TREATISES ON FISTULA IN ANO. By JOHN ARDERNE. 8vo; paper; 156 pages; illustrated. Kegan Paul, Trench, Trübner & Co., London, England.

MEDIZINISCHES VADEMEKUM. Prof. Dr. A. POLITZER. 8vo; cloth; 559 pages; $5.00 net. P. Blakiston's Son & Co., Philadelphia, Pa.

SIMON THE JESTER. By W. J. LOCKE. 12mo; cloth; illustrated; $1.50 net. John Lane Co., New York.

A CLASSIFIED LIST OF THE PUBLICATIONS OF KEGAN PAUL, TRENCH, TRÜBNER & Co. 184 pages; paper; 8vo. London, England.

EDUCATION IN SEXUAL PHYSIOLOGY AND HYGIENE. By PHILIP ZENNER, M.D. 12mo; 126 pages. The Robert Clarke Co., Cincinnati, O.

MY PERSONAL EXPERIENCE WITH TUBERCULOSIS. By WILL M. ROSS. 12mo; paper; 64 pages; 50c. Published by the Author at Stevens Point, Wis.

DISORDERS OF METABOLISM AND NUTRITION. By Prof. Dr. CARL VON NOORDEN. Part VIII. 8vo; 103 pages. Part IX. 112 pages. Each part $1.50 net. E. B Treat & Co., New York.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of July 16, 1910.

	Cases	Deaths
Tuberculosis Pulmonalis	542	181
Diphtheria	298	24
Measles	344	21
Scarlet Fever	149	10
Smallpox	—	—
Varicella	19	—
Typhoid Fever	45	15
Whooping Cough	20	8
Cerebrospinal Meningitis	3	7
Malarial Fever	—	—
Totals	1,420	266

Electric Treatment of Infantile Paralysis.—A Zimmern and Bordet advocate in the treatment of infantile paralysis after a period of two weeks, the use of some form of electricity to cause contraction of the paralyzed muscles, giving them exercise, and preventing atrophy, and to give the antagonism necessary to the untouched muscles. It also enables the fibers that are in fair condition in the paralyzed muscles to regenerate and hypertrophy, and thus enables them to become once more active. The treatment must be continued for years and must consist of a rather long sitting, in which each muscle is picked out and caused to contract separately.—*Journal de Médecine de Paris.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, during the week ended July 15, 1910.

		CASES.	DEATHS
CHOLERA.			
India, Calcutta	May 15–21	..	58
Negapatam	May 1–6	..	10
Rangoon	May 22–28	..	2
Java, Batavia	May 22–28	5	3
Samarang	May 22–28	1	..
Straits Settlements, Singapore	May 15–21	8	12
YELLOW FEVER			
Brazil, Manaos	June 5–11	..	2
Para	June 12–18	9	6
PLAGUE.			
Egypt, Alexandria	May 24–June 8	2	1
Port Said	June 14	2	..
Provinces—			
Assiout	May 26–June 16	11	7
Assouan	April 30–June 8	2	1
Beni Souef	May 27–June 12	6	5
Galioobeeh	May 21–June 5	4	..
Garbieh	May 14–June 14	13	4
Fayoum	May 28–June 16	16	10
Kena	May 27–June 15	23	21
Menouf	May 24–June 13	83	13
India, Bombay	May 25–June 7	..	211
Calcutta	May 15–21	..	78
Rangoon	May 22–28	..	30
Persia, Bouchir	May 15–21	..	6
Straits Settlements, Singapore	May 15–21	1	1
Trinidad	July 14	1	..
SMALLPOX.			
Argentina, Buenos Aires	Feb. 1–28	..	70
	Mar. 1–31	..	71
Brazil, Para	June 12–18	8	2
Pernambuco	April 16–30	..	46
Santos	May 22–29	..	6
China, Honkong	May 15–21	1	..
Egypt, general	May 7–13	80	15
Suez	May 21–27	1	..
France, Paris	July 12–18	8	..
India, Bombay	May 25–27	..	38
Madras	May 28–June 3	..	1
Rangoon	May 22–28	..	8
Italy, general	June 13–19	1	..
Naples	June 13–19	6	1
Java, Batavia	May 22–28	1	..
Mexico, Aguascalientes	May 19–25	..	5
Mexico	May 29–June 4	..	3
San Luis Potosi	June 12–18	1	..
Portugal, Lisbon	June 12–18	28	..
Russia, Libau	June 6–12	24	1
Moscow	June 5–11	25	6
Riga	June 5–18	..	37
St. Petersburg	May 28–June 11	56	31
Siberia, Vladivostok	April 22–28	1	..
Spain, Barcelona	June 14–20	..	2
Vigo	June 12–18	..	1
Straits Settlements, Singapore	May 15–21	4	1
Uruguay, Montevideo	April 1–30	162	64

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Original Articles.

VENTILATION IN SCHOOLS.*

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Good air and sunlight are necessary at every age period. Probably this need is never greater than during the school years. From seven to seventeen the body is changing greatly. These are the years of plasticity, and at the same time they are the years in which plasticity begins to give way to crystallizing. It is a bad time for the body to get below par. Habits are being established. Eye accommodation is finding itself; the shape of the lens is being established.

There is some reason for believing that the body is charged with a certain number of potential units. When a certain number have been used, repair is possible. There comes a point beyond which repair cannot be established.

If a child is under strain of eye or brain for ten years in the school room, the effect may not be seen at once, yet it will figure in the failures of recuperation which are experienced years afterward. Therefore the school years are tremendously important.

The Chicago schools are heated by hot dry air. In the higher-grade installations the temperature is held at 72° F. The relative humidity is 30. 1800 cubic feet of air per pupil per hour is pumped into the room. In the older installations we frequently find the temperature well over 75° F. and occasionally over 80° F. It has been assumed that because 1,800 cubic feet per pupil per hour is pumped in the ventilation is as it should be. The assumption is rarely justified.

Many clinical observations have demonstrated that school children do not do well in badly ventilated rooms. Dr. A. W. Schram of the Graham School found that such children were prone to infection with the contagious diseases, they had colds, "snuffles," enlarged glands and tonsils. They were mouth breathers; they were pale, flabby, nervous, and subject to headaches. Principal Watt of the same school found that they did not learn readily. They were dull and inattentive.

The windows were raised, the air made fresh and moist, the temperature was lowered to 60° F. and below, according to the outside temperature. The result was that the children were healthier, freer from colds and infections; the "snuffles" decreased. Besides this the children learned faster and better. The principal, viewing it from the pedagogic standpoint, was more impressed even than the school doctor.

As to light: I am strongly of the opinion that the room should be narrow; that it should not be wider than twice the distance from the top of the window to the floor; that the proportion of floor space to wall space should not exceed one to four; that the windows should be so placed as that the light comes from behind or to the side of the pupils, or, rather, that in looking toward their books, the teacher, or the blackboard, they should not have to look directly at a strong light, or their books should not be shadowed so as to strain the eyes.

These effects can be had in various ways. The teacher can be seated at the back of the rooms with the students' backs to the teacher; or shades pulling up from below can make a dark background for the pupils, or the teacher can be so placed in the room as that the wall furnishes a dark background. Blackboards should be treated in the same way.

Believing, as I do, that the removal of air should be as direct as possible, I believe in low ceilings. Between the ceiling and the heads of the occupants is a volume of warm, foul air, which is being chilled and dropping into the breathing zone all of the time. The less space you have, the less foul air there will be to drop back into the breathing zone. I therefore believe in an eight or nine foot ceiling. You will get the operators to heat only a certain volume of air and they will heat the same volume whether the ceiling is eight feet or twelve. By taking off the extra four feet you increase the amount of air which will be furnished in the breathing zone and that is what counts.

But the principal thing which should interest us is ventilation. The harm which is done by bad air falls into two general groups: The quick acting or air borne infections, and the slow acting or air caused conditions. Some illustrations of the former are influenza, common colds and cerebrospinal meningitis, and possibly anterior poliomyelitis, diseases in which the bacteria can be transported considerable distances; pneumonia and tuberculosis, where infections cannot be transported far, and scarlet fever, diphtheria, and measles which can only be transported very short distances.

Illustrations of the latter group are drowsiness, sleepiness, mental hebetude, headache, lassitude, muscular flabbiness, anemia, chlorosis, chorea, abnormal menstruation, mental irritability and exaggerated susceptibility.

The causative agents in the first group in the order of their importance are: Bacteria, dust, humidity, heat, organic exhalations and odors; C O and C O_2, almost negligible.

*Read in the Section of Preventive Medicine, American Medical Association, June 9, 1910, being the fourth of a series of articles on "Ventilation," the articles previously published being: (1) "Harm of Smoke." (Electrification Report to the City Council, Chicago, Ill.) (2) "Ventilation of Street Cars." (*Electric Railway Journal*, May 8, 1909.) (3) "Principles of Ventilation." (Medical Record, May 21, 1910.) Read at the American Public Health Association, Richmond, Va., September, 1909.

The causative factors in the second group in the order of their importance are: Heat, humidity, organic exhalations, C O_2, C O, bacteria, dust, odors. These different elements, with the exception of bacteria, have been so thoroughly discussed that I need not discuss them now.

Many efforts have been made to discover pathogenic bacteria in air. In these cultures saprophytes usually overgrow, and the tests are negative for tubercle and the usual pathogenic bacteria. Conclusion that pathogenic bacteria are not spread by air cannot be logically drawn. Efforts to find typhoid in a general water supply which we are certain is spreading typhoid fever are unsuccessful. Efforts to find typhoid in a milk supply proved epidemiologically to be typhoid spreading have proven fruitless. Nevertheless, we do not conclude that there is no typhoid there.

The mouth has been filled with *Bacillus prodigiosus,* and petri plates have been exposed at varying distances, with quiet breathing, talking, coughing, etc. From this it has been concluded that bacteria can be thrown through the air about twenty feet, and the inference is drawn that that is the limit of the danger zone. The air in front of quiet breathers has been found to have fewer bacteria than when the same air was inhaled. The sum total of all of these observations is an idea that bacteria are not air borne; that they are spread by physical contact. I contend that the inference is unwarranted. Such experiments would have to be impossibly protracted to give results from which conclusions could be drawn.

A person breathes sixteen times a minute for seventy-five years. The absence of pathogenic bacteria from a given cubic yard of air does not prove that there will not be pathogenic bacteria in some of the other yards of air which the man will breathe in his lifetime. And a man only gets consumption once, scarlet fever and diphtheria once; few get pneumonia more than once. More than that: Let us say that only one man in four gets a tuberculosis infection; that is a total three hundred-year period with sixteen breath intakes during each minute of the three hundred years. What conclusion, then, is justified from a determination of the bacterial content of a single cubic yard of air?

Ventilation in schools is necessary for comfort during September and October, and May, June, July, and August in the Chicago climate. In the south we should add April at the front end of the season and November at the rear end. We may say, then, that a study of ventilation resolves itself into a study of ventilation for the months of November, December, January, February, March, and April. It is not of much importance during November and April. January and February are the very trying months.

It has been our observation that school air is too hot and too dry. The temperature has ranged from 70° to 80°; the humidity has been 30 to 40. The dust content has not been high. The odors are objectionable in certain schools in the poorer parts of town and in many schools on rainy days.

The Chicago schools are heated and ventilated as one item. The system used is the Waters. The air is taken in about thirty feet above the ground. It is not cleaned. It is heated to about 110° to 130°, according to the temperature of the outside air, the velocity and the direction of the wind, and the sunshine. It is discharged into the school room at a point above the head of the teacher, by a large opening. It is discharged under an average velocity of 370 cubic feet per minute. It is exhausted near the floor line and usually on the same wall as the inlet. Eighteen hundred cubic feet per pupil per hour is pumped in.

The theory is that the air, being hot and going at a considerable velocity, will rise to the ceiling and flow across to the opposite wall, where it will fall from wall chill and then flow back along the floor to find its outlet. The system is plenum. Should the system work according to theory, the breathing zone of the children at the desks would be dead, and, therefore, polluted, air. As a matter of fact there are many currents and the air begins dropping to the floor almost as soon as it issues. The children situated back in the room do not get a very good supply of air. Much of the air short-circuits from the inlet to the outlet after travelling a short distance in the room.

What is the remedy proposed?

First.—Reduce the temperature of the rooms to a maximum of 68°. This temperature is more bracing. In such a temperature the exhaled air, being hot and moist, will rise right out of the breathing zone and be supplied by purer air.

Second.—Raise the humidity to 60 to 70. No possible objection can be raised to this except that it costs money to evaporate water and the windows will frost when the outside temperature gets to 20° F. and below. The best way to humidify is to introduce a spray of steam into the column of incoming air, if the air is to be pumped in. If the humidity is raised to 60, the pupils will be comfortable with a temperature of 68° F. What is saved on coal, as between 72° F. and 68° F., will more than compensate for the steam which is used to humidify. Some of the frosting of the windows can be prevented by putting a radiator under each window. In certain rare instances a fan throwing enough air against the glass to keep it warm can be used to prevent frosting. But, what harm does frosting do, any way? Its harm is negligible as compared with the harm of over-dry air. It keeps out but little light, and under certain conditions of sunlight will give a mellower, softer light than the unobstructed pane. If the air is brought into the room through the radiators, it can be humidified by pans of water or by some of the patent humidifiers.

Third.—Blow out the air in the room at stated intervals. This is best done by raising the windows and allowing the air to blow briskly through. A change of the air four times an hour will be effected by currents which are so mild that they will not lift bacteria. In consequence the bacterial flora of the air neither decreases nor increases unless it is being modified by animal inhabitation. If, however, the wind blows briskly in and out through windows, the bacterial flora of the air will be reduced 99 per cent. Practically, the way to effect this is to have the teacher throw up the windows when the children go out at recess. When they return they are warm, they have just made heat by exercising. By the time their heat equilibrium has returned to normal the heat equilibrium of the room will have been reestablished.

Fourth.—Decrease the dust content of the air of the school room by having the students at the blackboards use an eraser which is very slightly damp. A piece of cheesecloth fastened over the eraser does well; or the fat can be extracted from an ordinary eraser by ether or naphtha. If the eraser is too moist the board dries slowly.

Fifth.—Introduce the air into the room so as to keep the expired air as much separated from the fresh air as possible. This means direct removal of the air from the breathing zone. This cannot be done if the room is heated and ventilated by the same air. Such air is introduced at 110° F. to 130° F. If it was introduced near the floor and the outlets were placed near the ceiling the hot air would rush straight from the inlet to the outlet and it would be very difficult to prevent great loss of heat. The only feasible thing to do when heating and ventilation is done with the same air is to put the hot air in high and take it out low. The more rational plan is to have the air enter directly from the outside through holes in the walls; these holes to be closed by adjustable diaphragms. The air should pass directly through radiators and be discharged into the room at such a temperature as to maintain a temperature of 65° F. to 68° F.; other radiation to be a hot water or steam gravity system. The radiators should have water evaporating attachments. The air should be introduced in the room at several different points through ducts inside the room, with many openings in the ducts; the exits to be on the inner walls at, in, or near the ceiling; the gathering ducts to lead to the attic with the smallest possible number of turns or angles. In a windy, cold climate, *e.g.* that of Chicago, the duct should lead to a central large exhaust fan in the attic. In a less cold climate, for example, Cincinnati or Louisville, the ducts can lead directly to the roof and open to the outside, surmounted with one of the perflation devices to accelerate suction and to prevent down draft. The philosophy of this suggestion is that when the weather is not extremely cold, and all bends and turns are eliminated from the exhaust ducts, the fans can be eliminated. In a milder climate such as that at Memphis, the ducts can be made to discharge from each room directly to the outside air, the outlet being at the ceiling line. In the far south, *e.g.* New Orleans and Mobile, the windows can be used all winter long, both for inlets and outlets, with this single suggestion, that the radiators be so placed as that they will come a foot or two higher than the bottom of the window. When in cold weather the window is raised six inches or a foot from the bottom, the cold air which enters through the opening will pass through the radiation.

The advantages of such a method over the present method are:

1. The cost of installation will be less than the cost of installation at present employed. The system of ducts is much simpler and the capacity of the fans will be much less.

2. The cost of maintenance will be much less.

(a) On still days the fans will not run at all.

(b) On windy days the fans need only be used to exhaust the air from the rooms on the leeward side. The rooms on the windward side will exhaust without any artificial aid.

(c) The volume of air needed per pupil per hour can be reduced from 2,000 cubic feet per pupil per hour to 1,000 cubic feet per pupil per hour, or even less where the foul air is removed without much admixture with the fresh. In the language of the British Departmental Committee on Ventilation of Factories and Workshops, 1907, "The quantity of air depends on the distribution; and in many cases a relatively small quantity well distributed is far more effective than a large quantity badly distributed."

The clinical observations upon which this paper is founded have been made by the Chicago School Inspectors under the direction of Dr. I. D. Rawlings and especially by Dr. A. W. Schram.

The chemical, bacteriological, and physical examinations have been made by the chemists in the City Laboratory.

The observations on the pedagogic side have been made by Principal Watt.

TENDON TRANSFER FOR CORRECTION OF SPASTIC HAND DEFORMITY.*

By CHARLES N. DOWD, M.D.,

NEW YORK.

The surgery of congenital and acquired anomalies is disappointing; so many normal members are continually in view that they are used for comparisons, the extent of the previous deformity is forgotten, and the patient or his friends express disappointment that surgical skill cannot produce a really

Fig. 1.—Showing usual position of the hand before operation.

normal member. Pictures also are very misleading; advertisements indicate that one can be made to resemble Apollo, Mercury, or Hercules, according to his taste; surgical books are almost as bad, the pictures of operations on such deformities as web-fingers, cleft-palate, and hare-lip indicating that they can easily be brought to normal conditions; and the surgeon feels a keen regret when he learns that the fingers over which he has worked so hard are stiff and misshapen, that even his best cleft-palate operations do not give the ability of normal speech, and that retraction or excessive scar

Fig. 2.—Showing the hand extended (dorsi-flexed) as far as possible before operation.

formation mars the final result in so simple a procedure as the repair of a hare lip.

The operations of tendon transfer have conformed to the general rule in giving disappointment; if certain groups of muscles are too strong

*Read before the Hospital Graduates' Club April 28, 1910.

and others are too weak, it is natural to hope that the strong ones may be made to help the weak ones, so as to restore equipoise, but the adjustment of forces which gives equipoise in hands and feet is a very delicate one, and muscles which have been

Fig. 3.—One year after operation, showing the degree of voluntary extension.

weakened by anterior poliomyelitis or cerebral hemorrhage are very faulty and uncertain structures; hence the skill of the surgeon is seldom able to adjust them, so as to give a function at all comparable to the normal.

To expect to change faulty members to normal ones is clearly an error, but it is also an error,

Fig. 4.—One year after operation, showing flexion of fingers.

probably a much worse one, to fail to appreciate that great improvement can be made in many faulty members; if we compare the results with the previous condition, instead of with the normal member, marked improvement is usually found, and if we can foresee about what improvement may be

Fig. 5.—One year after operation, showing flexion of fingers.

expected, and can explain this to the patient or his friends, we have a field of most useful effort.

Tendon transfer has been more often done in the foot than in the hand, because the muscle groups which are affected there are more easily readjusted and maintained in their new adjustment. The greater part of the surgical literature on the subject therefore refers to the foot and the leg, and a vast amount of it has been accumulated.

There have been occasional records of operations done to relieve the hand deformities, which

Fig. 6.—One year after operation, showing alignment of hand and forearm.

have resulted from cerebral palsy and infantile paralysis; Townsend[1] of this city was a pioneer in the work; in 1900 he read a paper on the subject, now classical, in which he reported some successful cases and referred to others.

In the literature which has accumulated in the meantime the number of cases is not so great as one would expect; an evidence that many disappointments have followed efforts in this field.

Hoffa's report is the fullest which I have found; in 1906[2] he reported the end results on 173 cases of tendon transplantation which had been done in his clinic; among these there were 27 cases for spastic paralysis in the hand. In reference to these cases, he says that he has "regularly improved the hands and that frequently he has adjusted them, so that they were hardly to be distinguished from the normal." He exhibited about 50 cases of various kinds of tendon transplantation before the German Surgical Congress.

Hoffa's Table

Purpose of the Operation	Method of Operation
Relief of pronation spasm.	Separation of M. pronator teres from interna condyle of humerus.
Active supination.....	Hoffa's Pronatorplastic.
	Periosteal insertion of the tendon of the flexor carpi ulnaris over the dorsum of the forearm into the volar radial fascia.—(Frankel.)
Tendinous fixation of the wrist joint in mid-position.	Shortening of M. extensor carpi radialis longior.
	Shortening of M. extensor carpi ulnaris.
	Shortening of M. extensor digitorum communis.
Active dorsal flexion of the hand and active extension of the fingers.	Implanting flexor carpi ulnaris into extensor digitorum communis.
	Implanting flexor carpi radialis into extensor digitorum communis.
	Implanting ext. carpi radialis longior into extensor digitorum communis.
Correction of ulnar abduction.	Lengthening of extensor carpi ulnaris.
Correction of adduction of thumb.	Shortening extensor pollicis longus.
Active abduction of thumb.	Implanting flexor carpi radialis into extensor pollicis longus.
	Implanting flexor carpi radialis into abductor pollicis longus.
	Implanting half of extensor carpi radialis into extensor pollicis longus.
Correction of flexion contracture of elbow joint.	Section of bicipital fascia.
	Section of M. biceps brachii at bend of elbow.
Active extension of elbow joint (compensating for triceps brachii).	Passive insertion of triceps into deltoid.—(Hoffa.)
Active elevation of upper arm (compensating for deltoid).	Implanting trapezius into deltoid.—(Hoffa.)

His method of procedure for the hand was often a complex one, *e. g.* for many of the flexed and

[1]Townsend: *Medical News*, July 14, 1900.

[2]Hoffa: *Archiv. für klin. Chirurgie*, 1906, Band LXXXI, p. 455.

pronated hands, he transferred the origin of the pronator radii teres from the internal to the external condyle, lengthened the tendon of the extensor carpi ulnaris, shortened the common extensors and implanted the tendon of the extensor carpi radialis into their tendons; this has been called

FIG. 7.—Eight and one-half years after operation, showing the hand extended, also showing the growth of the arm.

Hoffa's pronator plastic operation; he gives the above table of the procedures, which he uses to meet various indications.

Recently I have learned the later condition of a patient upon whom I operated for spastic hand paralysis nine years ago, and since the number of cases reported in this country is still small and since the photographs depict the condition in various stages of the procedure, the case is here reported:

April, 1901. The patient's hand showed the condition indicated in figures 1 and 2. Prof. Wm. B. Pritchard, who saw him in consultation, stated that the condition was due to cerebral birth palsy; since birth the arm had been almost useless, at the age of 14 the shoulder dislocation, which was a part of the deformity, had been corrected by excising a part of the joint capsule, and sewing the edges together; following this, the use of the arm had increased somewhat, but the contracture of the hand toward the ulnar side had increased, it could not be properly extended into the line of the forearm, and hung in a position of flexion and adduction; the boy was then 18 years old. The muscles of the arm and forearm were very much atrophied. Since the muscles still had some power, and the condition was largely due to a loss of equipose, it seemed wise to undertake a correction by readjusting the tendons.

The operation for this readjustment was simpler than would have been expected, the flexor carpi

FIG. 8.—Eight and one-half years after operation, showing the fingers flexed.

ulnaris was the most disturbing factor, and when its tendon was cut the hand was liberated enough to permit its proper extension on the wrist, the tendon of this muscle was then brought between the radius and ulna, split into two parts, which were respectively sewed into slits made in the tendons of the extensor radialis longior and brevior, thus using the power of this muscle to aid in extension and abduction, instead of in the opposed motions. The hand and forearm were held in over correction in plaster for two months and then put into a leather splint, with steel supports, which reached from near the elbow to the metacarpo phalangeal joint.

The position was satisfactorily maintained, but he was found to have ulnar paralysis; this was due to the tearing of the ulnar nerve in changing the position of the hand. (If one will flex and adduct the hand so as to bring the pisiform bone close to the cuff and then overextend and abduct it, a gap of more than an inch will exist between cuff and pisiform bone, a greater distance than the nerve would stretch; hence it was torn.)

The nerve was, therefore, sutured one year after the primary operation. The degree of extension and flexion and the correct alignment of the hand just before this operation are shown in the second series of illustrations. He gained good function from the sutured nerve, and wore the leather support for four years. The hand improved steadily

FIG. 9.—Eight and one-half years after operation; alignment of the hand and forearm.

maintaining its position and its power of extension and growing and gaining in strength.

In October, 1909, I was told that it was nearly as large as the other and could be well used in such complicated movements as the use of the knife and fork. The third series of illustrations indicate its condition at that time.

This case has given a much better result than we can usually expect. This result was largely due to the fact that the hand still had good growing and developing power; this power, however, would never have been learned if the operation had not put the muscles in such equipose that they could be used.

I have had only one other opportunity to try the procedure and the result in that case was not satisfactory.

Streptococcus Vaccine in Scarlet Fever.—R. M. Smith says that streptococcus vaccine has some influence in controlling epidemics of scarlet fever. Its use, with proper care, is attended by no harmful results. It should be given wider application in this country to prove or disprove the contentions of the Russian physician.—*Archives of Pediatrics.*

THE USE OF VACCINES, SERUMS, AND THE HISS EXTRACT OF LEUCOCYTES IN THE TREATMENT OF EYE, EAR, NOSE, AND THROAT INFECTIONS.

WITH REPORTS OF CASES.*

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NEW YORK.

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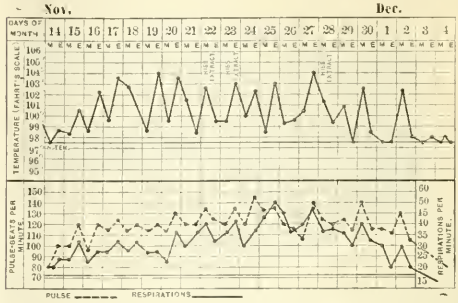
THE expansion in growth of serum and allied therapy in the last few years, especially following the impetus it received when Wright of London published the results of his work on opsonins, has been so great and has opened up such new avenues for investigation, that the practitioner finds himself literally swamped by a deluge of new scientific terms, new methods of diagnosis and treatment, and by a mass of literature on this important and fascinating subject. It is a matter of no small difficulty for the man busy with his every-day affairs to keep pace with this growth. This is more especially so if he is not trained to some extent in laboratory methods, as the use or administration of these measures is not a simple matter and belongs, not to the province of the clinician alone or to that of the pathologist alone, but rather to a combination of the two. Hence it is that the importance of these therapeutic measures is not more generally recognized; the indications and contraindications for their use are not borne in mind and their limitations are not sufficiently realized. It is with the hope of emphasizing these few facts that I present to you to-night the results of my work along these lines during the last three years. At the same time I take this opportunity of sounding a note of warning against the indiscriminate use of these methods, without due consideration of the suitability or non-suitability of the cases and, what is perhaps more important, the ability of the men to use them intelligently, as more harm than good undoubtedly results from their administration in certain cases. This is not intended as a lengthy dissertation on this subject, but the endeavor has been made to give, in as brief and intelligent a way as possible, from an unbiased point of view, the practical results, reporting the failures as well as the successes and giving the conclusions to be drawn therefrom. In order to understand the criticisms and objections advanced against certain measures, it has been necessary for me to introduce certain scientific terms which are probably not familiar to everybody, but this has been done only where absolutely necessary.

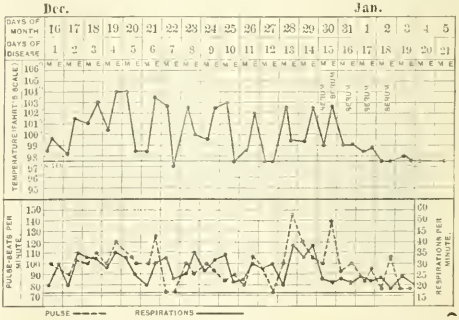
In the first place, I will give a brief résumé of the work done, together with the results. In the majority of cases vaccines were used: In the others, the Hiss extract of leucocytes. The second part of the paper will deal with the relative values of the various measures, the underlying principles, and the indications and contraindications for their use.

Some two hundred or so cases were examined as to their suitability for vaccine treatment. Of this number some 105 were selected, the balance being rejected for various reasons; some, because they were unable or unwilling to come for continued treatment; others, because the causal organism could not be isolated from the mixture of bacteria present in the discharge. Tabulating the cases on the basis of the offending organism, the list is as follows: Tubercle bacillus, 20; stapyhlococcus, 47; streptococcus, 7; gonococcus, 3; pneumococcus, 1;



Bacillus pyocyaneus, 7; Bacillus catarrhalis, 3; bacillus of Friedlander, 3; bacillus of Frisch (*Rhinoscleroma*), 2; mixed infection, 3; bacterium unknown, 9. The list of diseases is not limited to those of the nose and throat, but includes also some interesting general diseases and several cases of eye infections.

The tubercle bacillus cases comprised the following: Chronic tuberculosis of the lungs, 3; of the intestines, 1; of the bladder, 1; cervical glands, 6; larynx, 4; iris, 1; cornea, 1; also 2 cases of phlyctenular conjunctivitis and keratitis and 1 case of episcleritis. The results, on the whole, of tuberculin therapy have been very satisfactory. In all the cases a diagnosis of tuberculosis was made by the various means at our disposal, such as the general physical examination, examination of the sputum and other excreta, the von Pirquet cutaneous test, and the Calmette ophthalmic reaction, also by the reaction to the injection of tuberculin. The kinds of tuberculin used were the bacillus emulsion and the new tuberculin of Koch, known as tuberculin T. R. Of the three lung cases, two were discharged as cured and the third is continuing treatment in another city, still showing marked improvement. The intestinal case was a very instructive one, illustrating well one of the points to be con-



sidered later. The patient was in the pyrexial stage, having fever and symptoms of a systemic intoxication. The opsonic index was considerably over unity. However, injections were started with the idea of still further raising this. Under the treatment, the patient grew rapidly worse, and after a

*Read by invitation before the New York Academy of Medicine, Otological Section, March 11, 1910.

time the injections were stopped. Improvement then took place for a couple of months, but the patient eventually succumbed. This was one of my first cases, and I feel that harm was done. The case of cystitis was markedly benefited. Before treatment the patient had to urinate about fourteen times each night, while now he only urinates twice each night, and his whole general condition has improved and I confidently look for still further progress in his case. The cases of tuberculous cervical adenitis have certainly been most satisfactory, and the results obtained here have amply repaid me for the long time spent in the treatment and the perseverance and constant care which it necessitated. Six cases were treated and all were cured. One patient, in particular, had undergone four operations, and when she came for tuberculin treatment had another mass of enlarged glands and was markedly disfigured by the thickened, unsightly scars at the sites of the previous operations. Under a course of tuberculin the enlargements disappeared, so that the glands were no longer palpable, and, what was quite surprising and the more agreeable, the scar tissue seemed to undergo a certain amount of absorption. This was about two years ago and no recurrence has taken place and the patient is in good condition. In the light of my experience and that of others with such cases, where the condition has not advanced to the stage of caseation or of breaking down, operation is not justifiable, as careful attention to general hygienic conditions and the administration of tuberculin, the dose varying for each case according to the calculated index and the clinical symptoms, will often suffice to save them from the mutilation of the often unsuccessful surgical measures which are now resorted to. Even in cases of caseation and where breaking down is inevitable, a course of tuberculin preceding and following the operation will be of great benefit. The four cases of laryngitis were instructive. The first was primary in the larynx, that is, primary in that no other lesion could be made out. This case was fairly well advanced, but responded to the treatment and was cured. The second case had a demonstrable lung lesion in addition to the local lesion. Marked improvement took place, but the lack of proper facilities at home led me to recommend her removal to a tuberculosis sanatorium, where her improvement has gone on steadily. The other cases had, in addition to the local and lung involvement with tuberculosis, a secondary infection with streptococcus. Neither showed any improvement. Later, judging from the published reports of others who have treated such cases with alternate injections of tuberculin and streptococcus vaccine, the results have been more satisfactory. The remaining cases of tuberculosis were all cases of eye infections. The case of iritis was interesting. A comparatively large, well-circumscribed tumor mass was present on the anterior surface of the iris and there was a question of diagnosis between syphilis and tuberculosis. The history was negative as to the former and tuberculin was injected on two occasions, not for the purpose of treatment but purely for diagnostic purposes. Much to my surprise the mass began to get smaller, and under continued treatment by injection of tuberculin eventually disappeared. The other cases gave the cutaneous reaction to tuberculin, and in the case of tuberculous keratitis, although the case was not an early one, it quieted down under treatment. Patients with phlyctenular keratitis ceased to have the recurrent attacks which had previously been so frequent. The same is true of the case of episcleritis. These cases are now entirely free from these attacks.

The next series of cases comprises the staphylococcus infections. Here 47 cases were treated and, with one exception, all were cured. The list was made up as follows: General furunculosis, 9; acne, 2; carbuncle, 1; eczema of the auricle, 1; otitis externa diffusa, 3; otitis externa circumscripta, 21; otitis media suppurativa subacuta, 5; chronic tonsillitis, 3; peritonsillar abscess, 1; abscess of the septum, 1. The list may not appear very impressive at first glance, but these cases were all chosen because of their known chronicity and comprised that class which ordinarily does not yield to the other well-known methods of treatment, infection after infection occurring. One case of acne was of fourteen years' duration and every kind of treatment had been tried, time and time again, without relief. This patient has now been entirely free for over two years. The otitis externa cases were of that fairly numerous class which is the despair of the otologist, attacks constantly recurring. All these yielded readily to treatment with the vaccine. Under the heading of subacute ear cases are placed that large class in which, after the acute infection has run its course, the suppuration continues and eventually becomes of the chronic type. Five such cases were treated: Three ceased discharging, after practically the first injection; in the fourth, the discharge became much less in amount, and then the patient ceased to report; the fifth was not benefited. This series was made up, as far as possible, of cases in which the pathological lesion was confined to the mucous membrane, not having yet reached the bone; the reasons for this will be stated later. The eczema in question was a chronic one, situated around the auricle, with often-recurring acute attacks being superimposed on the chronic condition. The organism was isolated from a pustule, present during one of these acute attacks, with very satisfactory results. The peritonsillar case was one in which the abscess had been evacuated by surgical measures some months before, but the suppuration continued, becoming of the chronic variety, the cavity filling up with pus, discharging, and again refilling. Two injections sufficed to clear up this condition. The abscess of the septum was also of this variety, essentially subacute or chronic, but one injection of 500 million was thoroughly effectual. With regard to the tonsillitis cases, some doubts were entertained as to the outcome of the treatment, as, on account of the variety of the bacteria, generally making up the flora in the tonsil, the causal one might not be isolated. In the three cases in question, however, the staphylococcus was found in such numbers that it was undoubtedly the causal one. These were cases of chronic tonsillitis, with several acute attacks occurring each year. The treatment here was eminently successful, the chronic or subacute condition cleared up, and during the last winter the patients were entirely free from the acute attacks, this being the first winter in years that they escaped.

Seven cases of pure streptococcus infection are reported, five being cases of postscarlatinal suppurating ears and two of chronic dacryocystitis. Four of the ear cases ceased discharging after varying periods, the fifth remaining the same. Both cases of dacryocystitis were discharged cured.

The next subdivision comprises three cases of infection with the gonococcus, the first being a very

obstinate case of gonorrheal arthritis, which had resisted all forms of treatment. Cure was obtained very rapidly here, although the patient himself had given up all hope of ever being well again. The second was a case of chronic gonorrhea. Here from an examination of the case it was decided that the staphylococcus was playing more than a passive part in keeping the condition active; accordingly alternate injections of the latter and of the gonococcus were used, with thoroughly satisfactory results. The third case was one of conjunctivitis, complicated by ulcerative keratitis; the progress of the disease was quickly arrested and I think the involvement of the cornea was hence much less.

Only one infection with the pneumococcus was under treatment, a case of serpiginous ulcer of the cornea. In the scrapings from the cornea this organism was isolated in pure culture. This ulcer had been repeatedly curetted and cauterized to no avail and then a vaccine was made. Immediately following the use of the vaccine, the process started to subside and soon became quiescent. The treatment in this case certainly cut short the course of the disease and saved the balance of the cornea and in all probability, the eye itself.

Friedlander's bacillus was found as the causal factor in three cases of chronic nasal catarrh. These were of that type in which constantly recurring acute exacerbations were added to the ever-present chronic condition. The improvement in all cases was marked: the chronic condition was much alleviated and the acute attacks could be easily aborted by one injection, given just as the attack was threatening. Here I have also placed three cases of chronic suppuration of the accessory cavities of the nose. These were of very long duration, years in all cases, and the organisms isolated were the bacillus of Friedlander, the streptococcus, and the staphylococcus, all being present in about equal numbers. As in the cases of chronic catarrh just mentioned, the first-named bacillus was found as the causal factor, and as in many other nasal chambers examined, this was found so constantly, it was arbitrarily assumed that this was the causal organism and that the other two organisms were accidental or secondary infections. Treatment was accordingly started on this assumption and pursued for some time. The nasal catarrh, accompanying the sinus condition, cleared up, just as in the cases of straight catarrh, but the sinus condition remained as before, and in the course of some few weeks or months the nasal chambers were reinfected from the sinus. These results, although rather unsatisfactory, are not discouraging, as very great relief was afforded for weeks at a time, and also because the test was a very rigid one, as will now be explained. In the first place, drainage was not secured by operation, and it was purposely endeavored to do without operation, trying to open up the natural passages, according to the method of Wright, namely, irrigating the nose thoroughly and at frequent intervals with a solution of sodium citrate, to promote, if possible, the absorption of the occluding tissues. Nothing much was expected from this, but it was given a trial. Other reasons for failure lie in the fact that a very necessary, and, in fact, indispensable condition, may not have been complied with, that is, certainty as to the causal organism. In spite of these comparatively negative results, I feel that under proper conditions as to drainage and isolation of the proper pathogenic organism, this form of treatment will have a large share in the future.

The next series is also very instructive and interesting, but was not so disappointing, as favorable results were not really expected. It comprises seven cases of suppurating ears in which the *Bacillus pyocyaneus* was isolated and which were treated with a vaccine of this, with negative results in all seven cases. Doubts were entertained from the start, on account of the well-known cultural and pathogenic characteristics of this bacillus, it being one of low pathogenic power, at least for man, generally existing as a parasite, and not being the primary invading organism, but a secondary one. Moreover this bacillus does not rightly belong to the class of organisms producing endotoxins, as the ordinary pyogenic bacteria do, but, on the other hand, it produces a soluble diffusible toxin, pyocyanin, which is easily visible to the naked eye in a culture a few days old. Such an organism would probably therefore call for an antitoxin, like diphtheria, and not a vaccine. In spite of all these factors, however, as this bacillus has been found by others as the only organism in several fatal cases of septicemia, and as it is probably more often a primary factor than is thought, a vaccine was made in each case and used. The results were negative, as above stated. Having in view this fact, it was decided to displace, if possible, this bacillus and to replace it by another parasite of practically no pathogenic action and having no effect on the tissues, as suggested by Metchnikoff and North. A series of cases are now being kept under observation and are being treated by a solution or culture of the *Bacillus bulgaricus*, commonly sold under the name of massolin. The results, so far, have been very encouraging, but the number of cases treated is too small to judge from. Further reports of this investigation will be made in the near future by Dr. Haskin.

Two cases of rhinoscleroma infection with the bacillus of Frisch have been under treatment for the last two years or so, and one is still receiving injections. These are the cases reported last year by Dr. Guntzer and are the first to be treated in this way, so far as is known. Considering the disadvantages we were under in the treatment of these cases, having no precedent to guide us in the dosage and other factors, the results have been encouraging. Cure has not been effected, but the improvement has been marked and the patients, instead of being confined as hospital cases, are able to pursue their ordinary vocations in life. One of the patients, in whom it was necessary to do a tracheotomy, has now gone for months without the tube and his breathing is better than it has been in years. He left recently to take a position in a city in the West.

In comparison with the other methods of treatment recognized as applicable to this condition, such as extensive operation, the *x*-ray, and the use of radium, I think the balance is in favor of the vaccine, if an opinion based on such a small number of cases treated has any value. However, in view of the poor results obtained by any kind of treatment in this slow, obstinate, and comparatively unknown disease, and as the causal bacillus can be so easily grown, treatment by vaccine would seem to be thoroughly rational and would perhaps do more, if our experience were more extensive. Since the treatment was begun the progress of the disease has been stopped in both cases.

There were three cases of infection with the bacillus catarrhalis and with these will be considered three other cases giving the same clinical symptoms,

those of acute nasal catarrh, present in that class of patients who are always "catching cold." In the latter three, the causal bacillus, although easily isolated, could not be classified by name. All cases yielded to treatment; the attacks became less frequent in number and severity, and when an attack threatened, an injection was efficacious in limiting the duration to less than one day. Some of these patients, who used to have a cold or series of colds every winter, have since been free.

Under the name of unknown species of bacteria, I have grouped the last three in the series mentioned above and in addition, four cases of chronic suppurating ears and two cases of chronic dacriocystitis. In these cases the organism isolated was undoubtedly the causal one, but did not fall under any species with which I am familiar. Three of the ear cases cleared up, but the fourth remained as before. The two cases of dacriocystitis were entirely cured.

This completes the list of cases treated. On the whole, I think the results are very satisfactory. It might here be said that all the ordinary methods of accepted or recognized treatment were used in conjunction with the vaccine treatment. Personal hygiene was rigidly insisted on, and in the ear cases local irrigations were kept up. However, in view of the fact that these methods of treatment had been given a thorough and exhaustive trial, in some cases extending over a period of years and in all cases at least for weeks, before the vaccine was used, the results obtained can be fairly attributed to the vaccine treatment.

Some stress was laid on the fact that the choice of ear cases was limited to those in which it was thought the lesion was limited to the mucous membrane. This was in reality a wholly unnecessary proceeding, being due entirely to personal reasons, as the time that could be devoted to this investigation was limited and it was necessary to get quick results, because the majority of cases treated were outdoor cases, and as these patients cannot be expected to come over a long period of time, as is invariably the case, they are one by one lost sight of. A few words might be said about that larger proportion of chronic suppurating ears, in which bone necrosis is probably present. Considering in brief the pathology presented to us in such an ear, we have progressive necrosis of bone up to the point at which the resisting powers of the body are strong enough to stop the advance of the necrosis, that is, we have a line of demarcation formed, just as in the death of the soft tissues or gangrene. The necrosed bone is a foreign body and must be removed. Nature eventually accomplishes this by a slow process of ulceration, taking months to remove it. If the mass is of considerable size, the surgeon can remove this in a few minutes, provided he can do a thorough operation, removing the bone not only macroscopically but microscopically diseased. A consideration of the radical operation shows that the majority of the results attained are not satisfactory, in many cases the suppuration continuing and the after-treatment lasting, from at least a few months in the most favorable cases, to a lifetime in others. Of course there are certain cases that must and always will demand the radical operation, but lately the pendulum has swung back and the radical operation is not being done on every case that presents itself. Any measure, therefore, that offers at least a chance of success, ought to be given a trial. If the causal organism is isolated, and the vaccine treattment tried, nature will be stimulated to form the line of demarcation. The time of treatment will extend over a long period, but even now all forms of treatment of this condition demand months of treatment. It is hoped that a further report on a series of such cases will be made as soon as a sufficient number have been observed.

The Hiss extract of leucocytes was used in nine cases. This was in reality six cases, as the other three were cases that were not suitable to this form of treatment. Of the six cases, four recovered and two died. It will be interesting to give in some detail the history of some of these.

It must be borne in mind that all these cases were ones in which all other measures of treatment had been exhausted, and as a last resort the extract was used, the surgeon in charge of the case feeling that it did not matter much what was done, as the case would terminate fatally. A severer test could not be devised and the results are all the more encouraging because of this fact. The most striking was a case of pansinusitis. G. H., aged 9 years, was operated on, a frontal sinus operation being performed, the anterior ethmoidal cells being removed at the same time. For fifteen days following the operation the temperature ranged between 98° and 105° F., as shown on the accompanying chart. A diagnosis of meningitis was made by Dr. Zabriskie, who found marked general hyperesthesia, deep muscular tenderness, and a well-marked Kernig's sign. The smear from the frontal sinus showed mixed infection with streptococcus predominating. Just before the extract was injected, the temperature was 104.4°, pulse 145, respirations 30. Within twenty-four hours the temperature fell to 100°, pulse to 90, and respirations to 25. The temperature then gradually returned to normal and recovery was uneventful.

The second case was one of mastoiditis and sinus thrombosis, with a general bacteriemia, as shown by the blood culture, long-chained streptococcus being found in the latter. The simple mastoid operation had been performed and the patient had been discharged from the hospital and was attending the out-clinic. On one of the occasions on which he presented himself, he had some fever and was not feeling well. He was admitted to the hospital for observation and after seven days, during which his temperature varied between 102° and 104°, a blood culture showed long-chained streptococcus. Operation was immediately performed and a large clot was found in the lateral sinus. Free bleeding was obtained from the torcular end of the sinus, but rather poor from the jugular end. As the patient was in bad condition, an intravenous infusion having to be given on the table, it was decided not to take out the jugular. The temperature remained down for twenty-four hours, but at the expiration of this period again arose and assumed the septic type. The Hiss extract was then started and the improvement in the general condition was immediately marked, although the effect on the temperature was not so noticeable. As soon, however, as visitors were forbidden entrance the temperature returned promptly to normal. Here, it may be noted that the jugular was not excised, the clot simply being cleaned out as thoroughly as possible.

The third case of this series was also one of mastoiditis, complicated by sinus thrombosis. At the time of operation, the lateral sinus was found thrombosed and filled with a very foul smelling pus. The jugular was accordingly excised. Following

operation, the temperature gradually rose, each day being a little higher than the preceding. Physical examination on the fifth day following operation revealed symptoms of beginning meningitis, the patient also being unconscious and delirious. Immediately following this examination, the Hiss extract of leucocytes was given at regular intervals of twelve hours and the improvement was marked from the very beginning of the treatment. The temperature gradually fell and the great improvement in the general condition of the patient was most marked; the symptoms of the toxemia gradually disappeared, the delirium disappeared within a few hours, and the patient was perfectly rational in twenty-four hours. Three days after the beginning of this treatment the temperature had reached normal and thereafter the recovery was uneventful.

The fourth case was one of mastoiditis, complicated later by sinus thrombosis and lobar pneumonia. This was the first case to be treated by the extract, and the patient was in a practically moribund condition when the extract was given. The history is as follows, and the accompanying chart shows the course of the temperature: Four days after a minor nasal operation the patient developed an acute infection of the left middle ear, together with mastoiditis and eventually came to operation, a simple mastoidectomy being done. Following operation, the temperature was of the septic type as shown on the chart, and on the fifth day patient had a decided chill. The next day a second operation was decided on and on exploring the lateral sinus a large clot was found and evacuated; the jugular was then excised. The temperature continued to be of the septic type, and on the second day the Hiss extract was injected. The patient was *in extremis*, as a pneumonia and pleurisy had developed. The extract was given irregularly, but eventually improvement was noted and convalescence was uninterrupted.

The next two cases are the ones that progressed to a fatal termination. The first was a child, one and one-half years old, and was operated on for acute mastoiditis, the usual simple mastoidectomy being done. The patient was in bad condition, a large subperiosteal abscess being present. Temperature on admission was 101°; immediate operation was done, and following the operation the temperature gradually rose, reaching 105° on the fourth day and 106.5° on the eighth day. The diagnosis was uncertain, as there were very few physical signs to go by. On this day, however, well marked opisthotonos was present and a second operation was performed, the dura being found congested and bulging. This was incised and the temporosphenoidal lobe probed in various directions. Immediately following the operation, the Hiss extract was injected, and, although the case finally resulted fatally, the child lived for thirty-six hours with a temperature of over 107°, something, I think, quite remarkable, considering the condition. On the day following the second operation, lumbar puncture revealed the presence of a small extracellular diplococcus in the spinal fluid. This was one of those obscure cases in which a diagnosis could not be made until late, and considering the remarkable vitality of the child, an early use of the extract might have accomplished something, just as in the first case reported.

The other fatal case was also of this type. A man, thirty-seven years of age, was operated on for acute mastoiditis and the usual simple operation was done. Following operation the temperature did not come down, but continued to rise gradually, reaching 105°, and symptoms of meningitis gradually developed, accompanied by repeated chills. Secondary operation was resorted to and the sinus was found thrombosed and a well-marked meningitis, the dura of the middle fossa being injected and bulging. This was incised and a drain inserted in between the dura and brain tissue; the jugular was then excised. For the following two days the temperature fluctuated and gradually rose to 105°, pulse 154, and respirations 52. It was at this point, when the patient was taking the final change for the worse that the extract was injected, but it was of no avail and the patient succumbed in a couple of hours. This case is placed here because it was a suitable one for such treatment, but it is not a fair one to count against the extract, although in some of the other cases the condition seemed almost as hopeless. The other three cases, which were not suitable cases for this treatment, were the following: The first was a case of brain abscess, but the real cause of death was a very acute parenchymatous nephritis with uremia, a disease altogether outside of the sphere of useful treatment by a leucocyte extract. The second was a case of specific frontal sinusitis, on which multiple operations had been performed. Each of these cases received only one injection, when the nature of the lesion was recognized and treatment stopped. The third case was one in which the diagnosis was in doubt and was probably not an infection at all, but some intestinal disorder.

On the whole, therefore, I am more than satisfied as to the efficacy of the extract and am absolutely convinced that otherwise a fatal issue was inevitable in the above cases and that this was avoided by the extract. To get results in any disease, treatment must be started early, especially in such a disease as meningitis, where such a delicate mechanism as the nervous system is attacked. Once it gains a firm hold it is a hard matter to do anything.

A few words will not be out of place concerning the reliability of the opsonic index and its calculation. Lately some prominent authorities have reported that they found it unreliable in not agreeing with the clinical symptoms and also in that the calculations taken from the same cases at the same time by different observers have differed quite markedly from each other. Granted that these statements are true, and they assuredly are true in my experience, are they cogent reasons why we should condemn the opsonic index as unreliable and bring it into disfavor? Consider the practically parallel proceeding in making a blood count; does the result of the blood count always agree with the clinical symptoms? Do any two men get the same results when blood counts are made on the same case under identical conditions? You can all answer the first question; who among you has not had a case in which the clinical symptoms and the blood findings showed absolutely no correspondence, yet this fact did not induce you to condemn the blood count as utterly useless. You know that in the majority of cases it is reliable. The same is true about the opsonic index. Why then condemn this? The reason for failure in some cases, perhaps in the majority, is that it is mainly a question of the personal equation, that factor which we cannot get rid of. The results of a blood count lie practically in the hands of the one making it, and if he is conscientious and follows the technique, his results are to be depended on; but if he is not conscientious and looks upon this as an unwelcome piece of work,

to be done with as soon as possible, then it were better for you that you had done without this aid to making a diagnosis. The same applies to uranalysis or any laboratory work. That is one of the reasons why I make the plea that this opsonic work be left in the hands of those who are capable of doing it. The chances of error in the calculation of the opsonic index are far greater than those in doing a blood count, as the technique is more complicated and, unless the smallest details are worked out and the whole technique is rigidly adhered to, the results will vary. The reason why Wright and his immediate followers got such satisfactory results was because they were scrupulous in this regard. The results of such an authority as Hektoen in this country ought to carry some weight. In a series of acute infections, independent calculations were made by himself and four others under exactly the same conditions, and it was found that these calculations tallied, all showing the negative phase, and then the positive phase, and as the index rose the symptoms subsided. Hektoen further states that when properly and conscientiously performed it is quite reliable in the majority of cases and is, in fact, an indispensable aid. I have found it so in my experience.

I now come to the scientific side of the question and will briefly consider at the beginning some necessary facts that must be stated in order to understand what is to follow. The old ways of treating infections were tonic and supportive, obviously unsatisfactory, as they did not try to get at the cause of the disease. Now, by a study of nature's own methods of defence, as seen in infections artificially produced in animals, we endeavor to imitate her and to make use of the same weapons. This is the keystone of vaccine and serum therapy; it is around this pivot that everything revolves. In any disease we have two factors to consider: on the one hand the invading organisms; on the other the resisting forces of the body. Analyzing shortly the first, we find that all bacteria do not act on the body in the same way, that in fact their methods of attack differ widely from each other. They all have a common action in the sense that they act mechanically, just like any other foreign body introduced into the body; that is, they act by their physical presence. This is a comparatively unimportant point, its only importance practically lying in the fact that it may lead to embolism in the vessels. The vital ways in which the bacteria act may be divided practically into two classes: in the first class we have those bacteria which secrete soluble, diffusible bodies in the media in which they thrive, called toxins. These toxins are readily given up to the circulating fluids of the body, and it is through the agency of these toxins that the bacteria produce their baneful effects on the body. The second class, and this is the important one for us to consider, as to it belong the organisms which we have been considering above, comprises that class which elaborate within their own bodies, a class of substances known as endotoxins. These endotoxins are retained within the bacteria elaborating them, not being given up to the culture media or the circulating fluids, but only being set free when the bacteria are dead or dying. It is probable that some species of bacteria act in both ways, by a soluble toxin and by an endotoxin. To this class the tubercle bacillus probably belongs, the active toxin being an endotoxin and the soluble one being an accessory one. It was to combat this latter, the soluble one, that Koch introduced his old tuberculin, and since the real toxin is thought to be the endotoxin, the reasons for failure of the old tuberculin are apparent.

On the other hand, we have to consider Nature's ways of fighting these bacteria. When a foreign substance is introduced into the body, especially if that foreign substance is of an albuminous nature, the system, by the very presence of this material, is stimulated to the formation of what are known as antibodies, that is, bodies whose function it is to neutralize the effects of or destroy the substance introduced. Obviously, these antibodies must be of many different varieties, depending on the character of the antigen, calling for their formation. Applying this principle to the bacteria forming the soluble toxin, we will have the formation of an antitoxin. The examples of this class are perhaps the most familiar to us, diphtheria antitoxin and tetanus antitoxin being of this nature. Against the second class we would have the formation of bactericidal and bacteriolytic bodies, which would destroy and dissolve the bacteria, setting free the contained endotoxin. It is important to emphasize at this point that when the bacteria are destroyed and dissolved by the foregoing serums, the endotoxin is not necessarily neutralized; in fact, is not generally so. This point will again come up in the discussion of these serums. Lastly, under the heading of defence, we must consider an important factor—the phagocytes themselves. The question of the origin of the antibodies whether they are derived from the phagocytes, as Metchnikoff holds, or from other sources, as other well-known investigators claim, is entirely outside the scope of this short paper, but whatever view we hold, we must all admit the great importance of the phagocytes themselves. Since the action of the opsonins is intimately bound up with that of the phagocytes, these will also be classed here. It may be well to define exactly what opsinins are. The name is from the Greek and freely translated means, "to prepare, for eating" or "I prepare for eating." The opsonins are normally present in the blood serum, and, as the name implies, they act on the bacteria in some way, preparing them for ingestion by the phagocytes, that is, they prepare them, so that the phagocytes can the more easily eat and digest them. Hence, indirectly, they act by stimulating the phagocytes and hence the placing of these two factors together.

Based on the preceding ways, in which nature copes with infection, we have four classes of therapeutic agents, each one differing from the other in the fundamental, underlying principles of application. These four comprise the antitoxins, vaccines, bactericidal and bacteriolytic serums, and the leucocyte extracts. It is not necessary to deal with the antitoxins, as their use is well known. The second class, the vaccines, are one of the important subdivisions to be dealt with at some length. By the use of vaccines, either attenuated cultures of the living bacteria or, as is now more often the case, killed cultures, we aim to stimulate the body to increase its formation of antibodies and thus to overcome the infection. The point to be emphasized here is that the body itself must form its own antibodies, that is, an active immunity must be brought about. The significance and great importance of this statement lies in the fact that it takes some time for this immunity to be developed; it is

not a matter of hours or of a day, but several days, generally three or four at least, and sometimes much longer. During this period, in which the antibodies are being formed and consequently immunity is being developed, it is a well-established fact that the resisting powers of the body are not only not increased, but are actually diminished in the large majority of cases. This is the so-called negative phase and is a very important factor to be remembered. This phase can easily be shown on the chart of an opsonic curve, where, following an injection, we have a decided fall in the curve and after a varying period, depending on the dose and other factors, a rise to a point higher than the previous reading. A practical everyday example, probably not an exactly parallel one, is the Widal reaction in typhoid fever. Here we do not get the agglutinating action of the serum, the evidence of antibody formation, for several days after the clinical symptoms of the fever have appeared; when reaction has well set in, we get it. I will illustrate this point further by reverting to the case of intestinal tuberculosis which ended fatally. This patient had a temperature of about 101° F. and all the symptoms of a systemic intoxication were present.

This case was decidedly not a suitable case for such treatment. Take, for example, a systemic acute infection, such as a case of acute septicemia, in which we have high temperature and all the symptoms of a grave constitutional intoxication. If it were put to a vote of clinicians, as to whether they would use a vaccine in such a case, I have no doubt whatever but that many might favor such a course, and yet nothing is more illogical and nothing could be more harmful. Consider the state of affairs present in just such a case; interpret the symptoms. The train of symptoms or the bacteremia is simply the way the body has of showing that it is being hard pressed and as the symptoms increase in severity the lines of defence are being broken down; that it is being defeated in the struggle, that its poor, worn out, jaded cells have exhausted their powers of antibody formation. How unfortunate then to use a vaccine in such a case, calling upon the cells to form more antibodies, when they are already exhausted. Following this injection, for several days we find the body more open to infection, it being in the condition, spoken of above, as the negative phase. Yet this is being done every day, especially in the treatment of tuberculous patients, simply by the clinician not knowing or not realizing the nonsuitability of the case for this treatment. It is an absolutely different consideration, when the case is subacute or chronic. Here a rational and closely watched course of treatment with the vaccine is of almost specific value in some cases. The above considerations apply to constitutionally acute cases, in contradistinction to the locally acute cases, as these latter were the classes of cases that were markedly benefited.

The next point in a consideration of vaccines is the kind of vaccine to be used, that is whether autogenous, that cultivated from the patient, or a stock vaccine. To my mind there are no two sides to this question as in all cases it should be an autogenous vaccine, although I have used the stock one in some few cases. The vaccine, as explained above, stimulates the formation of antibodies and opsonins and so far experience seems to show that these antibodies and opsonins are specific, that is, that a certain bacterium will give rise to a certain antibody or a certain opsonin and that anti body or opsonin will be effectual against that bacterium and against that alone. It is easy to see then why we should use an autogenous vaccine. The stock vaccines are made up of mixtures of different strains of bacteria of the same or allied species. If a strain of the particular offending organism is present, we may get results, but if it is not present, then the specific antibody or the opsonin is not stimulated to formation, and no good results from its use. The system, with a stock vaccine, is called upon to form a whole series of antibodies, corresponding to the varieties introduced, and these have no function to fulfill, as there are no corresponding bacteria to oppose, so that the energy of the system is spent in useless work. The energy is not a trifling force, to be thus dissipated. This observation applies to all stock vaccines, but especially to vaccines of bacteria, such as the staphylococcus and the streptococcus. When we consider the multiplicity of forms of such bacteria, it is easy to see why stock vaccines fail in some cases, in which the results with autogenous vaccines have been so brilliant. We are all familiar with the many varieties of streptococcus, differing as they do so little in morphology and straining properties and, what is most important, so much in their pathogenic action. In some work, in which I am now engaged, at classifying the various bacteria found in the tonsils, one is at once impressed by the many varieties of streptococcus isolated. When we consider the staphylococcus, the same holds true; we see differences in pathogenicity, pigment formation, liquefaction of gelatin and their cultural characteristics in general. These are but examples; the list is almost endless. Thus we can understand that in a given case unless the invading organism forms one of the strains in a stock vaccine, probably no effect is produced. Again, why do we need stock vaccines at all? Needless to say, the microbial cause of a disease must be known before a rational attempt can be made to treat with a vaccine. If we can get enough of the discharge to make a bacteriological examination, we can at the same time make cultures and prepare a vaccine. In the above series of cases, a stock vaccine was used in treating some of the cases of tubercle infection, on account of the difficulty of preparing this vaccine, but just as soon as possible, an autogenous vaccine was substituted; also, in one case of tubercular adenitis, which did not improve under the human tuberculin, bovine tuberculin was substituted and this was of necessity nonautogenous. The gonococcus is rather hard to prepare as a vaccine on account of the fastidiousness of this bacterium, which grows only on special media and quickly dies out. As there are probably few varieties of this bacterium, the results with the stock vaccine have been rather good, but in all cases it is better to use the autogenous one. The stock ones may not be fresh, and this is quite an important point, as, even with autogenous ones, it is better to make new vaccines every few weeks.

The third class of agents comprise the bactericidal and bacteriolytic serums. For the production of these, just as in the formation or preparation of antitoxin, we immunize animals, such as the horse, against the pathogenic organism, and the serum of such animals is then used for injection into patients suffering from infection with that organism; in other words, we get the cells of the animal to manufacture the anti-bodies and then use these bodies ready made, so to speak, for injection into

patients. Thus, in this class, it is a passive acquired immunity that is brought about, the cells of the patient taking no part in the process. This would be an ideal condition of affairs, supplying the body with its weapons ready for use, but unfortunately the practical results have not been encouraging. Mainly for this reason, and also because the theoretical considerations are, on the whole, opposed to such serums, I have not used them. One point, and this seems to be more than theoretically established, is the fact that a bactericidal serum is not necessarily, and in fact is not generally, antiendotoxic; that is, that, although the bacteria are killed, the contained endotoxin is not neutralized but is actually set free as a poisonous body having free rein to act injuriously on the body. Therefore, when an injection of such a serum is given, so much endotoxin may be set free that the body succumbs to the severity of the infection. The question of anaphylaxis also comes into question here. The actions of such serums may be utilized either as prophylactics or as curative agents. The first does not interest us practically, as most of our cases are well advanced when we are called to treat them, and hence are not subjects for prophylactic measures, and as curative agents they have proven failures. Lately the so-called polyvalent serum against streptococcus infections is being again brought into use. This is made by immunizing suitable animals against a number of strains of streptococcus and using the serum of such animals in man. Now, in the immunity developed after a streptococcus infection, the serum does not possess any marked bactericidal or antitoxic properties, but rather acts by stimulating phagocytosis or more probably by supplying opsonins. It is hard then to see why such a serum, as the streptococcus serum, should act as a bactericidal one. Many have claimed that it has not only protective properties but also curative ones. It probably has some action in supplying opsonins, but it is open to all the objections cited against bactericidal serums in general, and in addition lacks one very necessary quality—that of specificity, it really being on the order of the old gunshot prescription—empiricism as opposed to rationalism.

The next subdivision deals with the leucocyte extracts and the rationale of the Hiss extract is based on the all-importance of the leucocytes in the struggle against infection. If we consider the phenomena presented to us in inflammation, we are at once impressed by the important rôle which leucocytes assume and their importance in the fight waged against the invading army. Soon after the infection is set up, we have a vast army of leucocytes or, as they are now better known, phagocytes, hurrying to the point of attack and actively combating the bacteria. This is true of the infections in general, and especially so in the infections which we are ordinarily called upon to treat. In the struggle that ensues many of the phagocytes are killed, others are maimed or injured, and all are more or less worn out. If the bacteria are the stronger the body is overwhelmed; if the phagocytes, the infection is overcome and the body returns to the normal. All the different leucocytes are not equally important, the main ones concerned in the majority of infections being the polynuclear neutrophiles and the large mononuclear leucocytes. It follows then logically from the above that if we can assist or strengthen the leucocytes in any way, we will at the same time enhance the chances of the body overcoming the infection. Hiss divides the protecting factors involved into two classes; in the first he places the antibodies, such as the agglutinins, lysins, opsonins, etc. These are readily produced by the cells and given up to the circulating fluids of the body. In the second class he places the endobodies of the leucocytes. He assumes that these endobodies are present in the bodies of the leucocytes elaborating them and are not as a rule given up to the circulating fluids, as the first set were, but are retained in the bodies of the phagocytes, manufacturing them, serving to protect them and in this indirect way also protecting the more highly specialized cells. Therefore, if we furnish to the phagocytes the bodies of which they are deprived in the fight, that is, furnish them quickly and directly with their weapons of warfare, they would be the better protected from destruction and would be in better condition to carry on their work of ingesting the bacteria and would the better be able to recuperate quickly. With this end in view Hiss proceeded to make an extract of rabbit's leucocytes, hoping that it would contain the above bodies and that by the injection of this extract into patients, the victims of infections, the phagocytes would thus be strengthened. For several reasons preference was given to extracts rather than to the intact leucocytes as the former are the more diffusible and would thus be carried very quickly to the affected parts, protecting not only the leucocytes but also the more highly specialized cells. Also, bearing in mind the probable specificity of opsonins, the intact leucocytes of a foreign animal, such as the rabbit, may not find in the serum of man the necessary opsonins for their stimulation and activation, or the opsonins may be depleted by the disease. Moreover, experiments were carried out with such leucocytes with practically no results. An extract is independent of these considerations. The results of experiments in animals, and of treatment of infections in man, has apparently borne out the truth of this assumption. Analyzing the results, it would seem that this extract does not act through any bactericidal, bacteriolytic, or phagocytosis-stimulating power, but that its very marked favorable influence on the temperature and especially on the general condition, is in all probability referable to its neutralization of the toxic products; that is, ordinarily speaking, to its action in combating the condition which we describe as sepsis or toxemia.

Such being the principles on which it acts, we can see the advantages of such an extract. In the first place, we inject only substances which are normally present in the body; the reaction, therefore, following the injection is practically negligible, only a very slight reaction being present in some cases and these are few. Secondly, the body is not called upon to expend any of its energy in the developing of an immunity, that is to form antibodies. This is an important factor, as was shown in the discussion of vaccines. Another factor, and this is probably the most important one, is that the effects of the extract are immediately felt, within a few minutes after injection, or at most within a few hours. The advantage of this in an acute case is apparent. Although given in doses of 10 c.c. it is very quickly absorbed. There are some few disadvantages. We have no methods of standardizing, and of necessity, therefore, the extracts, made at different times and from different animals, must vary. This objection does not amount to anything practically, as the bodies in the extract are normally present in the

body and an increase does not do any harm, the excess being all to the good. Again we are at sea regarding the length of time of its action and also the proper dose. These also are not important practically, as we can guard our injections by the clinical symptoms. Some of the other great advantages are that we do not have to isolate the offending organism, as the action of this extract is absolutely independent of the bacteria, depending only on the resisting powers of the body. The great importance of this statement will be appreciated when the treatment of some of those obscure cases of sepsis come up, in which the causal factor cannot be isolated, but which are surely due to some invading organism, or in cases of mixed infection, when we are in doubt as to the primary organism, as in the meningitis case reported.

Incidentally, I might here mention that Dr. Adrian Lambert reported recently a series of cases which interest us, as we occasionally have to deal with erysipelas complicating mastoid, and other operations. He reports fifty-one cases of erysipelas of all kinds, treated on his service at Bellevue Hospital with the Hiss extract. In cases so treated within forty-eight hours of the onset the extract acts almost like a specific, the temperature dropping almost to normal, the attack being thus cut short. In all cases the symptoms were much alleviated, temperature lowered, nausea and vomiting stopped, and the complications and sequelæ were of much less frequency. In cases treated late, the succeeding septicemia was in many cases aborted. Some interesting statistics are furnished in cases of erysipelas in infants under one year of age. Before the use of the serum his mortality rate was 100 per cent. Out of six cases treated with the extract four survived, or over 66 per cent., a great difference surely.

Briefly recapitulated, then, the conclusions to be deduced from my own work are as follows:

1. In acute constitutional diseases, such as pyemia, septicemia, and sapremia, the vaccines are contraindicated. In such cases the leucocyte extract finds its greatest field of usefulness and will often save cases which are apparently hopeless. Some authorities do use vaccines in such cases, with the admonition to avoid the negative phase by proper dosage and very guarded administration. This sounds easy, but it is an entirely different matter to apply in such a case. Therefore use the extract of leucocytes in such cases, and avoid vaccines calling for active immunization.

2. In the locally acute (without systemic symptoms), subacute, and chronic cases, the vaccines find their greatest field of usefulness and will be found to act almost as specifics. I have had no experience with the leucocyte extracts in such cases, but they should be effective, especially in the subacute and the locally acute, and certain types of chronic cases in which the diseased focus is not walled off by a firm, hard fibrous wall. However, the results have been so good with the vaccines that I have not felt the necessity of using any other agent.

3. In all cases use autogenous vaccines in preference to stock ones, as the results will be better and surer and the administrator knows exactly what he is adminstering.

4. Make fresh vaccines frequently, so as to ensure their greatest potency.

5. Be guided in the administration by the clinical symptoms, but at the same time do not neglect to calculate the opsonic index. In the majority of cases it is just as reliable as a blood count is.

6. Do not use tuberculin in tuberculosis when general constitutional symptoms are present, that is, when the patient is in the pyrexial stage. First, localize the process as much as possible and then start the treatment, interrupting it if the condition again becomes general.

7. Give small doses often repeated, rather than large doses seldom repeated. In all cases start in with a minimal dose and then increase it.

8. Always have in view, even in the simplest case, the danger of anaphylaxis or hypersensitization. This is no negligible quantity.

9. Always combine with the vaccine treatment the other general medicinal and hygienic measures. This vaccine therapy is not a cure-all.

10. If you have a case of septicemia, such as that which follows sinus thrombosis, and your surgical measures have been exhausted, do not wait until the patient is *in extremis* or moribund, but start the use of the extract early, so as to give your patient the best chance. The extract is not a miracle worker. Most of the cases of the series reported to-night were very far gone and were really in the final stage. A more severe test of the efficacy of an agent could not have been devised.

Serum and vaccine therapy do not comprise agents which can be doled out by a certain dose, such as a general medicine, but it absolutely demands, for its intelligent administration, a certain degree of knowledge and skill which cannot be acquired outside of a laboratory. Also out of justice to the patient, who in good faith trusts himself for treatment in our hands, fair play demands that we should do our best by him. Hence the average man, unskilled in this way, should recognize his limitations and avoid the possibility of doing harm and of bringing such an important therapeutic measure into disrepute. On the other hand, these agents should be given a fair trial and should no longer be neglected, as they have been in the past, by the specialist.

In conclusion, I wish to state that the major part of this work was carried on in the laboratory of the Manhattan Eye, Ear, and Throat Hospital, New York City, and in this connection I wish to express my appreciation of the many kidnesses of Dr. Jonathan Wright, the director of the laboratory and instigator of this line of investigation; of Dr. E. G. Zabriskie, the pathologist; and of Mr. S. Richardson, the laboratory assistant. I also wish to extend my thanks to the surgeons and the assistant-surgeons of the above institution, who gave me the opportunities of treating their patients. My sincere thanks are also due to Drs. W. T. Connell and William Gibson of Queen's Medical College, Kingston, Canada, my Alma Mater, who instructed me in the technical methods of vaccine preparation and the latter of whom placed his case records at my disposal for reference. Dr. J. H. Güntzer was a coworker with me on the cases of rhinoscleroma and my thanks are also due to him. To Dr. Philip Hanson Hiss, Jr., Professor of Bacteriology in the College of Physicians and Surgeons, Columbia University, New York City, my sincere thanks are hereby extended for his uniform kindness and courtesy to me during the investigation and treatment of the series of cases with his leucocyte extract. Lastly, I wish to express my appreciation of the kindness of my associate, Dr. William Henry Haskin, whose sympathy and encouragement provided a constant stimulus to me in the prosecution and the continuance of this work.

11 East Forty-eighth Street.

A SIMPLE COMPLEMENT FIXATION TECHNIQUE IN SYPHILIS.

REPORT OF CASES.

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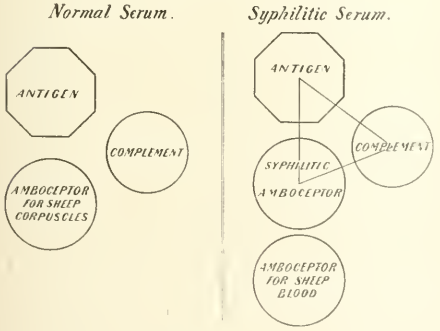
If one animal is injected with the red corpuscles of another it will develope the power of hemolysing the red corpuscles of the species to which the second animal belonged; that is, if some of the serum of the first animal is mixed with the red corpuscles of the second they will become laked. This solution of the red corpuscles was shown by Bordet to be due to the action of substances similar to those that had already been described in connection with the lysis of bacteria by immune sera, and they are best known as amboceptor and complement. These two substances act in conjunction, but neither is capable of causing hemolysis by itself. They vary widely in their properties, for, whereas the complement is present in the serum of all animals, both immunized and unimmunized, the amboceptor is present only in those animals which have been immunized. The complement is easily destroyed by heat and when kept under artificial conditions, while the amboceptor is comparatively resistant to both. Again, an animal which becomes infected with a microorganism will react to the infection, by the production of specific antibodies, in the same manner as an unimmunized animal. These specific antibodies are not found in animals which have not been infected, or immunized, so that if we are able to demonstrate the presence of such antibodies in the serum of animals we then have evidence of infection.

The serum of some species of animal shows, however, a hemolytic power for the red corpuscles of certain other species, and this is easily demonstrated when human serum is mixed with the red corpuscles of the sheep. This lytic action is due to the same combination of substances which brings about the

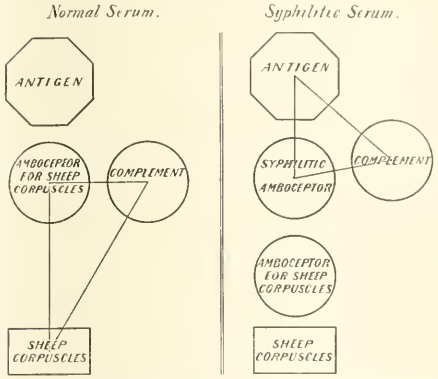
DIAGRAM No.I.



lytic action of immune sera. Thus, we have seen that a solution of the red corpuscles of one animal, when mixed with the serum on another, may be due (1) to the fact that the second animal has been immunized by the injection of the red corpuscles of the first, or (2) that the first animal possesses a natural hemolytic power against the red corpuscles of the second.

Wassermann's original application of the Bordet-Gengou complement fixation test to syphilis made use of the first of these two alternatives and used the hemolytic amboceptor derived from the serum

DIAGRAM No.II.



of a rabbit which had been immunized against sheep corpuscles, while for complement he used that found in the serum of a guinea-pig. This method is still largely used for the diagnosis of syphilis, as a serum method, but it is quite complicated and to do away with some of complications, especially that of immunizing a rabbit to sheep corpuscles, Bauer applied the second of the two alternatives given above and made use of the hemolytic amboceptor for sheep corpuscles which is naturally present in the serum of human beings.

A further simplification of Wassermann's technique was made by utilizing the complement which also exists in the serum naturally. This modification by Hecht did away with the guinea-pig complement. While these modifications were being made the preliminary steps were also being modified, so that it was soon demonstrated that other extracts, besides those made from the organs of a syphilitic fetus, would serve, and that alcoholic extracts were quite as efficient as saline ones. Less complex chemical substances were also tried but with less satisfaction.

Thus, in Hecht's method, all that is required beside the serum to be tested are a suitable tissue extract and some washed sheep corpuscles, but as Hecht performed the reaction a considerable quantity of serum was required. This necessity was overcome in a technique devised by one of us (Fleming) whereby the test can be carried out using only about twenty cubic millimeters of serum. The method is the same as Hecht's, but the details of the technique are different, and are as follows:

Substances required, (*a*) Alcoholic extract of heart muscle; (*b*) Serum to be tested with normal and syphilitic controls; (*c*) Washed sheep corpuscles.

The heart extract is made by grinding up in a mortar several grams of heart tissue, adding five cubic centimeters of 90 per cent. alcohol for each gram of heart muscle used. The mixture is then heated, at 60°C., for one hour, and after standing at room temperature for twenty-four hours is then ready for standarization. This is done by diluting

the extract with 1 per cent. salt, in strengths of 2.5, 5, 7.5, 10, and 15 per cent., and using each of these dilutions with several syphilitic and non-syphilitic sera in a manner shortly to be described. The strength which is best to use, as determined by this standardization, is that which will give complete deviation of the complement, in the syphilitic sera, without interfering with the hemolytic power of normal serum. It will probably be found that this strength is somewhere between 5 and 10 per cent. The extract usually keeps well for several months, after being standardized in the beginning, and no further trouble need be taken in this direction, as the controls which are used in the actual testing are sufficient to determine its value. After several months the extract will lose its power of deviating the complement in all syphilitic sera, and when one uses a stale extract a certain number of diagnoses may be missed though the patients are undoubtedly suffering from syphilis. The results one obtains by this method are entirely dependent on the efficiency of the extract.

The serum of the patient and controls is best taken in a capsule, such as is used by Sir Almroth Wright in collecting blood for determination of opsonic indices, and one capsule will usually furnish sufficient serum to repeat the test, should it be necessary. The blood is taken from the finger, and it is better to use the serum while fresh, but this is not always essential, as the hemolytic power of human serum for sheep corpuscles does not deteriorate for several days; we have used serum ten days old with satisfactory results. Should it be found, however, that a satisfactory result is not obtained with old serum it will probably be found that the complement has deteriorated, in which case it will only be necessary to repeat the reaction, adding fresh complement, in the form of guinea-pig serum, or fresh human non-syphilitic serum. If guinea-pig serum is used it can be readily obtained by passing a suitable needle into the ventricle of the guinea-pig and the serum is readily separated by centrifuging. We have taken as much as five cubic centimeters from a guinea-pig without apparent injury.

The sheep corpuscles are obtained from the butcher, who either whips the blood, or takes the blood into a bottle containing a 1.5 per cent. solution of sodium citrate. The citrate, or serum, is washed out by centrifuging with 1 per cent. salt solution, several times, and the corpuscles are used in a 10 per cent. strength made up with 1 per cent. salt. The better plan is to use the citrate solution which prevents the gross contamination which takes place when the butcher whips the blood.

To standardize the extract, and also for the purpose of doing the actual test, one uses, in the place of ordinary test tubes, small tubes of similar shape which are made by drawing out in the blow-flame pieces of glass tubing (about 5 millimeters diam.) one inch long, which are sealed at both ends. These are then notched with a file and when broken make a pair of miniature test tubes. These tubes are put up in two rows, of five tubes each, and into the first tube of each row is put four volumes (each volume representing 10 cubic millimeters, but exact standard is immaterial) of a 2.5 per cent. solution of the extract in 1 per cent. salt. Into the next tube of each row is put four volumes of a 5 per cent. solution of the extract, and so on, with the strengths of 7.5, 10, and 15 per cent. Into each tube of one row is now put one volume of a syphilitic serum, and into each of the tubes of the other row is put one volume of normal serum. The contents of the tubes are now thoroughly mixed by inverting several times, and they are incubated at 37°C, for one hour. At the end of this time they are taken out of the incubator and to each tube is added one volume of the 10 per cent. suspension of sheep corpuscles, after which they are then incubated for another hour. It will then be seen that in the case of the syphilitic serum, in all, except, perhaps, the lowest one, or possibly two dilutions, there will be no hemolysis owing to the fixation of the complement by the extract and the specific amboceptor, while in the case of the normal serum there will be hemolysis in all the tubes except perhaps that containing the strongest dilution. The strength which should be chosen, as determined by this test, is the strongest which will completely inhibit hemolysis with the syphilitic serum without interfering with the hemolytic power of the normal serum.

In doing the actual test one takes the same miniature test tubes and makes the following mixtures:

First pair. (1) Extract, 4, normal serum, 1; (2) Salt solution, 4, normal serum, 1.

Second pair, (3) Extract, 4; syphilitic serum, 1; (4) Salt solution, 4, syphilitic serum, 1.

Third pair, (5) Extract, 4; patient's serum, 1; (6) Salt solution, 4, patient's serum, 1.

And so on for each patient, one tube containing four volumes of the extract with one volume of the patient's serum, and one tube containing four volumes of salt solution with one volume of the patient's serum. The tubes are now incubated for one hour, after which the sheep corpuscles are added and they are then incubated for another hour. The results will show: Hemolysis in tubes 1, 2, 4, and 6 if the patient is syphilitic, while tubes 3 and 5 will show no hemolysis because of the complement fixation.

Diagram No. 1 will illustrate graphically what takes place in the tubes during the first hours' incubation. Both the normal and syphilitic sera contain complement and hemolytic amboceptor, but the syphilitic sera contains, in addition, a syphilitic amboceptor. This last amboceptor incubated with the heart extract binds itself, and the complement, to the extract while in the normal serum there is nothing to bind the complement to the extract, so no change takes place. In tubes 2, 4, and 6, where salt solution takes the place of the extract, the complement is left free, the salt solution having no binding power between amboceptor and complement.

The second diagram illustrates what takes place during the second hour's incubation. In the mixture with the syphilitic serum and the extract, the complement having already been bound up to the extract, is no longer available to act with the hemolytic amboceptor and cause hemolysis of the sheep corpuscles which have been added, so no further change occurs. With the normal serum and extract there was no change during the first hour's incubation, so the complement and the hemolytic amboceptor are both free to unite with the sheep corpuscles producing hemolysis. The same can be said of all the tubes containing salt solution, whether the serum is normal or syphilitic.

In a certain percentage of cases there is an absence of hemolytic power (about 5 per cent. of all cases tested) for sheep corpuscles. This may be due to a want of complement or hemolytic amboceptor. It is only discovered when, on completion

of the second incubation period, one sees no hemolysis in the tube containing salt solution, serum, and corpuscles. If the failure is due to lack of amboceptor then one simply adds to both tubes of this particular serum one-half volume (5 c.mm.) of one's own serum, which has been previously heated for one-half hour to 56°C, and which has been proven to have hemolytic power. The heating will have destroyed the complement of the serum added, but the hemolytic amboceptor will be left unaltered, and this, in combination with the complement of the patient's serum, will cause hemolysis in the tube containing salt solution, serum and sheep corpuscles, and will, or will not, cause hemolysis in the tube containing the heart extract, accordingly as the patient has, or has not, syphilis.

However, if it is the complement that is wanting in the serum, the easiest way to overcome the difficulty is to repeat the test and add, in addition to the one volume of the patient's serum, a normal hemolytic dose of one's own serum. The tubes are incubated for another hour if the amboceptor was deficient, but if the test is being repeated from the beginning with the addition of the complement, the routine of the actual test is carried out. By using the one or the other of these modifications it is possible to obtain trustworthy results in every case.

The results we have obtained with this simple method have been extremely good. The following is a detailed list of our cases:

	POSITIVE.	NEGATIVE.	DOUBTFUL.
Syphilis with active lesions:			
Primary	13	1	0
Secondary	50	0	0
Tertiary	161	2	7
Congenital	38	0	0
Syphilitic history without lesions	38	19	2
General paralysis	31	1	3
Tabes	6	3	2
Supposed non-syphilitics	22	745	4

In the primary cases thirteen were positive and only one negative. The earliest case tested was fourteen days after the appearance of the primary lesion and this gave a positive result. The case appearing as negative was one having an initial lesion three weeks old.

All the cases showing secondary lesions gave positive reactions. Of the tertiary cases showing definite lesions, 161 were positive, while 2 were negative and 7 doubtful. The congenital cases gave positive results and can be divided into two broad classes: (*a*) Cases of infants with syphilitic eruptions; (*b*) Older children with ocular troubles, *i.e.* interstitial keratitis, choroidoretinitis, etc., the results being quite definite in both groups.

In connection with the congenital cases it is interesting to note the reactions of some of the mothers. In most cases the mothers gave a decidedly positive reaction, but in two instances the reaction was not convincing.

Thirty-eight cases were tested in which there was a definite history of syphilis, but which presented at the time of examination no lesions. Some of these cases had had mercurial treatment for two or three years, and the supposition was that they were cured, while others had only had treatment irregularly.

Of the hospital cases having a history, by far the greater number gave a positive reaction, regardless of the length of time elapsing since infection, and this is probably due to the fact that the hospital class of patients treat the infection with too little seriousness, and is apt to neglect the treatment after the active lesions have disappeared for a little time. Quite a different state of affairs is seen in the better class of patients where the treatment is persisted in religiously for several years. Here most of the reactions, in patients having finished treatment, are negative, although in some cases where there is no doubt that the prescribed course of treatment was thoroughly carried out, positive reactions may be obtained.

The following case is of interest in this connection. Patient, a medical man, contracted syphilis in the course of his medical duties. He was treated for four years with mercury by mouth. Treatment had ceased for two years, when on testing his blood, repeatedly, it invariably gave a positive result. He recommenced treatment of the strength of the reaction, although he had had no lesion since treatment had been stopped. His blood was tested almost daily during his new course of treatment, and 100 grams of soamin, intramuscularly, in graduated doses did not change it. This was followed by mercury pills with the same result until the dose had been increased to the point of mercurial poisoning. Two weeks after this he gave a negative serum reaction. This was over six months ago and the reaction has remained negative ever since.

In another case the reaction was taken after the case had been treated for fourteen months, and it gave a positive reaction. This was repeated several times in the next month, always with the same result. No tests were done with this blood for the next three months, but after this interval he was again tested and found to be negative, which reaction still persists. It is interesting to note that during the interval between the first and second series of tests the patient continued to take mercury in exactly the same dose.

In connection with the parasyphilitic infections, the general paralytics give excellent results, but the tabetics are the least satisfactory of all conditions supposed to be the result of syphilitic infection. Our list includes 35 general paralytics, of which 31 were definitely positive, 3 doubtful, and 1 negative. This one, which was recorded as negative, was subsequently tested and found to give a positive reaction, so that in all probability the first result recorded was due to unnoticed error. In addition to these there was one other case which was clinically general paralysis, but which gave a negative reaction, and on examination of the spinal fluid, by an independent observer, there was no increase in the lymphocytes.

Few tabetics have been tested, but of the eleven tested five were positive, two doubtful, and three were negative. Of the three negative cases one had certainly had syphilis, but the other two strenuously denied having had an infection.

As regards the control cases, in which there was no suspicion of the existence of syphilis, we have tested 771 cases, some of these being healthy persons and some others being patients attending the hospital for other diseases. Of these twenty-two gave positive reactions, while four were doubtful, these four being cases in which there was a deficiency in the hemolytic power of the serum, and which were done early in the research before we had had much experience in combatting this deficiency.

The twenty positive cases included were two cases of leprosy and several cases of gonorrheal infection, and on close inquiry into the history of these patients there seemed some grounds for believing

that in every case, with the exception of one of the cases of leprosy, in all probability, there had been a syphilitic infection.

From a consideration of the figures given above it would appear that this simple method used gives as good results in the serum diagnosis of syphilis as any of the more complicated procedures.

The objections which can be raised to it are, first, that in a certain percentage of cases there is no hemolytic power for sheep corpuscles, in the serum to be tested, and, secondly, the reaction may fail in cases where there is only a small amount of antibody and much complement in the serum. As regards the first objection, we have shown above how it can be met without using any but the most simple procedures, and our actual results clearly show that the second objection is purely a theoretical one, and one which need not be taken into account in practice. The method requiring as it does only the preparation of a suitable alcoholic heart extract (which can be kept in stock) and the obtaining of sheep's blood is, we think, the least complicated method which has been devised for the purpose, and the easiest to perform in the hands of other than trained laboratory men. Emphasis must be placed on the fact, as stated in a previous communication by one of us, Clemenger, however, that the results are dependent entirely on the efficiency of the extract.

IN WHAT WAY CAN LARYNGOLOGY AID IN MAKING THE DIAGNOSIS OF INCIPIENT PULMONARY TUBERCULOSIS.*

By WOLFF FREUDENTHAL, M.D.,

NEW YORK.

If the question were asked what are the symptoms in the upper air tract from which a diagnosis of incipient pulmonary tuberculosis can be made, it would be impossible to give a mathematically correct answer. It will be my aim, however, to attempt to outline certain symptoms which are partly pathognomonic of the disease.

For many years the writer has made systematic examinations of all patients admitted to the sanatorium for consumptives at Bedford Station. Many of them were suffering from incipient tuberculosis of the lungs, while in others the diagnosis was not at all positive. By following this plan a picture of the entire upper air tract was gained, which, in connection with other symptoms, enabled us to state that in certain cases there was in all probability a tuberculous lesion of the lung present, in others not.

Beginning with examination of the condition of the nose, it must be confessed that the symptoms here are not at all significant. A recent writer who examined 156 cases of pulmonary tuberculosis found that 150 of them were suffering from a deviation of the septum. While such deviations are certainly present, the above number is surely an exaggeration. The same writer found about as many hypertrophies in the nasal chambers. *A priori* one would not expect hypertrophic conditions in a wasting disease like phthisis, and statistics gathered by the writer† and others show just the contrary. Indeed, we frequently find atrophic and dry conditions in the nose, but in the individual case we cannot identify them with any tuberculous lesion.

Of greater importance is the examination of the posterior pharynx, especially the vault. I will not mention adenoid vegetations here; they seem to me to be but the reaction of the organism against the invasion of the tubercle bacillus. These growths have been examined by the hundreds, but comparatively seldom has the tubercle bacillus or tuberculous tissues been found in them.

What we do frequently find at the vault of the pharynx are bleeding vessels. The writer years ago called attention to this point, as well as to ulcerations occurring on the same spot. If you examine a large number of cases carefully, you occasionally meet ulcers, though they are not so frequent as hemorrhages. In fact, the latter are so significant of a tuberculous invasion that we may almost call them pathognomonic, as spontaneous hemorrhages do not occur in any other disease. Only once has the writer had occasion to plug the posterior nares for bleeding from the vault of the pharynx, and that was in a case of purpura hæmorrhagica. The syphilitic lesions in that neighborhood are of an entirely different character.

More remarkable, however, is the extreme pallor and anemia of the mucosa observed all along the hard palate and including the mucosa of the soft palate back to a certain line. This extreme anemia is the more striking by contrast with the marked congestion further down. This line of congestion begins at the point of insertion of the uvula, and extends down on both sides over the arches, including the tonsil and its vicinity.

Another symptom to which the writer has drawn attention are the hypertrophies of the lymphoid tissue at the base of the tongue. These hypertrophies of the lingual tonsil have been observed in perhaps 50 or 60 per cent. of all tuberculous cases, and seem to be directly contradictory to what has been said above regarding hypertrophies in general; but I believe that this part of Waldeyer's ring is in the same relation to the tuberculous process as adenoid growths. They become enlarged, perhaps, for the same reason—that is, as the result of a reaction of the organism against the invasion of the tubercle bacillus. Here at the base of the tongue we might well consider the probability of ingestion tuberculosis; the food passing over this area is more apt to adhere to it than farther up. However, this is only a theoretical deduction. Enlarged veins at the base of the tongue are not often encountered, and bleeding from this region, as is quite common in other affections, is almost unknown in tuberculosis.

Again, the epiglottis, or rather, the tip of the epiglottis, which in the incipient stage is generally very thin, shows marked anemia, while further down there is congestion.

There is one more symptom of a preturberculous condition to which I would like to allude, and that is located in the larynx. This is a thickening of the interarytenoid space, which occasionally is very marked.

Repeatedly cases have been referred to me on account of "hemorrhage from the lungs" in which thorough examinations of the chest by competent medical men and examination of the sputum have revealed nothing tangible. Laryngoscopically, I found in these cases a bleeding spot in the trachea.

It is to be considered a fortunate thing for the tuberculous subject if hoarseness sets in at an early stage of the disease. If changes are visible within

*Read before the Metropolitan Medical Society February 22, 1910.

†W. Freudenthal: "On the Ætiology of Pulmonary Tuberculosis in Its Relation to Diseases of the Nose and Throat," *New York Medical Journal*, Dec. 19, 1903.

the larynx, they should put us on guard. A persistent hoarseness due to simple laryngitis that is not due to alcoholism or any constitutional disease like rheumatism, gout, etc., and does not yield to rational treatment, should be regarded as most likely tuberculous in character.

During the last few years the writer saw three cases in which the first and only sign of tuberculosis was a paralysis of the left vocal cord. They all were referred to him by their physicians on account of hoarseness. Invariably they felt perfectly well, and absolutely nothing else was discovered except that paralysis. It is needless to state that those patients were thoroughly examined, and that the existence of all other diseases, as lues, tabes, etc., was excluded. They showed signs of tuberculosis later on. Undoubtedly we had to deal in these cases with a latent tuberculosis that suddenly developed an activity in the cervical lymphatic glands, thus causing pressure on the superior laryngeal nerve.

And now only one word more about "laryngeal crepitation." When the ear is held close to the mouth of a patient while he is breathing you hear, according to Cybulski, as mentioned by Skillern, a sound resembling that of the scratching of a pen. This symptom, to which Cybulski and Skillern seem to attribute great significance, the writer has never been able to elicit in the early or pretuberculous stage of the disease, but generally much later. It then sometimes conveyed the sound of boiling water, and must be regarded as a very unfavorable symptom.

While it would seem absurd to make a diagnosis of pulmonary tuberculosis from the mere presence of hypertrophy of the lingual tonsil, or from a pronounced pallor of the mucosa of the hard palate, yet many or all of the above symptoms, taken collectively, in conjunction perhaps with the history of the case and certain suspicious pulmonary signs, will in many instances enable you to determine with great probability the existence of a tuberculous process in the lungs.

A CASE OF PELLAGRA IN ILLINOIS.

By WILLIAM FRANCIS WAUGH, A.M., M.D.,

CHICAGO, ILL.

PROFESSOR OF THERAPEUTICS BENNETT MEDICAL COLLEGE.

Edward L., aged 36 years, born in Illinois, of which State he has been a resident since birth. He is a farmer and lives in Marion county. He is not addicted to alcohol, nor has he been affected with syphilis, gonorrhea, or malaria.

In January, 1909, Mr. L. was seized with gastric and digestive troubles for which he was attended by Dr. John Akester of Farina, Ill. He noted in L.'s case the absence of any apparent cause for the digestive affection, its obstinacy, being unaffected by treatment or diet, and the unusual bodily prostration and mental depression present. Improvement followed that could not be attributed to the treatment, and relapses without obvious cause. Recognizing in the case something unusual, Dr. Akester brought the man to Chicago in April of this year. The patient was then emaciated, despondent, irresolute; affected with insomnia and neuralgic pains, atypical and variable; diarrhea, severe burning in the stomach, and in the mouth when aphthous ulcers were present, salivation not attributable to mercury, the diarrhea assuming the lienteric type; his nose was red, fissured, and rough, with an eruption resembling a chronic eczema, and his neck exhibiting a red collar resembling sunburn, but marked where the skin was protected against the sun by his beard. The prostration and emaciation were such as to induce a tentative diagnosis of tuberculosis, but this was not confirmed by physical examination or by tuberculin injections. Examinations of the blood, feces, and urine proved negative.

About the first of June an eruption appeared on the backs of his hands so characteristic as to confirm the diagnosis of pellagra. The dorsa of both hands appeared as if scalded, the surfaces were red and raw, the backs of the fingers fissured and rough up to margins of the nails which appeared unusually white, the eruption ending by a sharply defined margin at the wrists but extending completely around these. The palms were unaffected except as to being yellowish. The psychic depression progressed until the man made an attempt at suicide by slashing at the arteries in the wrist.

Before this occurred I had written to Dr. Akester suggesting the diagnosis of pellagra, and he replied that he had spoken of this possibility when he brought the patient to Chicago, though not to me. He is entitled to the credit of having been the first to detect a case of pellagra in Illinois, and I believe in the North, developing outside any public institution.

The four groups of symptoms are well-marked—the digestive, obstinate diarrhea uninfluenced by diet or drugs, intense burning in the stomach, aphthous ulcers with salivation in the mouth, emaciation and profound prostration; the cutaneous, the dorsal surfaces of the hands scalded, the nose roughened, the characteristic collar; the nervous, marked vertigo early in the disease and persistent, insomnia, wandering neural pains, uncertain gait but not ataxic; and the psychic, great mental depression and feebleness, with suicidal tendency.

Mr. L. tells us that there are at least two other persons in his vicinity similarly affected. The corn there has for some years been subject to a disease of the stalks, a form of mould extending from the roots through the stalk to the cobs and to some of the grains, which are shrunken and blackened. This is seen also in the other cereal grains raised in that locality. I have seen corn growing in Chicago similarly affected.

If this is indeed a case of pellagra it is important that physicians in the State shall be ready to recognize it as such in the earlier stages when, if ever, it may prove amenable to treatment.

The treatment of pellagra has not as yet been settled by conclusive beneficial results obtained from any remedy or method. Arsenic in the form of atoxyl has been commended, but there is a disquieting resemblance in these cases to some forms of arsenical poisoning; and it seems desirable that the remedies tested should be those that may be safely pushed to the production of full effects, since it is uncertain how much may be required.

The view of pellagra that assigns the symptoms to a gastric or intestinal mycosis does not seem in accord with the clinical picture presented, although there may be something of this element; and the routine practice of clearing the bowels and disinfecting them, which has proved so useful in other febrile maladies, need not be omitted. Dr. Akester has been giving copper arsenite, but I have advised the use of copper sulphocarbolate—copper because

of the great value of this metal in ridding drinking water of algæ and other vegetable growths, and the acid on account of its great powers as shown in the sulphocarbolates of zinc, lime, and soda. Of these I have prescribed for L. half a centigram every two hours, to be increased until some effect is manifested.

The most probable hypothesis assigns the symptoms to a mycosis of the tissues, and the analogies are with thrush, diphtheria, and tetanus. Hence I would suggest the administration of phenol, five centigrams daily in solution, hypodermically, injected intramuscularly. This is being given and proves unirritating. This will be continued until smokiness of the urine shows a destructive action on the red blood-corpuscles.

Meanwhile all the resources of the roborant régimé are being brought into operation—diet, exercise of passive kinds, fresh air, moral encouragement, iron, quinine, and strychnine in moderate dosage, and rubbing the body with hot oils every day. The open sores are relieved by applications of zinc ointment.

1358 Fulton Street.

A USEFUL ACCESSORY IN THE TREATMENT OF VARICOSE ULCERS.

By EUGENE H. POOL,
NEW YORK.

A scourge of varicose ulcers infests every clinic in which there is the slightest pretense of treating this distressing condition. How irksome both to the physician and patient the treatment becomes is well known to all who have worked in such a clinic.

The treatment usually employed consists in cleanliness and support of the leg, with appropriate applications to the ulcer, and in some cases surgical procedures.

The marked venous stasis and edema which accompany many of the old and refractory cases of ulcer diminishes the vitality and resistance of the tissues. That the stasis is generally credited with playing an important part in delaying the reparative process and in rendering treatment disappointing is evidenced by the efforts which are directed toward overcoming it. To this end no effort is spared to obtain support and pressure by strapping and by firm, smooth bandaging; its importance is likewise shown by the relatively rapid improvement which usually follows rest in bed with elevation of the limb in this class of cases. But the otherwise good health of the patient and the inability to give up work usually prevent the adoption of this last means of treatment. The endeavor to obtain a worthy substitute for rest in bed, one which will overcome venous stasis better than the means usually employed, gave rise to the method of treatment here described.

The worst cases in our clinic at the New York Hospital Dispensary have been taken as tests. The procedure is as follows: At the time of the dressings, three times a week, the patient is made to lie on the back on the examining table with both legs elevated almost to a right angle and supported against the wall; the patient lies in this position for about fifteen minutes. For the first few treatments massage is administered, stroking the limb toward the trunk. Before lowering the legs they are cleansed and dressed in an appropriate manner by strapping, medicinal applications, etc., and a muslin bandage is applied tightly and smoothly. The patient is instructed to resume this position three times a day for fifteen minutes each time, and at other times if the bandage feels too tight. No complaints have been made concerning the discomfort of the position and very few as to the tightness of the bandage. All the patients have expressed themselves from the outset as very much pleased with the results, stating that the legs are not only more comfortable, but show a more marked disposition to heal than by other methods.

By this method the engorgement of the veins and lymphatics is prevented and the edema diminished, as is evidenced by rapid diminution in the diameter of the legs after a brief period of treatment. Occlusion of the deep veins, of course, contraindicates the tight bandaging.

It must be emphasized that the method is intended to supplement and not as a substitute for other procedures. It will simply expedite the response of the tissues to curative agents. Appropriate local treatment must be as assiduously pursued as when this method is not followed. The only departure from the usual routine which is here suggested is the detail of elevation which seems to enhance the effect of the bandaging.

The following are brief summaries of three cases:

Case I.—Mrs. B., a large, fat woman, aged 47, came to the New York Hospital Dispensary on March 12, 1910. She could walk only with difficulty on account of pain in the right leg. She had been struck on the leg five months previously and an ulcer developed on the anterior aspect 4 inches above the ankle. The whole leg was greatly swollen and edematous, measuring 21¼ inches around the calf; above the ankle the flesh was in folds. The skin of the leg was tender, the subcutaneous tissues were hard and edematous, pitting slightly under pressure. The ulcer was superficial and healthy, 1½ inches in diameter. She received twelve treatments as outlined above. The ulcer healed rapidly and the size of the leg quickly diminished. On her discharge, April 12, the calf measured 16¾ inches, a diminution of 4½ inches in one month. The pain and difficulty in walking had entirely disappeared.

Case II.—Miss T., aged 27, came to the Dispensary April 27, 1909. She had been operated upon elsewhere for varicose veins one year before. Her legs were very painful, greatly swollen, and edematous; the right calf measured 19½ inches, the left 19⅝ inches. There was no ulceration. Under treatment as above described, consisting of elevation, massage, and bandaging the pain quickly subsided. On July 29 the legs measured 14½ inches and the patient was comfortable. She stopped treatment. On March 5, 1910, she again reported, and it was found that the legs had returned almost to their original condition, measuring 18¼ inches, and being painful.

Case III.—Mrs. O., a very large, fat woman, aged 53, came to the Dispensary on March 5, 1910. She had had varicose ulcers of the right leg for twelve years, and had received various treatments, including a course such as is here described, one year ago at the New York Hospital Dispensary. She improved at that time, but was obliged to cease treatment before cured. On admission the whole leg was greatly enlarged, hard, and tender. There was marked eczema of the leg and a large indolent ulcer with raised and hard borders. On April 19

the leg had shown a decided improvement, not so much in diminution of its size as in reduction of the area of the ulcer, which was reduced about one-third. The induration had disappeared except in close proximity to the ulcer. The patient was comfortable and wanted to continue treatment.

128 East Sixty-fourth Street.

A CASE OF URTICARIA CAUSED BY THE SUN'S RAYS.

By BENJ. F. OCHS, M.D.,

ADJUNCT ATTENDING DERMATOLOGIST LEBANON HOSPITAL, DERMATOLOGIST LEBANON HOSPITAL O.P.D., ASSISTANT DERMATOLOGIST HARLEM HOSPITAL.

Urticaria is classified among the common dermatoses, and has many etiological factors—thus from the ingestion of many different food stuffs, as berries, clams, lobsters, cheese, etc., from different drugs taken internally as opium, quinine, and the coal-tar derivatives; from drugs used externally, from the antitoxins, from the bites of insects, etc. But to have an urticaria caused by the sun's rays only is exceedingly rare, and the following case is therefore thought of enough interest to report.

Mrs. M. W., æt. 34, married twelve years, had a miscarriage at the third month of her married life and has never been pregnant since. She attends to her own housework and always enjoys the best of health, the bowels and menses are regular, and her sleep is not disturbed. For the past nine years the patient notices that whenever she exposes any part of her body to the sunlight, she develops an urticaria. It matters not whether an arm, leg, or the face is exposed the urticaria is sure to follow. This urticaria is in direct ratio to the effect of the light; thus on a dark day with little sunlight, the urticaria is slight, while on bright sunny days the urticaria is very pronounced. The patient has called at the office several times with no urticaria and when the arms were bared and exposed to the sun's rays, decided urticarial wheals appeared in a few moments. This same thing was noticed time and again. However, when the patient used a dark-green or black umbrella and wore dark gloves to shield herself from the sun, no urticaria appeared. In order to test whether this urticaria was produced by any food ingested or only due to the sunlight, she was asked to eat liberally of such food as might cause urticaria, and at the same time to shield herself with a dark umbrella, but no urticaria developed; but when she exposed any part to the sun the urticaria appeared. The patient disappeared from treatment as there was no improvement from tonics, etc. This case is the more interesting because it is usual that the sun causes only a slight erythema in sensitive skins, and if the skin is exposed too long or is excessively sensitive, there is a decided burn, but to have it cause only urticarial wheals is exceedingly rare and the reporter thought this could be designated as a case of urticaria caused by the actinic rays of the sun.

1980 Seventh Avenue.

An Epidemic of Noma.—Neuhoff concludes a study of an epidemic of noma by saying "Noma usually appears in epidemic form, its contagiousness has not been proved. The disease is an entity, and not a later stage of ulcerative stomatitis; the latter offers a good soil for the development of noma. There is regularly present in noma a streptothrix characterized by a thick meshwork of mycelium at the border line between normal and necrotic tissue, fine rods and spirilla extend from mycelium into the adjacent tissues. The constant presence of this streptothrix to the exclusion of other organisms indicates that, in all probability, it stands in direct etiological relationship to noma. The streptothrix is present in noma before the disease is fully manifest—in the pregangrenous stage. It is in this stage of the disease that radical treatment is to be practised; after the ulcers spread, the best results are obtained by conservative measures. General anesthesia should not be employed in any form of treatment because of the pronounced tendency to the development of septic pulmonary disease."—*The American Journal of the Medical Sciences.*

The Streptococcus of Scarlatina and the Reaction of Fixation.—Ch. Foix and Et. Mallein say that after an important and remarkable series of experiments Gabritchewski has isolated by hemoculture a streptococcus with special characters of virulence and agglutination, which he regards as the cause of the disease. The authors in 12 cases obtained 83 per cent. of positive agglutination tests with the streptococcus isolated from the throats of scarlatinous children. They believe that here is an important differential characteristic between the streptococcus of erysipelas and of scarlatina based on this, and give the following conclusions. The serum of scarlatinous children contains antibodies active against the streptococcus of the scarlatinous throat; this is found early and in the late stages of the disease; the reaction of Bordet is absent in the other streptococcemias, while present in scarlatina; it may serve to establish a serodiagnosis; we do not yet know whether this is a specific reaction. Schliessner has obtained similar results, showing 81 per cent. of positive reactions.—*La Presse Médicale.*

The Importance of Blood-Pressure in the Toxemis of the Latter Half of Pregnancy.—J. C. Hirst lays down the following rules: (1) The normal blood-pressure, in normal, healthy, nonpregnant women, will not vary much from 112 mm. (2) The normal blood-pressure in healthy pregnant women will average close to 118 mm. A slight increase over these figures is to be expected in the last month of pregnancy. (3) Blood-pressure in toxemia in the first half of pregnancy, associated with pernicous vomiting, is invariably low. (4) Blood-pressure in toxemia in the latter half of pregnancy, associated with albuminuria and eclampsia, is invariably high. (5) A high and rising blood-pressure is an invariable and early, often the earliest, sign of toxemia in the latter half of pregnancy. (6) Upon the rupture of the membranes, there is an immediate fall of pressure of from 60 to 90 mm. This fall is temporary only, but is attended with marked relief in the headache and epigastric pain these patients so frequently complain of. The relief from these symptoms lasts, however, for some hours after the pressure returns to near its original height, which it does shortly after the first fall. A similar fall, but much slighter, is noticed after a sweat bath. (7) There is a second fall of from 60 to 90 mm. after the child is born. This again is only temporary, and in from fifteen to thirty minutes, if a patient has not bled profusely, the pressure is back to somewhere near, but not quite to, its level before the birth. (8) Usually, in eclampsia, the pressure measures high for forty-eight hours after the birth, then begins to subside and reaches the normal of from 118 to 124 mm. in from seven to ten days after delivery. (9) As far as it is possible to lay down any rules in these cases, the author says that a blood-pressure of below 125 mm could be disregarded; a pressure of from 125 to 150 mm needs careful watching and moderate eliminative treatment; and that a pressure of over 150 mm needs usually active eliminative treatment, and will, in all probability, especially if it shows a tendency to climb higher, require the induction of premature labor.—*New York Medical Journal.*

Influence of a Diet Without Salt in a Case of Habitual Death of the Fetus.—Prouvost gives the history of a case in which the first two pregnancies resulted in normal, living children, but in whom there followed a succession of dead children. The mother desired living children, and was very much depressed by her inability to have living ones. The dead children were swollen and edematous. The author thought that he would try removal of salt from the diet of the mother, who was very fond of salt, on the theory that too much salt was retained in the blood of the fetus. He made the patient eat meals that were specially prepared without salt, eating only dinner with the family. This was continued for some two years, when the patient brought forth a living, healthy baby. Two years later the woman became pregnant again, and the diet was repeated with a similar result. If results can speak for the cause of such a condition, it seems evident that the mother was taking too much salt, and that, for some reason, it was retained by the fetus in excess, producing an intoxication.—*Bulletin de la Société d'Obstetrique de Paris.*

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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DIET IN TRAINING.

THE question of diet is of the first importance in the training of athletes, and concerning this matter widely divergent views have been expressed by various authorities. It is freely allowed that the opinions of old-time dictators on the best means of feeding those in training for the exertion of severe physical efforts have been for the most part overturned. The diet in vogue in such cases forty or fifty years ago would not meet with favor in these days. Possibly the pendulum has swung too far in the opposite direction and a certain amount of faddism has been introduced into the subject. Yet it appears to have been definitely proven that youths and men can be brought into excellent physical condition, and kept in that condition, on foods which would have been regarded with the greatest suspicion in days of yore. For instance, there are many formidable athletes nowadays who are vegetarians. Mr. Eustace Miles, one of the best tennis players who has ever lived, is a rigid vegetarian. There are also those who confine themselves to a diet of fruits or nuts and who seem to be able to maintain a satisfactory bodily condition. In the face of varied and contradictory experiences, it must be confessed that one cannot yet make a dogmatic statement with regard to diet for athletes.

H. I. Gillett read a paper on diet in training before the Oxford Medical Society in the Radcliffe Infirmary, Oxford, on June 17. He pointed out that the majority of Oxford rowing men consume on the average 169 grams of protein daily, thus exceeding Atwater's standard of 150 grams daily for those doing severe muscular work. Liebig taught that the oxidation of proteins was the sole source of muscular energy; hence the diet formerly consisted largely of flesh. But now carbohydrates and fats are recognized as sources of energy, and a high protein diet is regarded as unnecessary or harmful. Atwater and Bryant, in their dietary studies in university boat crews, estimated that the average amount of protein consumed daily was 155 grams. They did not show that it was necessary to take so much, but they said that the diet best suited to training had not been decided upon, and so it varied according to the ideas of special trainers. Chittenden, on the other hand, does not follow the ideas of trainers or tradition, but has proved, at any rate to his own satisfaction, that athletes could keep in good condition and compete on favorable terms with others on as little as 55 grams of protein daily, the amount of protein varying with the weight of the individual. Gillett thought that Chittenden's estimate of the quantity of protein needful too low and suggested that in order to ensure nitrogenous equilibrium it would be safer to allow a considerably larger amount. Excess of protein is bad, in that it must mean unnecessary work for the digestive organs, liver, and kidneys, and the purins may cause symptoms of general malaise and irritability and throw extra work on the organs of excretion. Toxemia may result from decomposition of protein, causing a high blood pressure with consequent strain on the heart, in addition to the strain of exercise. The point is how to discover what constitutes an excess of protein and to find out whether a hard and fast rule can be laid down with respect to the diet of athletes. Judging from experiments and tests which have been made up to the present time, it may be stated with emphasis that no arbitrary rule can be deduced from these and it seems likely that the diet of athletes must be regulated according to the idiosyncrasies of individuals under the direction of medical men or skilled trainers. A medical trainer should not take long to find out whether his pupils are suffering from an excess of protein or, at least, he should be able to ascertain with a sufficient degree of exactitude, after a few weeks' observation, whether their diet is suitable. The personal equation, after all, must be considered, and it does not appear reasonable to suppose that a routine diet can be ordered that will be suitable for each and every athlete.

TREATMENT OF LUPUS.

THE report of the committee on the treatment of lupus of the German Central Committee for Combating Tuberculosis was made public orally on May 12 last, in Berlin, and has now appeared in the *Deutsche medizinische Wochenschrift* of June 23. It cannot be justly maintained that lupus is *per se* an affection of much interest to the great body of American practitioners, for it occurs principally in immigrants from Europe, and is seldom seen save in large cities, and then chiefly in hospital practice. We refer to typical lupus of the face, for atypical tuberculous lesions which technically might be classed as forms of lupus are seen now and then in native Americans, often giving rise to much speculation as to their intimate nature. The inoculation-lupus on the hands of butchers might be cited in this connection; also so-called ulcerating scrofulides, and tuberculous gummata, which develop either spontaneously or in association with tuberculous sinus discharges All these lesions differ notably from classical lupus of the face and contiguous muscosæ, with which we assume the German committee is primarily concerned.

In the report in question Professor Lang takes up the surgical treatment proper, which refers chiefly to extirpation of the focus with resulting plastic operation. He recommends this as the pro-

cedure of choice in suitable cases, and free from the objections native to the Finsen treatment, which requires an elaborate outfit and much time and trouble. Professor Zinsser of Cologne reports on the Finsen method, the chief advantage of which is bound up in the demonstration of the absolute curability of lupus by mild measures. Wickmann of Hamburg follows with the radium treatment of lupus. He claims that it represents an advance in our resources and that it is specially to be recommended in small disseminated foci where excision is contraindicated, and also in lupus of the mucosæ. He does not draw any parallel between the Finsen and radium therapy. The number of cases treated with radium is probably too small for comparison with other methods (only 23 cases are mentioned). We derive the impression that radium therapy is worth while chiefly as a procedure accessory to other methods. Gottschalk of Stuttgart considers all other methods of treatment jointly. These include radiography, the Kromayer lamp, tuberculin, and chemical remedies.

As was to have been expected, the discussion which followed these reports was best adapted to reveal the state of professional opinion, but this proved to be very contradictory. Each method had its advocates. Neisser, for example, is a believer in radiotherapy plus tuberculin. Several others commended pure surgical measures because of their practical adaptability to the time and purse of patients. Others, by reason of the smooth cosmetic results not attainable through autoplasty preferred some form of light treatment. No consensus of opinion can be said to have been reached, save the obvious ones of selection of the remedy best suited for the individual case, and of combination of remedies whenever possible.

Operative Treatment of Spastic Diplegia.

The spastic diplegias resulting from upper neuron lesion, especially of the newborn, are conditions which until recently have been but very slightly amenable to treatment. The loss of the inhibitory action of the cortical centers upon the motor cells of the spinal cord while the lower neurons are uninjured and are constantly being stimulated by the sensory impulses received from the posterior root nerves, causes the continuous and uncontrolled production of efferent impulses through the anterior roots and the consequent reflex muscular spasms. The results of tenotomies, myotomies, and tendon transplantations have in some cases improved the function of the affected limbs, but more frequently the real benefit derived from such operations has been slight indeed. In 1907, however, Foerster of Breslau recommended a new procedure in such cases. On the theory of the spasm being due to the reflex overactivity of the motor cells of the lower neuron by the uncontrolled stimulation from sensory impulses, he suggested that, if the latter were reduced by cutting some of the sensory roots, the spasm might be decreased without injury to what voluntary or reflex motor power still remained in the affected parts. In the *Deutsche medizinische Wochenschrift* for May 12, 1910, Hevesi reports a successful result from this operation in a girl eleven years of age who had been a spastic diplegic since infancy. With the patient lying on her face he opened the lower end of the spinal canal, incised the membranes, and with a blunt hook elevated the nerves of the cauda equina corresponding to the second, third, and fifth lumbar, and second sacral posterior roots on the left side and the second and fourth lumbar and first sacral on the right side. From each of these nerves he excised a piece varying from 2 to 6 cm. in length. The wound was closed temporarily and the next day the dura, muscles, and skin were firmly united in layers and a small drain was inserted for two days. The wound healed *per primam* and the child made a good recovery from the immediate effects of the operation. Six weeks later walking was attempted with support, and during the seventh week the child began to walk by herself with slow steps and bent hips and knees. There was no spasm, no ataxia, and no gross loss of sensibility in the legs. The operation made further training possible by exercises, which previously the spastic condition had prevented. This operation has now been performed a number of times in such cases, and from the reports which have appeared it would seem to be the most successful method of treating spastic diplegia yet adopted.

Conservation of Human Life in Pennsylvania.

The Pennsylvania Health Bulletin for March shows the results of the work that has been done by the State Department of Health during the past four years in the conservation of public health. In this period three million dollars have been expended, resulting in a saving of twenty-three million dollars to the commonwealth. By reason of the State supplying diphtheria antitoxin for the poor the lives of thousands of little children have been saved. Fewer persons are being killed by typhoid fever in Pennsylvania than was the case four years ago, and the death rate from tuberculosis is considerably less. This is stated to be the visible outcome of the generous appropriation made by the State of Pennsylvania in the interests of public health. For example, since October, 1905, the Health Department has distributed for use among the children of the poor 49,443 packages of antitoxin. It has treated 19,929 sick people, mostly children, who, but for the State's intervention, would have been neglected. The department in three years has immunized with antitoxin 14,527 persons, nearly all children, who had been exposed to the disease. Again in four years the death rate from tuberculosis in the State has fallen from 134 to 120 per 1,000 inhabitants. Free tuberculosis dispensaries have been established and a tuberculosis colony has been founded at Mont Alto. A second State sanatorium is to be established at Cresson and a third institution in the foothills of the Blue Mountains near Hamburg. Perhaps, however, the most important work done by the Health Department has been in connection with typhoid fever. In 1905 the State Legislature recognized the necessity for central control of the water supplies, and placed all water courses, so far as public sanitation was concerned, under the jurisdiction of the Governor, Attorney-General, and Commissioner of Health. Of course this simplified matters greatly. Whenever a case of typhoid fever is reported the department can immediately trace it to the watershed where it originated and investigate accordingly. The Department has been invested with very broad powers, and acting through these, by means of its army of inspectors, has pene-

trated the remotest recesses of the State, inspecting premises, noting palpable nuisances, and investigating water and sewerage systems. It is stated that already the typhoid fever rate has been reduced by half owing to these improvements. As we have often insisted, it is only by cooperation between State, municipal, and health authorities, aided by the earnest good will of the community, that real results can ensue.

The "Leg Phenomenon" in Tetany.

A few months ago Schlesinger of Vienna demonstrated, in a patient suffering from tetany, a symptom in many ways similar to the Trousseau sign, but occurring in the leg instead of the arm. The new symptom, which the author considered to be pathognomonic of tetany, consisted in the production of an extreme supinatory spasm of the foot by simultaneous extension of the knee and flexion of the hip. The symptom could be elicited either by raising the leg aloft, while the patient lay on his back, by having the patient sit up in bed, with the legs stretched out straight, or by having him bend his body forward while standing erect. In the *Deutsche medizinische Wochenschrift* for June 2, 1910, Alexander of Berlin discusses the subject of this new symptom of tetany, and endeavors to explain it. In the case which he reports the symptom was elicited with ease, but during the spasm he observed that the pulse in the feet was in no way decreased in strength, from which fact he deduced that the phenomenon could not be the result of pressure on the artery, as is supposed to be the case in the Trousseau sign in the arm. He believes, on the other hand, that the cause of the phenomenon is the stretching of the hypersensitive sciatic nerve over the tuber ischii. Further proof of this appeared in the fact that bandages around the thighs, sufficiently tight completely to obliterate the pulse, but not causing stretching of the nerve, failed to produce the symptom. Furthermore, in two infants with marked tetany the phenomenon could not be produced, probably due to the fact that the physiological position of the infant *in utero* being such that the thigh is in extreme flexion, the artificial production of a similar position during early life causes no undue tension on the nerve. Again, experimenting with the Trousseau symptom the author found that in persons suffering from tetany the typical spasm of the arms and hands could be produced by merely raising the arms and holding them in contact with the ears, and that in such a position, while the nerve trunk is stretched over the head of the humerus, the intact radial pulse proves that obliteration of the brachial artery has not been produced. These findings all point strongly to nervous origin of the Trousseau sign and this new phenomenon, rather than to their production by obstruction of the blood supply to the limbs. Whatever the explanation may be, the practical value of the leg phenomenon for the diagnosis of adult tetany promises to be considerable.

"Albumin-Milk" in the Diarrhea of Nurslings.

Finkelstein and Meyer, of the Berlin Foundling Asylum, have been seeking to combat infantile diarrhea by a milk modified as follows: Wishing to get rid of the lactose and saline matter, they curdle one liter of milk and strain out the casein and fat. The latter are then added to half a liter of plain water; and to this is further added an equal amount of buttermilk. The resulting modification is poor in lactose and salts and rich in casein and fat. This milk is given to all foundlings which have diarrhea, whether mild or severe in type; to all previously healthy who develop indigestion, and to children with gastroenteritis with impending marasmus. The rationale of this dietetic resource lies obviously in the belief of the authors that the fermentation of the lactose either plays a marked role in causing diarrhea or else tends strongly to antagonize recovery. It does not appear, from the present paper, at least, that the saline matter is directly accused of contributing to the diarrhea, but this and milk sugar constitute the strictly soluble contents of the whey, and in getting rid of the sugar we must at the same time get rid of the salts. However, it is alleged in some quarters that the unnatural element of cow's milk for infant feeding resides not in its casein and fat, but in the serum or whey as a whole. This is not to be eliminated completely, but cut down to such quantity as the human organism can take care of. The milk is not designed for indefinite consumption, but only as long as indicated.

News of the Week.

To Study Ambulance Systems.—At the request of the Police Commissioner of New York, Mr. William I. Spiegelberg, president of the Sydenham Hospital, who sailed recently to study private and public hospitals in various European cities, will also investigate the different ambulance systems. Mr. Spiegelberg is chairman of the Ambulance Committee of the City of New York.

Army Medical School.—The War Department has issued an order establishing a field service school for army medical officers, as a part of the army service school at Fort Leavenworth, Kan. The object of the new school is to prepare officers of the Medical Corps and medical officers of the organized militia for the better performance of their duties as administrative and staff officers on field service and to make research into such subjects as may concern medical officers under field conditions. The course of instruction will cover a period of not less than six weeks, beginning on April 1 of each year. The senior officers of the new school will be the Commandant and Secretary of the Army Service School, and the Assistant Commandant will be an officer of the Medical Corps with a grade not lower than that of major. Student officers will be selected by the Surgeon-General of the Army.

Census Figures.—Rhode Island is the first State to have its census returns completed. The official count of the population is 542,674, an increase of 114,118 or 26.6 per cent. over the figures for 1900. The increase during the preceding decade, 1890-1900, was 83,050, or 24 per cent.

City Docks for Sick Children.—The Dock Commissioner of New York has announced a plan for utilizing the unused space in the city ferry terminal buildings at the South Ferry as open-air hospitals for sick children. In each building a space 75 x 100 feet would be available, and could be fitted with cots, etc., if the city should see fit to appropriate the necessary money.

Bellevue Appointments.—Dr. Michael J. Thornton has been appointed assistant alienist at Bellevue Hospital, New York, to succeed Dr. Mark L. Fleming, recently appointed second assistant medical superintendent. Dr. Thornton was graduated from

the Albany Medical College in 1901, has been connected with various insane asylums, and has been mental examiner at Ellis Island for the past four years. Miss Clara D. Noyes has been appointed director of nurses at Bellevue to succeed Miss Annie W. Goodrich who resigned recently to become State inspector of nurses' training schools under the jurisdiction of the State Department of Education. Miss Noyes is a graduate of the Johns Hopkins Hospital Training School and has had considerable experience in superintending such training schools, as well as in connection with the department of hospital economics at Columbia University.

Medical Reciprocity Between Italy and Great Britain.—Legislation has recently been enacted in Italy affecting the position of foreign medical practitioners in that country. Under this new law, British medical practitioners, in virtue of the reciprocity granted by Great Britain, will in the future enjoy unrestricted freedom of practice in Italy, instead of the limited rights hitherto conceded them of practising only among foreigners.

City Death Rate.—For the week ending July 16 the death rate in New York was 18.88 per 1,000 of population, a considerable increase over the same week in 1909, when the rate was 15.97. The total number of deaths was 1,705, against a total of 1,397 for the same week last year. Forty-five deaths were attributed directly to the heat. There were 785 deaths among children under five years, and 568 among infants under one year. Typhoid fever caused fifteen deaths, seven more than a year ago, and pneumonia 115, seven less. The 181 deaths from tuberculosis were an increase of 23 over the total from this disease in the corresponding week last year. Even deaths from violence increased, 162 being recorded, against 93 a year ago.

Mr. Arthur MacDonald of Washington, D. C., was elected an honorary member of the Medico-Legal Society of New York City at a meeting of the society held recently.

Dr. John B. Byrne, Jr., of Brooklyn has been appointed private clerk to Coroner Rooney of that borough. A law passed a few years ago empowered the coroners to make such appointments, at a salary of $1,500 per year, but the predecessors of the Brooklyn coroners have been unable to act since the necessary appropriations were not made until recently by the Board of Estimate. Coroner Glinner of Brooklyn has appointed Mr. Thomas Creamer as his private clerk.

Bequests to Charities.—The Seney Hospital and the Methodist Home for Aged People in Brooklyn, N. Y., each receive $5,000 under the will of the late Charles P. Armstrong, who died recently at Greenwich, Conn.

The Maine Medical Association.—At the recent annual meeting of this society held at Bar Harbor, the following officers were elected for the ensuing year: *President,* Dr. E. H. Bennett of Lubec; *Vice-Presidents,* Dr. Addison Thayer of Portland, and Dr. F. M. Whittier of Brunswick; *Secretary,* Dr. W. Bean Moulton of Portland; *Treasurer,* Dr. E. W. Gehring of Portland; *Councilors,* fifth district, Dr. R. W. Wakefield of Bar Harbor; sixth district, Dr. R. H. Marsh of Guilford. The fifty-ninth annual convention of the association will be held in Augusta on the last Wednesday and Thursday of June, 1911.

The Austin Flint Cedar Valley (Iowa) Medical Society.—At a meeting of this society, held on July 13, at Mason City, Ia., the following officers were elected for the coming year: *President,* Dr. Paul E. Gardner of New Hampton; *Vice-President,* Dr. J. C. Powers of Hampton; *Secretary,* Dr. C. F. Starr of Mason City; *Treasurer,* Dr. W. L. Hearst of Cedar Falls. The next meeting will be held in New Hampton.

The Rutland County (Vermont) Medical and Surgical Society.—The annual meeting of this society was held at Lake Bomoseen on July 12. Dr. G. G. Marshall of Rutland was elected president of the society for the ensuing year, and Dr. William Stickney of Rutland was elected secretary and treasurer.

The Medical Library Association.—The thirteenth annual meeting of this association was held in St. Louis on June 6, the president, Dr. J. H. Musser, in the chair. The secretary's report recommended that the Association print the Constitution and By-Laws and a list of the members of the Association, and also that notification of dues be sent regularly to each member. On motion, the recommendations were approved. The report of the treasurer showed a balance of $43.33. The report of the manager of exchange stated that during the year the material belonging to the exchange, consisting of 11,919 volumes and 7,707 unbound numbers, reprints, etc., had been removed from Brooklyn to Baltimore. The following officers were elected for the ensuing year: *President,* Dr. John Musser of Philadelphia; *Vice-President,* Mr. C. Perry Fisher of Philadelphia; *Secretary,* Miss M. R. Charlton of Montreal; *Treasurer,* Dr. John Rurâh of Batlimore. The Lackawanna Medical Society Library of Scranton, Pa., and Dr. John Rurâh were elected new members. The meeting adjourned subject to the call of the executive committee.

Obituary Notes—Dr. Charles N. Hewitt of Red Wing, Minn., died in Summit, N. J., on July 7, aged 72 years. Dr. Hewitt was graduated from the Albany Medical College in 1857, and in 1861 enlisted in the Fiftieth New York Engineers as assistant surgeon, later becoming surgeon-in-chief of the engineer brigade. At the close of the war he was breveted a lieutenant-colonel, and removed to Minnesota where he practised until his retirement a few years ago. In 1872, when the State Board of Health was organized, Dr. Hewitt was made executive secretary, an office which he held for 25 years. He was at one time president of the American Public Health Association, and was an associate of the Society of Medical Officers of Health of England and of the Société d'Hygiene of France. For some twenty years he held a non-resident professorship of public health in the University of Minnesota. He was also a member of the American Medical Association and of the Minnesota State and Goodhue County Medical Societies.

Dr. Leslie Dodd Ward of Madison, N. J., Vice-President of the Prudential Life Insurance Company, died in London, England, on July 13, of acute kidney disease complicated with pneumonia, in the seventy-fifth year of his age. Dr. Ward was graduated from the College of Physicians and Surgeons of New York in 1868, and after some time of service as County Physician of Essex County, New Jersey, became interested in the question of life insurance, for many years serving as chief medical adviser in the company of which he afterward became one of the principal officers. In 1884 he relinquished his practice in order to devote all his time to the work.

Correspondence.

THE FUNCTION OF THE CORPUS LUTEUM.

To the Editor of the Medical Record:

Sir: Your issue of June 25, 1910, just to hand, contains an article, being a summary of original research, on this subject from the pen of Professor Leo Loeb. On page 1086 we read: "Thus far we had progressed in our work, when we found in the literature a communication by J. Beard in which this author gave expression to the hypothesis that the corpus luteum might have the function of preventing the rupture of the follicles during pregnancy. He did not undertake to prove this suggestion, and his hypothesis does not absolutely correspond to reality. The corpus luteum has a wider function than he conceived of; it not only prevents ovulation during pregnancy, but it delays ovulation also in nonpregnant animals. It changes the sexual cycle, a conception rather contrary to what Beard assumed. But, notwithstanding these imperfections in his hypothetical conclusions, we cannot but express our admiration for the scientific imagination of Beard. He has not received his due recognition, and what now has proved to be correct in his hypothesis we find in the literature without justification attributed to others—a mistake transmitted from one writer to another and a marked example of a not uncommon occurrence." In the first place, the reference given by Dr. Loeb is to a short paper in the *Anatomischer Anzeiger*, 1897, bearing the title "The Rhythm of Reproduction in Mammalia." This is merely a brief abstract of a small book of 132 pages published for me in 1897 by Gustav Fischer, Jena, under the title "The Span of Gestation and the Cause of Birth." The corpus luteum is mentioned on pages 82 and 118. As the full original paper is still on sale, it is not clear why Dr. Loeb refers merely to the author's abstract, published for the sake of drawing the attention of anatomists, physiologists, and embryologists to the former. Then, as a perusal of the complete paper would have shown, I was concerned only with the influence of the corpus luteum on ovulation, and in a paper treating of the Rhythm of Reproduction and the Span of Gestation there was no particular reason why other influences of the corpus luteum should be inquired into. Dr. Loeb now confirms this influence, and a very significant power it is, especially in the light of our present knowledge that the cells of the corpus luteum are sister cells of the egg, its degraded sisters, which provide for its welfare in the ovary and after fertilization. It is interesting and important to note the find of Dr. Loeb that the corpus luteum "delays ovulation also in nonpregnant animals." The research on the "Span of Gestation" revealed many, many things to its author, but, while it taught him that the "span" had been prolonged, and the ovulation intervals (units) also, it failed to disclose to him the mechanism of this latter. Now, in my opinion Dr. Loeb is right in saying that "it (*i.e.* the corpus luteum) changes the sexual cycle," but in error in adding the words "a conception rather contrary to what Beard assumed." His conclusions fit in remarkably with the results published in 1897 in my "Span of Gestation." I cannot feel other than grateful to Dr. Loeb for the words written in the latter portion of the citation from his paper, albeit—es lässt mich ganz kalt. It is not by any means an isolated instance in my career since 1882 to have my results and conclusions adopted by others without the least acknowledgment. This at times has happened to my mistakes also. Dr. Loeb has, I fear, yet to learn that all investigators are not like him and me, full of zeal for the advancement of science, but that sometimes the advancement of self takes the foremost place, and then the work of others may seem a legitimate spoil. There is also such a thing as verifying one's citations, the neglect of which may account for the "transmitted mistake" mentioned by him. I never met more than two other embryologists who had actually read Carl von Baer's big work on the "Development of Animals," "Entwicklungsgeschichte der Thiere," but I have seen scores and scores of "citations" from this classic work, and as a rule these were false. One embryologist once, and not so long ago, printed a paper on "von Baer's Law," neglecting to mention that von Baer laid down four laws of development, which at their basis are really two, and which do not include the "law" attributed to von Baer, who had indeed opposed it bitterly.

I would like to draw attention to Dr. Loeb's statement that the corpus luteum does not act on the wall of the oviduct, a fact with significant bearing upon tubal gestations and their consequences. The real import of the action upon the uterus I recognize in the production of a mass of tissue furnished for the trophoblast to act upon, instead of permitting it to erode its way through the uterine wall, when the consequences would be as grave as they are in a tubal gestation. From this Dr. Loeb will, I trust, see that even his latest results perchance do not reveal the full story. Did the corpus luteum not help the uterus to provide this nutritive cushion for the action of the trophoblast, it is certain that each one of us would in his own gestation, by means of a malignant "trophoblastoma" or so-called chorioepithelioma, kill his own parent, and in doing so bring about his own destruction.

On one occasion the writer reminded the editors of the *Lancet* that his findings and conclusions had at times an awkward habit of turning out to be true. It does not surprise me that Dr. Loeb now confirms, and extends, certain conclusions of mine enunciated thirteen years ago. The recognition that investigators of the scientific acumen of Dr. Leo Loeb exist and are extending the boundaries of human scientific knowledge is very comforting to one who at times feels somewhat of a veteran. Apparently, there is in the world still some science differing from the inane nonsense contributed—for payment—by anonymous authors, and transparent at that, on "cancer booms." In his present line of work Dr. Loeb is toiling in a rich and interesting region, as I know from old experiences. When he thinks of any little finds of mine there, he might also remember that there is an "antivivisection act" in this country, and that this explains more than one of my halts. He has encountered my footprints of thirteen years ago, and perchance they may lead him directly, as did the "Span of Gestation" me, to the problems of cancer. There also he may come to recognize how deservedly the writer earned not "recognition" but abuse and ridicule . . . for venturing to publish the truth for its own sake. For in my scientific opinion, based upon the results of "The Span of Gestation" and other memoirs, as well as upon actual results obtained in medical practice by others,* the only possible scientific treatment of malignant disease in general is by injections of sufficiently powerful preparations of both trypsin and amylopsin in proper dosage. What these scientific strengths and doses are and what results they produce in competent scientific hands may be left for description on an early occasion.

J. Beard.

Edinburgh, July 6, 1910.

Inter alia vide the War Office publication of Captain Lambelle's report in *Jour. Royal Army Medical Corps*, March, 1910.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

TUBERCULOSIS CONFERENCE AT EDINBURGH—EXHIBITION, HOSPITAL, FARM COLONY—DISCUSSIONS; AVENUES OF INFECTION; PREVENTIVE MEASURES—AMERICAN SURGEONS' VISIT—HUNTERIAN MUSEUM—VIVISECTION—OBITUARY.

London, July 8, 1910.

The Tuberculosis Conference mentioned in my last may certainly be considered a success, and Edinburgh has naturally attracted much of our attention all the week. No city could have been better chosen, and all her institutions have contributed to the result. In half a dozen of her schools distinguished experts addressed the teachers and senior scholars on the causes and prevention of consumption. It is estimated that more than 3,000 persons thus received some authoritative instruction. Lady Aberdeen urged on her young audience to lead healthy lives, in the hope that they would live to see the disease nearly fade out. About 1,000 visitors went to the opening of the farm colony for consumptive convalescents from the Victoria Hospital. The tuberculosis exhibition was largely attended. Dr. Halliday Sutherland delivered a popular lecture on "The White Plague," in which he compared the elaborate precautions against infection of less prevalent diseases with those taken against tuberculosis, with its annual death roll of 77,000. On Sunday there was a special service for students and guests, at which Professor Osler gave an address on "Man's Redemption of Man." He said the campaign was one of hope, as shown by history, and it was one of the triumphs of our generation to have determined the cause of the disease. The service concluded with addresses in memoriam, Robert Koch, delivered by Drs. Biggs, Woodhead and Philip. On Monday there was the annual meeting of the Association for the Prevention of Phthisis. Lord Balfour of Burleigh presided, and strongly urged local authorities to adopt compulsory notification, without which they were working in the dark. The disease had been diminishing in prevalence, if not in virulence, and must be tackled in earnest. The principal discussion was opened by Professor Sims Woodhead on

the avenues of infection, as to which he said there seemed to be a good deal of misapprehension because many of the experiments carried out concerning the power of infection had had more read into them than was justifiable. He held that the majority of cases were due to infection through the respiratory system, although he could not deny in the face of the early observations that a certain proportion occurred through the alimentary canal. In experimental work the great pitfall was the amount of infection. Unless this could be determined there must be considerable danger of error. Animals were more resistant than men, and in experimenting on them a maximum amount of infective material was often introduced far in excess of what might reach man in the ordinary conditions of practice. Again, postmortem appearances might mislead unless it were remembered that they were mostly only seen in the advanced stages—in fact, were the effects of past disease. Tuberculosis was so frequent that some had said that 90 per cent. of the population which arrived at forty-five years of age had been infected. He would put the percentage higher, as he thought almost everybody at some time or other had lodged the bacillus.

Professor McWeeney of Dublin said he adhered to the opinion that in the majority of cases of phthisis the infection took place through the lungs. Professor Adami of Montreal said it was difficult, often impossible, to speak with certainty, and he was not inclined to dogmatize. Opinion had veered round so much of late years that it behooved all to be cautious. Postnatal infection seemed the usual event, for if children were separated from infected mothers they were not attacked. Last autumn he inspected a school of 150 red Indian children, boys and girls, ages seven to sixteen, and was convinced that practically every one was infected before admission. But if so, the disease had been latent or extremely slow in progression for years before becoming acute—in some for ten years or more. Not one had been fed on cow's milk; all seemed to be due to human infection. He thought the chief avenue of infection was through the respiratory passages.

Dr. James Ritchie of Edinburgh was not prepared to admit that the work done so far detracted very much from the established pathological doctrine that the bacillus produced its first effect on the tissues at the point of entrance.

Dr. R. W. Philip of the Royal Victoria Hospital said he had reached the conclusion that, while the whole of the respiratory membrane was vulnerable, that in the region of the tonsils was the most vulnerable of all. That was the result of clinical observations, not only from month to month, but also from year to year. He suggested that every man's practice afforded him a field of observation and a laboratory in reference to this matter.

Professor Tendeloo of Leyden held that the infection was mostly through the lungs, but other avenues could not be ignored. Another discussion was devoted to preventive measures and administrative control. In this Dr. Leslie Mackenzie, representing the Scottish Local Government Board, said they desired to see every local authority well equipped with a triple organization of dispensary, sanatorium, and hospital, or their equivalents—in fact, the system which had worked so admirably in Edinburgh. Dr. Hope of Liverpool then pleaded for more systematic teaching of hygiene in the schools, and insisted that during such instruction the great importance of temperance should be impressed on the scholars.

The party of American surgeons who came to visit our hospitals have had, I think, a good time. They were entertained on arrival by the Council of the Royal College of Surgeons, were received by the President, Mr. Butlin, in the college and conducted round the Hunterian Museum by the Conservator, Professor Arthur Keith. Of course, they were received by your Ambassador, visited the House of Commons, had a look at London's cricket ground, and a number of other popular institutions.

The specimens added to the Hunterian Museum during the year have been on special view for the last three days. Many valuable gifts have been presented by the Imperial Research Fund, and I hear that numerous preparations made by the Royal Commission on Tuberculosis, illustrating the experimental production of the disease, will shortly be handed over to the custody of the college. The King has presented a hen pheasant assuming male plumage, which was shot at Sandringham. Yesterday the voting for the four Council vacancies took place at the college. The following were elected: Messrs. Lockwood, Polland, Bland-Sutton and Ballance.

Three cases of beriberi, which occurred on one of the war ships when in the Persian Gulf, have been invalided home, and arrived at Plymouth. Some suspicious cases were under observation at the time these left the vessel.

The death is reported of Col. L. O. Patterson, Royal Army Medical Department, who joined the service in 1854 and two years later took part in the Burmese war. He served through the Indian mutiny, being wounded at Sirchoon, was mentioned in despatches and awarded the medal. He retired in 1880.

Yesterday Viscount Goschen presided at the distribution of prizes at Guy's Hospital. Professor Howard Marsh, who presented them, said some of the most destructive diseases were being gradually wiped out. A new world of microorganisms had been discovered. When the public knew what advances had been made, and were told by such men as Lister and Paget that they had been gained in the only possible way, who was competent to contradict them? When no man could perform an experiment on an animal without a special license was not the matter in safe hands, and was any one who knew nothing of biology in a position to interfere with research and bring odious charges against those engaged in such work? Would not the public rather be grateful to those who did them this great service and extend to them full support?

Mr. Marsh's common sense is scarcely likely to affect the fanatics. A few days previously Mr. Walter Hadlow, M.R.C.S., was declaring at a drawing room meeting that he knew nothing in the whole realm of vivisection that had ever been of benefit in ameliorating or curing human disease. If he is equally ignorant of "the whole realm" of medical science he might do worse than go to school again.

OUR BERLIN LETTER.

(From Our Regular Correspondent.)

KOCH'S DEATH—A YEAR OF MEDICAL CENTENARIES—OPENING OF THE SECOND MEDICAL CLINIC OF THE CHARITÉ.

BERLIN, June 25, 1910.

The medical profession of Germany has been and is still at the present time under the burden of profound sorrow which was called forth everywhere by the death of Koch. It was generally known that he had just passed through a severe illness. But that he should have been so quickly taken from us would have seemed incredible shortly before the event to all who were familiar with his then healthy appearance. No one could forbode that this physique, steeled by so many voyages and hardened by such manifold privations, would succumb so quickly, albeit the time of life was advanced. The grief has become universal. Its eloquent expression will be found on great commemorative occasions in the future, and to-day we take advantage of this occasion to think of the Great Dead.

The year 1910, which in the autumn will bring about the centennial of the foundation of the University of Berlin, is at the same time a year rich in memories for the medical institutions. Last May the University Poliklinik celebrated its centennial. The director of this institution, Hermann Senator, gave in the course of a brilliant festival meeting a survey of the history of the Poliklinik. The latter was inaugurated by Hufeland in May, 1810, who had at his disposal three rooms in one of the wings of the university, with an equipment consisting of a few test glasses, a tongue spatula and an alcohol lamp. Eight years later a fourth room was added. Under Romberg, successor to Hufeland, the Poliklinik moved into quarters of its own. In the 50's of the nineteenth century, Joseph Meyer became Romberg's successor, and since 1887 Senator has directed the institution. Since 1905 the latter has possessed a building expressly constructed for its own use provided with the most splendid arrangements demanded by modern medicine for carrying out instruction.

In the earliest years the Poliklinik averaged 700 patients annually; under Romberg's direction 3,000, and at the present time 20,000. The great importance which this institution enjoys in the scientific world is closely bound up with Senator's activity. Doubtless he is the representative type of the Berlin University teacher. For years he had to seek his daily bread as a practising physician, but he never became oblivious of science. A certain quiet, one might say modest, definiteness never left him, not even after all the honors which accrue to a successful teacher in a medical institute became heaped on his head. This sounds like an echo. And, in fact, one could only listen at this time to this distinguished man with a certain sadness. For it was already known that in a few months he was to leave the seat of his long successful labors.

Shortly after this, the Charité Hospital celebrated the two hundredth anniversay of its existence, and at the same time the opening of its newly erected second

medical clinic. In the auditorium of the latter a great festival occasion was celebrated, and the medical director, General Physician Schaibe, delivered an address on the development and history of Charité Hospital. It was originally constructed for a pest house at the Berlin Gate; but as the plague spared the city the building was utilized as a hospital. In the middle of the eighteenth century a division of the building was used for the instruction of midwives. Its own purpose, however, was not fulfilled until the beginning of the nineteenth century; for it was arranged chiefly for the instruction of military medical men. Hence up to the present time a certain number of auxiliary and assistanceship positions were occupied by actual or prospective military physicians. Since 1897 the clinics and laboratories have been remodeled, so that now only the first medical clinic, the midwifery, and the second eye clinics remain for the time being in their original grey walls. In some 1,400 beds about 18,000 patients are received annually, and cared for by 200 physicians and 650 other employees. The Polikliniks are attended by 120,000 patients, and the annual expenses amount to about 2,000,000 marks.

The Second Medical Clinic was opened with an address given by its director, Strauss, on clinical management and clinical instruction. Only in connection with the university could the comprehension of the physician's calling be elevated, and thereby empirically acquired activity be made scientific and rational. Hence founding of institutions for clinical instruction has paved the way for a better period in medical practice. Distinguished medical men of the eighteenth century such as Boerhaave, Hoffmann, Stahl, etc., had no pupils; there were no scientific data in Berlin, and the most important innovations of the day, as percussion and vaccination, were known in Berlin only at a late day. The foundation of the University, with Hufeland's activity, changed all this. Schönlein, who became director of the clinic in 1839, was the first to give to instruction an exact scientific foundation. His successor was Traube, who erected in addition to the only clinic hitherto present a second propadeutic clinic directed first by Traube's pupil Leyden, and from 1885 to 1902 by Gerhardt, after the second clinic had been placed on the same plane as the original one. For the clinic as a whole three forms of activity came under consideration, viz.: the stationary hospital clinic, the ambulatory poliklinik, and the propadeutic clinic. In the first period of the existence of the clinic the Hippocratic ideas of emphasis on morbid general phenomena, etiological diagnosis, and physicodietetic therapy prevailed. The Paris-Vienna school united with the preceding pathological anatomy and founded the local method. Next appeared experimental physiology and pathology, which constituted the so-called Berlin school. Traube, who utilized Virchow's lifework in the clinic, gave to it a foundation of actual experimental pathology. This was the way whereby from medicine as a practical science the exercise of an art was developed. The chief cause for the flourishing of medicine is the laboratory that may be utilized more and more with the highest energy, but ever mindful of the fact that the chief duty of the physician is the acquisition of professional success. Else were we medically poor despite all wealth in pathological details. Hence in hospital construction scientific requirements are never alone requisite, nor should hygiene and therapy be thrust into the background. The successes in connection with tuberculosis, syphilis, diptheria, puerperal sepsis, etc., show that we are progressing. The costly technical arrangements for diagnosis and therapy are necessary for the clinic. The right utilization lies, however, in caring for the simple and universally applicable. All refinements in auxiliary media do not yet assume success. Only the well trained physician can apply them successfully. "To the sword belongs the Caliph's arm." Therefore one should never pause in the onward development of medical instruction.

Congenital Absence of the Femur.—Mummery reports a child two months of age in which the left femur was absent. The left knee appeared normal but was close to the hip. The leg below the knee was normal but was rotated outward. An *x*-ray photograph showed the diaphysis of the femur to be absent. The lower epiphysis appeared to be normal and there was a small island of cartilage just above this. The tibia and pelvis were normal. There were no other congenital defects. —*Proceedings of the Royal Society of Medicine.*

OUR LETTER FROM COPENHAGEN.

(From Our Regular Correspondent.)

TREATMENT OF TUBERCULOSIS OF THE LARYNX—NORTHERN DERMATOLOGICAL ASSOCIATION—LUPUS—LICHEN RUBER—TREATMENT OF GONORRHEA IN WOMEN.

COPENHAGEN, June 26, 1910.

At a meeting of the Medical Society of Lund (Sweden) Dr. S. A. Pfannenstill read an interesting paper on a new and apparently very efficacious method of treating tuberculosis of the larynx. The method is a new one, as it utilizes a powerful disinfectant in statu nascendi on the affected area in the following way. The patient is given sodium iodide by mouth in ordinary therapeutic quantities, and is further treated by reiterated inhalation of ozone, suitably diluted. By the reaction between sodium iodide and ozone in the diseased tissues, iodine is set free and exercises in statu nascendi its strong disinfectant powers. Dr. Pfannenstill has observed that inhalation of ozone in suitable concentrations does not inconvenience the patients in any way. If the ozone concentration is too high, coughing occurs, but no other irritation of the respiratory passages (no catarrh). As, of course, the production of iodine in the tissues varies with the proportion of ozone present in them (and in the inspiration air) it is important to increase the quantity of ozone to that very point, where coughing begins. This point is reached later as the treatment proceeds, because the mucous membrane acquires a sort of tolerance toward ozone. The ozone producing apparatus making considerable noise, it is impossible to apply treatment during the patient's sleep, which otherwise would present great advantages. But an installation of the apparatus far away from the wards might probably solve this question.

The clinical researches of Dr. Pfannenstill go to show that neither sodium iodide nor ozone has any effect on the tuberculous affections in question, when given alone. Only when used together, they bring about the desired effect. According to his experience, only tuberculous (not syphilitic) ulcerations are healed in this way. In cases of deeply seated tuberculous infiltration, or where the tuberculous deposits are covered by an intact epithelium he does not expect any improvement, as the ozone presumably penetrates only a very short distance into the mucous membrane. But one of Dr. Pfannenstill's cases shows also that an operation by laying open the affected tissue may facilitate the cure by the combined sodium iodide and ozone treatment.

Dr. Pfannenstill's clinical material consists so far of four cases of what seemed rather desperate ulcerating tuberculosis of the larynx, hypopharynx, rhinopharynx, and nose cavity. In all the cases the ulcerations healed up with astonishing rapidity. A case of lupus has been successfully treated on the same principle (sodium iodide by mouth and permanent fermentation with hydrogen peroxide). On the other hand the method has failed in two cases of bone tuberculosis, apparently on account of the circumstance, that the ozone could not be brought in sufficient contact with the ulcerations.

The first congress of the Northern Dermatological Association met recently in Copenhagen. Of the many important contributions some few are mentioned here. Dr. H. Forschhammer's clinical observations on lupus vulgaris with particular regard to prognosis and therapy were based on the whole clinical material of the Copenhagen Finsen-Institute in the period of 1896-1906. The disease begins most often (81 per cent of the cases) in the face and during the first two to four years only the skin is affected and no destruction is to be feared, as in this period there is a fair probability of recovery without disfiguring scars. The Finsen light treatment ought to be preferred, as it brings about a cure in 75 per cent. of the cases with cosmetic results far surpassing those of any other method; while it is highly dangerous to experiment with uncertain methods of treatment in this early stage of the disease. In later periods other therapeutic measures may be recurred to (for instance, excision). Some cases prove refractory to any treatment.

Dr. H. Boas had investigated the relation of prurigo Hebræ to tuberculosis by injection of tuberculine. Only in one-half of the cases a reaction was observed, so that no connection between these two diseases is necessarily to be presumed.

Dr. C. Rasch contributed clinical and therapeutic researches on lichen ruber. Arsenic, the most frequently employed therapeutic agent, was not always

tolerated. For such cases far better effect was seen from valerian preparations or from mixtures of acetphenetidin, antipyrine and aspirine. The local treatment may also sometimes make the affection worse. In these cases a paste of zinc oxide or one of the well-known old emulsions of zinc oxide, diluted solution of lead subacetate and lime water may give satisfaction. Drs. Afzelius and Marcus (Stockholm) had also seen cases cured without the use of arsenic. In two cases exposure to sunlight had sufficed.

Dr. Alma Sundquist (Stockholm) read a paper on the treatment of gonorrhoea in women. Local treatment was to be preferred to the exclusively hygienic-dietetic treatment. As a new therapeutic agent she recommended hydrochloric acid in one-half per cent. dilution, both for instillation into the cervical canal with Braun's syringe and for local treatment of the urethra four to five times daily. The results had proved somewhat better than those derived from silver preparations, and the treatment is a very cheap one.

Progress of Medical Science.

Boston Medical and Surgical Journal, July 14, 1910.

Bilious Attacks in Children.—Philip S. Potter calls attention to the danger that lurks in a vague term like this. In every "bilious attack" the possibility of appendicitis should be foremost. The classical symptoms of appendicitis are often very slight in children and in all cases having a history of bilious attack a careful examination of the child's abdomen should be made, if possible, at the time of the attack. Recurrent vomiting and recurrent pyrexia are conditions that may be overlooked; the former yields readily to large doses of soda bicarbonate, and the latter condition is remedied by the exclusion of sugars and starches and the administration of calomel and arsenic. Both of these conditions are most common in nervous children. Beginning meningitis, migraine and renal vomiting have been mistakenly diagnosed as bilious attacks. Even otitis media has been known to produce symptoms commonly observed in a bilious attack. The most common and least significant of the so-called bilious attacks are those due to gastric indigestion or intestinal toxemia. While the term bilious attack may mean the most innocent of digestive upsets, the diagnosis must be carefully sifted and a thorough physical and clinical examination made and other possibilities excluded.

The Etiology of Common Colds.—A. Coolidge expresses himself as being in sympathy with the assumption that this term means an acute bacterial infection of the mucous membrane of the upper respiratory tract. Among the acute disorders of the nasal chambers we may distinguish some as due to infection and others as arising from a local irritability and vasomotor disturbance. When we recognize this difference more definitely we may classify the latter with hay fever and its kindred, and announce that a "real cold" is a contagious disease. There is much evidence to prove that a common cold is contagious, and the community would gain much by this assumption. The writer agrees with other observers that colds have an incubation period of from two to four days; that they remain contagious for several days, and that acquired immunity is short. The objection to draughts and wet and cold, in moderation, which induces humanity to shut itself up in air tight enclosures, is often due to an unwarrantable fear of "catching" just those diseases which are communicated by sneezing, coughing, and poor ventilation. The author discussed, in addition to that form of cold which he designates as a "common cold," other types which, although having some symptoms in common, differ enough to make it probable that, while infectious, they are due to some other organism.

New York Medical Journal, July 16, 1910.

Some Surgical Aspects of Gastric Ulcer.—Parker Syms considers some of the dangers, immediate and remote, of gastric ulcer and the reasons why they should be promptly cured. No case of chronic indigestion should be allowed to pursue an uninterrupted course. If a cure is not brought about by hygienic and dietetic means within three or four weeks, the case should be considered a surgical one. The writer makes a plea for exploratory laparotomy in these cases. If properly done, it will result in no harm, and if often resorted to it will save countless lives. Modern methods have reduced the mortality to a a point where operation should no longer be dreaded. Chronic ulcer of the stomach and duodenum results in a mortality that we cannot estimate, but which is known to be over 50 per cent. Incurable gastric symptoms constitute a good and sufficient reason for operating. We should not wait to be sure that there is a perforation or hemorrhage, but should give the patient the benefit of the doubt by an early exploration. He agrees with Dr. Rodman in his advocacy of a more radical procedure than that of gastroenterostomy. In that way only can one be sure of preventing recurrent hemorrhage; in that way only could one be sure of avoiding post-operative perforation and of avoiding the implantation of cancer on an ulcer's cicatrix.

The Value of Test Meals.—J. Russell Verbrycke thinks that there are many who either undervalue the test meal or are prejudiced against it. One can by painstaking history and careful physical examination make a diagnosis in a number of the anatomical diseases of the stomach, but one is aided and has his opinions confirmed from examination of a test meal. One can by this means arrive at the extent of the functional changes which are coincident with the anatomical disease. In the purely functional changes one can only obtain a definite idea as to the degree of abnormality by means of the test meal. The use of the stomach tube in addition to recovering material for examination, can tell if there is any organic stricture or spasm of the lower end of the esophagus or cardia. It can also determine the length of time food remains in the stomach, the condition of motility, the presence or absence of pyloric obstruction, and whether the patient eats hastily, without proper mastication. There are certain points the forgetfulness of which may lead to skepticism in regard to the value of the test meal. Conclusions cannot always be based on the results of one meal. A uniform meal should be employed. One should recover all that can easily be obtained in order to form a relative idea of the amount of secretion and to avoid getting a small amount from the cardia which may differ from the rest of the contents. Microscopical and macroscopical, as well as chemical, examination should be made. The author gives a summary of the findings and their importance in the various stomach affections and, in conclusion, makes a plea for more frequent test meals in the diagnosis of stomach affections; believing that by giving due consideration to and properly correlating all the findings we are arriving at greater exactness, eliminating much of haphazard diagnosis and therapy, and are putting the subject on a much more rational basis.

Journal of the American Medical Association, July 16, 1910.

Anomalous Scarlet Fever.—Harold Newton Cole reports three epidemics, in all, 32 cases, of what he supposes is anomalous scarlet fever, which occurred at the Lakeside Hospital, in Cleveland. In each of these epidemics the disease might have passed unrecognized had not one or more typical cases occurred which acted as a diagnostic control. These epidemics were characterized by the mildness of the attack and the benign course of the disease, together with suppression or complete absence of the exanthem, as well as of some other of the important symptoms. The temperature in these cases varied from normal to 105°, but in general it ranged from 100° to 102° F. In only two cases was there absence of all the signs of nephritis. Practically every case had severe angina. The changes noted in the blood were a marked increase in the number of leucocytes in a few cases, and in a number of instances the differential blood count showed a high percentage of eosinophiles. From these epidemics, as well as others cited, it appears that the toxin varies in different outbreaks. It does not appear that mild infections beget malignant strains, or the reverse. From the fact that the tonsils are involved at a very early stage, and from the constancy with which this symptom has been noted, it would seem that the infecting agent gains access through these glands, as claimed by Dawson and Lemoine. It seems unwise with our imperfect knowledge concerning the etiology of scarlet fever to regard these aberrant forms, which point strongly to some aberration of the exciting cause, as distinct affections.

Lutein Extract in the Treatment of Decreased Menstruation and the Premature Menopause.—Basing his experiments on the hypothesis that even if the corpus luteum of the ovary is not the cause or stimulus of menstruation, at least this internal secretion of lutein has a distinct influence on the production of menstruation, Ellice McDonald has been experimenting clinically for the past five years with dessicated extract of corpora lutea of the ovary of cows. He has treated in all twenty cases. Ten of these were of scanty menstruation or approaching premature menopause, seven of whom were improved, and three were not benefited, being well established cases

with marked nervous symptoms. Amongst the ten cases of surgical menopause, one patient was made distinctly worse, five were not improved, and four reported some improvement. The results of this study seemed to indicate that the control of the surgical menopause need not be sought in the corpora lutea. Its value is in cases where the uterus and ovaries or the uterus alone are retained. Particularly is it valuable in the treatment of scanty menstruation and the premature menopause. Lutein extract should be accompanied in suitable cases by dilatation of the uterus, with the use of the stem pessary following operation. The administration of lutein is indicated after operations on pregnant women in whom miscarriage is feared. This is particularly true during the early weeks of pregnancy, as it has been shown experimentally that the corpus luteum has a definite effect under such circumstances.

The Relation of Stuttering to Amusia.—E. Bosworth McCready is of the opinion that there has never been a satisfactory explanation of stuttering. To call it a neurosis does not explain why certain individuals under the influence of fright, imitation, acute disease or nasopharyngeal irritation begin to stutter, while others equally neurotic and exposed to the same influences do not. After discussing the etiology and methods of treatment he concludes that, while incapable of proof, it is reasonable to suppose: (1) That the defective use of the muscles of inspiration, expiration, and of the lips, tongue, and throat, resulting in stuttering, is the "result of imperfect coordination, caused by disconnected and erratic discharges from the cortex." (2) That this incoordination is between the nervous mechanism controlling the acts of vocalization and articulation and the centers having for their function the appreciation and expression of melody and harmony, and is due to a biologic variation in such a center or its commissures. (3) That the cure of stuttering is only accomplished by a process of compensation brought about by the education of cells previously nonfunctionating, and by forcing the opposite hemisphere to supply a center similar to that which is imperfectly developed. To this end the reversal of dexterity would seem to be a reasonable procedure.

The Treatment of Furunculosis.—John T. Bowen does not believe that early incision shortens the duration of this affection; nor does he recommend poulticing, as it is contrary to aseptic principles. While most brilliant results have been achieved in some cases from the vaccine method, there are a certain number of cases that do not respond to this treatment, and for these he recommends a method of treatment whose principle is simply to keep the skin as far as possible sterile. The patient is directed to wash the entire body with soap and warm water every night and morning, and then after the surface of the body is dried it is bathed with a saturated solution of boracic acid in water. The skin is allowed to dry without wiping and the individual furuncles are dressed with an ointment composed of: boracic acid, 4 grains; precipitated sulphur, 4 grains, and carbolized petroleum, 32 grains. Incision is resorted to only after the lesions have become very painful and mature. All clothing that comes in contact with the skin should be changed daily, and everything done on general therapeutic principles to promote the well-being of the patient. This method rarely fails when carried out with care and patience.

Syphilis in Insanity as Determined by the Wassermann Reaction.—C. B. Ensor has tested 262 male patients from Mount Hope Retreat by the Wassermann method, and obtained a positive reaction in 22 per cent. of the total male population. Of the 262 patients, a history of syphilis was given in only 3 per cent. of the total, and only 14 per cent. of those showing the positive reaction admitted having had syphilis. Of the positive cases 69 per cent. have been in the institution one year or under, 12 per cent. have been there two years, and 19 per cent. have been there three years and over. Of 21 patients from other sources 16 were paretics, with a positive reaction in all. Of 27 cases of paresis collected from all sources, 96 per cent. gave a positive reaction. Of 7 cases of tabes 83 per cent. were positive, and of 5 cases of cerebral syphilis, 4 were positive; in the negative case the patient had been receiving mercurial injections for six months.

The Lancet, July 9, 1910.

Submucous Resection of the Nasal Septum.—H. Bell Tawse, after alluding to the structure of the nasal septum and describing the Killian operation, which he used with a few modifications, gives a review of 120 cases upon whom he had operated. In this series of cases he used only a local anesthetic, preferably a mixture of equal parts of 20 per cent. cocaine hydrochloride and 1 in 1000 adrenalin chloride. Ether should never be used because it congests the mucous membrane and increases hemorrhage. As a rule, the operation occupied about 25 minutes. Children under 12 years of age are not, according to Killian, fit subjects for this operation, but he had done it in three cases, aged respectively 8, 10, and 12 years. The others ranged in age from 15 to 55. In only 5 per cent. of the cases was the deviation purely cartilaginous; the remaining 114 cases were both cartilaginous and bony. Twelve cases had a traumatic origin; the others were apparently developmental, though it might be possible that traumatism had a share in the production of the deformity. In 75 per cent. there was marked enlargement of the maxillary crest. Disease of the middle turbinate was noted in 51 patients. In 20 there was active sinus suppuration. In 25 cases there were polypi necessitating ethmoidal curetting. Unilateral atrophic rhinitis, a rather rare condition, was present in three individuals. In 18 cases there was complete collapse of the alæ nasi. Sneezing and rhinorrhea were the main symptoms in 4 cases, while 2 had asthma, 5 chronic dry rhinitis, 3 adhesions of the basal spur, 15 middle-ear catarrh and deafness, and 80 per cent. complained of supraorbital and frontal headache. Nine out of the 120 had perforation after the operation, five occurring in the first 20 cases. Out of the last 100 cases there were but two perforations, and these were very difficult cases.

The Examination of Feces in Medical Practice.—Oscar Kraus says that in the treatment of gastric and intestinal diseases it is frequently very difficult to prescribe for any given patient a diet which is adapted to the activity of his digestion and assimilation, and in which each disturbance of function in the various portions of the digestive tract is taken into account. The examination of the gastric secretion can only give information in regard to digestive activity which takes place in the stomach, and it is more difficult to secure the cooperation of the patient in securing samples of gastric secretion than it is in obtaining feces. The aim of the examination is threefold, namely, to find how the patient digests the ingredients of his normal diet, what class of foodstuffs he might add, and what he ought to avoid. The methods of examination are those usually employed. A macroscopical examination is first made. The first chemical examination undertaken deals with the secretion of bile. A portion of the feces is stirred up in a concentrated aqueous solution of perchloride of mercury. Under normal condition, after some hours, all the portions containing hydrobilirubin take on a red color, while those containing bilirubin take on a green color. An indistinct reaction shows that the secretion of bile is partly or wholly inhibited. In the next place some feces are placed in a Schmidt's fermenting flask. A distinct evolution of gas taking place within twelve hours indicates that the digestion of starch has been unsatisfactory. The reaction of feces under these conditions is found to be distinctly and increasingly acid. This occurs especially in catarrhal conditions of the small intestine, which is practically the only situation where carbohydrates are digested. When gas is produced in from 24 to 48 hours it means that the albuminous substances are being split up by increased alkalinity, which indicates that there is intestinal decomposition dyspepsia. The examination of fat is limited to the determination of the proportion of split up fat to total fat. The greater the quantity of total fat, the more defective is the fat absorption. Of all the tests for blood only the aloin test has proved itself satisfactory, because it is the only one in which the presence of iron in the feces does not affect the result of the reaction. Microscopical examination permits a fairly accurate determination of the condition of the digestive activity of the stomach and small intestines. The presence of a considerable amount of connective tissue and elastic fibers indicates a defect in acidity of the gastric juice. In such cases a certain amount of coagulable proteid substances is usually found. The appearance of elastic fibers in the feces, if not associated with connective tissue and coagulated protein, must be regarded as a sign of good gastric, but poor intestinal, digestion. The absence of pancreatic enzyme can be recognized by undigested pieces of muscular tissue, in which more or less well-preserved cell nuclei are visible. If upon testing a smear of feces with a drop of Lugol's solution, a considerable amount of blue colored starch granules is seen it may be assumed that the patient's amylolysis is impaired. In testing for mucus a smear of feces is stained with a 1 per cent. solution of alizarin sulphate of sodium. The greater the distance between the situation where the mucus is formed and the anus the more weakly is the mucus stained. Cases are cited illustrating the application of these results to the regulation of the details of diet.

A Case of Extrauterine Pregnancy Occurring Twice in the Same Patient.—George A. Gordon reports this case because he thinks it is exceedingly uncommon for a woman to be the victim of an extrauterine pregnancy on two distinct occasions. The patient had been married two years when she missed a period and consulted him for what she supposed was a bilious attack. He diagnosed a ruptured tubal gestation. At operation he found the left tube was ruptured and the pelvis full of blood. The tube was found to contain a fetus of seven weeks. About three years later the same patient consulted him and he found the right tube swollen and, suspecting an extrauterine pregnancy, operated, finding a six weeks' fetus. The patient made a good recovery.

British Medical Journal, July 9, 1910.

Suprapubic Drainage of the Bladder as an Alternative to Prostatectomy and as a Relief Operation.—J. B. Pike recommends suprapubic drainage of the bladder in cases of cancer in which operation would not offer a very hopeful prognosis, or in cases in which catheterism is unsuccessful. He cites two instances as evidence of the value of this procedure. The first case was one of acute retention in which catheterism was unsuccessful and in which prostatectomy was refused. This patient has drained the bladder for upwards of five years, part of the time with a rubber tube and more recently with a silver tube. His general condition remains good, and he has led quite an active life for a septuagenarian. The second case was one of multiple papilloma above the trigone in which this measure has given great relief for many months.

The Incidence of Tuberculosis in Childhood.—Franz Hamburger and R. Monti, in making this investigation, examined only children who were suffering from acute infectious diseases, as in this way they obtained material which represented fairly accurately the real state of child life in Vienna. They found that out of 532 patients suffering from scarlatina or diphtheria 271, or about 50 per cent., reacted positively to a subcutaneous tuberculin injection of 1 mg. From their statistics they summarize as follows: (1) The majority of persons become infected by tuberculosis in childhood. (2) The frequency of tuberculous infection increases from year to year, while tuberculous morbidity, that is, the frequency of manifest tuberculous disease, decreases from year to year. (3) Tuberculosis is very commonly latent, producing no symptoms. This is especially so if the infection dates from the third or fourth year. (4) The prognosis of tuberculosis in childhood becomes more favorable the older the person is at the time of the first infection.

On the Presence of Sugar in Healthy Urine as a Source of the Osazone Reaction.—F. W. Pavy and H. W. Bywaters describe the method of procedure by which they demonstrate that the amount of sugar present in normal urine is sufficiently large to permit of osazone crystals being obtained by direct treatment with phenylhydrazine. They find that the quantity of sugar present in normal urine, even though it does not give a reaction with Fehling's solution on account of the inhibiting effect of certain of its constituents, is really considerable in quantity, amounting to 2.5 or more per 1000. It is to be looked upon as nothing more than a natural occurrence that osazone crystals should be obtained from normal urine, and it all depends upon incidental circumstances whether they are obtained or not. The urines of horses, cats, and rabbits have been subjected to experimental treatment, and in most all instances have been found to yield typical osazone crystals.

Injury of the Ear by a Hatpin.—Alfred Mann reports the case of a patient, who in putting on her hat accidentally ran the pin into her ear. No perforation of the tympanic membrane could be found, but close to the drum the floor of the meatus showed a scratch. Under careful antiseptic dressing the ear healed without discharge, but a considerable degree of deafness and tinnitus still remain. There was no doubt but that the patient had partially dislocated the stapes from its vestibular attachment, or at least altered its position.

Calcium Chloride in Rhinorrhea.—Richard Lake finds that with scarcely an exception rhinorrhea has responded to calcium chloride. He gives 30 to 40 grains a day for two weeks. If this objectionable symptom recurs it will again yield to this treatment. He does not attempt to explain the pathology but thinks that perhaps the amount of chloride in the blood may yield a hint as to the causative factor. The salt may possibly be of use in spasmodic sneezing, hay fever, or asthma.

Berliner klinische Wochenschrift, June 27, 1910.

Sudden Blindness from Organic Disease.—Uhthoff describes two cases of bilateral sudden blindness in elderly people in which all the ordinary causes of this phenomenon, such as hysteria, intoxications, traumatism, acute hemorrhage, etc., could be excluded. Despite the suddenness of the attacks the ophthalmoscope showed optic atrophy, following neuritis. In one patient the diagnosis, made by exclusion, was rupture of a small aneurysm with escape of blood into the sheath of the opticus. There was no blood found by lumbar puncture, but some weeks had elapsed when the test was made. In the second case it was also assumed that an intracranial lesion of the opticus was responsible, most probably an aneurism, but possibly a hypophysis tumor. The patient improved considerably while taking iodides.

Tuberculin Treatment of Renal Tuberculosis.—Wildbolz emphasizes the radical and severe character of nephrectomy in unilateral tuberculosis of the kidney, and believes that certain cases at least may be brought to arrest by tuberculin injections. There is of course a possible fallacy involved, because spontaneous improvement is by no means unique. Two cases cited by the author were treated some years ago, and in one of them there has been arrest of the disease for nine years. He gives another series of cases in which, after prolonged tuberculin treatment, the patients had to be nephrectomized. It does not appear that in this series the tuberculin treatment stayed the progress of the renal lesions. These opposite types of findings are probably explained by the character of the process in each series. The recovered cases are doubtless of the same type as those which undergo spontaneous cure—small, beginning, localized, and eventually encapsulated. The other cases are of the destructive type, with tendency to local infection and general intoxication. But while the natural forces are in some cases sufficient for an arrest of the process, there seems no reason to doubt that the action of tuberculin may be antagonistic to local infection up to a certain point, as well as antagonistic to the toxemia. Improvement in general condition was noted under the tuberculin treatment. The author has been and is a prolific nephrectomist, but this does not deter him from advocating a medical resource as a competitive procedure in a surgical disease.

Cystic Kidneys and Renal Cysts.—According to Renner, modern opinion is favoring the view of the ultimate identity of these conditions. Originally secondary cyst formation was regarded as a sort of incidental termination of diverse inflammatory affections, while primary cyst formations naturally came under the head of neoplasia. Another distinction came to light in the contrast between inevitable or congenital cysts, and those purely acquired in later life. The former were explained on developmental grounds alone, while the latter were alleged to be due inevitably to nephritis. The subject, historically considered, is so confusing that the enumeration of facts and theories seems to render any kind of consensus of opinion out of the question. It can only be maintained that the more we study the individual case the more we become convinced that conditions clinically opposite show a close pathological resemblance. One of the more common text-book differentiations makes of cystic kidneys a polycystic degeneration; while renal cysts secondary to inflammatory disturbances and incidental to obstruction in the lower urinary passages are stated to be large and single. This distinction seems at first sight to be reasonable throughout; and further sheds light on the essential differences between neoplastic and inflammatory cysts, and between the congenital and acquired types. The author, however, cites a number of cases seeking to show that such a distinction is not tenable. Polycystic kidneys in adult individuals requiring extirpation seem to show a tendency to fusion into a single cyst. It does not appear that these cases could have had other than an embryonal origin not manifested until senile decay. It is also claimed that 50 per cent. of newly born infants show minute cysts throughout the kindneys. We are, therefore, in a measure forced to conclude that cystic kidneys, in the form of small multiple cysts, are one of the more common congenital defects; that according to various accidental circumstances these cysts may either enlarge individually without coalescence, and constitute polycystic degeneration; or that they may coalesce to form a single large cystic cavity. It also appears that in old age congenital cystic anomalies latent for a lifelong period may assert themselves. It does not appear that a purely pressure atrophy of the kidney, such as results in hydronephrosis, and which thereby replaces the kidney by a sac of fluid, is meant to be included under cystic disease proper. The author alludes casually to such kidneys without much comment.

Habitual Torsion of the Colon.—Augsbach, a Russian practitioner, concludes that volvulus of the colon is an affection which tends eminently to recurrence. Hence he thinks it justifiable, unless the indications for resection are unmistakable, to perform a colopexy. He would not resort to such procedures until the tendency to relapse was very marked. In a case cited the patient had no less than five or six attacks of colonic ileus annually. Statistics show that the sigmoid flexure is the chief seat of the volvulus—in fact, torsion of the sigmoid and small intestine causes in the neighborhood of half of all cases of volvulus. The rest of the colon is much less commonly involved. The author's case, however, involved the transverse colon only.

Münchener medizinische Wochenschrift, June 21 and 28, 1910.

Paths of Infection and Course of Pneumococcus Meningitis.—Grober, of the Public Hospitals, Essen, says of the pneumococcus that "both the blood and lymph vessels are open to it." Much attention has been given by pathologists to the spreading of local pneumococcic infections along the lymph channels—as when a pneumonia gives rise to pleurisy and pericarditis. In theory at least, propagation along lymph channels and spaces, including the great serous cavities, might result indefinitely. Another train of symptoms may be imputed to bacteriemia, and still another to toxemia alone. It is therefore a matter of great difficulty, when a particular structure like the meninges is attacked, to determine the precise rationale of the complication. It is true that as yet no one has demonstrated the possibility of direct lymphatic transmission from pleura to subdural space; but some autopsy cases are better explained by such transmission than by any other. Hematogenous transmission may in theory occur so readily that we are satisfied to explain many cases of meningitis in this way, despite the absence of proof. That bacteria may be propagated directly from the tonsils to the great serous cavities, including the subdural space, is a claim much less speculative in character—in fact its accuracy is hardly open to question. Another means of access of the pneumococcus—as it occurs normally in the throat and nose—to the subdural space is furnished only in connection with fracture of the base of the skull (cases of this genesis being sufficiently well known to clinicians and pathologists). Pneumococcus meningitis, however engendered, is quite rare as an independent, isolated affection. Naturally we were not in position to recognize it during life until the introduction of diagnostic lumbar puncture. All are agreed as to its fatal character, whatever its association. Survival, in cases with diagnosis made bacteriologically *intra vitam*, is practically unknown. Cases of pneumonia occur in which with evidences of meningeal irritation (meningismus) we find no bacteria in the cerebrospinal fluid. Such complications are best explained, perhaps, by toxemia of hematogenous origin; but recoveries may be due to mild cases of lymphatic origin, in which repeated examinations of the cerebrospinal fluid would have revealed bacteria.

Tuberculosis and Lactation.—Deutsch, of Frankfurt, a/M, writes an unpretentious but quite exhaustive monographic article on this subject, recording extensive personal experience and appending a number of references to work of his predecessors. The question, "Shall a tuberculous mother nurse her infant?" naturally enters into the general campaign against tuberculosis; but it loses a little force from the fact that tuberculous women not only do not conceive in the ratio of healthy women, but also have a natural tendency to abort. Nevertheless cases of childbirth in tuberculous women are not only plentiful enough, but not a few infants so conceived and born are vigorous enough to survive the ordinary risks of infancy. The problem thus becomes highly complicated. We deal only with actual births, not with the advisability of marriage and gestation. For a consumptive mother to nurse an infant is in itself a severe drain; but tuberculosis is a disease which, however severe it may be in its pulmonary symptoms, may still respect the organism at large. Certain individuals with the slow, fibroid type of pulmonary infection are able to discharge the ordinary duties of life for many years—if they are so situated as to be able to favor themselves. Mothers who come under this head may suffer for years from hemoptyses and various kinds of invalidism imposed by tuberculosis; and during this period may give birth to seemingly healthy children, who remain healthy for years. The author believes that women actually known to be tuberculous should never nurse their infants; those who are merely suspected of tuberculosis may nurse their infants under medical supervision until a clearer diagnosis is made. The nursing of an infant by a known tuberculous mother constitutes a double menace, prejudicial both to the child and the adult. In the warfare against tuberculosis this contingency should be abolished at the start. The author does not incorporate in his conclusions any reference to the ability of a tuberculous mother to infect an infant born healthy, although he does justice to this possibility in the text of his article. But too many problems arise in this connection to be decided offhand. There is the question of direct bacillary transmission, the question of direct absorption of toxins, and finally the matter of inheritance of defective resistance to disease. The incidence of tuberculosis among short-lived folk of any kind is very large, and all pathologists know to what extent diabetics, lepers, syphilitics, and similar victims succumb at last to tuberculosis; this is true to some degree of those of neuropathic inheritance. The author describes the instance of a tuberculous mother striving to nurse her child according to theoretic requirements. The effort is enormous. The mother, besides responsibility for her own nutrition, is obliged to be answerable for every detail in the care of the child. She is up at all hours, preparing, sterilizing and what not—and the drain on her powers would appear to be out of proportion to the possible good derived by the child. In other words, what she loses the infant by no means gains.

Treatment of Placenta Previa.—Hofmeier states that the entire subject of the treatment of placenta previa has been stirred up of late by the advocacy of the cesarean section and of various equivalent intravaginal procedures. He states that during one year in Schroeder's time he was called upon to superintend 37 cases of this complication in Berlin services, and that of this number he lost but one mother, who was not under complete control, and evidently infected from gross carelessness. She died of pyemia on the 17th day. The case was intrinsically not more severe than that of many patients who recovered. The author's 36 survivors were delivered by the combined procedure of Braxton Hicks or simply left to spontaneous birth. In 19 of the 37 cases the condition was one of placenta previa totalis. This result was much better than the average then obtainable, just as it is much superior to many to-day, at least as far as the mothers are concerned. But under this treatment the child mortality is heavy. To attempt to lighten this Küstner warmly advocated metreurysis. It must be remembered, however, that the child mortality depends largely on death in utero before the case even comes to consultation. In Hofmeier's services metreurysis was never used until 1903. Before that period he depended, as already stated, on spontaneous delivery (merely rupturing the membranes) or the Braxton Hicks maneuver. In a series of 100 placenta previas since 1889 the maternal mortality was 8, but 5 of the deaths in no wise depended on the mode of delivery, as death would doubtless have occurred under any form (acute miliary tuberculosis, fulminating sepsis, eclampsia, etc). It would be important to know whether or not Cesarean section could have saved these three mothers; but the mortality is so low that it is hardly greater than in many series of miscellaneous labors. The matter of more signal interest is the child mortality with especial reference to metreurysis. In 55 labors with placenta previa before the introduction of this resource, the child mortality was 59 per cent., while in 19 labors with metreurysis, 14 infants were born alive—and some of these were premature—which means a mortality of but 26 per cent. In order to eliminate the prematures from mortality tables it is the custom in some clinics to divide labors into those before and after the thirty-second week, and by any method of delivery, the child mortality must be materially modified by this distinction. The author believes that severe surgical measures should not come into routine use in placenta previa, although they may possess a narrow field in special cases.

Pathology of the Suprarenal Bodies.—Roessle's article is concerned largely with autopsy findings, including studies on the fetus. He knows of no case of total absence of these glands, but hypoplasia is very common, and affects sometimes the cortex and sometimes the medulla. In no case has there been total defect of either part as a primary condition. Hypoplasia often accompanies the status lymphaticus. In order to get a definite idea of what total absence of suprarenal tissue means we have evidently to depend wholly on changes due to disease. We know that the adrenalin producing substance becomes completely exhausted under a variety of conditions—general narcosis and acute intoxications, and excessive muscular activity, including convulsions and tetanus. Paradoxic chloroform deaths have been explained by the fact that there was a natural defect of medullary substance. Fully as significant as hypoplasia is hypertrophy

of the suprarenals. Congenital enlargement, as seen in a few cases of dead fetus, has seemed to be associated with a hypertrophy of certain other organs, as the uterus, indicating a sort of precocious development. The gland of one side may undergo compensatory hypertrophy if the opposite one is removed or destroyed. Of great interest is a connection which seems to exist between hypertrophy of the medulla and tendency to hemorrhages; as if a state of plethora was induced by overaction of the adrenalin producing tissues. The losses of blood occur under conditions which favor such losses, but why they should occur in one patient and not in another may be bound up in part in this subject of suprarenal plethora. The author concludes with the lines of experimental work necessary to throw light on this subject.

Methods for Demonstrating Oxidizing and Reducing Substances in the Body.—Loele gives brief mention of several methods which are put forward rather for trial than as well-tested resources for diagnosis. The granules of the oxyphile cells of the leucocytes in the pulp of the spleen, those of the salivary gland epithelium, etc., have the property, in alcohol solutions of phenol, of assuming a yellowish to black hue. All oxyphile cells, however, do not possess this property. The coloring principle behaves as an acid, and the intensity of the color varies apparently with the number of hydroxyl groups. The color phenomenon is believed to be due to the action of an oxidase or oxidizing enzyme. Reduction phenomena imputed to the possible activity of a reducing enzyme or reductase are very briefly mentioned, and silver, pyrogallol, and similar reducible substances are used for demonstration.

Deutsche medizinische Wochenschrift, June 23 and 30, 1910.

Eye Symptoms in Diseases of the Frontal and Ethmoidal Sinuses.—Gutmann has collected notes of a number of different affections of the orbit and eye consecutive to empyema and mucocele of the frontal and ethmoidal sinuses. He first describes a number of cases of orbital phlegmon following frontal sinus disease; while in a second series the same accident followed empyema of the anterior ethmoidal cells. In a further series disease of the posterior ethmoidal and sphenoidal cells gave rise to pressure lesions of the optic nerve. The pressure was caused in the author's case by polypoid vegetations, which grew from the cavities in question, although in the experience of some reporters the pressure was due to retained pus. Generally speaking accurate diagnosis in such cases led to the adoption of measures for the relief of the serious condition, with spontaneous improvement in the intraorbital lesions. In a number of well-recorded cases the appearance of a central scotoma appeared to be an early symptom of an extension of suppuration from the sphenoidal sinus to the eyeball. Birch-Hirschfeld attributed the scotoma to the direct action of toxins formed in the course of suppuration. Cases of intraorbital disease from sinus empyema have multiplied rapidly since 1895. Attempts have been made to locate the source of the sinus pus from the character of the orbital phlegmon. Thus pus escaping from the sphenoidal sinus is believed to cause edema of the lower lid, with marked conjunctivitis—including chemosis—confined largely to the lower half of the membrane. If the pus comes from the ethmoidal cells, it collects at the inner canthus, displacing the bulbus oculi outward and causing crossed double vision with no difference in the height of objects. There are naturally exceptions to any general rules of this sort which may be set up. It is also true that radical treatment of the sinuses, by establishing free drainage, does not always cause radical cure of the orbital phlegmons, which have been known to form anew.

Coincidence of Diabetes Mellitus and Asthenia Congenita.—As is well known, Stiller described a condition known as asthenia congenita, which he claims to be responsible for certain paradoxic conditions, like the development of diabetes in boys and young men. A leading symptom of this asthenic state is idopathic atony of the stomach. These subjects are predisposed from the start to a series of destructive and fatal diseases—diabetes, nephritis, arteriosclerosis, etc. Graul of Bad Neuenahr tested a series of 170 cases of diabetes mellitus for evidences of Stiller's congenital asthenia, and found the latter present in so few cases as to appear to represent a mere coincidence. The habitus asthenicus is manifested by atony of the stomach, enteroptosis, indigestion, neurasthenia, chlorotic tendencies. The very few patients who seemed to present this habitus showed some further predisposition to diabetes, such as alimentary glycosuria (indicating an intolerance toward carbohydrates), or diabetes in the ascendants. Whatever may be said of the existence or non-existence of Stiller's asthenic constitution and its tendency to invite the early appearance of degenerative and fatal diseases, it does not appear as if diabetes should be reckoned among this number.

Inflammatory Pseudocarcinoma of the Appendix.—Milner speaks of the confusion attendant upon a clinical diagnosis of inflammation with a microscopic diagnosis of cancer or sarcoma. This has often led to unnecessary ablation of organs. The subject is a trite one and has influenced more than one surgeon to abandon the microscopic test and trust to his clinical resources. In many cases, naturally, microscopic diagnosis is made only after extirpation, with the resulting fear of recurrence. Many appendices, the seat of presumable inflammation, show after extirpation *in vivo* or on autopsy histological characteristics of malignant disease. In approximately 1 per cent. of all removed appendices small nodules of a malignant tumor formation seem to be present. One author from independent study uses the remark that "1 per cent. of appendicitis is cancerous." The first inference would be that a malignant process sets up appendicitis and that timely removal of the appendix prevents extension of the disease. No reference is intended here to frank specimens of intestinal cancer which chance to develop in the appendix. The author fully realizes that these microscopic nodules of seemingly malignant epithelial tissue are really inflammatory. The average age (about 26 years) at which they occur is much too low for cancer. The clinical course, so far as we know, is wholly benign. The simulation of cancer is due apparently to proliferation of the parenchyma cells and endothelia of the lymph spaces. No recurrence or metastases of such microscopic cancers are on record. In a word, the lesions represent pure microscopic malignancy without a single supporting element derived from other sources.

Noguchi's Serodiagnosis of Syphilis.—Dr. Sleeswijk of the Brussels Pasteur Institute concludes that with syphilis known to exist Noguchi's test reveals nothing which cannot be told by Wassermann's original method. Under certain circumstances, which include fever, Noguchi's system causes nonspecific inhibitions, not in evidence when the Wassermann test is used. Hence the Noguchi test, so far from simplifying or improving its prototype, must be regarded rather as a source of confusion and error.

Anallergic Sera.—Ascoli of Milan writes in the interest of preventing serum disease. An allergic serum is naturally one which produces supersensitiveness, anaphylaxis, to serum injections, so that an anallergic serum is one which does not entail such disadvantages. The author appears to believe that sera should be tested on the healthy subjects, in order to eliminate makes that are toxic to all alike. In the case of one who has already had an injection, very small quantities should at first be used in second injections. In the case of a serum of proved value, like diphtheria antitoxin, many attempts have been made to profit by some animal other than the horse, especially in second cases. The supersensibility to horse serum is naturally removed by using serum from another source, especially from an animal not naturally sensitized by horse serum, or by one artificially immunized against horse serum. Since children, especially in asylums, etc., may have to be subjected repeatedly to immunizing or therapeutic injections, the problem of allergy is of vital significance. The author has tested as many herbivorous animals as possible, for he even mentions camels among the list. His anallergic serum, which after many disappointments seemed to answer the requirements, is somewhat obscurely hinted at, but the mode of preparation appears to be along recognized channels, and the work of Rosenau and Anderson is quoted in this connection. A study of the article does not inform us as to the precise technique of preparing the anallergic serum, and we are left to conclude that the latter, with laboratory secrets preserved, will enter the commercial field. We get the impression that the ram gradually supplanted the horse as a source of the serum, although the first results were not encouraging.

New Etiotogical and Pathological Conception of Icterus Neonatorum.—Enrico Munsi believes that the icterus of the new-born infant is due to a congenital insufficiency of the cells of the liver, which is, at birth, in a state of incomplete development. This causes a hyperproduction of bile by the liver cells. The child is born icteric or develops icterus soon after birth, and the condition is more frequent in the premature than in the full-term infant, and in the underweight infant. Iodophilia, glycosuria, and levulosuria are present often in these cases, showing insufficiency of the lufatic cells. There is distension of the gall bladder, and increase of secretion of bile, such as is present in the last months of intrauterine life.—*Revista di Clinica Pediatrica.*

Book Reviews.

Hypnotism and Treatment by Suggestion. By J. Milne Bramwell, M.B., C.M., Author of Hypnotism: Its History, Practice and Theory," Etc. New York: Funk & Wagnalls Company, 1910.

The author of this little book states in his preface that he has attempted to deal fully with practical points, especially causes which influence suggestibility, methods of employing suggestion, and the class of cases suitable for this form of treatment. By the term "hypnotism" he means, he says, that there has been induced by "suggestion" a condition of increased suggestibility, a condition (differing widely of course from natural sleep) in which various phenomena—surgical, medical, and experimental—have resulted from the suggestions made to the patient while he was in this condition of increased suggestibility. The author has devoted himself entirely to treatment by suggestion since 1892. The book is based on a varied and practical experience and is both interesting and convincing. It is filled with illustrative cases. As England was really the birthplace of hypnotism, we welcome a new book on the subject by one of her sons.

According to Maria. By Mr. John Lane. New York: John Lane Company, 1910.

If we are not Marias ourselves, we most of us number one among our friends or relatives, and this particular specimen of her type is certainly made entertaining enough as the gospel according to her is unfolded. It is a great pity that the genuine Marias of this world are not equipped with a little sense of humor, in which case this book might be handed round as a specific for their complaint, that of arrant and benighted mammon-worship.

Traité Pratique d'Électricité Médicale, Electrothérapie, Radiothérapie, Radiumthérapie. Par le Docteur J. Larat, Chef du Service d'Électrothérapie de la Clinique des Maladies Infantiles (Hôpital des Enfants Malades); Expert en Electricité Médicale près le Tribunal de la Seine. Troisième Édition. Avec 194 figures dans le texte. Paris: Vigot Freres, Éditeurs, 1910.

This third edition as compared to the first is almost a new book. It is truly a practical treatise on medical electricity and it is also written in a broad and eminently suggestive spirit. The plan of the book is the usual one. Technique and apparatus, electrodiagnosis and treatment are described and a very useful and interesting chapter on electrophysiology illustrates the action of various currents on muscle and nerve. The author forecasts future uses of electricity, *e.g.* the use of high frequency currents in infectious diseases, the possible advances in electrobiology, work upon colloidal substances in the organism, etc. Radium and ionization are considered but briefly.

Anwendungsformen und Wirkungsweise der Hydrotherapie bei den Verdauungs und Stoffwechselkrankheiten. Von Ernst Tobias, Berlin. Halle A. S. Carl Marbold Verlagsbuchhandlung, 1910.

As its title indicates, this brochure of fifty pages is devoted to the indications for and methods of application of hydrotherapy in disorders of digestion and nutrition. The ground is well covered and it will be found useful by all interested in the subject.

Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition. By Prof. Carl Von Noorden. Part VIII, Inanition and Fattening Cures. Part IX, Technique of Reduction Cures and Gout. Authorized American edition. Edited and translated under the supervision of Alfred C. Crofton, M.D., Chicago, Ill. New York: E. B. Treat & Company, 1910.

The preceding volumes of this series of monographs dealing with metabolic and nutritional disorders have become deservedly popular, for they are admirably clear and concise expositions of subjects in which Von Noorden and his pupils have done exceedingly important clinical and experimental work. The present additions to the set are of unusual interest, and cover a field which has been urgently in need of classification. The treatment of obesity and undernutrition has been too largely a matter of empiricism and rule of thumb, whereas, excepting perhaps diabetes, in no other metabolic disorders is it so essential that the physician be able to think in calories and carry out his dietary regulations accordingly. Enough experimental work has been done to establish the technique of treatment in definite numerical principles and these little volumes form very satisfactory working guides. The chapters on gout, especially as regards the determination of the purin tolerance are equally valuable, and it is no exaggeration to say that the books should be in the hands of every practitioner who is interested in keeping up to the times. A little more attention to the proofreading and a great deal more to the English used in the translation would have contributed much to the comfort of the reader. An error of some importance is found in the table on page 47 of volume VIII, in which the caloric value of 100 g. of ham is given as 18 calories instead of 178, as it is in the German original.

Modern Problems in Psychiatry. By Ernesto Lugaro, Professor Extraordinary of Neuropathology and Psychiatry in the University of Modena. Translated by David Orr, M.D., and R. G. Rows, M.D., with a foreword by T. S. Clouston, M.D., LL.D. Manchester: At the University Press, 1909.

A true knowledge of mental diseases implies some intimacy with the many scientific problems of life. The effort to attain such a knowledge is well exemplified in the many-sided activities of the modern student of psychiatry. The latter will be guided and assisted in his arduous task by a careful study of Professor Lugaro's book, which is a recent addition to an important series of works on biological and other scientific subjects appearing in Italy within the past few years. Excellently translated, this work treats of the subject of insanity from all sides, the practical, social and scientific. It goes behind simple manifestations of insanity and seeks to discover their cerebral mechanism. To do this, the author treats of the mechanism of the normal brain in its anatomical, physiological and psychological aspects, and then discusses in what ways this may be altered, and the general relations existing between consciousness and organic phenomena, the relations between consciousness and the objective world. The real morbid process going on the psychic organ and in other organs is sought before the external cause. The division of the book is as follows: First is a general introduction in which is discussed the evolution of psychiatry as a science. Next follows psychological problems and the application of psychology in the analysis of the mental state of the insane. Then are described in order, anatomical problems, problems in pathogenesis, etiological, nosological and practical problems and conclusive remarks. Treatment of the insane, asylum administration, prophylaxis, and the relations of crime and insanity are among the practical problems interestingly discussed.

Neurasthénie et Névroses, leur Guérison Définitive en Cure Libre. Par Dr. Paul-Émile Lévy, Ancien Interne des Hôpitaux de Paris. Deuxième Édition. Paris: Félix Alcan, Éditeur, 1910.

The first edition of this book appeared last year. The present edition seems to be a reprint without revision or addition. The author has become known to Americans through his "l'Éducation Rationelle de la Volonté, son Emploi Thérapeutique," a book which has passed already through its seventh edition. Those who are unwilling to accept the methods of Dubois and others holding similar ideas to his in respect to treatment, may find in "Neurasthénie et Néuroses" moral and reeducatory methods of treatment for neurasthenia, hysteria, and certain other nervous conditions which will appeal to him.

Manual of Surgery. By Alexis Thomson, F.R.C.S. Ed.; Professor of Surgery, University of Edinburgh; Surgeon, Edinburgh Royal Infirmary; and Alexander Miles, F.R.C.S., Ed. Surgeon, Edinburgh Royal Infirmary; Surgeon to Leith Hospital. Volume I: General Surgery; with 339 illustrations. Volume II: Regional Surgery; with 227 illustrations. Third Edition; revised and enlarged. Edinburgh, Glasgow, and London: Henry Frowde, and Hodder & Stoughton, 1909.

This is one of the best known of the shorter modern works on surgery. Although published in two volumes, for the convenience of the reader, it really corresponds to the one-volume manuals used by students. The characteristics of this work are: The curtailment or omission of all theoretical or debatable matter; the description of pathological processes only in so far as they bear directly on diagnosis and treatment; the inclusion of a brief résumé of the surgical anatomy of the various regions and tissues concerned; and the handy size of the volumes, which enables the reader to hold the volume in his hand while perusing page after page. Much of the book has been rewritten, and the new material includes: Bier's treatment of inflammation and infective conditions, serum and vaccine therapy, and short descriptions of Schlatter's disease, Madelung's deformity, and the snapping hip. The chapter on the surgery of the peripheral nerves is practically new. The work is well printed, and will appeal to the busy practitioner who needs a book on surgery which is authoritative, up to date, and of moderate size.

Lehrbuch der Nervenkrankheiten. Von G. Aschaffenburg, Köln; H. Curschmann, Mainz; R. Finkelnburg, Bonn; R. Gaupp, Tübingen; C. Hirsch, Gottingen; Fr. Jamin, Erlangen; J. Ibrahim, München; Fedor Krause, Berlin; M. Lewandowsky, Berlin; H. Liepmann, Berlin; L. R. Müller, Augsburg; Fr. Pineles, Wien; F. Quensel, Leipzig; M. Rothmann, Berlin; H. Schlesinger, Wien; S. Schönborn, Heidelberg; H. Starck, Karlsruhe; H. Steinert, Leipzig. Herausgegeben von Dr. Hans Curschmann, Dirigierendem Arzt der Innern A teilung des St. Rochus Hospitals in Mainz. Mit 283 in den Text gedruckten Abbildungen. Berlin: Verlag von Julius Springer, 1909.

The names associated with the production of this manual of nervous diseases are sufficiently well known, for the most part, not to require an introduction to American readers of German text. The idea of having the various parts of the book prepared by writers who had made special studies and investigations along the special lines of subjects assigned to them was the conception of Dr. Curschmann. The resulting volume is valuable and authoritative, though perhaps a little too conservative respecting the very latest suggestions in diagnosis and treatment. There is no bibliography and comparatively few references appear in the text. The book is intended for the student and general practitioner rather than for the specialist. The intimate relation of neurology with the other branches of medicine seems to be kept in mind by most of the collaborators, and this is important. The book really comprises a series of twelve concise monographs, which have been carefully edited, so as to comprise a harmonious whole. Curschmann has written especially on the myopathies and the vasomotor and trophic disorders; Schoenborn, on general diagnosis; Steinert, on diseases of peripheral nerves; Rothmann, on the physiology and pathology of the cord; Liepmann, on the physiology and pathology of the brain, etc. The organic nervous diseases of childhood form a separate division; also psychasthenic states (by Aschaffenburg) and toxic conditions (by Quensel). One of the best chapters is the last, by F. Krause, on operative treatment in nervous diseases. In this are described craniocerebral topography and various operations on the brain for decompression, or for the removal of tumors, cysts, abscesses, etc. Then follows a brief consideration of operable conditions of the cord and of the peripheral nerves. This chapter might be further elaborated. The book is well illustrated, and reflects credit on the publishers in its handsome appearance.

Atlas zur Mikroskopischen Diagnostik der Gynäkologie; nebst einer Anleitung und erläuterndem Text. By Priv. Doz. Dr. Rudolf Jolly, Oberartz der königl.-Universitäts-Frauenklinik zu Berlin. Containing 52 colored lithographic plates. Berlin: Urban & Schwarzenberg. 1910.

One of the most marked advances in modern gynecology is the recognition accorded to the value and necessity of microscopical diagnosis. Although the problems connected with this subject have by no means all been solved, a satisfactory basis for interpreting this class of microscopical findings has been devised and is now in fairly general use. To Olshausen must be given the credit for first calling the attention of the profession to the value of examining uterine scrapings in the differential diagnosis of certain conditions, from which these methods have since developed. The latest and most complete contribution to the science of microscopical diagnosis has just been brought out in the form of an illustrated manual by Jolly, who has had an extended experience with the subject as an assistant in the pathological department of the "Frauenklinik." His book consists of a series of over fifty lithographed plates in which are represented the dominant microscopical features of the leading gynecological lesions. This is preceded by a brief chapter on the technique of the examinations. The plates themselves are carefully executed, and portray the findings in endometritis, ulcerations, and erosions of the cervix, carcinoma, sarcoma, and polypus. The histological conditions associated with menstruation and pregnancy are likewise pictured. Each plate is accompanied by a brief description of its principal features. Jolly's book is a most valuable contribution to gynecological literature.

The International Medical Annual: A Year-book of Treatment and Practitioner's Index. 1910. Twenty-eighth year. New York: E. B. Treat & Company.

This year-book, which now appears for the twenty-eighth time, is devoted chiefly to treatment. Among the most striking of the articles is that on "injections of sea water," the illustrations "before" and "after" showing most gratifying results following this mode of treatment. Other important articles are those on appendicitis, brain surgery, cancer, cataract, diseases of the ear, eye injuries and affections, heart diseases, surgery of the intestines, mental diseases, peritonitis, diseases of the rectum, diseases and surgery of the stomach, syphilis, tuberculosis, typhoid fever, urinary deposits, and diseases of the uterus. It is difficult to imagine a practising physician to whom this volume would not be of real service. A large amount of medical literature has been sifted, and only the valuable has been retained; this has been condensed and put in a form suitable for ready use, and the work has been done by experts on their special subjects.

La Toxémie Neurasthénique. Les Neurasthénies sont des Intoxications. Par le Dr. Maurice Page, Médecin Directeur de l'Institut Médical de Bellevue. Preface du Dr. F. Helme. Paris: Vigot Frères, Éditeurs, 1910.

Some writers would have us believe that in neurasthenia the mental symptoms so predominate that it may be considered an affection of the mind, and that it can be successfully treated by psychological methods. Others state that it is always a physical disease, due to physical causes, the relief of which brings about a cure. Savil was among the first to point out the role which autointoxication plays in the causation of neurasthenia. The present writer, in a study of 200 cases, concludes that all true cases of neurasthenia are toxic in origin, and treatable on that basis. His book is worth reading.

Epidemic Poliomyelitis. Report of the New York Epidemic of 1907. By the Collective Investigation Committee. Dr. B. Sachs, Chairman. Dr. E. T. Zabriskie, Secretary. New York: The Journal of Nervous and Mental Diseases Publishing Company, 1910.

This pamphlet, which is No. 6 of the Nervous and Mental Disease Monograph Series, is a report of the work done by the commission during and following the epidemic of 1907 in New York City. The volume consists of five papers: I. Epidemiology of Poliomyelitis. II. On the Conditions Preceding Onset and the Early Symptoms of the Disease. III. The Symptomatology of Epidemic Poliomyelitis. IV. The Pathology and Pathological Anatomy of Epidemic Poliomyelitis, and V. Treatment of Poliomyelitis. The book is probably the most comprehensive work upon the clinical and pathological aspects of this disease of childhood. It is, however, of especial interest as the basis of the later work upon the subject from the experimental side which has made such tremendous strides during the past two years.

The Essentials of Chemical Physiology. For the Use of Students. By W. D. Halliburton, M.D., LL.D., F.R.S., Fellow of the Royal College of Physicians, Professor of Physiology in King's College, London; Author of "Text-Book of Chemical Physiology and Pathology." Seventh Edition. London, New York, Bombay, and Calcuttta: Longmans, Green & Co., 1909.

This well-known book has been revised and brought up to date, so that it still remains a practically indispensable volume for the medical student. The practitioner will also find in it an authoritative *résumé* of all that is important in this progressive subject. Besides numerous additions and alterations, this revision contains a new chapter on some typical organic compounds. By judicious elimination of antiquated matter this edition is little, if any, larger than its predecessors; this is an important matter, but one generally overlooked by authors and editors.

Pocket Therapeutics and Dose-Book. With Classification and Explanation of the Actions of Medicines, Doses in Troy Weight with Metric Equivalents, Genitive Endings of All Medicines and Preparations Given in Italics, Index of Common and Pharmaceutic Names, Index of Diseases with Remedies, Tables of Solubilities, Illustrations and Examples in Prescription Writing; Poisons, Their Symptoms, Antidotes, and Treatment; Incompatibles and Antagonists, Useful Hints to the Prescriber. By Morse Stewart, Jr., B.A., M.D. Fourth Edition, Rewritten. Philadelphia and London: W. B. Saunders Company, 1910.

The contents of this tiny volume are indicated on the title page, as printed above. Its chief use will probably be as a dose-book, and the space devoted to this part of the book is about two-thirds of the entire volume. It is a pity that the book has to be turned round before the doses can be ascertained. With the exception of the Therapeutics we have nothing but praise for this work, but the Therapeutical sections are too sketchy to be of any service to any reader.

Society Reports.

MEDICAL SOCIETY OF NEW JERSEY.

One Hundred and Forty-fourth Annual Meeting, Held at Atlantic City, June 28, 29 and 30, 1910.

The President, Dr. Benjamin Waddington of Salem, in the Chair.

Report of Committee on Prize Essay.—Dr. Charles J. Kipp, chairman, reported that the prize of $100 had been awarded to Dr. Elbert S. Sherman of Newark for a paper on ophthalmia neonatorum. This committee offered many recommendations for the dissemination of knowledge for the purpose of prevention of blindness caused by ophthalmia neonatorum.

Address of Welcome.—Mayor F. P. Stoy welcomed the members of the association and said that the doctors did more for Atlantic City than any body of men. He gave them a hearty welcome and offered them the freedom of the city.

Address of Welcome.—Dr. E. H. Harvey, President Atlantic County Medical Society, welcomed the members of the Medical Society of New Jersey.

When and by Whom Should Surgery Be Advised.—Dr. John B. Deaver of Philadelphia delivered the oration on surgery. He discussed the relations of specialist and practitioner which were best calculated to secure the greatest efficiency of the profession against disease. He pointed out by a brief historical sketch that specialism was an unfailing accompaniment of advancing society, but admitted that it was not an unmixed blessing. The paper dealt chiefly with the relation of the surgeon and practitioner. The latter was in the strategic position as regards the patient, therefore his attitude toward surgery and toward the individual surgeon was most important. The occasional surgeon was condemned and Billing's remark was quoted with approval that "he would not have anyone operate upon one of his patients whom he would not have operate upon himself." The requirements of both medicine and surgery in respect to both time and knowledge were so exacting as to make necessary a severance of treatment. The crux of the matter was in the question "at what point of time should physician and surgeon meet to secure the best result." The old plan of the physician reserving judgment for himself and using the surgeon merely as a pair of skilled hands has signally failed. It was, however, an idea which was dying hard. It was forcibly pointed out to what extent surgery was rewriting chapters of medicine which were written by internists. Osler's new "Practice" contained many instances and in his remarks on peptic ulcer he was quoted as saying that "what the modern 'gastroenterologist' needs is a prolonged course of study at such clinics as Rochester or Leeds." The rôle of ulcer as the exciting cause of gastric cancer was one of the most valuable aids to preventive treatment of this disease and had been entirely determined by the surgeon. The surgeon was defined as a specialist in surgical diseases and not as an operator. When the practitioner rid himself of the idea that the surgeon was going to say operate in every case he saw there will be fewer falities from unwarrantable delays. The constantly diminishing mortality of surgical interference was adduced as an argument for more frequent consultation. For how could the advisability of an operation be affirmed or denied without light upon the important point, for after all our advice to patients was based upon no absolute assurance but only upon relative degrees of safety. No man who was not in constant touch with the subject could keep pace with changing surgical risks. It was not at all infrequent to find older men in practice who were appalled by their idea of the risks of an operation that nowadays had almost no mortality. A plea was made for more careful consideration of diseases of the stomach, gallbladder, pancreas, and appendix, the disturbances due to which were so often classed as simple indigestion. The surgeon's experience in intraabdominal pathology made him to-day a safer doctor for a patient who had abdominal diseases than was the internist since it was the unrecognized surgical diseases that killed. Preventive surgery should be more often invoked, meaning not the surgery on normal organs, but upon those in which a disease process was in motion which experience told them was likely to have disastrous consequences. A difficult operation should not be regarded as a sign that it was necessary, but as a reproach that the optimum moment had been allowed to pass by. An easy operation meant an easy and safe convalescence. The solution to the question propounded was to be found in the indidvual case by cooperation of physician and surgeon. The knowledge of the former as to the pecularities of the case was indispensable and when joined to the special knowledge accumulated by the surgeon an answer would emerge easily and naturally as a result of mutual understanding and agreement. For every operation there should be several consultations instead of many operations to every consultation as at present. By this union of council it was thought that the best interests of the patient would be conserved, precipitate surgery would be checked, and likewise eleventh-hour operations be relegated to the past.

Empyema.—Dr. Irwin H. Hance of Lakewood reported his personal experience with two cases of emypema. The operation in acute cases should be immediate resection of one or more ribs. One or two aspirations without great delay before resection of the ribs might be worthy of consideration, but was generally bad surgery.

Dr. Frank D. Gray of Jersey City said that the frequent results of the routine treatment of emypema amounted probably to what might be called an opprobrium of surgery. Many cases go on to the formation of old sinuses, persistent suppuration, sepsis, amyloid degeneration of the kidney, and many of them to death. Among the reasons for such results he mentioned an imperfect diagnosis, and an imperfect treatment. Beck's bismuth paste would often help. He advocated what Murphy of Chicago recommended, the aspiration of the fluid and the injection of a 2 per cent. formalin solution in glycerin.

Dr. Henry L. Coit of Newark believed that when pus was found in the pleural cavity it should be at once removed. He reported two cases, both sequelæ of influenza.

Dr. McCoy of Paterson believed that the bad results in these cases were due to inefficient treatment, especially the surgical when the openings were not free enough. He had treated eight or nine cases with Beck's bismuth paste, but he had not found it efficient in the old chronic cases. He thought lung gymnastics of great value.

The Early Recognition and Diagnosis of Organic Disease of the Nervous System.—Dr. William M. Leszynsky of New York read this paper. He said that the primary cause of many avoidable errors in diagnosis was the neglect of the general practitioner to avail himself of the advantages of acquiring a knowledge of the fundamental principles of neurology. Hence, the unfortunate and prevailing tendency to carelessly ascribe many obscure symptoms to hysteria and neurasthenia, while evidence of organic disease was unmistakable. A classical case of tabes dorsalis, paralysis agitans, spastic spinal paralysis, myelitis, or general paresis was quickly identified. What they were all striving for, however, was to make the diagnosis at the earliest possible moment before the disease was fully established. The recognition of organic disease of the nervous system in its incipiency was an opportunity and privilege that the general practitioner had failed to cultivate. Tabes dorsalis and intracranial tumor had

proved a perpetual source of more serious errors than all of the other organic diseases combined. The non-recognition of tabes was more frequent than its diagnosis. Many years of observation and association with physicians had impressed him with the fact that the testing for the knee-jerk and reaction of the pupils was either inaccurately or carelessly performed. Dr. Leszynsky also spoke of the importance f making an early diagnosis of general paresis. In his opinion, delay was dangerous, for many of these patients could be practically cured by suitable treatment if the disease was recognized in time. He also dwelt upon the value of the Wassermann reaction, and believed that they should be cautious in depending upon it exclusively. In the diagnosis of brain tumor ophthalmoscopic examination was often neglected on the ground that there was no impairment of vision, which was a very serious mistake In all suspected cases of intracranial disease, the eyegrounds should be examined frequently Several instances were cited in which optic neuritis developed within a few days after the nerves had been found normal The importance of other symptoms including the Babinski plantar reflex was also dwelt upon, as well as the danger of mistaking the cerebral symptoms in chronic nephritis for those of brain tumor

Acute Pyelitis in Children.—Dr. George B. Philhower of Nutley reported the histories of six cases of acute pyelitis, all females, and five of these six cases had influenza. The diagnosis of these cases rested on the microscopical examination of centrifuged urine.

Dr. Henry L. Coit of Newark believed it was very important to recognize the fact that the innocent character of the colon bacillus might be changed into a type which was not only vicious but virulent. A consideration of the portal of entry was of importance. In the treatment of these cases he emphasized the three "Ws," water, wait, and watch, with the administration of urotropn, if you wanted to use it.

Dr. J. Finley Bell of Englewood discussed the bacterial cause of pyelitis. The color bacilli would be found in the urine of all babies, if the urine be cultured. If the doctor waited for a chill in these young children before making a positive diagnosis he would be disappointed.

Report of the Delegates to the International Medical Congress at Budapest; also of the Delegates to the Convention on the Ninth Decennial Revision of the United States Pharmacopea.—Dr. Henry L. Coit of Newark made this report:

A Plea for a Higher Standard of Medical Education.—Dr. Benjamin A. Waddington of Salem delivered this, the president's annual address. He said that it must be recognized that the spirit of the age was one of progression ruthlessly stimulated in all the walks of life by the keener competition, individually and collectively, and this meant that he who would be measured successful in the struggle for existence or in gaining or regaining of even a modicum of the favors and smiles of Dame Fortune must be armed cap-à-pie with all the possible advantages in entering the list for preferment in his chosen vocation. At this period of the world's revolution all the various walks of life demanded more and more of the man; and further this demand would go forward with herculean bounds; the wisdom of to-day would be the foolishness of to-morrow, the high standard of the now would be the minor height of the then. In asking of those who would be of the priesthood in the temple of Hygiea certain advanced preliminary educational requirements before admitting them to the study and practice of the rites of the Goddess, they were but following in the footsteps of what past ages in all guilds had required and imposed upon the neophytes who would partake of the knowledge of the inner mysteries of the shrine. It was to be regretted that the profession *en masse* did not set a standard for the admission to its body at the very highest possible notch and then see that those who would be of us measured rightly in the gauge. Medical men in the language of the day seemed to lack the grit to enforce these views and seemed afraid in this as in many other abuses of their profession to speak out manfully and to strike from the shoulder at what did or would detract from their high calling. The reason why the physician did not occupy the elevated place in the esteem of the community he wanted to was that he did not compel a higher respect for his profession from the laity by the prevention of its attaining by incompetents and thus showing a respect for it and for himself. The time would never come in this country, probably, when all doctors of medicine must be graduated from the same college; but the equivalent of it might be required, however acquired. Nevertheless, he who could acquire the necessary funds to take him through college, and was not too old when he began to develop his faculties and gain a standing in the intelligent world, should in every instance take a college course.

Oration in Medicine.—Dr. W. Gilman Thompson of New York City delivered this oration. He said that during the past two or three years notable advance had been made in many of the broader aspects of medical science, and achievements had been accomplished which were of world-wide importance. Among these might be reckoned the discovery of the widespread distribution of hookworm disease; the recognition of pellagra as a menace to our national health; work of Colonel Gorgas in the abolition of yellow fever and of the gravest forms of malaria from the Canal Zone; the ability of the Quarantine and Marine Hospital services to deal effectively with bubonic plague and other serious affections, etc. Moreover, the net was drawn closer around cancer. Never before had our National and State organizations been so efficiently organized and productive of the highest scientific results. Although the measure had been temporarily defeated, the President and at least one of the great political parties stood definitely committed in favor of establishing a National Health Department. A medical society like that of the State of New Jersey should occupy the position in the community of a clearing house or court of appeal in all the broader aspects of medical science in so far as they concerned the general public interests and the public should become accustomed to seek its advice and trust its decisions. There were many urgent problems waiting to be assailed systematically, such as the extermination of typhoid fever and malaria, the disposal of town sewage, the control of the milk supply, the limitation by education of the social evil, the questions of school hygiene, modern hospital construction, and the limitation of the great and increasing variety of occupational diseases. The speaker referred to the way that some of these problems were being worked out in New York State. He mentioned the work being done in hospital erection. The idea was new that the hospital should be adapted structurally for the treatment of disease, and not as a mere dormitory where the sick were all placed under precisely the same conditions of environment. This structural adaptation consisted in having almost as much of the building outside of its walls as inside. As much space was required for administrative, therapeutic, and laboratory purposes as for the mere housing of the sick. He strongly urged administrative cooperation between hospitals, both in regard to proper distribution of patients and economy in purchasing of supplies. A State society might accomplish a great deal of good by maintaining a permanent hospital committee of experts, charged with collecting data and furnishing information and advice to those contemplating the erection of hospitals.

The Significance of the Agglutinating Power of the Blood Serum During and After Typhoid Fever.—Dr.

Geo. T. Welch of Passaic said that there was an impression abroad among the laity that, so long as the Widal test gives the typhoid reaction, there were typhoid bacilli remaining in the system of the individual from whom the cuture was taken, and that he was a menace to the health of the community, and that some measure should be taken to isolate him from his fellows. Sensational reports in the daily newspapers of typhoid carriers had disordered and made apprehensive the public mind on this subject. It was true that bacteriologists had occasionally reported the presence of typhoid bacilli in the contents of the gallbladder and in the urine of persons some time after they had recovered from all the usual clinical manifestations of typhoid fever, but this was most unusual. On the other hand, it was the usual matter of observation that, while the Widal test was found inoperative for the first five to eight days in a case of genuine typhoid fever, it might be found to produce agglutination from that time on for months, or even for two years or more afterward. The reason of this was that the blood serum of a case of typhoid fever could not produce agglutination of the typhoid bacilli until nature had sufficiently propagated the antagonistic bodies that neutralized the disease germs in the system of the patient, which occur about the end of the first week; but, having reached this point, overproduction of these antagonistic bodies continued for an indefinite time, and rendered the blood serum capable of agglutinating long after the disease had subsided. And, while these antagonistic bodies remained, the individual that harbors them was immune from typhoid fever. He might carry colonies of typhoid bacilli in his gallbladder for a varying length of time without any toxic effect upon himself, for the reasons given, and instead of there being a relapse in typhoid fever, except in some rare instance which one might admit, but not demonstrate, it was a recrudescence of fever of another kind, caused by autointoxication from injudicious feeding, and usually was a short course, with recovery as the rule. This immunity was associated with the acquisition by the body fluids of a specific germicidal power. Typhoid bacilli introduced into the peritoneum of an immunized animal were speedily disintegrated and dissolved. And this was a strong argument for the use of immunized serum by injection into the typhoid patient early in the disease. By this means they should be able to neutralize the toxins of the diseases, and abort the fever. The slow-developing antagonistic bodies might be fortified and stimulated, and made to speedily overwhelm the typhoid bacilli, and thus rescue the patient much earlier from his dangerous position.

Personal Experience in Renal and Urteral Surgery.—Dr. George N. J. Sommer of Trenton made a report of test cases, comprising renal calculus, with and without pyonephrosis, renal tumors, septic infarction and ureteral calculus.

Surgical Mishaps.—Dr. Frank D. Gray of Jersey City read this paper. Mishaps in surgery, he said, were of two general classes, one of diagnosis and the other of technique. Each again might be subdivided into the excusable and the inexcusable, the latter, strictly speaking, *blunders*. To pronounce a stomach lesion cancer, after a careful consideration of the history, symptoms, physical signs, blood analysis, and chemical tests, coupled with deliberated valuation of all the evidence and logical exclusion of improbabilities, and then on operating to discover a chronic ulcer was a diagnostic mishap which might befall the best. To do a nephrectomy and find at autopsy that one had removed the patient's only kidney, when cystoscopy and ureteral catheterization would have revealed this fact showed a diagnostic weakness amounting to a blunder. To divide a ureter while extirpating a laterally misplaced uterus was a technical mishap which none might always escape. To leave a sponge or artery forceps in the peritoneal cavity for lack of a final count or a ligature of a septic appendix with nonalbsorable material was a technical blunder that should never have occurred. Consideration of this subject, perhaps, might be facilitated by reviewing it somewhat according to the regional anatomy. Dr. Gray said that his surprise was great, on one occasion, when he expected to remove a chronically inflamed appendix that had apparently caused two distinct attacks and which could be felt as an induration under the examining finger, to find a normal appendix but an inflamed undescended ovary. This incident was not serious, for surgical intervention was indicated; it was, however, rather humiliating to his diagnostic pride and served to emphasize the fact that many other things aside from the appendix might cause pain in the southwest corner of the abdomen. As was understood, the thoracic organs, lungs, and pleura, through reflex influence, were occasionally responsible for surgical mishaps in the abdomen, as when a pneumonia or pleurisy led to operation on a supposed appendicitis. The reverse happening was not so common, but nevertheless occurred. A hospital patient was admitted with evident general peritonitis, apparently secondary to appendicitis. The history was of a two days' illness and he had walked to the hospital from some distance. Dr. Gray noticed that the respirations were fifty to the minute. This suggested a pulmonary complication and he found a higher line of dullness over the lower chest than the liver would account for. Naturally suspecting a secondary empyema he introduced a needle and withdrew a syringe full of pus. Having settled the diagnosis positively, as he supposed, he began the operative procedure by doing a thoractotomy. The pleura was absolutely normal. The elevated line of dullness was the liver, pushed up by abdominal distention. The needle, introduced rather low down, had gone through the diaphragm and drawn pus from the peritoneal cavity, which was swimming with it. Thus, apparently, positive findings would trip them through unwarranted interpretation. Another point of interest in this case was that no appendicitis existed, but a perforated typhoid ulcer. More care in taking the history would have shown, as was afterward learned, that the patient was really ill for two weeks before admission to the hospital, but actually ill only for two days. In other words, walking typhoid for two weeks, perforation and acute general peritonitis for two days. Perhaps no abdominal or pelvic organ had been responsible for more inexcusable diagnostic and technical mishaps than the bladder. "Never forget the bladder" was advice frequently neglected. A humiliating incident in his own experience was along this line. A woman of the unfortunate class was brought to the hospital from an industrial home. She had been on a prolonged debauch and was suffering severe, intermittent abdominal pains. An enlarged abdomen comported with a seven months' pregnancy and was flat to the umbilicus but fluctuating. The vagina was almost obliterated by a bulging of the posterior wall which also fluctuated. The cervix was high up anteriorly and the body of the uterus was not palpable. The intermittent, bearing down pains suggested a pregnancy with impending miscarriage, but from the physical signs he thought there was a complicating large ovarian cyst and he ordered preparation for laparotomy. When about to begin the operation he was asked by a spectator if a catheter had been used. It had not. He had ignored the bladder, being told by the nurse that the patient voided. The catheter was introduced and *two gallons* of urine were withdrawn. The tumor disappeared, the pains ceased and he said he was saved more than a humiliation. During her intoxication the woman's bladder had become overdistended and paralyzed, with consequent overflow that had been interpreted as a normal urination. Dr. Gray said he had since seen two other cases in which the female bladder held, without rupture, respectively six quarts and a washbowlful of urine. Any physician who

had had one experience of this sort would always beware of the bladder. The female viscus would hold almost any quantity short of a buckful; not so the male, as was proven on one occasion when he attended a man who also had been intoxicated for days and whose bladder had ruptured with severe extravasation of urine from a phimosis-stricture of the foreskin, if they pleased. A mishap of transfusion was worth mentioning in passing. A coagulum might form in a Brewer tube if the lumen be not thoroughly paraffin coated. The accident happened in the first of his case and the transfusion ceased after seven minutes' donation of blood. To avoid coagulum the tube should be prepared by not merely dipping it in melted streilized paraffin, but should be allowed to remain submerged until all tiny air bubbles cease to rise. In this way the lumen was completely filled. When a quick, sharp shake of the tube would divest it of surplus paraffin was then ready for use and would disappoint. Surgical mishaps in the region of the head and neck were perhaps only second to those of abdominal surgery on account of the possibilities afforded by traumatiisms and pathological conditions of the brain, organs of special sense, accessory sinuses, vessels, and glands. A diagnosis of brain lesions depended so largely upon accurate and perfect knowledge of complicated focal symptoms that the general surgeon would avoid many mishaps were he to secure the help of the neurologist in such cases. In traumatic cases, however, the surgeon had at least one superior resource, the exploratory incision. The following case illustrated the importance of immediate explorative operation. A man was struck over the head with a hammer on the upper forehead and over the right parietal region. A probe struck denuded bone in each place, but he could not demonstrate a depression in either location. A free enlargement of both scalp wounds showed no fracture in the forehead, but on the top of the head was a comminuted fracture the size of a coat button, both tables being depressed a quarter of an inch. No pressure symptoms indicated this and there probably would have been none. Yet here was a traumatism that offered a fine prospect of later epilepsy. To-day the man was none the worse except for two good-sized scars on his scalp. Concerning surgical errors in the extremities, fractures perhaps were usually not buried but survived to confront and dismay the surgeon. At the same time the recognized value of the *x*-ray in the diagnosis and of modern operative treatment left the surgeon little excuse. A badly functionating leg from fracture of the patella without operation was near malpractice, but a stiff knee, on the other hand, as a result of operative procedure was in the same category. "Silver fork" deformity from Colles' fracture was practically inexcusable since reduction was the crucial matter, and reduction could be accomplished under anesthesia. The supreme importance of anesthesia in the reduction of fractures and dislocations, and the proof by radiograph, must ever be borne in mind. It would pay not only in ease of mind but in dollars and cents. That fracture of the upper or lower third of the femur must be treated on a double inclined splint with Buck's extension was recently brought forcibly home to him. He made the not rare, but inexcusable, mistake of accepting a previous diagnosis, the cause of many mishaps, and left such a fracture in a man seventy-five years old as he found it, in straight Buck's extension, with the result that his successor discovered a bad deformity and non-union. His chagrin was only mitigated by securing the privilege of resecting and wiring the ends of the bones with excellent result despite the patient's advanced age. Allusion to his confidence in surgery of the knee joint made him say that while he believed in it he also feared it almost more than anything else; fear did not prevent his doing it, but made him enforce all the details of the most rigid asepsis. His nearest approach to a mal-practice suit was on account of an ankylosed knee after an operation on a clean case. He said he was saved by the ethical conduct of a fellow member of the Medical Society of the State of New Jersey who told the patient, when approached for an opinion, that it might have happened in his own practice, or that of any other surgeon, a spirit to be commended to all in the presence of other mishaps.

The Spontaneous Cure of Malignant Disease with History of a Very Unusual Case.—Dr. Alexander Marcy, Jr., of Riverton read this paper. The term "malignant" applied particularly to carcinoma. Was carcinoma ever spontaneously cured? He believed it was, because there was a sufficient number of cases reported to substantiate such a statement. How such cures were accomplished he could not say with any certainty. Dr. Marcy also reported a case that was symptomatically cured. He referred to other cases that had been reported in the literature from time to time. It seemed that from such reports it had been proved that cancer had been cured spontaneously.

Dr. Edward J. Ill of Newark reported a case of cancer of the liver of undoubted authenticity in which there was a spontaneous cure.

The Ophthalmia of the Newborn, Its Causation, Prevention, and Treatment.—Dr. Elbert S. Sherman of Newark read this, the prize essay. He said that notwithstanding the fact that ophthalmia neonatorum was a preventable disease, over 25 per cent. of the pupils admitted to the schools for the blind were there from this cause. About 65 per cent. of the cases were caused by the gonococcus, 10 per cent. by the pneumococcus, 10 per cent. by other pathogenic organisms, and 15 per cent. were negative bacteriologically. The eyelids became contaminated during the passage of the child through the vagina and the actual infection of the eyes usually occurred after birth for, in the majority of the cases, the lids at birth were closed and sealed. That the Credé method was effective when properly carried out there could be no doubt. That is was not employed by many physicians in private practice was well known. Midwives were not to blame for all the cases. Many occurred in the practice of physicians. Statistics on this subject were practically all based on hospital work. To ascertain the true conditions in private practice the writer of the paper said he interviewed fifty acquaintances in active general practice. As to their methods of prophylaxis, these physicians might be divided into three classes: (1) Those who either gave the eyes little or no attention, or who relied upon simple cleansing and seldom or never used prophylactic drops. (2) Those who used the drops in suspicious cases. (3) Those who usually or always used the Credé or modified Credé method. Their combined experience was tabulated. There was a total of over 45,000 births. Thirty-three physicians were in the first class, and only eleven in the third class. The results in class three were better than the results in class one. It had been demonstrated that simple, careful methods of prophylaxis gave results almost as good as the best results of the Credé method. But in the large majority of the cases in private practice, and always in hospitals, drops should be used in the eyes soon after birth. The consensus of opinion was now in favor of a 1 per cent. solution of silver nitrate as the proper prophylactic agent. Prophylactic measures were often ineffectual or carelessly carried out. Secondary infections by means of contaminated towels, ben linen, dirty fingers, etc., must be guarded against. At the first bath separate water should be used for the face and care taken to prevent any bath water entering the eyes. Infections frequently occurred during the first bath. If the treatment was begun early the prognosis was good. It required much faithfulness on the

part of the attendants and should be supervised by one skilled in the treatment of diseases of the eye.

Election of Officers.—*President,* Dr. Thomas H. Mackenzie of Salem; *First Vice-President,* Dr. Daniel Strovk of Camden; *Second Vice-President,* Dr. Hollingshead of Pemberton; *Corresponding Secretary,* Dr. Harry A. Stout of Wenonah; *Recording Secretary,* Dr. William J. Chandler of South Orange; *Treasurer,* Dr. Archibald Mercer of Newark. Meeting in 1911, Asbury Park, June 27, 28 and 29.

Report of the Committee on Legislation.—Dr. Luther M. Halsey of Williamstown said that at the last session of the Medical Society of the State of New Jersey a committee was named to act in conjunction with the committee on legislation to frame a Medical Practice Act. After several conferences they decided that they had a bill ready to be presented and which was in good shape. The Governor said that if the educational requirements were made too high the bill would be vetoed on the ground that it would be impossible for any person to receive a medical license in this State unless he had unlimited finances at his control. After the bill had been placed in the Governor's hands those who waited upon him were curtly informed that he proposed to have a hearing on this bill. The history of this hearing was probably very well known. There was no question in their minds that the Governor had been antagonistic in every way to the medical profession during his term of office. They were quite sure that affairs were in such a condition in New Jersey that a good medical bill would pass at the next session of the Legislature beyond a question, and if the proper man occupied the office of Governor they would see placed upon their statute books a law which all would be proud of. The committee had always taken the stand that osteopathy was a fake; that their schools were far below the standard. They should insist that all practitioners of the healing art should comply with the rigidly enforced preliminary standard; that every school should possess the requisite facilities; that every licensed physician should possess a broad knowledge of the body and its affiliations. The midwifery bill which was vetoed by the Governor during the session of 1909 was passed this year. The ophthalmis neonatorum bill was successfully passed. The Optometry bill was defeated. During the legislative conference in Chicago, the unanimous opinion of the delegates was that, by the enacting of a Medical Practice Act, it would be necessary to bring about reciprocity between all States. They should bring about a plan of education and publicity; they should take the people into their confidence; they should show them what they desired to accomplish; they should be educated along the lines of sanitation and in the causes of this warfare upon the great white plague. The medical men were in a position to teach, and it was their duty to be the educators of the people in these vital questions.

Dr. David C. English of New Brunswick offered a resolution, which was seconded and unanimously carried, condemning Governor Fort for his public insult to Dr. L. M. Halsey, chairman of the Committee on Legislation of the State Medical Society, and for his actions resulting in a lowering of the preliminary educational requirement for the license examination, as a consequence of which New York had refused further reciprocity in medical licensure.

Presentation of a Loving Cup.—Dr. L. M. Halsey presented to Dr. William E. Ramsey of Perth Amboy in behalf of the Medical Society of the State of New Jersey a loving cup on which was engraved the following: "To Dr. William E. Ramsay, from his medical friends as a token of appreciation for his devotion to the profession and the safeguarding of the lives of the people of the State."

Address by the Third Vice-President.—Dr. Norton L. Wilson of Elizabeth said that the Medical Society of the State of New Jersey had withstood the varying vicissitudes of one hundred and forty-four years, and to-day they were stronger in influence and numbers than ever before. It was important that all should familiarize themselves with legislation, in which they should have a deep interest. They should be more united. They came nearer being a unit in thought and in purpose when an outrageous and gratuitous insult was offered to the chairman of the Legislative Committee by the Chief Executive of the State. They resented his being called a liar even by one so high in authority, and felt that not only they as physicians had been insulted, but the welfare of the people, whose cause they championed, had been utterly disregarded. The occurrence referred to united them in feelings of resentment and bound them together as a profession more strongly than before. He firmly believed they could accomplish much if they took the cause of the people to the ballot box. Dr. Wilson said that he had repeatedly asked his confrères if they believed in the theory of osteopathy, and almost invariably they would say they believed those who practised in accordance with that theory did some good. There was reason to expect such an answer from the laity, but not from scientific men who should know the theories of osteopathy. Medicine had attained the dignity of a science, and was no longer an art. Dr. Wilson made some remarks on the theory of osteopathy. The osteopath of to-day was not satisfied with simple manipulation; he wanted to do surgery and use means other than his natural faculties.

The Relation of the Public to and the Obligation of the Physician in the Development and Spread of Bacterial and Epidemic Disease.—Dr. Philip Marvel of Atlantic City read this paper. He dwelt more particularly upon the attitude toward the cause and development of certain diseases, which attitude was only of late generally known to be strongly antagonistic to the establishment of prohibitory restrictions which insured protection against these diseases. He said that if he were asked to name the most important factors involved in promoting the influences which were responsible for the present situation he unhesitatingly would say that they were particularly three in number: (1) The commercial interest, which too often disregarded all the rights and privileges of others, and which contributed most support to the object to be obtained. (2) The ignorance of the public as related to the cause and development of disease and the laws of hygiene and sanitary science. (3) The indifference and jealousies of most of the profession, whose lack of proper appreciation of the scope of the work comprehended or whose personal indifference to its source prevented them from a hearty cooperation with the prosecution of the great propaganda. Once the public was sufficiently aroused to comprehend and appreciate its own interests in this great question, little assistance would be required in gaining possession of those rights. At no time in the history of civilization had there been so many proper and well directed educational measures for the uplifting of the people as existed to-day. After having introduced some of the immediate claims on the obligations with which the physician was charged, Dr. Marvel devoted the remainder of his time to the practical considerations of means for the removal of the common nuisances and active causes in the development and the spread of some of the more common and well known communicable diseases. He confined himself particularly to typhoid fever, tuberculosis, dysentery, and malaria. Epidemiological studies of the various communicable diseases had added to their knowledge of the spread of disease by both animate and inanimate carriers. Many crawling, creeping, and flying insects were extremely active in the spread and the development of typhoid fever, tuberculosis, and

other types of disease. Other carriers, as the rat and flea, were agents in the dissemination of plague; the cow and other animals in the spread of tuberculosis; the cat and dog in the transference of diphtheria and hydrophobia; fowl and pigs in the dissemination of the hookworm; the buzzard and other necrophaganous birds in conveying anthrax; man himself was not exempt from being a direct transfer agent of many infections. It was a disgrace that about 350,000 of the population were permitted to become afflicted with typhoid fever yearly, with a loss by death of about one-ninth, or 35,000; while more than 1,500,000 tuberculous cases were constantly seeking relief, and at least one-eighth as many contracted pneumonia. It was his firm belief that these infections would continue with little variation until the public was properly awakened and educated in reference to individual protection and duty.

Dr. Waddington announced that Dr. William H. Welch of Baltimore, president of the American Medical Association, was present and extended to Dr. Welch an invitation to make an address. Dr. Welch spoke chiefly on medical practice and license laws.

Milk.—Dr. Alexander McAlister of Camden said that milk was a medium for almost every form of germ life, and especially for the tuberculosis germ from infected cows. It has been asserted by Von Behring and others that many of the cases of pulmonary tuberculosis in adults were of tuberculous origin in infancy, the infection having occurred through the intestinal tract from drinking tuberculous milk. It was a known fact that fourteen out of every one hundred persons succumbed to tuberculosis, and that more than one-half of the remaining eighty-six show lesions of tuberculosis at post mortem. The dust and manure of the stables in which diseased cows were kept would contaminate the milk of healthy cows during the process of milking. Therefore, there was need of instruction, not only in regard to the milk but also in regard to the stable accommodations. The food products from milk should be inspected with equal vigilance. What should be done to purify the milk when it was produced under suspicious conditions? Pasteurization was the least expensive and most efficient available expedient. It destroyed certain bacteria and some of their toxic products. It also checked putrefaction. There was little doubt that the proper inspection of cows and cow sheds, regularly done, would do much toward the abolition of milk infection. Under any circumstances cow's milk should be pasteurized or boiled for children up to at least the age of five years. This was a wise precaution for any period of childhood. Raw milk was apt to be dangerous, and in pasteurization they had the only means of protection when they were in doubt about the raw product that was offered.

Adenoids; Their Influence Upon the Mental Condition of the Patient.—Dr. Joseph Koppel of Jersey City read this paper, the purpose of which was to impress the profession with the advisability of caring for cases of adenoids as early as possible. After giving a brief outline of the pathology of this condition he took into consideration the etiology which, in truth, was very vague and uncertain. Only lately medical inspection of schools had been established in Jersey City; they had tried to ascertain the mental condition of the children who had been excluded by the medical inspectors because they suffered from adenoids. Out of fifty (50) cases in one school all the teachers and principals agreed that all those excluded were below the mental average at their respective ages, twenty of them being backward in their work and the others far below the average. The following summary was offered: Aprosexia, or mental deficiency, was present in the children suffering from the effects of adenoids. Aprosexia was a natural consequence of the symptoms produced by adenoids, and only in the early diagnosis and the radical treatment of this condition could this enemy of the intellectual welfare of the children be eradicated.

Dr. Wells P. Eagleton of Newark said that during the last year there had appeared at the Eye and Ear Infirmary in Newark 461 cases of adenoids, all but 166 of which were associated with operations on the tonsils. He drew the following conclusions: (1) The condition of inattention and lack of power of concentration was infrequently seen in juvenile mouth breathers, and they were uniformly helped. The effect was immediate and striking. (2) In those young children, having the lymphatic tendency and bearing stigmata of degeneracy, the enucleation of the tonsils and the removal of adenoids was followed by most brilliant results. (3) The conditions called choreal, due as they frequently were to peripheral irritation, were not only greatly helped, but frequently permanently cured by the removal of the peripheral irritation. (4) In the congenital defects of mental development, the mental deficiency was bettered by the removal of the handicap to the general development. (5) He had seen a typical case of mental deficiency of the Mongolian type which showed a marked improvement following the operation for the removal of adenoids.

Dr. Norton L. Wilson of Elizabeth said that in 1887 Guye of Amsterdam first described the condition to which he gave the name aprosexia; he described a case in which the child of young age had learned the whole alphabet in one week following the operation for the removal of the adenoids. It was a noticeable fact that adenoids were found in a large proportion of idiots and backward children, but he was rather inclined to attribute these growths to the mental condition. In backward children he said that they had all seen marked improvement after the removal of the adenoids.

The Ethical Aspects of Expert Testimony in Relation to the Plea of Insanity as a Defense to an Indictment for Crime.—Dr. Carlos F. MacDonald of New York read this paper. (See page 133.)

The Nasal Accessory Sinuses and the Eye.—Dr. G. Harold Ward of New York read this paper. He reviewed the anatomy of the accessory sinuses and showed the intimate relations of the sinuses to the orbit, the eye, and the optic nerve, the symptoms of disease of the individual sinuses were given; this he followed by the known orbital complications from the different sinus diseases, collected from reported cases. From this data, supplemented by the report of a case of double optic atrophy in conjunction with obscure ethmoid disease, which might or might not have been the exciting cause, the following conclusions were reached: (1) In cases of visual disturbances, which had no apparent explanation, and in which sinus disease could be a possible factor, it should be proven conclusively that there was no latent sinus suppuration. (2) In cases of visual disturbance where sinus disease was present the possibility of accidental association must be remembered. (3) Sinus suppuration should be looked upon as a likely cause in cases (a) which reveal on opththalmoscopic examination neuritis, neuroretinitis, retinal phlebitis or hemorrhages, especially if monocular; (b) which, without opththalmoscopic signs, had visual disturbances, as central scotoma, limitations of visual fields, muscular paralysis, or functional disturbances of the fifth nerve; (c) in all inflammatory conditions of the orbit; (d) where the patient had a history, in any eye condition, of head trauma, or recurring colds following infectious diseases. In conclusion, Dr. Ward said that he had observed three cases of high myopia with fluid vitreous and opacities where ethmoidal and sphemoidal disease were present, but their pathological knowledge was still too incomplete to determine whether the sinus disease was the exciting cause or whether it was an accidental association.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Nevada State Board of Medical Examiners.

May 2, 1910.

ANATOMY.

1. Describe location and name the divisions of the osseous labyrinth.
2. What medictarsal joint is the weakest in the arch of the foot?
3-4. What bones enter into the formation of the ankle joint?
5. Give origin and insertion of the trapezius muscle.
6. What is the combined action of the gastrocnemius and soleus muscles?
7. At what point in the neck does the common carotid artery divide?
8. Give location and approximate length of the fissure of Rolando.
9-10. How many pairs of cerebrospinal nerves are there? Of those how many pairs are spinal?

PHYSIOLOGY.

1. Describe the process of osmosis and give examples in the human economy.
2. Describe urea, its occurrence, variations in quantity excreted, and recognition in the voided urine.
3. How can fresh blood stains be distinguished from older blood stains?
4. State where in the human economy the following substances are found: Fibrin, chondrin, leucin, hippuric acid.
5. In what manner is the heart beat influenced by the pneumogastric nerve? What is the average number of heart beats per minute in (*a*) a child one year old, (*b*) an adult seventy years old?
6. Describe the vermicular movement of the stomach and intestines. What purpose does this movement serve?
7. Describe the glands and villi of the intestines.
8. Locate in the brain the seat of the special sense of sight, hearing, and smell.
9. What would be the effect on digestion if the pancreatic duct were obstructed?
10. What is the office of the columnæ carneæ?

MATERIA MEDICA AND THERAPEUTICS.

1. What drug is antagonistic to pilocarpine?
2. State the source of ichthyol, and give its use in medicine.
3. Describe the therapeutic action of spigelia.
4. Describe the therapeutic uses and the dangers of chloral hydrate.
5. Give the chief source and the dose of gallic acid.
6. Describe the therapeutic uses of chromium sulphate.
7. Describe the treatment of cerebrospinal meningitis.
8. What are the therapeutic uses of strophanthus?
9. Correct the following prescription:

℞. Atropiæ sulphati .....grs. 1 ss.
Potas. iodidi .....½ oz.
Infusæ digitalis .....½ fl. oz.
Elix. simp. q.s. ad.....2 fl. oz.
M.
S.—Teaspoonful in water four times a day.

10. Give the theory of the alkaline treatment of rheumatism.

CHEMISTRY AND TOXICOLOGY.

1. Give chemical test for determining the presence of lactic acid in stomach contents.
2. Give tests in detail for indican in urine.
3. Give the chemical reason why diabetics should abstain from starchy foods.
4. Describe the test for detecting the presence of strychnine.
5. What is synthesis? Mention three coal-tar products extensively used in medicine that are prepared in the chemical laboratory by synthesis.
6. State the antidote to practically all alkaloids, explaining its action.
7. What is tyrotoxicon, and in what is it found?
8. What is the treatment for poisoning by wood alcohol?
9. What emergency treatment should be used for poisoning by laudanum?
10. Name a poison, in poisoning by which, fats and oils should not be administered. Explain.

PATHOLOGY.

1. Give the pathology of amyloid liver.
2. Differentiate between epithelioma and lupus.
3. Give the pathological changes occurring in a fracture of the skull at the base.
4. Give the pathology of the first and third stages of lobar pneumonia.
5. Give the pathology of erysipelas.
6. Give the pathology of pseudoleukæmia.
7. Give the pathology of tabes dorsalis.
8. Discuss the pathology of gallstone disease.
9. Give the pathology of acute gastritis.
10. Discuss the changes occurring in the spleen during an attack of typhoid fever.

BACTERIOLOGY.

1. How is yellow fever conveyed, and how would you prevent its spread?
2. How would you manage a case of typhoid fever in a country with very poor sanitary conditions to prevent its spread?
3. Describe and name the bacillus of diphtheria.
4. How would you detect the tubercle bacillus. Describe it.
5. Describe the *Streptococcus pyogenes* and *Staphylococcus aureus*, and where are they found?
6. What is meant by the terms antitoxin and immunization?
7. What do you know of the Noguchi method of the serum diagnosis of syphilis?
8. How is tetanus antitoxin prepared and how does it act?
9. Describe the *Streptothrix actinomyces*.
10. Describe the Gram method of staining for bacteria.

PRACTICE OF MEDICINE.

1. Discuss autointoxication.
2. Give etiology, symptoms, and treatment of dilatation of the heart.
3. Differentiate typhoid fever, malaria, and septicemia.
4. Describe the characteristic symptoms and course of morbilli.
5. What are the symptoms of abscess of the lung?
6. What is the etiology of progressive muscular atrophy?
7. Give the general symptoms of brain tumor.
8. Differentiate empyema from pulmonary abscess.
9. In what cases would the ophthalmoscope aid in diagnosis?
10. Describe a typical case of laryngismus stridulus.

OBSTETRCS.

1. Give the signs, approximate weight and length, and two principal diameters of the cranium of a fully developed fetus.
2. In what proportion to single fetuses do twins develop? Triples to single fetuses?
3-4. Give diagnosis of fetal syphilis. What particular sign is most suggestive and generally accepted?
5. Give treatment for inevitable abortion.
6-7. Give your technique in treatment of face presentation. What is the fetal mortality in such cases? What that of the maternal?
8. Give treatment of post-partum hemorrhage.
9-10. Give treatment for prolapsed cord. In whose position is it generally recommended that the patient be placed?

SURGERY.

1. Describe the anastomosis which takes place after ligation of the femoral artery at its middle third.
2. At what point is paracentesis thoracis preferably performed?
3. What is an adenoma? Give plan of treatment.
4. Through what channels is carcinoma disseminated?
5. Where is the swelling and fluctuation most prominent in synovitis of the ankle joint?
6. Give a classification, either original or from competent authority, of burns.
7. What are the conditions which render excision of the lower jaw advisable?
8. What are the complications of dislocation of the hip?
9. Name the varieties of shoulder joint dislocation.
10. What operations are performed for intractable neuralgia of the fifth nerve?

GENITOURINARY AND DERMATOLOGY.

1. Give the symptoms necessitating fixation of a floating kidney, and describe the operation.
2. Give the local treatment of venereal bubo.
3. What is hydrocele? Describe operations for its cure, and state your choice.
4. Describe syphilis in all its stages, and give treatment of each stage.
5. Give symptoms of stone in the bladder.

6. Mention the most common sites of epitheliomata.
7. What is xanthoma?
8. What are the causes and treatment of keloid?
9. What are the causes, symptoms, and treatment of bromidrosis?
10. What are the causes, symptoms, and treatment of pompholyx?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

Nevada State Board of Medical Examiners.

May 2, 1910.

ANATOMY.

1. See Cunningham's "Anatomy" (1909), page 759; or Gray's "Anatomy" (1908), page 1174.
2. The astragaloscaphoid is the weakest mediotarsal joint in the arch of the foot.
3 and 4. The astragalus, internal malleolus (of tibia), and external malleolus (of fibula).
5. Trapezius. *Origin:* External occipital protuberance, and superior curved line of occipital bone, ligamentum nuchæ, spinous process of seventh cervical and twelfth dorsal vertebra. *Insertion:* Clavicle, acromion process, spine of scapula.
6. *Combined action of gastrocnemius and soleus:* To extend the foot; for use in standing, walking, dancing, and leaping; to raise heel and whole body.
7. The common carotid artery divides opposite the upper border of the thyroid cartilage.
8. Draw a straight line over the top of the scalp from the inion to the glabella; bisect this line, and half an inch posterior to the midpoint draw a line downward and forward at an angle of 67.5° for a distance of three and one-half inches. This line will represent the location of the *fissure of Rolando.*
9 and 10. There are thirty-one pairs of spinal nerves and twelve pairs of cranial nerves, making forty-three pairs of cerebrospinal nerves.

PHYSIOLOGY.

1. *Osmosis:* "If two different liquids are separated from each other by a porous partition, a current sets in from each liquid to the other. The strength of these currents depends on the facility with which the liquids are imbibed by the partition and the tendency the two fluids have to mix with each other; the fluid which soaks most rapidly into the partition,—*i.e.* that which wets it most readily—passes through it most rapidly. If a bladder be filled with syrup and immersed in water, the water will pass into the bladder more rapidly than the syrup passes out, and may so far raise the pressure in the interior of the bladder as to burst it. The water is said to pass into the bladder by endosmosis, and the syrup to pass out by exosmosis. Dialysis differs from osmosis in this: In dialysis a crystal loid in solution passes into a fluid, which contains a smaller quantity of the crystalloid; osmosis occurs at the same time, but the phenomena are quite distinct. The law of osmosis deals only with the currents of liquid. The blood-vessels of the alimentary canal absorb fluids by osmosis. The plasma has only a very slight tendency to pass out of the vessels, while the liquids contained in the alimentary canal pass into the blood with great readiness. The *laws of osmosis* are: (1) The liquids must be of different densities. (2) They must be capable of mixing with each other. (3) The membrane must be permeable to at least one of the liquids. (4) The current produced is greater the greater the tendency of the liquid to permeate the membrane—the greater current is spoken of as endosmosis, the lesser as exosmosis. All these conditions exist between the blood and the fluids with which the blood-vessels are surrounded, and the fluids outside the vessels pass into them more readily than the blood plasma escapes. Endosmosis usually occurs from a lower to a higher pressure."—(*Aids to Physiology.*)
2. *Urea* has the formula $CO(NH_2)_2$; it "crystallizes in transparent needles or four-sided prisms, without Aq; permanent in air; odorless, having a cooling, slightly bitter taste, resembling that of saltpeter. Soluble in an equal weight of cold water, very soluble in boiling water, and in five parts of cold or one part of hot alcohol, the solutions being neutral in reaction. At 248° F. it melts, and slightly above that temperature is decomposed. It is found in the blood, chyle, lymph, humors of the eye, saliva, perspiration, bile, milk, serous fluids, amniotic and allantoic fluids, and especially in the urine." Urea is always present in the urine, a healthy man excreting about 500 grains of urea daily. Pathologically, the amount of urea excreted may be diminished or increased, as follows: A *diminution* may be due to some condition interfering with the normal transformation of proteins in the body, as in certain chronic diseases. More frequently, however, a diminished proportion of urea in the urine is not due to a diminution in the production, but to the fact that the urea formed has not been separated by the kidneys, as in uremia and in diseases attended with dropsical effusions. Pathologically it is *increased* in the early stages of all acute febrile diseases, except when these are attended by the formation of dropsical deposits or by diarrhea; during reabsorption of dropsical fluids; in both forms of diabetes, and in chronic interstitial nephritis.

Test for urea: Evaporate a few drops of the urine on a glass slide, moisten the residue with nitric acid, allow it to crystallize; crystals of urea nitrate will be recognized under the microscope.

3. Fresh blood stains are of a bright red color, contain hemoglobin, and may show corpuscles; but after a short time of exposure (anywhere from one to five or six days) the stain becomes reddish-brown or brown, and contains hematin crystals, recognizable in solution by their spectroscopic absorption bands.
4. *Fibrin* is found in blood and lymph; *chondrin,* in cartilage and bone; *leucin,* in pancreas and spleen; *hippuric acid,* in the urine.
5. It is slowed or inhibited. (*a*) About 108 to 130 beats. (*b*) About 60 to 65 beats.
6. See Gray's "Anatomy" (1908), pages 1288 and 1330. The *purpose* is to propel the contents.
7. See Cunningham's "Anatomy" (1908), page 1062; or Gray's "Anatomy" (1908), pages 1298 to 1304, and 1326.
8. Center for *sight;* is located in the occipital lobe; for *hearing,* in the first temporal convolution; for *smell,* in the uncinate gyrus.
9. If the pancreatic duct were obstructed, there would be a decided diminution in the activity of the digestion of all kinds of foods—particularly of proteids and fats; there would be noticeable carbohydrate indigestion, and starch and fat would be abundant in the stools.
10. *The office of the Columnæ carneæ* is: To prevent too great dilatation of the ventricles; to regulate their contraction; and (through the chordæ tendineæ) to prevent the mitral and tricuspid valves from being turned into the auricles.

MATERIA MEDICA AND THERAPEUTICS.

1. Atropine.
2. Ichthyol. *Source:* A quartz containing the fossilized remains of fish. *Therapeutic uses:* Skin diseases (eczema and psoriasis), to remove inflammatory processes and their products; also in rheumatism, erysipelas, and for ulcers of the leg.
3. *Spigelia* is an anthelmintic against lumbricoid worms.
4. *Therapeutic indications for use of chloral:* As a hypnotic (in absence of pain); as an antiseptic, in a 1 per cent. solution; in cases of acute mania or delirium tremens; in nervous dyspepsia, in fevers with high temperature, excitement, restlessness, etc.; in seasickness; in tedious labor, to relax a rigid os, and for uterine inertia; for nocturnal epilepsy; for infantile convulsions, chorea, whooping cough, and laryngysmus stridulus; in tetanus and strychnine poisoning it is said to be antagonistic; as an antipruritic. *Dangers:* Habit formation; depression of body temperature; it also slows and weakens the heart, lowers blood pressure, and depresses respiration.
5. Gallic acid. *Source:* Tannic acid (from nut galls). *Dose:* 15 grains.
6. *The therapeutic uses of chromium sulphate* are of such very recent recognition that they are not even mentioned in the most modern textbooks. From the literature put out by the chemists who prepare and sell it we extract the following: The diseases in which it has been used with success are: Cirrhosis of the female breast, castration, menopause, functional impotency in men, chronic alcoholism, nervous vomiting and vomiting in pregnancy, neurasthenia, locomotor ataxia, exophthalmic goiter, and the migraines.
7. See French's "Practice of Medicine" (1907), page 149; or Osler's "Practice of Medicine" (1909), page 164.
8. *Indications for strophanthus:* As a cardiac stimulant; in mitral or aortic obstruction; in cardiac dilatation; palpitation; alcoholism; exophthalmic goiter; nephritis; when heart action is feeble but rapid, and accompanied by low arterial tension; in general, same as digitalis.
9. R. Atropinæ sulphatis, gr. 16/100.
Potassii iodidi, ℥ss.
Infusi digitalis, ℥ss.
Elixiris simplicis, q.s. ad ℥ij. M.
Sig.—One teaspoonful in water four times a day.

10. The *alkaline method in the treatment of rheumatism* consists in: The internal administration of sufficiently large doses of alkaline salts to render the urine quickly alkaline; in maintaining this alkaline reaction as long as the rheumatic symptoms continue; and in gradually allowing a neutral or acid reaction to return by gradually diminishing the alkalies as the symptoms decline. It is claimed for this method that, as the alkalies begin to exhibit their action on the system, the whole aspect of the case becomes more favorable, the general distress being alleviated, the temperature falling, and the local symptoms relieved; that these favorable effects continue to become more and more marked, until the rheumatic condition has disappeared; that the average duration of the attack is greatly shortened; and that the proportion of visceral affections is much reduced.—(From Quain's *Dictionary of Medicine.*)

CHEMISTRY AND TOXICOLOGY.

1. *"The presence of lactic acid* is detected by *Uffelmann's reagent,* which consists of a solution of Fe_2Cl_6 and phenol, diluted to an amethyst-blue color, which is changed to yellow by lactic acid. In order to avoid error by the action of other substances which have a like action upon the reagent, 10 c.c. of the filtered gastric contents are agitated with ether, and the ethereal extract separated and agitated with the reagent; or, it may be evaporated, the residue dissolved in water, and the solution added to the reagent." —(Witthaus' *Manual of Chemistry.*)

2. *Test for indican in the urine:* The urine is mixed with one-fifth its volume of 20 per cent. solution of lead acetate and filtered. The filtrate is mixed with an equal volume of fuming hydrochloric acid containing 3:1000 of ferric chlorid, a few drops of chloroform are added, and the mixture strongly shaken one to two minutes. With normal urine the chloroform remains colorless, or almost so; but if an excess of indoxyl compounds be present the chloroform is colored blue, and the depth of the color is a rough indication of the degree of the excess.

3. During the process of digestion starches are changed into glucose, which the system of the diabetic patient cannot utilize; and which, therefore, increases the percentage of glucose excreted in the urine.

4. *Test for strychnine:* Strychnine forms a colorless solution with concentrated H_2SO_4. If a crystal of potassium dichromate be drawn through this solution it is followed by a track of color which is first (for an instant) blue, then violet, then rose-colored, and finally yellow.

5. *Synthesis* is the building up of compounds from simpler compounds or from elements. *Three synthetic coal-tar products:* Acetanilid, phenacetin, and antipyrin.

6. Tannin or tannic acid is the antidote to practically all alkaloids, because it precipitates them and forms compounds (tannates) which are almost insoluble.

7. Tyrotoxicon is a ptomaine; it is found in poisonous cheese, or milk, or ice-cream.

8. In poisoning by wood alcohol: Wash out the stomach, give pilocarpine hypodermatically, and administer strychnine.

9. In poisoning by laudanum: Wash out the stomach with a 1 per cent. solution of potassium permanganate, give strychnine, keep the patient awake, and institute artificial respiration if necessary.

10. Fats and oils should not be administered in poisoning by phosphorus, because they would aid in the absorption of more of the poison.

PATHOLOGY.

1. See French's "Practice of Medicine" (1907), page 838; or Osler's "Practice of Medicine" (1909), page 571.

2.

LUPUS.	EPITHELIOMA.
Is tuberculous.	Is not tuberculous.
Comes in early life.	Comes later in life.
Is of slow growth.	Grows more rapidly.
Little or no pain.	May be very painful.
Edges and base are soft.	Edges and base are hard. Ulcer is deep, with waxy edges crossed with dilated blood-vessels.

3. See Rose and Carless' "Surgery" (1908), page 744; or Da Costa's "Surgery" (1908), page 700.

4. See French's "Practice of Medicine" (1907), page 154; or Osler's "Practice of Medicine" (1909), page 170.

5. See French's "Practice of Medicine" (1907), page 218; or Osler's "Practice of Medicine" (1909), page 210.

6. See French's "Practice of Medicine" (1907), page 523; or Osler's "Practice of Medicine" (1909), page 740.

7. In *tabes dorsalis* the posterior columns of the spinal cord and the posterior nerve roots are involved. The posterior columns of the spinal cord are gray and shrunken, and show considerable overgrowth of connective tissue in the columns of Goll, Burdach, and Lissauer; this process extends upward from the lumbosacral region; the posterior nerve roots degenerate and become atrophic. The meninges over the affected parts become opaque and adherent. Some of the cranial nerves may also atrophy, notably the optic, but also the motor oculi and vagus. The process is destructive and progressive; it is not a simple wasting, although the nerve fibers are atrophied, but it is characterized by irritation, changes in the axis cylinders, overgrowth of the connective tissue, and sometimes congestion; the spinal ganglia may be affected.

8. See French's "Practice of Medicine" (1907), pages 850 and 855; or Osler's "Practice of Medicine" (1909), page 548.

9. See French's "Practice of Medicine" (1907), page 731; or Osler's "Practice of Medicine" (1909), page 457.

10. See French's "Practice of Medicine" (1907), page 73; or Osler's "Practice of Medicine" (1909), page 68.

BACTERIOLOGY.

1. Yellow fever is caused by a specific organism not yet isolated. The *Bacillus icteroides* of Sanarelli was formerly supposed by some to be the cause. Whatever the cause, it is conveyed by a mosquito, the *Stegomyia calopus.*

The spread of yellow fever can be prevented by the use of screens and mosquito nets, by destroying the mosquitos in the house by the use of burning sulphur or pyrethrum, by draining the swamps, by remaining indoors during the hours when the mosquitos are most active.

2. To prevent the spread of typhoid fever: Flies should be kept out of the house as far as possible, by means of screens or otherwise; all discharges from the sick person must be disinfected; all utensils, dishes, etc., used by the patient must be thoroughly cleansed, and boiled every day; soiled linen must be soaked in a disinfectant solution before being washed; after each attendance on a patient, physicians, nurses, and others should wash their hands in a disinfectant; thorough sterilization of all bedding, etc., must be performed after the disease is over. Further, each household should boil all water that is to be used for drinking or for washing dishes, etc.; milk should be boiled also; and no ice should be put *in* water or other drink or food.

3. The bacillus of diphtheria is called the Klebs-Loeffler bacillus. *Characteristics:* The bacilli are from 2 to 6 mikrons in length and from 0.2 to 1.0 mikron in breadth; are slightly curved, and often have clubbed and rounded ends; occur either singly, or in pairs, or in irregular groups, but do not form chains; they have no flagella, are non-motile, and aërobic; they are noted for their pleomorphism; they do not stain uniformly, but stain well by Gram's method and very beautifully with Loeffler's alkaline-methylene blue.

4. To demonstrate the existence of *tubercle bacilli* in the sputum: The sputum must be recent, free from particles of food or other foreign matter; select a cheesy-looking nodule and smear it on a slide, making the smear as thin as possible. Then cover it with some carbolfuchsin, and let it steam over a small flame for about two minutes, care being taken that it does not boil. Wash it thoroughly in water and then decolorize by immersing it in a solution of any dilute mineral acid for about a minute. Then make a contrast stain with solution of Loeffler's methylene blue for about a minute; wash it again and examine with oil immersion lens. The tubercle bacilli will appear as thin red rods, while all other bacteria will appear blue. The tubercle bacillus is rod shaped, is from 1½ to 3½ mikrons in length, and about one-third to one-half a mikron in breadth, is a strict parasite, is not motile, and has no flagella. It is slightly curved, does not form spores, is not liquefying, and nonchromogenic, is aërobic; it resists acids; it grows well on blood serum; stains well by Ehrlich's, Ziehl-Nielsen's, or Gabbett's method; it is Gram-positive.

5. The *Streptococcus pyogenes* is a micrococcus, of spherical shape, and arranged in chains of about thirty or forty cocci (in liquid media), but the chains are much shorter in solid media. Each coccus is about one-half to two mikrons in diameter. It is not motile, does not form spores, does not liquefy gelatin, and stains readily with the ordinary anilin dyes, and by Gram's method.

It is *found* in the mouth, nose, urethra, vagina, and on the skin; also in suppurations, erysipelas, pneumonia, pyemia, septicemia, abscesses, empyema, osteomyelitis, etc.

The *staphylococcus pyogenes aureus* is a small round cell which appears in clusters like a bunch of grapes; its diameter is about 0.8 to 1.0 mikron; it is facultative anërobic, has no flagella, is not motile, it stains readily with

the anilin dyes, and is not decolorized by Gram's method; it forms an orange pigment on gelatin, potatoes, and other media; it also liquefies gelatin. It is *found* on the skin; in the nose, mouth, ears, and eyes, and under the nails; also in abscesses, boils, carbuncles, osteomyelitis, arthritis, empyema, and suppurative inflammations in general.

6. *Antitoxins* are substances formed in the body, of a protective character, and capable of rendering inert the poisonous products of bacteria.

Immunization is an experimental process by which the resisting powers may be increased.

7. *The Noguchi method of the serum diagnosis of syphilis* is a modification of the Wassermann reaction. This latter Noguchi modifies as follows: "(1) He prepares the antigen by extracting a lipoid substance from the liver and heart of dogs and cows. (2) Instead of using sheep's corpuscles in the hemolytic series, he employs human corpuscles, owing to the fact that a certain percentage of human sera tested produced hemolysis of the sheep's corpuscles. (3) In his test, therefore, he obtains the hemolytic amboceptor by immunizing rabbits with washed normal human corpuscles. (4) Another important improvement in the technique is the preservation of the specific antigen and the hemolytic amboceptor, which rapidly lose their strength in solution, in a dried form by soaking measured strips of filter-paper (.5 mm. square) with each. His test is carried out as follows: A strip of antigen filter-paper is brought in contact with a definite quantity of the human serum to be tested and fresh guinea-pig's serum added, the whole being suspended in isotonic salt solution. This is allowed to stand at incubator temperature and then the hemolytic series added by taking a strip of the hemolytic amboceptor paper and a definite quantity of washed normal human blood corpuscles."—(Tyson's *Practice of Medicine.*)

8. "Tetanus antitoxin is obtained from the horse, the animal having been rendered artificially immune by repeated injections extending over a period of several months of gradually increasing quantities of the strongest tetanus toxin. As the bacilli themselves are not injected, the horse does not become infected with tetanus, but he gradually acquires a tolerance for the toxins of the disease and develops in his blood a substance (antitoxin) which has the power to neutralize those toxins. At the proper time, when it is thought that his blood has acquired the requisite degree of potency, the animal is bled, and the serum—the part of the blood containing the antitoxin—is carefully separated from the clot, filtered, and standardized. The last procedure is accomplished by determining the quantity of antitoxin serum required to offset the effects of the minimum quantity of toxin necessary to kill a guinea-pig in a definite time. The strength of the antitoxin is measured in units, a unit containing the amount of antitoxin required to save the life of a guinea-pig which has been injected with 100 fatal doses of toxin."—(Stevens' *Materia Medica.*)

How antitoxin produces immunity and effects cure is not known, but *theories* deduced from observed facts are as follows: "As the various pathogenic bacteria produce the causative toxins of their respective diseases, so the organic cells of the body, reacting under the stimulus of the poisons thus introduced, immediately proceed to elaborate defensive bodies, which if produced in sufficient quantity will neutralize the effects of the toxins. Residual antibodies remaining in the blood after recovery render the animal immune for a time against the disease. The immunizing and curative effects obtained by the injection of the blood serum of an immunized animal into the circulation of another animal are due either to direct chemical neutralization of the toxins themselves by the antibodies so introduced (Behring, Kitasato), or to a particular influence exerted by the antibodies upon the living cells of the organism which, being affected in two opposite directions, remain neutral to the disease (Buchner). Some authorities hold that these results are due to the conjoint action of leucytic and chemical forces. Ehrlich's sidechain theory assumes that every toxin contains toxophore molecules having direct toxic action, and haptophore molecules which combine the toxophores with a similar combining group of molecules in the tissue cell of the attacked organism. The tissue cell molecules being destroyed by the toxophores, a rapid and profuse regeneration of similar molecules occurs in side chains, and these molecules overgrowing are carried into the circulation, becoming the antitoxin, which acts by combining with the haptophores of newly-arrived toxin, using up their combining power before they can reach the tissue cells."—(Potter's *Materia Medica*, etc.)

9. *Streptothrix actinomyces* appears in the form of branching threads which interlace with each other. The external ends may be rounded or bulbous. Colonies of them have a radiating appearance, and so have been called ray-fungus. It stains with ordinary anilin dyes, and is Gram positive. It is facultative anerobic, non-motile, non-flagellate, parasitic, and pathogenic.

10. *Gram's method of staining:* Stain a cover glass preparation for two or three minutes in anilin gentian-violet. Wash in water. Treat with Gram's solution (iodine, 1 gram; potassium iodide, 2 grams; water, 300 c.c.) for a minute and a half, when the preparation becomes nearly black. Decolorize with strong or absolute alcohol for at least five minutes, wash, dry, and mount. Sometimes a contrast stain of Bismarck brown or eosin is used.

PRACTICE.

1. See French's "Practice of Medicine" (1907), page 7.

2. See French's "Practice of Medicine" (1907), page 599; or Osler's "Practice of Medicine" (1909), page 820.

3. See French's "Practice of Medicine" (1907), page 103; or Osler's "Practice of Medicine" (1909), page 95.

4. See French's "Practice of Medicine" (1907), page 326; or Osler's "Practice of Medicine" (1909), page 141.

5. See French's "Practice of Medicine" (1907), page 685; or Osler's "Practice of Medicine" (1909), page 641.

6. See French's "Practice of Medicine" (1907), page 1039; or Osler's "Practice of Medicine" (1909), page 902.

7. See French's "Practice of Medicine" (1907), page 1100; or Osler's "Practice of Medicine" (1909), page 989.

8. See French's "Practice of Medicine" (1907), pages 695, 698, and 685; or Osler's "Practice of Medicine" (1909), pages 649 and 641.

9. *The ophthalmoscope would aid in the diagnosis of:* Brain tumors, abscesses of brain, anemia of brain, cerebral aneurysm, tabes dorsalis, multiple sclerosis, exophthalmic goiter, nephritis, diabetes, hypertrophy of the left ventricles of the heart, fatty degeneration of the heart, syphilis, alcoholic or tobacco poisoning.

10. See French's "Practice of Medicine" (1907), page 647; or Osler's "Practice of Medicine" (1909), page 598.

OBSTETRICS.

1. See Williams' "Obstetrics" (1909), page 147; or Hirst's "Obstetrics" (1909), page 91.

2. Veit's figures, based on 13,000,000 cases, show that twins occurred once in 89, and triplets once in 7,910 labors.

3 and 4. See Williams' "Obstetrics" (1909), page 599; or Hirst's "Obstetrics" (1909), page 155.

5. See Williams' "Obstetrics" (1909), page 619; or Hirst's "Obstetrics" (1909), page 281.

6 and 7. See Williams' "Obstetrics" (1909), page 280; or Hirst's "Obstetrics" (1909), page 414.

8. See Williams' "Obstetrics" (1909), page 821; or Hirst's "Obstetrics" (1909), page 587.

9 and 10. See Williams' "Obstetrics" (1909), page 843; or Hirst's "Obstetrics" (1909), page 626. The position recommended is the Trendelenburg.

SURGERY.

1. Anastomosis after ligation of femoral artery at apex of Scarpa's triangle: (1) External circumflex; with muscular branches of femoral, anastomotica magna, superior articular of popliteal, and anterior tibial recurrent. (2) Perforating and terminal of profunda; with muscular branches of femoral, and muscular and superior articular branches of popliteal. (3) Comes nervi ischiadici; with perforating of profunda and articular of popliteal.

2. *Paracentesis thoracis is preferably performed:* "In the fifth interspace, just in front of the angle of the scapula" (Da Costa). "Sixth (or seventh) intercostal space in the midaxillary line; eighth (or ninth, especially on left) intercostal space in the posterior scapular line" (Bickham).

3. See Rose and Carless' "Surgery" (1908), page 208; or Da Costa's "Surgery" (1908), page 328. *Treatment* consists in removal.

4. Carcinoma is disseminated through the lymphatics chiefly, also by the blood, and occasionally by mechanical transportation in the movements of the body.

5. The swelling and fluctuation are most prominent on either side of each malleolus, and also in front.

6. See Rose and Carless' "Surgery" (1908), page 115; or Da Costa's "Surgery" (1908), page 1052.

7. *Excision of the lower jaw is advisable* in: Various tumors of that bone (chiefly malignant), and also in extensive necrosis.

8. *The complications of dislocation of the hip* are: Extensive injury to the soft parts (such as rupture or lacera-

tions of the muscles); rupture of, or dangerous pressure on, the femoral vessels or sciatic nerve; fracture of the head, neck, or shaft of the femur, or of the acetabulum.

9. *Varieties of shoulder joint dislocation:* (1) Subcoracoid—forward, inward, and downward. (2) Subglenoid—downward, forward, and in ward. (3) Subspinous—backward, inward, and downward. (4) Subclavicular—forward, inward, and upward.

10. See Rose and Carless' "Surgery" (1908), page 383; or Da Costa's "Surgery" (1908), pages 680 to 684.

GENITOURINARY AND DERMATOLOGY.

1. See Rose and Carless' "Surgery" (1908), page 1159; or Da Costa's "Surgery" (1908), page 1101.

2. See Rose and Carless' "Surgery" (1908), page 142.

3. *Hydrocele* is a collection of fluid other than pus or blood in the neighborhood of the testis or spermatic cord, generally in the tunica vaginalis of the testis. For operations see Rose and Carless' "Surgery" (1908), page 1267; or Da Costa's "Surgery" (1908), page 1201.

4. See Rose and Carless' "Surgery" (1908), pages 142 to 162; or Da Costa's "Surgery" (1908), pages 274 to 296.

5. *Symptoms of stone in the bladder:* Increased frequency of micturition; pain at end of urination, chiefly felt at the end of the penis or in the neck of the bladder; the urine may contain pus, mucus, or blood; a "click" can be obtained by using a searcher or sound; examination by the cystoscope may reveal the presence of the stone.

6. *Common sites of epitheliomata:* Nose, lower lip, tongue, mouth, larynx, esophagus, stomach, anus, larynx, penis, scrotum, vulva, cervix uteri.

7. *Xanthoma* is a disease in which a yellow or brownish discoloration appears about the eyelids and other parts of the body. The discoloration may be flat, or papular, or nodular.

8. Keloid. *Cause* is not known; the negro race is prone to the disease; there may be some minute injury preceding the disease. *Treatment:* Removal is useless, as it may return; scarification has been recommended; the *x*-ray has proved beneficial; violent methods should be avoided; it may disappear spontaneously.

9. Bromidrosis. *Causes:* Unknown; racial peculiarity, as in the negro; it has been attributed to decomposition of the sweat; also to a parasite, a bacterium. *Symptoms:* Offensive odor to the perspiration, most often affecting the feet or axillæ. *Treatment:* Not much use; washing of the affected part with soap and water several times a day and putting on of clean cloths; various dusting powders. Generally ineffective.

10. Pompholyx. *Causes:* "It occurs in adults of both sexes, and is believed to depend upon some general disturbance of the nervous system. Mental overwork and lowered nerve-tone are ascribed as causes. The disease is considered to be a vasomotor neurosis. *Symptoms:* The lesions are distributed symmetrically, and occur as deep-seated, tense vesicles usually on the lateral and palmar aspects of the hands, fingers, feet, and toes, accompanied by itching and burning. They may coalesce, but more frequently they remain discrete, showing no tendency to rupture. The contents are absorbed and desquamation follows. The duration of the attack is from several days to a few weeks. Recurrence is common. *Treatment:* Recurrence may be prevented to a great extent by the employment of measures calculated to improve the general health. Locally, pastes, ointments, or lotions containing antipruritic drugs often allay the subjective symptoms."—(Hughes.)

Trichocephaliasis and Trichocephaloanemia.—Guido Guidi makes observations on the frequency of trichocephaliasis in children, and shows that it results, in the long run, in a marked form of anemia. Although innocuous in the majority of the cases, in some individuals it brings about morbid states that are marked, represented by alterations in the blood, and severe anemia. This anemia is of simple type, and is found, chiefly, in children. It is due to loss of blood by means of ulcerations produced in the intestine, alterations in the process of digestion and absorption, and absorption of toxic products of the life of the parasite. Infection occurs by water, by eating materials which have been watered with sewage, and by contact of the hands with materials containing the parasites. There is general weakness, vertigo, headache, diarrhea, intestinal hemorrhages, vomiting, pain in the abdomen, and fever. In the blood there is lowering of hemoglobin, hypoglobulia, poikilocytosis, macrocytemia, and microcytemia, nucleated red blood cells, oligochromemia, diminished globular value, leucocytosis, and possibly eosinophilia.—*Ricista di Clinica Pediatrica.*

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of July 23, 1910.

	Cases	Deaths
Tuberculosis Pulmonalis	614	154
Diphtheria	277	25
Measles	275	11
Scarlet Fever	133	9
Smallpox	—	—
Varicella	17	—
Typhoid Fever	59	6
Whooping Cough	34	6
Cerebrospinal Meningitis	3	4
Malarial Fever	—	—
Totals	1,412	215

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, during the week ended July 22, 1910.

		CASES.	DEATHS.
CHOLERA.			
China, Swatow	June 1–6	..	4
India, Bombay	June 8–14	..	1
Calcutta	May 22–28	..	40
Negapatam	May 7–13	..	11
Rangoon	May 29–June 4	..	2
Java, Batavia	May 29–June 4	5	3
Samarang	May 22–June 4	95	80
Philippine Islands, Manila	May 22–28	1	1
Provinces—			
Batangas	May 1–7	1	..
Bulacan	May 1–28	36	24
Pampanga	April 24–May 28	63	70
Pangasinan	April 24–May 28	333	235
Tarlac	May 8–14	1	1
Union	May 1–28	2	1
Russia, general		..	..
May 8–18, cases 3,344, deaths 1,260.			
Baku, government	May 29–June 18	10	6
Bessarabia	June 5–11	1	..
Don, territory	May 29–June 18	1,298	432
Ekaterinislav, government	May 29–June 18	723	315
Kharkov, government	May 29–June 18	154	83
Kherson, government	May 29–June 18	153	40
June 18–20, fatal case on steamship *Colenso*.			
Odessa	May 29–June 18	16	9
Kief, government	May 29–June 18	181	44
Kuban, government	May 29–June 18	168	85
Minsk, government	May 29–June 18	12	3
Mohlilev, government	May 15–28	2	1
	May 29–June 18	13	8
Orel, government	May 20–June 18	2	1
St. Petersburg, government		..	..
June 19–25, cases 4, deaths 1.			
St. Petersburg		..	..
Poltava, government	May 29–June 18	111	29
Taurida, government	May 29–June 18	98	31
Kertsch	May 29–June 18	1	..
Tschernigov	May 29–June 18	134	61
Vitebsk, government	May 29–June 18	7	..
Voronez, government	May 29–June 18	1	1
Siam, Bangkok	May 4–21	487	480
Straits Settlements, Singapore	May 22–28	13	11
YELLOW FEVER.			
Brazil, Para	June 19–25	11	9
Costa Rica, San Juan	July 2–9	1	1
Sierra Leone, Freetown	June 1–8	1	1
PLAGUE.			
Brazil, Pernambuco	April 1–15	..	1
China, Hongkong	May 22–June 4	3	2
Swatow	June 1–6	..	..
Present in vicinity.			
India, Bombay	June 8–14	..	72
Calcutta	May 22–28	..	46
Kurrachee	June 5–11	51	48
Rangoon	May 29–June 4	..	41
Japan, Formosa	June 5–11	5	3
Osaka	May 1–31	5	5
Persia, Bouchir	April 29–June 4	44	36
Rhodes, Aplakia	May 22–28	..	Present.
Siam, Bangkok	April 25–May 24	3	3
Straits Settlements, Singapore	May 22–28	1	1
Trinidad	July 14	1	1
SMALLPOX.			
Abyssinia, Adis Ababa	May 16–28	..	Present.
Brazil, Para	June 19–25	2	2
Pernambuco	Mar. 16–April 30	..	161
Canada, Halifax	June 26–July 2	..	..
Sydney	July 3–9	10	..
Chile, Chillan	May 14	..	(*a*)
Epidemic.			
Victoria	May 14	..	..
Epidemic.			
China, Canton	May 22–28	5	..
Chefoo	June 5–11	..	Present.
Shanghai	June 6–12	1	3

Cases among foreigners, deaths among natives.

a From the Veröffentlichungen des Kaiserlichen Gesundheitsamtes, June 29, 1910.

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Original Articles.

HYSTERIA UNDER PSYCHOANALYSIS.

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Psychoanalysis, as a procedure, is showing a sharp growth curve in this country after a very considerable incubation period. True to its native history and traditions, it is likewise developing a marked capacity for making warm friends and bitter enemies. We find it both over-exalted and under-estimated, proclaimed as the most efficient instrument known to modern neurology and psychiatry, and derided as a complicated revamping of medical folklore. With the enthusiast, it assimilates facts in the avid manner of a Shandian hypothesis; for the obstructionist, not even the alleged similitude to old and intimate measures serves to temper the bitterness of its rejection.

While some degree of oscillation must precede the arrival at a balance, a part of this too considerable divergence should be possible of elimination. A consideration of its history, the psychological essentials, the type of mechanism, and the application to definite clinical groups should serve to give a fair valuation to it, provided always there be the intent towards defining its relation to the acquired knowledge and facts that have preceded it. The necessity of limiting the scope of such an inquiry has led to making hysteria the chief consideration of this paper as seen in the light of psychoanalysis.

In the beginning, psychoanalysis as an isolated organized method did not exist. It grew from an effort at reducing certain neuroses to their psychological fundamentals. Because of this concealed origin, thus implicitly expressed, many have failed to credit the real beginning with Janet at the Salpetriere, rather fixing the point of origin at another and later point where the procedure was more explicitly stated. Hysteria served Janet as a stalking horse. His work with Charcot had raised him in the fullest hysteria clinic of Europe. The advanced work here in hypnosis had made for a more close and intelligent analogical rapport. Back of this was a strong psychological bent and training. The manifestations of hysteria he based upon a narrowing of consciousness, not so much the epiphenomenon, a name for the function of the mind, as the content of consciousness. The tendency toward this constituted the chief criterion of hysteria. The producing factor of this split was psychogenic. The resultant was a dissociated constituent of the stream of consciousness, which, becoming subconscious, integrated and grew to different degrees of organization, its potentiality being in direct ratio to this growth. The various manifestations, sensory, motor, and psychic, were due to the action of this subconscious focus upon the stream of consciousness, depending upon the degree of interference produced by its partial or complete reappearance, thus destroying the continuity of normal reactions. These upheavals were viewed as due either to direct growth in focus or to transitory states where the consciousness was tenuous or reduced.

This makes up the formula of hysteria for Janet as developed in his "Mental State of Hysterics and Neuroses and Fixed Ideas." Its essential constituents are the psychogenic cause, the dissociating mechanism, the organization of the dissociated content with its operation upon the stream of consciousness. Its application was made specifically to hysteria. Close attention to these concepts reveal certain lacunæ. It is necessary to go over these gaps, for they show the origin of later extensions which have, perhaps, overshadowed the original work of the French psychologist. Janet, made of the psychogenic factor a massive, vivid, sensory impression of tremendous emotional tone acting as a psychic shock in narrowing and obliterating the stream. The sheer impact from without made the break. The concept was thus limited to an exceedingly narrow range, for not only gradations of intensity were inoperative until that point had been arrived at where the dissociation occurred, but, also, only factors operating directly and immediately from without were here established. This is the first limitation giving opportunity for subsequent development. Dissociation as a mechanism has never been more clearly shown in careful psychological terms than by Janet. He was the first to exemplify it in a constructive and clinical manner. Yet it was only one type of dissociation, requiring for its production the peculiar kind of psychogenic factor described above. In its operation the break in continuity was immediate and complete; the criterion was loss of content, demonstrated by amnesia. The content was the isolated block of personal experiences made up by the factors of the shock with its sensory and emotional accompaniments. The lines of severance at the beginning and end were clearly cut. Despite the perfection of analysis in this complete type of dissociation, Janet took no account of gradations in this process beyond a certain difference in depth of dissociation as applied to the sensory or emotional constituents of a given experience. By gradations is here implied not only gradations of intensity but gradations in a time sense of a dissociation gradually occurring through repeated minimal dissociations. It is quite reasonable to assume that such would be more frequent than the extreme type, provided the mechanism were proved as fully operative in one as in the other. The second gap is at this point. The organization of the

dissociated focus and its operation upon the stream of consciousness may be considered as the third division of Janet's work. This is acute and explanatory; the methods of demonstration are ingenious, the reasoning sound, the dissociated content, proven as existent, at a lower level, is shown to possess possibilities of organization. To effect this, the nucleus must have the power of absorbing other stuff to itself, in this implying further dissociation. This absorption and organization may proceed to a formation of that which is carelessly called a secondary personality. Always there is a tendency towards this organization; equally constant, the dissociated experience remains the plainly traceable focus. The operation of this dissociated and more or less organized state is due to a tendency to rise towards normal levels in a quasi-automatic manner as a repair of synthesis, this movement being favored by any conditions making for a temporary limitation or weakening of the stream of consciousness. To this Janet traced a large proportion of the major manifestations. The intruding content bears the character of the reproduced, reinstated fragment, yet failing to fuse at this upper level, because, through this act of intrusion, the material possible to fuse with has been displaced and all associative bonds blocked. Until this fusion occurs, the tendency towards it persists. In this section one meets a strict, almost mechanical association concept. It presents less of gaps than alternatives. The constantly identifiable presence of a focus, the persistent organization solely through absorption, the interference with consciousness through an associative tropism seen in the inherent tendency towards reinstatement and resynthesis, all these lines, however sound psychologically, are not sufficient as a universal explaining mechanism. Therapeusis, the sum of these three terms, rests with a recovery and resynthesis of the dissociated content. Hypnosis is employed as a means to arrive at the lost material which, in this state, tends to rise spontaneously. With the resulting hypermnesia the entire subconscious organization is rapidly brought up. Amnesia disappears *pari passu* with the successive emergences. Further alterations and suggestions are possible to effect with unduly persistent pathological elements. The procedure stands close to a literal reconstitution of the stream of consciousness. Despite these gaps, the work of Janet in hysteria has furnished the soundest material for subsequent investigators as affording the first clear clinical and thorough psychological concept of dissociation. An acquaintance with it is necessary for a proper understanding of the work of men now more conspicuous in this field.

Freud's contributions now stand as the most important. While judged on their own peculiar merits they will yet, in part, be viewed by the light of that which has preceded with the purpose of revealing their similarities and divergences. As with Janet, hysteria was the subject of Freud's initial work. Unlike Janet, he has come to extend it immeasurably beyond these limits. With Freud, moreover, it will be seen that there was infused a philosophic leaning foreign to Janet, a tendency possessed of certain advantages and definite dangers. In 1893 a preliminary communication came out, followed in 1896 by his "Studienuber Hysteria" in conjunction with Breuer. The concepts in this work formed the basis for further extensions in his "Traumdeutung and Psychologie des Alltagsleben." In this order they should be read if one desires to follow the progressive evolution of these ideas. Freud asserted the psychogenic factor. Its action upon consciousness he described as due to insufficient reaction emotionally and intellectually. There was no distinct, clear-cut break of a dissociative character. To meet this he conceived the mechanism termed exclusion, meaning by this the voluntary and persistent putting away by self of the memory of the factor. The result would be a gradual dislodgment, and displacement from consciousness of the experience. The displaced experience is peculiar as to content, organization, and function. Its content always holds an element of an unfulfilled desire, which implies a conative direction; its organization is not one in the sense of an integration but a stringing of associations of diverse type and irregular formation, each rigidly deterministic as to its immediate successor, generalized under several broad groups; its function is displayed by an interference with consciousness as an intruding or foreign element under conditions where the excluding mechanism is not efficient for the moment in maintaining its function.

The amplification of this bare formula of Freud's will show greater differences than appear in its abstracted form, the points of divergence coinciding largely with the so-called gaps noted in Janet's. Freud's first point in regard to the psychogenic factor is important and constitutes a definite departure from Janet. The content of the initial impression is made sexual, explicitly or implicitly. In the beginning, he formed this basis apparently from a posteriori grounds but the sharp attacks directed at him have driven him to apriori territory, where his position is less secure. Despite this, his defining of the sexual nucleus, his ingenious demonstration of its efficacy in producing diverse results makes his attempt at formulating a unity of causation a distinct advance upon Janet who held that the content might be varied so long as it possessed a potentiality for producing cleavage. He insisted upon the massiveness of the shock, that it should be sufficient to make a clean-cut dissociation with subsequent submergence and amnesia. Freud here followed another line. He held that an immediate dissociation was not necessary to postulate, but only that the impression be not reacted to, that it be not assimilated, balanced, and equalized. While this means an incomplete association, it does not imply or necessitate a strict dissociation. His next step served to amplify this conception. He sought to show that not only was it unnecessary to claim an immediate and complete dissociation, but that there was to be found a mechanism capable of producing a similar end result through a different process. This is accomplished by his "exclusion," paired with its resultant, the "displacement or dislodgement." He understands by the exclusion a quasipsychologic function called by him the "censor." We have intimate knowledge of its acting at every moment when we try to push away from our attention or memory unpleasant facts, recollections, yearnings. We quite persistently and habitually thus censor our immediate mind stuff. Now this mechanism forms an important link in the series of Freud's concepts. With the sex factor it finds a connection in the established fact that pedagogy, training, morals, and life have taught and enforced the exclusion of this nucleus more than any other. The next

link to which it is connected is the peculiar character of the excluded content. Freud sees this generalized under the type of an unfulfilled desire. With sexual attraction as the most powerful conative end, persistently functioning because unfulfilled, it makes plain the reason for the necessity of continuous operation in this exclusion mechanism. This constant exclusion of the recurring nucleus finally leads to a dislodgement, or displacement. This important factor deserves a close attention in its comparison with Janet's. As a psychological mechanism, its function is widely different. It implies volition, a constant, conscious effort, varying in efficiency and success, necessitating, at times, a tremendous outlay of energy with its successive fatigue; or it issues in a partial failure, leaving as fruit certain curious, mental compromises. It affects personality as the extra-personal shock cannot. The end results of this mechanism may be compared but should not be confused with Janet's. Here a definite group of psychic elements, an experience, drops *en bloc* from the stream of consciousness. Freud makes this gradual, the result of constant, volitional exclusion, so that the displaced fragment fails to represent the clean-cut, limited group of Janet, but possesses a character radically different. The excluded and subsequently dislodged content is not simply the stuff toward which the exclusion was primarily directed, either in material or form. It has undergone changes, contamination, substitutions, losses, or additions. The manner of its production through repeated exclusions makes this. Nor is the criterion of its dislodgement that definite amnesia obtaining with Janet's dissociation. Yet viewed as end results alone, both are dissociations; viewed in the manner of their respective mechanism or function, they are so different that a definite originality must be granted Freud's concept. Further differences, issuing from these, are seen in the effect upon consciousness and personality. The underlying motif in this part of his conception is the unfulfilled desire, while with Janet it remained the persistent striving at a resynthesis of the dissociated fragment, all the various clinical phenomena being made dependent upon this initial dissociation and those added to it as the growth of the nucleus persisted. Freud avoids this organization idea. Through a host of varied associations, he sees the unfulfilled desire moving, always determining its immediate successor, suffering continuous alterations through each repeated exclusion, rarely or never presenting the isolated fragment originally excluded, contaminating innocent associations with its affective tone, under this cloak reappearing as an obsession, unexplainable to the patient, or represented by symbols, appearing in dreams or as bizarre sensations and visualizations, undergoing conversion into a blind range of somatic symptoms, extending into irregular delusional formations, capable of these and a thousand other mutations without loss of real continuity. Freud's therapeusis is simple to express. Kathersis—he calls it; a reaction, incomplete at time of a given impression, later constantly excluded, is made complete by a retracing through all its varied manifestations and by its thorough expansion before the patient. It is thus reduced to proper proportions, assigned to its peculiar place, and handled in an adequate and normal manner through this regained and reinforced reaction. Not a word about synthesis here, yet what has been just described is its highest form. Nor does any trace of suggestive work appear. In the long process of equalization, expansion, and alteration, this must function, but equally well it may be subsumed differently with no damage to the facts. It is unnecessary to do more than indicate these merely nominalistic differences which exist side by side with other marks distinctive and distinguishable in the two series.

This comparison of the work of Janet and Freud has two purposes. It is directed first toward displaying the psychological essentials of both series with their respective limitations and excellencies. Also, because a recent work always gains in illumination through even a remote and fainter light, it has been felt that Freud's theories might show an added definition through the clean-cut psychological concepts of Janet, while, conversely, the demonstration of the gaps in the latter's work should give a better valuation to the important extensions originating with the former. The second purpose is more practical. It is to show that neither theory is absolutely inclusive; that each in displaying peculiar excellencies and defects should reveal a varied range of adaptation for correspondingly varied groups. This difference in clinical adaptability is obviously important, especially as it may lead toward a more intelligent selection of method for theapeutic purposes.

In introducing the clinical section, one reservation is to be made. The pursuit of as strict a comparison here as in the psychological section would confine the cases to hysteria, for to this field Janet's work in dissociation was limited. Because a peculiar virtue of Freud's work rests in its extension to other neuroses, it would be unfair to limit the range here to hysteria without acknowledging this gap made necessary by the desire to get some clinical unity out of the paper. The cases making up this section were largely drawn from the Department for Nervous and Mental Disease in the Roosevelt Hospital O. P. D., that they may serve as a latent argument for the practicability of the work under conditions much less favorable than those possible in private practice. The first case presented, however, is abstracted from an article by the present writer in the *Boston Medical and Surgical Journal* (Aug. 31-Sept. 7, 1906).

Case I.—The patient had a good family history. Her own life had been normal up to the time of her trouble except for the incident of overwork in school. The mental state for which she was placed under observation dated back one year. At this time she had experienced a peculiar shock. A report was abruptly broken to her by an excited neighbor that a brother had been decapitated by a passing train. A book she had been reading dropped; she appeared as though about to faint but rallied. The news was changed presently by a verification of the accident not to her brother but to a friend of his living with them. In the evening, upon the homecoming of the father, the incident was recited to him. The patient appeared distressed, picked up a book to read and fell unconscious; after one-half hour she recovered with total amnesia, both of the occurrence and the news of the morning. The next day a similar attack followed the shrill whistling of a locomotive. Incidents of the funeral precipitated a third. The amnesia persisted. Her environment was changed but with no deterring effect upon the attacks which rather increased. Soon the amnesia became retro-

active. Isolated instances at first dropped; later entire blocks of her life disappeared. A more radical environmental change was advised to avoid all old associations. The state advanced; attacks became more frequent ensuing upon any light distractive conditions. The amnesia became more continuous. Automatisms were numerous, extending up to very considerable fugues. Dream life was filled with the lost content but upon awakening not recognized by her as such. The affective state became one of acute apprehension with a marked depression. Her grasp deteriorated, and the attention weakened, the general picture giving one the impression of an approaching psychosis. Psychoanalysis began with the production of light hypnosis. This opened up the mechanism with considerable clearness. The book held by her at the time of the shock had upon its cover an intaglio head. This had fused with her representation of the decapitated head of her brother and immediately had been dissociated. But the dissociation stopped then until again the same book was picked up in the evening when the first complete attack ensued with the subsequent complete amnesia. This amnesic content was completely recovered with a few prolonged treatments. It showed a remarkable organization. The dream content was revived, displaying a growth extending from the sensory elements of the shock into a vast amount of stuff accruing from the amnesic content. The resynthesis was completed rapidly. The patient entirely recovered and an interval of four years has seen no reappearance of trouble.

This is a clear example of the mechanism described by Janet. There is the massive shock, the immediate dissociation with a clean line of cleavage, the dropping of an experiential block below the threshold, an organization showing within two weeks, intrusion of the content evident from the first and increasing in frequency and duration in direct ratio to the organization, these intrusions or upheavals above the threshold being dependent either upon an associative bond or upon states wherein the stream of consciousness showed weakening or attenuation and, finally, the cure issuing from the completed resynthesis obtained by the line of therapeusis. As against Freud's scheme, the impression had no sexual bonds; the dissociation followed the impact of the shock through its intensive effect, nothing even dimly comparable to an exclusion being seen; the dissociated material was clean, uncontaminated, and in its reproduction reversed the direction of the dissociation, showing that the absorption of material by the focus had followed general laws of memory. Its growth had come thus and not through the direction of an unfulfilled desire; its reappearance, constituting the attacks, had been due to the strength of the associative tropism not to the functioning of an unfulfilled complex. It stands, thus, as an example of that which one might call the type of direct, immediate dissociation.

Case II.—The family history was not obtainable. The early life was scantily described as "nervous." During her married life she has been irritable and variable in her moods. She has had "nervous" attacks sufficiently marked to require medical attention. It is not possible to define these further as the entire emphasis is laid upon later occurrences. One year ago, while in a hospital preparing for curettage, she had a "fainting" attack with three similar following within five days. The operation was postponed. Since then she has had one every two months. The attack is described as beginning with epigastric pressure, stiffening of back, bending backwards, choking sensation with production of weird noises, anesthesia of the left side, and some irregular twitching of feet and hands. The duration is about ten minutes and the post state is that of moderate delirium with hallucinosis. Amnesia follows. Aside from these attacks the general state has been changing; there are distracted episodes wherein she loses herself for a few moments, brief confusional attacks, occasional hallucinations, temporary amblyopia, a desultory amnesia, sleep filled with dreams colored by frightful content of injury toward herself, a general sense of depression with striking emotional expressions, and a lessened fitness for work.

On examination there are found anesthetic areas irregularly distributed over the entire body, analgesia is present but limited; there are marked visual limitation and slight contractures of left leg, reducible under distraction. She is ego-centric in every reaction, suggestible with marked emotional fluctuations and decided mannerisms of dramatic type; depression is exaggerated in its description and exhibition; distractive states are frequent and unmistakable with brief confusion upon emergence. There is no disturbance in stream of thought beyond such as are traceable to these episodes of distraction.

Psychoanalysis through hypnosis opened up a shock occuring eighteen months previous to admission. She had been riding upon one of the attenuated horse cars of the East Side when it was struck by an automobile. She had seen the machine approaching, rose to her feet as it struck the car, was thrown to the floor by the impact; she fainted and a zealous policeman poured down her throat some whiskey of the neighborhood quite effectually choking her, she screamed, fainted again, became delirious, was removed to the station house and held until a late hour for identification as not for several hours was she able to give her name and address. The result was amnesia as to the entire occurrence up to the time of her father arriving at the station to take her home. One month later, while in a ferryboat making a poor landing, the crash of the boat against the piers broke some glass, threw the passengers about, and brought on a second attack, less severe and more brief. Both these had become dissociated and were reinstated *en bloc* under hypnosis with a tremendous emotional accompaniment. The content of a considerable number of subsequent attacks were uncovered and demonstrated a causal connection through associative bonds issuing from the initial shock. Aside from these, however, there was evidence of considerable contamination in this content; it failed to display the organization seen in the first case; the raising of the apparent subconscious focus did not bring with it a firmly woven texture but rather one with many gaps and variegated with elements not apparently associated with other content. The subsequent clinical picture gives a transposed picture of this. Two months later she reported no further attacks, still very brief confusional moments, but no further hallucinosis nor delirium states. The anesthesia and contraction had largely disappeared. She was still raw upon the accident complex but there was no abnormal reaction upon the mention of it. Again in two months the last report showed

an improved balance, less emotional variation as applied to representation of attack, a decided gain in memory, greater fitness and but few distractive periods. A few elements of the original experience still reappear in dream state but she is no longer amnesic of them. Sensory disturbances have not reappeared. This is not the clearly finished case of the preceding type and, because of this, it has a comparative value. The criterion of this difference does not rest upon the greater duration, although in this group that fact is significant, but it rests rather upon evidence that minor dissociations were still recurring at last report. Yet in a way, it is grouped under the direct and immediate dissociation. The accident had all the factors necessary to produce the break, which was demonstrated by the definite recovery of content under hypnosis. The significant parts lie beyond this. Although the attacks were much less frequent than in case I, with each revived by similar methods, yet there failed to show any continuity in the dissociated content, any organization aside from elements derived from the shock. The supply was scanty; it did not emerge in the way characteristic of the tapping of a genuine source nor was there any true hypermnesia during the intervals. Some dissociated stuff was still retained and that it functioned was made plain by the continuation of a minor train of symptoms. The presumption arising from these facts is that the accident was not the original focus but one superimposed upon a dissociative process which had existed for a long time previous, as the scanty early history seemed to show clinically. This fundamental disturbance had not been got at by the procedure described. Freud's method would have here been employed, had not the case dropped out because of the relative improvement of the state. It will be seen in a later case that the probability of success in arriving at the real solution would have been considerable. Despite the unsatisfactory ending, the case is of real value clinically. It shows the limit of the direct and immediate dissociations. These may occur in any given case and their complete reproduction is of decided help not only in more speedily arriving at more normal reactions but in clearing away the field for finer analytic work. The important point, however, is that unless one finds the full term of Janet's type, psychogenic factor and dissociation and, in particular, organization, then the case is not a complete one of that type and demands further analysis.

Case III.—The family history was not obtainable. In her early years she had been described as a "nervous" child, easily frightened, shy, retiring, uneasy, and disquieted outside of familiar environment; the progress in school was slow. These qualities led to considerable limitation and isolation later in life. Six months ago she had a "fainting" attack from which she emerged in a state of acute fright with a marked tremor in the right hand and arm. Amnesia from attack showed. The tremor persisted; at times it would become especially violent, at such occasions producing acute agitation and in itself constituting an attack but without loss of consciousness. Twice there had been definite delirium episodes with hallucination of black men threatening her. Confusional states became common; amnesia showed frequently. Sleep was invaded with dreams of fire, burglars, negroes killing men but no sex content. Hypnogogic hallucinations were regularly present. She has been driven from work because of increasing unfitness.

Examination—There were no sensory disturbances but an extensive coarse tremor of right hand and arm, ceasing upon distraction, exaggerated readily by suggestion to a point where the entire body was shaken, slight visual limitation. The general make-up was that of a moderate inferior. She showed some depression not acute but anxious, passed readily from this to a more pleasant tone; was highly suggestible; no distractive periods were evident but attention was defective and the grasp was slow yet not due to distinctive mental defect but to an agitation which followed any question directed at her.

The psychoanalysis with hypnosis opened into a dream content with sharp reaction on the part of the patient. A black man was chasing her, his hands bloody, his aspect threatening; he caught her apron in his hands, she threw him off and her right hand in falling to her side was smeared with blood from the imprint of his fingers. She had awakened from her sleep at this point trembling and remembering nothing of her dream. The same dream had repeated itself the following night. The next day she had the initial attack as she was picking up her apron to tie about herself. The content of the attack was recovered as identical with that of the dream. The delirium episodes had back of them this general content. The tremor had persisted, however, with no relationship except to the dream. With this was an unpleasant affective tone of acute fear. The immediate effect of the procedure was to diminish abruptly the extensive range of the tremor but the confusional state and the desultory amnesia persisted with a less violent depressive tone.

From the basis of the dream there now extended lines reaching towards other elements present but undeveloped in the dream complex. The first led to an assault she had unwillingly witnessed of a colored elevator man upon a white boy, the latter being left severely wounded and bleeding. The patient was in the elevator at the time and could not get out. She was too frightened to scream and had to remain and be taken up to her floor by the assailant. The incident was so fearful that she tried to forget it. Extensions from here showed that the latter exclusion of these by her always intensified the tremor; she felt confused, dizzy, and uncertain of herself at these times. A second line ended in an early sex experience, not dissociated, but excluded and fused with the apron factor. The effect of the latter work was to complete the case. The patient went back to her tasks and report shows continued efficiency.

This case demonstrates more amply than the preceding the existence of both mechanisms, but with a distinction in the greater preponderance of the type described by Freud. The elevator experience had not operated as did the street-car accident. There was no direct and immediate dissociation; rather it was a matter of insufficient, restricted reaction with the later exclusions partly described by the patient. The dream states were the more deeply dissociated and raw and hyperesthetic. Moreover, into these converged the other lines. Hence they appeared under the artificial working of hypnosis as the most immediate and potential subconscious foci. Yet the analysis thus proceeding was not sufficient. Here Freud's method without hypnosis worked. It demonstrated the exclusion phenomena with subsequent displacement, the sex factor, the operation of these in the production of the varied symptoms of tremor, confusion, amnesia, halluci-

nation, etc. There failed only the unfulfilled desire. This would probably have appeared had the sex content been more persistenly pursued. At this very point, however, the case is perhaps the more instructive as it minimizes the need for the over-amplification of a factor which is Freud's chief sustaining ground for the fulfillment conception. The case stands then as one of indirect dissociative type in which the methods applicable to the direct show a lessened and accessory value.

Case IV.—The family history shows some inequality on the maternal side. The personal history gives the picture of a shy, fearful, unsocial child; school progress was normal, the family relations were harsh and unpleasant, yet she was efficient in her work outside of her home. For the past two years she has been less well although able to work; yet it was impossible for her to define the state further until one year ago. At that time she had her first attack, with falling down, rigidity of the left side, some spasm, and partial loss of consciousness. The duration was three minutes; there was no post-stupor but only a great fear and apprehension which also had shown during attack. Since then the attacks have occurred frequently, ranging from once in two weeks to several in a day. The general character remains the same. The prodromes are headache, a state of anxiety, disturbances of sensation over the left side, occasional hallucinations, and brief confusions. At times the attack is general with complete loss of consciousness or, again, only the stiffening may present for a moment or sudden dizziness with confusion or distractive periods arising from an attempt at persistent attention. When coming at night, they are usually preceded by dreams of which she is partly amnesic but from which an unpleasant tone proceeds. Hypnogogic hallucinations are frequent. Anesthesias, analgesias, tremors, and contractures present, rarely, however, independently of one of the varied types of attacks. Sleep is constantly filled with dreams, the content being usually violent and disturbing. Prophetic dreams have been experienced. The general affective state is becoming more like that which immediately precedes the attacks. Amnesia is partial as referred to attacks. A certain amount of the desultory type shows in her daily life. Examination showed irregular and fluctuating areas of anesthesia over the left side, a coarse, inconstant tremor of the left hand and arm, moderate visual limitation, considerable emotional instability, suggestibility; there are no memory gaps apparent; retention is good and grasp normal.

Psychoanalysis first showed an assault, incomplete, occurring six months before the first attack. This attack had been but partly reacted to; that is, although she had not forgotten it as a whole, yet certain elements in it had been lost and the exclusion process had taken care of the balance. The elements lost were those most sexual in tone, made up by the pressure of the assailant's body against her left side. These factors, thus brought up, seemed to explain the attacks. Each had the left-sided rigidity as a conversion symptom due to the excluded sex sensations. The first attack had occurred immediately after striking her bare body against a bureau in a dark room. Other varied impressions with an associative bond to the shock had seemed to initiate later attacks, an alcoholic breath, a street car where crowded against men, dreams with assault content or hallucinations of a man's face. The attacks, the dreams, the content of distractive states, the hallucinations were all brought out and supposedly expanded. Yet no change followed in the attacks; there was only a better affective state. This meant, of course, incomplete work. About this time she began to complain of violent nausea, sudden in onset and termination, accompanied by a mental state of aversion and disgust. She gave here that which is common to such cases, a misleading cue, directing its origin to an unintentional exposure by her husband of his person. It was soon brought out that one month before this, a workman on the road where she was walking had acted as an exhibitionist before her. Yet the effect of this upon her seemed not new; it had merely served to crystallize feelings previously known to her, but rigidly excluded. She had always had an aversion for men; as a young woman she had gone with but few; back of a liking for those who were personally agreeable to her, there lurked a latent aversion. She had married only after many delays and against an apparently unconquerable dread of the state. As these statements came out the reactions became more marked until, finally, there came to light the experience which really formed the beginning. When a child 7 years old she had been met in the woods by a man, a degenerate, who forced her to touch him, thus polluting her left hand. She cleansed this hand upon her frock. She had said nothing of it. The memory had been partly lost, due in a way to the age when it occurred and to the exclusion directed toward it upon its reappearance. As an actual memory it had functioned little, but as a dissociated fragment it had been tremendously potent. Its action was progressive and permeating to a degree that can be no more than sketched. It produced first the aversion toward men and boys in her childhood. After puberty, when her work threw her among girls whose talk was not clean, it began to lend its deterrent effect to topics which, otherwise, might have been entertained with the indeterminate desire of that age. As she grew older and with this there appeared the normal sex tone, this underwent unusual exclusion due to its borrowed, unpleasant value. Both because of its constant exclusion and its physiological strength the sex complex became hyperesthetic; yet immediately upon its return, due to its driving power of repressed and unfulfilled desire, there came the aversion, disgust and fear, producing that indefinite affective state which had preceded the assault preceding the first attack. This assault had with it a direct physical element which associated itself immediately and effectively with the dissociated or excluded stuff of her early years. Yet at this assault the dissociation had been slight and only those sensory elements were lost which most clearly were bound to the childhood experience. The exclusions, however, had been difficult in greater degree from this point on, due to the increase in strength. Added to this, the first attack occurred under conditions where the normal libido was increased to a point impossible for the exclusion to work effectively. The chance sensory element of the bureau touching her bare side brought in all the associative bonds described in her history; the intrusion of this sensory complex above the threshhold of consciousness obliterated the stream for a moment with the production of a state, which, in its essentials, was sexual. All the attacks were thus conversion processes of sex states. Later analysis amply proved this. The percolation of the same

elements into her dream states with their sex symbolization, the hallucinations, the confusions, the amnesias, the varied sensory disturbances were demonstrated but cannot here be entered upon. The rapid and satisfactory termination afforded a clinical proof of the reality of the cause and the efficiency of the measures.

This case, terminating the series, serves in an incomplete way to stand for an example of Freud's method in hysteria quite as the initial case exemplified Janet's. It has in it the early sex factor, the exclusion process, the displacement, the unfulfilled desire, all traceable through the conversions, substitutions, symbolizations in the line of symptoms. Of the first it embodies a clear example. Freud has been insistent in his emphasis upon the frequency of sex incident in early life among neurotics. There is found further substantiation for his theory that no dissociation in the sense of Janet's occurs here, but that the process is the normal memory loss common to early impressions, those especially persistent being limited to the indeterminate sex life. It is not in place here to discuss the biological insufficiencies of this theory, but among neuroses it finds much support. The exclusion process is seen to have markedly increased at about the time when the normal libido appeared. Its effect is easy to follow and permits of a clear distinction from the direct dissociation, for even in the assault, nothing of Janet's type could be demonstrated. The functioning of the unfulfilled desire is marked plainly in the successive intrusion of content above the threshhold under the varied forms of conversion into somatic symptoms, sensory symbols, etc., showing no organization as in the first case where the mass of dissociated stuff was continuous and integrated, but appearing more as a series of associations, suffering varied mutations with successive exclusions and determined solely by a content of sex and a conation of the unfulfilled desire.

These four cases may be made to stand for three general groups in hysteria when viewed from the standpoint of mechanism and applied therapy. The first class, marked by Case I, is a limited division. This particular case might well be called a shock neurosis or neuropsychosis. It is usually contended, however, that such cases have a substratum of hysteria and, for this not entirely cogent reason, here they are thrown. They are distinguished by the intensive, massive, psychic shock, the clean-cut dissociation, the organization of dissociated content and the effect upon consciousness by the double process of absorption and intrusion. The therapeutic method, applicable here is hypnosis in light degree, for this is quite sufficient to allow the hyperesthetic content to rise. There may at first be a false show of irrelevant stuff, but a tolerable persistency soon touches on the complex. The manner of appearance is characteristic: It rises as a living, present experience with a reaction that leaves no doubt of its veridity. The connection is readily pursued because of the organization, synthesis being speedily effected. As 75 per cent. of hysterics are hypnotizable and the required degree here is light, this necessity is not onerous. It is quite another story with other classes of neuroses and in itself constitutes a formidable argument there against the application of this particular method.

The second class, illustrated by case IV, has a far wider territory. It is characterized by the sexual basis of its psychogenic factors, depending more upon the content of the shock and less upon the sensory momentum, by the volitional exclusion process with its gradual dislodgment instead of the cleavage dissociation, by the deterministic direction given to these dislodged associations issuing from the unfulfilled desire but without real organization and by the effect upon consciousness produced by the conversion of these elements into intruding somatic symptoms in place of any pure absorbing and displacing tendencies. It is hard to give a clear description of the method without overloading the detail. Hypnosis is not used. The patient is quietly swung into an amplification of his history. Specific points he is encouraged to enlarge without let or hindrance; that is, at these points he is urged to bring into words everything that passes through the mind, censoring or suppressing nothing. This is difficult at first, for the habit of exclusion is so strong as to require constant overriding. The seizure of the excluded points is especially useful, for from here the lines open up. The view backward into early years is always maintained while the generalizations of sex content and the unfulfilled desire aid in making the method less blind. The purpose throughout the proceeding is to bring about conditions, issuing from the demonstrated continuity of associations, that may lead to a complete reaction by the individual to these points thus illustrated. Necessarily this means not only displaying before the patient the mechanism but aiding him in handling the content in a healthy manner, in interpretating it for him, explaining its intricacies and its crudenesses. The work is time devouring even with long experience and possible here only of abridgement through acquired skill in picking up clues by an intelligence trained in the selection of those vital to the series. Despite this handicap, in handling intricate and involved cases it stands as the one method which produces results.

The third group is the largest and has, perhaps, slipped attention because it is a third alternative. It is characterized by the presence of both mechanisms in an incomplete form. Freud's is usually the fundamental with the other superimposed. It seems to be with many of this class that the constitution or mental make-up has in a way been able to compensate for the conditions issuing from the exclusion process and to maintain a working balance until the terminal shock is added as the last straw. When this can be cleared away by Janet's method the patient may find himself so relatively improved that it is considered a cure. This is, of course, fallacious as shown by case II in the presenting of residual minor symptoms. It is necessary to remember when the underlying state has not been changed that recurrences may appear. In other cases it seems better not to disturb the regained balance through too remote extensions of the free associative work of Freud, particularly where there exist complexes which had best remain submerged for the patient. A general direction toward more wholesome ideas may be quite sufficient to arrive at a practical result. Another working plan can be gained in this class of cases. The hypnosis will often let one in upon a point where the lines most necessary for the work of Freud converge. It saves a tremendous amount of time in orientating the investigator as to the raw part of the life story. Further it is possible in this light state to effect certain alterations, make affect substitutions, carry out other changes through suggestion where one has the manner of their production mapped out by previous analyses. These short cuts are facts to be considered in dispensary

work among hysterias. Without their aid the analyses of 60 per cent. of the hysterias in my clinic at Roosevelt Hospital would be frankly impossible, for one here has to get the practical results in the many rather than refined and extensive analyses in the few. This should in no way, however, prejudice the execution of a full sequence whenever possible. The point is mentioned solely for its usefulness in getting working results under conditions not ideal for the more extended methods.

The subject-matter of this paper has shown a strict limitation to hysteria. This has been done not only for the purpose of getting at a fair comparison of Janet's and Freud's work with the practical results issuing from this, but also that a certain clinical unity might be retained. It is inevitable that a new method should lead to its overemphasis with a corresponding reduction in the careful determination of the clinical complex and groupings of the cases studied. The result is twofold disastrous. It is certain to prejudice illy the immediate work, for the investigator thus proceeding is toiling in the dark, but, more important, the failures resulting from this are liable to be laid to the inefficiency of the method where they do not belong.

The rapidly widening range of these procedures into neurasthenias, anxiety-neurosis, imperative ideas, obsessions, manic-depressive group, precox and paranoia, make this warning necessary. The underlying mental make-up of these classes is so different, their constitutional resistiveness and lability is so varied, the interdependability upon physiological causes so manifold, that a disregard of these essentials produced by an infatuation with method can lead to nothing but ridicule and failure.

Conversely, where the method is pursued with a full knowledge of the particular psychological and clinical make-up of the case, the results are certain to be favorable either in a complete resolving of the case or in the attaining of a much greater definition of clinical lines than has been possible heretofore.

55 East Fifty-sixth Street.

EXTERNAL URETHROTOMY WITHOUT A GUIDE.*

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The operative treatment of deep, tight strictures of the urethra which have been found impermeable to any instrument is generally based on opening the urethra anterior to the stricture on a staff introduced so far as feasible. Then comes the search for the posterior end of the urethra which, even in the hands of skilled operators, is often a prolonged and disheartening procedure and not infrequently has to be abandoned and resort made to the humiliating procedure of retrograde catheterization by a suprapubic incision. In the hands of the inexpert it is a most fearful procedure to witness. Consequently my belief is that such unsatisfactory methods should be abandoned, and for them I beg to submit the following technique. Attempts to pass filiform bougies should not be pushed to such an extent as to provoke urethral reflexes or entail a delay lasting sometimes for days. Prompt relief should be given by performing external urethrotomy without a guide, aided, perhaps, by some of the expedients to be hereafter described. The posterior urethra having been opened, a guide can in the great majority of cases be easily passed from the posterior aspect of the stricture and the division of the stenosis completed *secundem artem*.

The several steps are as follows: A general anesthetic can almost invariably be administered, for the procedure is so rapid that anesthesia has to be pushed up to the point of securing relaxation for only a few minutes. An exaggerated lithotomy position is of utmost importance.

For locating and opening of the posterior urethra, the classical Cock's operation has never failed me. It is performed as follows:

The index finger of the left hand is passed into the rectum, palmar surface upward, so far as it will go. It is thus in contact with the prostate, and is withdrawn slowly till it just leaves the prostate, where it is held as the guide to the membranous urethra. An inch and a half incision is made with one stroke of the knife through the skin, ending just at the margin of the anal skin. At the midpoint of this incision, the knife, held perpendicular to it, is entered and deliberately pushed through the perineal tissues just superficial to the rectum (keeping a bridge of tissue between the knife and the "guiding" finger) and proceeding steadily in the mid-line till one has the sensation of entering "something," which is the well-dilated membranous urethra. The knife is held steadfastly in place (and *not* withdrawn, as recommended by Watson and Cunningham in their description of this operation) by the right hand. The operator removes his finger from the rectum, takes off his rubber glove and now

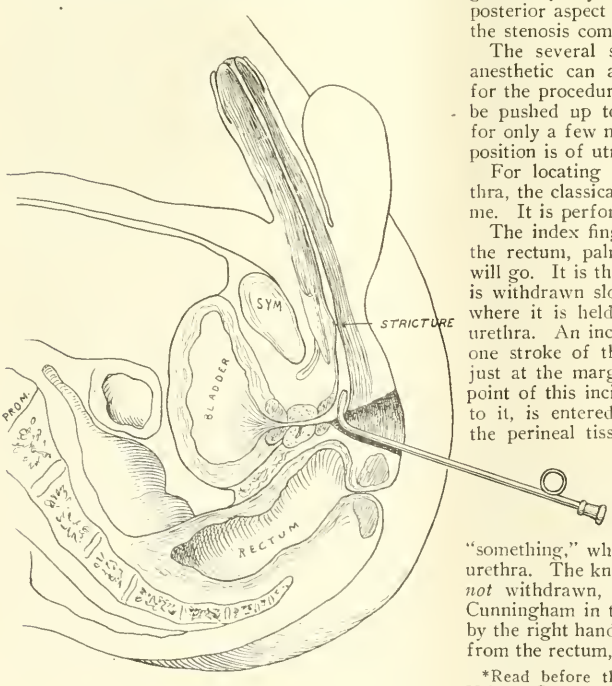

Fig. 1.

*Read before the American Association of Genito-Urinary Surgeons, May 5, 1910.

continues to hold the knife steadily in place by the left hand while he seeks to pass alongside the knife a suitable probe, director, or catheter into the urethra. A combination probed director catheter, which I have devised, serves my purpose best. This, or some other suitable form of catheter, having been pushed through the lumen of the urethra to the bladder until urine escapes, proves absolutely that the posterior urethra has been correctly opened; nothing short of this demonstration must be accepted. Not until the urine actually so escapes can the knife be deviated from its original position, but now it can be withdrawn provided that the catheter or guide still remains in position, for it is this failure always to keep something constantly in the urethral path that gives rise to so many vexatious accidents, for the guide once withdrawn it may be difficult or actually impossible to locate the urethral opening again. Having demonstrated the access to the bladder, our perineal and urethral incision, originally little more than a puncture, is enlarged with a blunt-pointed knife till it readily admits a finger, which thus approaches fairly closely to the posterior end of the structure.

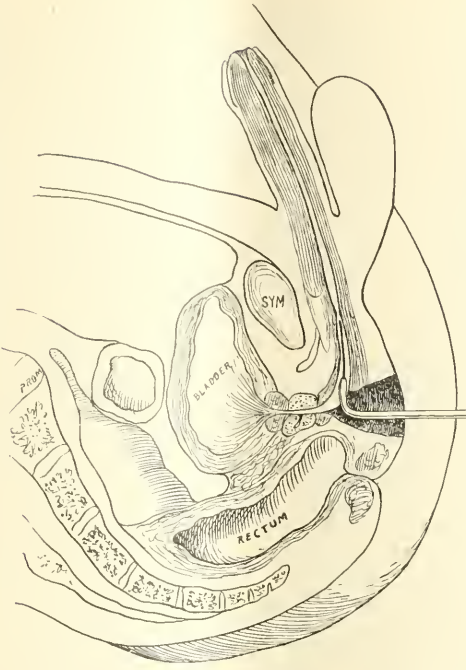

Fig. 2.

Step two consists in dividing the deep stricture, to which we have a ready access through the urethral wound, and experience shows that it is usually quite easy to penetrate such a stricture from behind forward. Therefore, I next seek to pass a small urethrotome, bougie, or other suitable instrument introduced into the urethrotomy wound and directed upward, towards, and through the anterior urethra. When this act is not readily accomplished I find I can almost invariably introduce a filiform by using my retrograde filiform carrier. (Fig. 1.) This instrument resembles a Bellocq cannula and has a minute lumen holding a filiform snugly; the beak is introduced into the urethrotomy opening, directed towards the stricture and by pushing the filiform forward a little gentle maneuvering usually causes it to slip easily through the stricture (Fig. 2) and come to present at the meatus and giving us control of the situation.

Fig. 3.

My own procedure is to thread the small calibered straight staff of the Flührer urethrotome over the filiform (Fig. 3) and push it deliberately through the stricture till the point of it lands on my finger introduced into the urethral opening below. The knife is now fitted into the staff and pushed home through the stricture. The cut made by this small instrument is sufficient to permit the passing of the Otis urethrotome, and the operation is completed by dividing the stricture to its full size, approximately 30 of the French scale. A sound of that size is introduced by the meatus and is made to demonstrate that it readily reaches the bladder and the operation

proper is ended.

Bladder drainage is instituted in all cases; how long it will be continued depends on the conditions — cystitis, gangrene of the tissues, bleeding, etc. Two or three days is my rule in simple cases. The tube used is a special heavy rubber perineal catheter, caliber 30-34 French scale with two generous openings, one at the end and one at the side. The demonstration of the efficiency of the drainage should be made before the patient leaves the operating table.

Normal salt solution is used for irrigating fluid. The catheter is temporarily connected with the irrigating apparatus and is introduced through the perineal wound, while the stream of fluid is running through it with some force; this procedure prevents the eye of the tube becoming clogged with clots. Eight ounces or so are introduced and then allowed to run out, and this washing is repeated until the fluid comes back quite clear and it is demonstrated that the bladder is free from clots. It is ascertained also just how little of the catheter it is necessary to have lie within the bladder and yet drain efficiently—too much will produce discomfort. Packing is applied around the catheter if necessary to check oozing The catheter is securely fastened in place by transfixing it and the skin edges with a safety pin. This procedure is most efficient in maintaining the catheter exactly where it should be and saves the patient and the surgeon discomfort and anxiety. Siphon drainage is subsequently maintained.

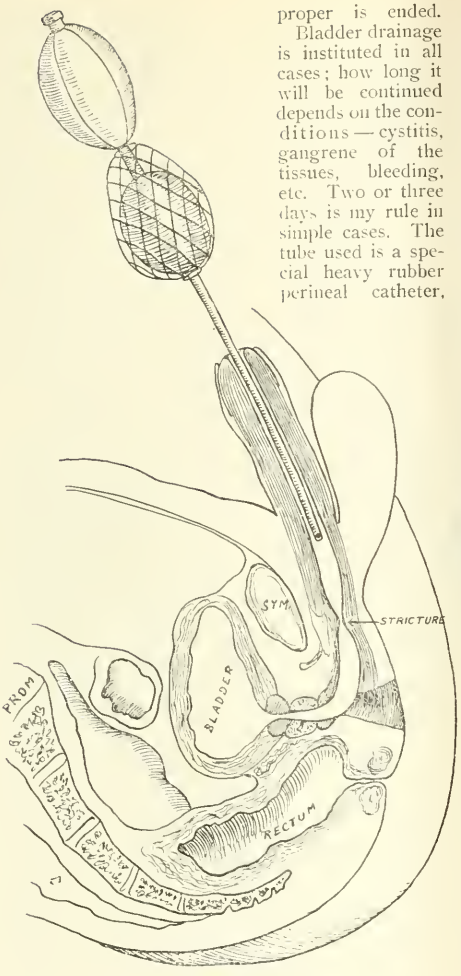

Fig. 4.

The above may be described as the normal operation, and very seldom requires more than a few minutes for its successful performance. The following modifications may be mentioned: For the casual operator Cock's operation, as just described, may have a good many terrors, and it may seem desirable to possess some further landmarks to the posterior urethra. Eight years* ago I called attention in this association to an infallible method, namely, making the posterior urethra taut by traction on the prostate. Briefly stated, the superficial perineal tissues are incised; a hook passed through the rectal wall transfixes the prostrate, and by traction on it the tightening of the posterior urethra is felt by a finger introduced into the perineal incision with the utmost distinctness. The method has the disadvantage even if theoretical, of possibly infecting the prostate and has probably properly received little indorsement.

I have, therefore, suggested another method which may be of some value. A metal catheter is introduced into the urethra down to the site of the stricture and to it is attached an air bulb. (Fig. 4.) An assistant keeps the penis firmly grasped to prevent the escape of the air

Annals of Surgery, Vol. XXXVIII, p. 518.

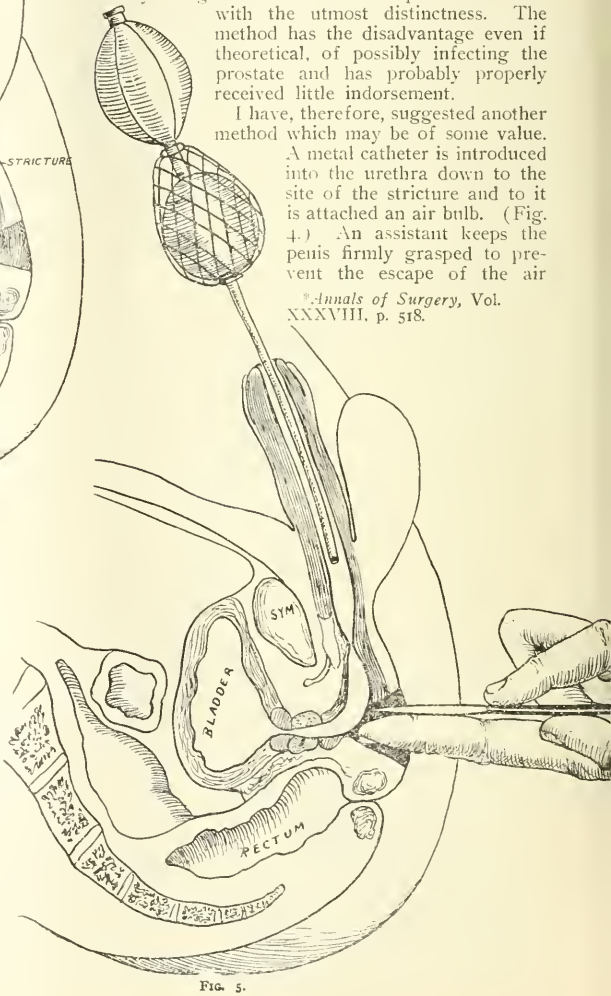

Fig. 5.

from the meatus. The perineum is incised superficially and the finger (Fig. 5) introduced into the wound. Air is now pumped in and one perceives its passage through the stricture and into the posterior urethra with a reasonable degree of accuracy.

To return to the question of introducing a guide through the stricture after the posterior urethra has been opened, I would like to call attention to the ease with which an instrument of suitable pattern may be passed through from the meatus with the aid of the finger introduced into the opening, so that we can gently steer or "worm" through such an instrument, the guiding finger protecting us from a false route. The small staff of the Flührer urethrotome has rendered me very good service in this connection.

Finally, it may be borne in mind that if the bladder has been properly drained one need not feel chagrined if for any reason—expediency, lack of suitable instruments, the bad condition of the patient—one does not succeed in passing through the stricture, for repeated experiences have shown that the stricture tends to relax appreciably after the urethra has been sidetracked and put at rest by the bladder drainage, and that after two or three days one can easily pass an instrument sometimes of considerable size through the previously impermeable constriction.

8 East Fifty-eighth Street.

VACCINES IN THE TREATMENT OF VARIOUS BACTERIAL INFECTIONS IN INFANTS AND YOUNG CHILDREN.*

(PRELIMINARY REPORT.)

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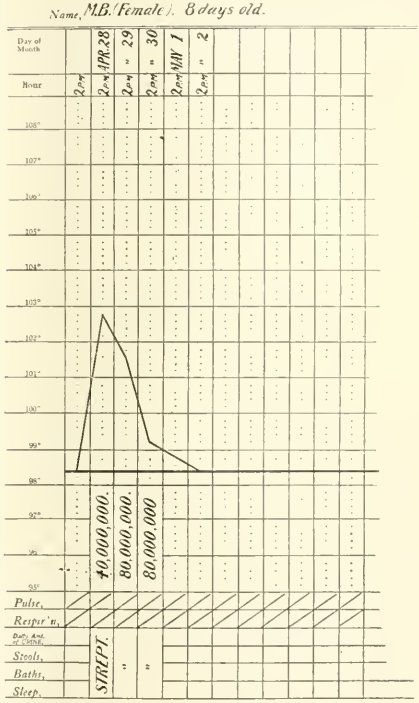
ATTENDING PHYSICIAN AT THE GOOD SAMARITAN DISPENSARY IN DISEASES OF CHILDREN. LECTURER IN DISEASES OF CHILDREN AT THE NEW YORK POLYCLINIC MEDICAL SCHOOL AND HOSPITAL.

Sir Almroth Wright opened up a new field in medicine and gave to the world most valuable knowledge when he announced in 1903 that, in order to have phagocytosis take place it was necessary that certain constituents be present in the blood serum, which he assumed acted upon the bacteria in such a way that they may be destroyed by the leucocytes. These bodies he named opsonins. Wright and other investigators have also shown that the opsonins in the blood may become much reduced so that phagocytosis takes place with much less activity, and the body is in the same measure more susceptible to bacterial invasion. We understand then by the opsonic index the power of the blood serum upon bacteria to make them more easily destroyed by leucocytes as compared to the action of the normal serum. Nature's way of increasing the opsonins in the blood for an emergency in the struggle with diseases is as yet purely guesswork; it has been found, however, that this can be done artificially by the injection subcutaneously of dead bacteria in suspension in the shape of vaccines. It has been shown by the microscopic count of the germs in the phagocytes before and after injection of vaccines that phagocytosis is increased by their use, and this is the most powerful means of raising the opsonic index of the blood. Ross has shown there are three classes of indices:

1. Local infections in which the bacterial products have not entered the general circulation, and on that account there is no reactive stimulation of the general system.

2. Cases in which the bacterial invasion of the general system is so great that the opsonogenic powers of the system are overwhelmed.

3. Cases of such low vitality that they are not able to react to the stimulating influence of the toxins. It is obviously only in the first group of cases that the treatment by bacterial injections may be expected to give good results. This group of cases include furunculosis, acne, carbuncles, boils, and walled abscesses, and early cases of pulmonary tuberculosis, chronic and acute suppurative otitis media, old unhealed abscess cavities, and erysipelas, and gonorrhea. These opsonins are specific, in other words, for each of the different varieties of



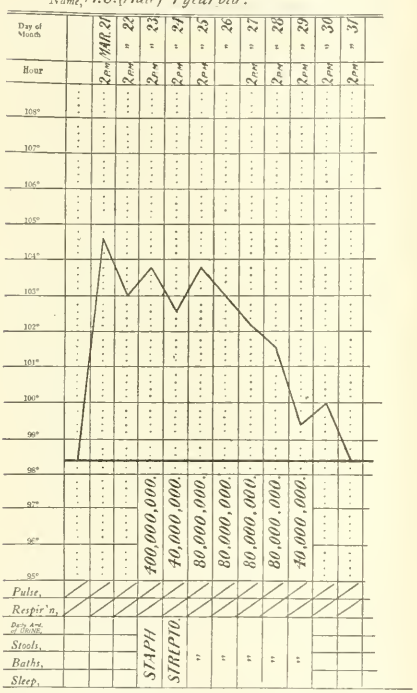
bacteria phagocytosis must occur, so that the opsonic index may be very high for one variety of bacteria and low for another, thus, in order to get beneficial results from the treatment of these various infections it is evident that a vaccine must be used made from the same kind of dead bacteria as is found in each infection.

Through the courtesy and interest of Parke, Davis & Co. I have been abundantly supplied with a variety of vaccines and have thus been able to treat a variety of infections with a view not only to determine the usefulness of vaccines in these infections in children, but also whether their use was accompanied by any danger or untoward results, as well as to satisfy myself whether or no the stock vaccines could be used with as great advantage as the autogenous vaccines.

*Read before the City Hospital Alumni Society, April 13, 1910.

My experience extends over a period of six months, in which time I have treated 49 cases by means of vaccines. Of all these cases I have kept careful notes and no case was pronounced cured until all signs of any pus or a discharge had entirely disappeared for some time, with no recurrence. Of these 49 cases 39 were subacute or chronic otitis madia, the ears having discharged from a few days to two years, local treatment having had only slight effect. There was one case of erysipelas in a child one year of age, and one in an infant eight days old, two cases of multiple abscesses of the scalp, two cases of suppurating glands of the neck, two cases of pneumonia in babies, one case of gonorrheal ophthalmia in a baby of three weeks, one case of acne of eight years standing.

Of the 39 otitis media cases 28 were cured, 10



improved while under treatment, and 1 did not improve. Both cases of suppurating glands of the neck and both cases of multiple abscesses of the scalp were cured. In one case of pneumonia the vaccine apparently brought about a rapid cure as the crisis came on the third day of the disease, and in the other case there was marked improvement of the symptoms. The erysipelas cases were cured. The case of acne was cured after a period of six months, having received an injection of 800,000,000 staphylococcus aureus each week. Thirty injections were given this case in all.

The case of ophthalmia improved rapidly under 5 per cent. argyrol and gonococcus vaccine and was apparently cured when last seen.

The earlier the vaccines were used after the discharge from the ears began the quicker was the cure, one or two injections being sufficient in most cases. Young babies seemed to require fewer injections to bring about a cure than older children, especially if the ears had been discharging only a short time, but this was not always the case; some children who had had a purulent discharge for two or three weeks were cured with two injections, and one case of five months standing received two injections, at intervals of five days, which brought about a cure. Other cases that were subacute, of a few days' duration, required numerous injections; thus a boy ten years of age, both of whose ears had been discharging for three days, showed by culture growth a mixed staphylococcus infection. In this case eleven injections of 400,000,000 each of the combined staphylococcus aureus, albus and citreus vaccine were given over a period of one month and brought about a complete cure. This boy was run down and ill nourished, which, no doubt, had something to do with the length of time necessary to bring about the cure.

Another case was that of a child three years of age, who had had a purulent discharge from the ear for over a year that had resisted local treatment. In this case nine injections were given over a period of twenty-eight days before all discharge had stopped, and the child was pronounced cured.

Another interesting case was that of a child a year and a half old, whose ear had been discharging for two weeks; this child was suffering from a severe attack of whooping cough. Culture growth from the discharging ear showed diphtheria bacilli and the staphylococcus albus to be present. Five thousand units of antitoxine were given, and 400,000,000 staphylococci at 6 different times were required to bring about a cure. The majority of cases required only two or three injections, and lasted from a few days to two weeks after vaccine treatment was begun.

The method of procedure in each case was to take a culture from the ear by means of a fine cotton applicator. This culture was allowed to grow for twenty-four hours on blood serum in the ordinary culture tube, placed in a thermostat. At the end of twenty-four hours the growth was stained with Loeffler's blue and examined under the microscope, and the vaccine corresponding to the germ found was injected subcutaneously. A variety of bacteria were found, staphylococcus aureus, albus, and citreus combined, or any two combined, or each separate; also streptococci. These bacteria were also found with the influenza bacillus, the hay bacillus, diphtheria bacillus and others, also the pneumococcus and other cocci.

The majority of cases showed one or more varieties of staphylococci, either alone or with streptococci. The vaccines were given in doses of from 200,000,000 to 800,000,000 staphylococci, from every two or three days to once a week; streptococci were given in doses from 40,000,000 to 80,000,000 bacteria, in some cases as often as every day, but in most cases at the same intervals as the staphylococci. Pneumococci were given in doses of 40,000,000 every day or two; gonococci were given in doses of from 20,000,000 to 100,000,000 once a week or oftener. The children treated were from a few months to ten years of age, the majority, however, were under five years and most of these under three years. The vaccines were given with the ordinary glass hypodermic syringe, previously sterilized by boiling, under antiseptic methods, and the injection

was made either in the buttocks or abdominal muscles. The opsonic index was not taken in these cases, and it does not seem to me to be necessary, and for the ordinary practitioner it is entirely too complicated a proceeding. The clinical symptoms of each case were relied upon to determine the amount of vaccine given and the frequency of the injections. The only treatment in the otitis media cases other than the vaccines was washing the ears out with boracic acid solution.

In a severe case of erysipelas in a baby one year of age, I believe the injection of large doses of streptococcus vaccine was the means of saving the child's life. When first seen, February 21, the erysipelas involved the whole of one leg up to one inch of the knee; the temperature was 104.6° F., and the baby appeared to be pretty sick with more or less prostration and rapid pulse. A fever mixture and cold sponging were given and ichthyol ointment applied. On the 22d the temperature was 103° F. and the erysipelas had extended one and a half inches above the knee. On the 23d the temperature was 103.8° F., and the erysipelas had spread half way up the thigh, 400,000,000 staphylococci combined were given with a continuance of the other treatment. On the 24th temperature was 102.6° F.; the inflammation had spread all over the legs and two-thirds of the way up the thigh, in fact nearly to the groin; 40,000,000 streptococci were given and aluminum acetate solution applied to the leg in the shape of a wet dressing. On the 25th the temperature was 105.8° F., and the erysipelas had spread to the trunk, all the left buttock being involved; 80,000,000 streptococci were given. On the 27th the erysipelas had extended one and a half inches, but looked paler, and was fading on the leg; the temperature was 102.2° F., and the child seemed much better; 80,000,000 streptococci were given. On the 28th the temperature was 101.6° F., and the erysipelas had advanced less than an inch, and the redness on the leg and thigh had practically disappeared; 80,000,000 streptococci were given. On March 1 the temperature was 99.5° F., and the erysipelas had receded about an inch and only a small area remained. The child looked pale. Forty million streptococci were given and a bichloride dressing applied. On March 2 the temperature was 100° F., and the inflammation had practically disappeared. On March 3 the temperature was normal and the erysipelas had entirely disappeared and the child seemed perfectly well.

Dr. Kerley states in his book that erysipelas is a particularly fatal disease in infants, 95 per cent. of the cases being fatal in the new-born and 50 per cent. of his cases occurring under one year being fatal.

The other case of erysipelas was in a small female infant eight days old. It was a streptococcus infection of the umbilical cord. The erysipelas began or was noticed first by the mother about 12 o'clock, and at 2 o'clock I saw the child, who then had a temperature of 102.8° F. The erysipelas involved both vulvæ and extended nearly to the umbilicus. At this time 40,000,000 streptococci were given, and a wet, 1 to 5000 bichloride of mercury, dressing applied. On the following day, the 29th of March, the temperature was 101.5° F., and the erysipelas had extended half way down both thighs and over the lower part of the back and buttocks. Eighty million streptococci were injected, and a wet dressing applied as before. On the 30th of March the temperature had dropped to 99.2° F., and although the inflammation had extended slightly toward the knee it looked much paler over the whole area and the child seemed much brighter and better, and there was hardly any discharge of pus from the umbilicus. Eighty million streptococci were given and dressing applied. This case made a rapid and uneventful recovery after this and no more injections were necessary, although I fully realize that more cases of this serious infection should be studied and treated with the vaccine before we can say we have a specific for the disease, yet the signal success I have so far had with the use of the vaccine, and its apparent superiority over all other previous modes of treatment, make me feel even now quite confident that further trials will prove to be equally convincing.

Of course, the whole idea of the vaccine treatment is to raise the opsonic index of the blood so that the system may overcome the infecting organism whatever it may be.

The effect locally of a vaccine injection is to cause slight redness and tenderness, which last a day perhaps, and in some few cases two days. There is slight fever in some few cases of 99° F. to 101° F., which lasts for one and in exceptional cases two days, but no other systemic effect has been noticed except that the child may have malaise for a day following the injection. One case that resisted treatment most stubbornly, being least responsive to the vaccine, was a case of acne. This case was eventually cured after thirty injections, one given weekly.

My experience leads me to believe we have a valuable and powerful aid to the treatment of various local infections in the use of vaccines, and that our armamentarium in these cases will be materially increased by their use, since of the hundreds of injections I have given no untoward condition has resulted.

142 West Seventy-eighth Street.

A THEORY AS TO THE ORIGIN OF LEPROSY.

By JOHN ATCHERLEY, M.R.C.S. (Eng.) L.R.C.P. (Lond.).

San Francisco, Cal.

Twenty years' residence in the Territory of Hawaii has enabled me to make use of the unique opportunities that the Islands afford for collecting facts and making observations concerning leprosy. In addition to the knowledge thus gained, I have profited by the last three years, which were devoted exclusively to the treatment of cases and investigations into the origin of the disease. Part of the results of this work are embodied in the present theory as to the origin of leprosy, and the means by which it is contracted, which I now offer for consideration.

Briefly stated then, the theory assumes the following: Leprosy is a chronic diathetic disease of gradual onset and irregular course, characterized by an inflammatory fibroid degeneration of the nerve tissue generally, which precedes the deposit of the lepra bacillus, and any other manifestation of the disease. The nerve degeneration is the direct consequence of defective pabulum supplied to it by the blood, which again is the result of improper food ingested by the individual. The theory is based on the fact that the pathological changes in leprosy bear a very remarkable and striking analogy to the corresponding changes in scurvy; and the position of the lepra bacillus is explained by that of the

micrococcus, which in scurvy is found in chains along the track of the degenerated arterioles. This explains the suggestion of the term "scurvy theory."

The incubation period supposed to exist in leprosy seems to be a myth. Where a disease is chronic from the outset, and with no initial symptoms, and there is no means of finding the date at which the disease was contracted, it appears absurd to speak of an incubation period. Considering the extreme length of the period—one to seven or more years—that it is said to run, the idea seems to have had its origin in an unconscious desire to provide an argument to account for facts which, in certain cases, would otherwise be strong evidence against the disease being acquired by contagion; such cases are obviously of the kind where a person develops leprosy, although he has not been in contact with a leper for say, seven or ten years.

Leprosy has its varied points of onset within certain limits, but these are determined by the position of superficial nerves. The time however of contracting the disease cannot be known by inoculation, for no one ever really succeeded in inoculating leprosy; and if this theory is the real explanation of the disease, no one ever can. One might just as well try to inoculate scurvy.

Evidence on which the Contagion Theory rests.—However strong the clinical evidence may be against the spread of leprosy by contagion, there is always the presence of the lepra bacillus and the hope of success in making cultures, or in inoculating an animal, to sustain the belief of a large majority in contagion. The conviction is with many of us hereditary, and dates from the times when numerous other diseases undoubtedly contagious were included under the term leprosy, and supposed to be leprosy, thus the signs of tuberculous disease of bones and skin, the manifestations of secondary syphilis, the various forms of ringworm, and malignant pustule—these are all contagious diseases which resemble leprosy enough to be mistaken for it.

Then there is the supposed strong analogy that leprosy is said to bear to tuberculosis which is always accepted without question, but on examination it consists merely in the shape and similar staining qualities of the respective bacilli, and the fact that tubercles are formed in both diseases, but these tubercles are widely different in structure and growth. The tubercles of leprosy are vascular and reach a large size, while those of tuberculosis are without vessels and break down early into pus. Tubercle bacilli will grow in any tissue and even outside the body, but leprosy bacilli will grow only in degenerated nerve tissue.

Very few are aware that the analogy which leprosy bears to scurvy, as already pointed out, is far more marked than any it can be shown to bear to tuberculosis, and that in addition to this, leprosy also shows a strong analogy to a group of diseases, which like scurvy, are admitted to have their origin in improper food ingested by the individual; this group includes: leprosy, scurvy, pellagra, podagra, and urticaria.

Facts and Arguments Bearing on the Main Question of the Origin.—(1) Although lepers are continually landing at such crowded seaports as Marseilles, London, Liverpool, etc., no epidemic has ever been known to have even threatened an invasion of these places, a misfortune which would certainly have struck the ports in question, had leprosy been at all of the contagious nature that is generally attributed to it.

(2) Although numerous cases can be found where leprosy was contracted without close contact, or without contact at all, with another leper, there are none to be found of the opposite kind, where the disease was contracted through close contact, and by no other means.

(3) Infants never have leprosy. The earliest age at which a child manifests leprosy is about five years, when it has lived long enough on improper food for this agency to produce the disease.

(4) The infant of a leprous mother is always free from signs of leprosy, even when the parent has severe lesions. The infant of a leprous mother may or may not develop the disease at the age of five years, but in case it develops leprosy, the disease is the result of improper feeding, and cannot be looked upon as evidence of contagion and the existence of a hypothetical incubation period.

(5) Segregation must needs fail to accomplish what is intended; it can only separate a certain proportion, because so many cases cannot be recognized in the early stages of the disease, many have the initial symptom within the nasal cavity, and in many other cases the first indication is in the foot, and in both these conditions the disease may be hidden for years. Segregation teaches the community, in which it is enforced that leprosy is contracted only by contact with another leper, and that they need not therefore look to their food as a possible source of danger in this respect. In this manner segregation may be said to fasten the disease on the locality where it is enforced.

(6) Habits are certainly contagious, which explains the case where a man living with a leper will sometimes, if the association be long enough, contract the disease by learning to take and eat the same kind of food.

(7) The cases of spontaneous cure that occur occasionally, and the way in which the disease will in the same case sometimes advance, and at another time stand still, are to be explained by corresponding variations in the quality of the diet, and these variations in diet are often the result of changes of residence. Thus a man afflicted with the disease while getting worse employed as a fisherman, will improve if he transfers to an inland cattle ranch, involving the necessary alterations in the nature of his diet.

(8) Hereditary influences have left in most of us an innate conviction that leprosy is contagious, brt this dates from the remote period when many other diseases of an undoubtedly contagious character were confounded with leprosy. These include such diseases as tuberculosis of joints, and tuberculous skin manifestations, the lesions of secondary syphilis, various forms of ringworm, malignant pustule, and others.

(9) During a famine in one of the Islands of the Philippine group the inhabitants had nothing to eat save clams from the river, and a number of them developed leprosy. When the famine ceased and plenty was restored no further cases appeared, in spite of the fact that some of the same lepers are still living on the Island.

Statement of the Scurvy Theory.—Leprosy is a chronic diathetic disease, of gradual onset and irregular course, characterised by an inflammatory fibroid degeneration of the nerve tissue generally. This pathological change precedes the deposit of the bacillus lapra and all other manifestations.

The bacillus is found deposited in the track of the peripheral nerve trunks and the parts to which these nerves are distributed. Since it is present

as a consequence of the nerve degeneration, the bacillus is a result and not a cause of the disease.

The degeneration of the nerve tissue is a direct consequence of the defective pabulum supplied to it by the blood, which again is the result of improper food ingested by the individual.

The position of the bacillus is further established by the analogy that leprosy bears to scurvy, and to the other diseases included in the scurvy group above mentioned.

The origin of scurvy in restricted diet, which is lacking in certain indispensable elements, has never been questioned, and once the analogy to leprosy is acknowledged, the bacillus must bear the same relation to leprosy that the micrococcus of scurvy (which is found along the track of the degenerated arterioles) bears to that disease.

The improper food, which is the chief or only factor in the production of leprosy, may be rendered unfit in two ways: (1) By the presence in the food of an excess of poisonous material, chiefly virulent microorganisms and their products. (2) By a restriction to certain kinds of food which are lacking in some indispensable elements or element. The effect of such food is to produce pathological changes in the nerve tissue of the body, analogous to those produced in the walls of the arterioles in scurvy, by equally improper food. The defect in the food is of course different in the two diseases, and it is this difference which alone prevents the two diseases from being identical.

It has seemed to the writer that no better proof of the real nature of leprosy can be offered, than that which is evidenced when leprosy is shown as a member of the scurvy group of diseases, and the analogies and interrelations of the members of the group are demonstrated at the same time. For this purpose it is only necessary to give the features, first of each member of the group, and secondly, to give the features they hold in common.

1. In scurvy, the improper food is rendered unfit by the absence of such indispensable elements as potash salts, citric and phosphoric acids. The chief signs are the skin lesions, ecchymoses, petechiæ, and scaly patches; then there are the bleeding into joints, swollen gums, and neuralgic pains in various nerve trunks, all resulting from a softening of the walls of the arterioles, which permits an oozing of sanguineous serum into the tissues with ultimate congestion and inflammation.

2. In pellagra, unfit food takes the form of bread made from mouldy maize taken for long periods. Signs in the skin are erythematous rashes over face, neck and arms, or parts exposed to the sun. These may be replaced by more scaly eruptions. There is often an extensive paralysis of mixed nerves leading to paralysis of muscles and consequently to deformities.

3. In podagra, the unfitness lies in the superabundance of nutritious food leading to a consequent retention of poisonous waste products, more being produced than the organs are able to excrete. This retention leads to atheromatous thickening in the walls of the arterioles and consequent impaired vasomotor action, which involves irregular blood supply to limited areas. Such parts are easily inflamed and a part exposed to injury, such as the ball of the great toe is peculiarly so. Hence the common sign is an acute inflamation of the metatarsophalangeal joint, including the skin covering it. At other times the skin is the seat of eczematous eruptions. The nerves are often inflamed giving rise to neuralgias and even to paralysis.

In examining the prominent features of this group of diseases, as expressed in their origin, manifestations and pathological changes, the following points are to be observed: (1) In every case the disease has its origin in the nature of the food ingested, and in food only. (2) In every case skin lesions form a prominent symptom and are very similar in the different diseases. (3) In every case, either the arterial walls themselves, or the vasomotor nerves governing their caliber, are impaired as to their action. In scurvy, the walls have undergone a degenerative softening, and in podagra an atheromatous hardening, while in leprosy and pellagra, the vasomotor nerves are paralysed.

From such evidence as this the conclusion must be recognised that leprosy, by virtue of the way in which its degenerated nerve tissue makes it a member of this group, is a disease as to whose origin in the nature of the food ingested, there can be no question.

Initial Lesions in Leprosy.—The point at which the first sign of leprosy appears is a variable one, and yet the same points repeatedly figure as the seat of an early lesion. It may be the mucous lining of the nose, or it may be that regular grouping of tubercles on the forehead, which gives the well-known "leonine aspect" to the features. There is a good reason for the same point being repeatedly attacked: where all the peripheral nerve trunks are degenerated, those will degenerate first, which from their position, are most exposed to injury. For this reason the nasal lining where the fifth and olfactory nerves are exposed to injury is more often the seat of the earliest or initial lesion of leprosy than any other; the symptom it produces is the chronic offensive discharge which may be present for years before its real nature is recognized. Next, the prominent parts of the face or the points of the terminal branches of the seventh and fifth nerves become spots on which maculæ begin to grow.

In the same way the hand is frequently the seat of the initial symptom, various paralyses and trophic changes occur in the fingers and other points of the hand, resulting from a lesion of the ulnar nerve, where it is exposed to injury at the bend of the elbow and frequently figure as the earliest sign of the disease.

Last, the internal plantar nerve, so frequently injured because of its position on the sole of the foot, which gives rise to another well-known lesion; this is the deep ulcer found between the first and second toes, or actually perforating the great toe at the tarsophalangeal joint. This is one of the lesions that lepers will cover with a boot and conceal successfully for years.

Food in Leprosy.—There is a special environment more likely than any other to favor the development of leprosy, where the character of the land is such that it can influence the food question. The land to fulfil these conditions must be a barren stony waste, devoid of vegetation, isolated enough to make communication with any place whence food can be procured rather difficult, where the supply of farinaceous food must be brought from a distance, and where firewood is almost entirely wanting. The sea-beach provides these conditions better than any other locality.

In these barren places the inhabitants must depend either on birds and animals they can kill, or

entirely on sea products, such as fish, bivalves, crustaceans, seaweed, and the one farinaceous food, which in Polynesia is taro-root or arrowroot, and in Asia, rice. Firewood being scarce, the rice or taro once boiled is kept too long in a moist state and is apt to grow mouldy.

It is now generally admitted that a long continued diet of mouldy maize is the cause of pellagra, but whether mouldy rice or taro has any share in the production of leprosy is a point yet to be determined. Animal food is scarce and seldom properly cooked before it is devoured, but whether cooked or uncooked, all parts are eaten, even the entrails.

As regards sea products, bivalves are eaten raw as a matter of course, and parts usually rejected such as the "beards," are included, and it is worth remarking that, according to authorities, the microorganisms found in shell-fish are more virulent than any found elsewhere. So long as they have rice or taro paste they will eat the smaller crustaceæ raw, including all parts.

Where leprosy is contracted by those who live among the civilized the choice of food becomes a matter of taste. There is an acquired morbid taste for a peculiar flavor associated with the food chosen, and this taste is invariably acquired by those who contract leprosy. It is difficult to describe, but resembles that produced by a mixture of freshly caught red-blooded fish, seaweed, and salt water. It is not attractive, but one can understand how a morbid liking for food having that particular flavor can be acquired. Those who have acquired the taste will prefer to eat fish uncooked, and even eat parts of the entrails as a delicacy

If the crustaceans are boiled at all they will eat parts other than the white muscles without discrimination. The same may be said as to bivalves, and in the case of ordinary fish the bones of the head are the favorite part. Lepers have told the writer how they could indulge in long drinking orgies, and during these periods would be entirely indifferent as to what they swallowed to help down the mouldy "poi" or taro-root that served them as food. At other times, or in other cases, they might have to experience long periods of privation, where the only addition to the indispensable taro would be some form of salt or sun-dried fish or plain seasalt and red chilipeppers.

There is no doubt as to the means by which the bacillus enters the body, which is through the alimentary canal. It is also found only in the deep layers of the skin, which indicates that it was not rubbed in from the outside. Much more investigation is needed to follow it through the liver and lymphatic system to the inflammatory areas where it is deposited. At present it can only be said that, in all cases of leprosy, there is a decided reduction in the relative number of the white elements of the blood, which suggests an explanation of how the bacilli are conveyed to their destination. Bacilli have been found by various observers in the liver, in the spleen, and in the blood.

If the scurvy theory is correct, it explains these facts in the same remarkable way it explains all that was otherwise puzzling and contradictory.

The scurvy theory explains cases of spontaneous cure in leprosy, and why at one time the disease will in the same case advance and at another time stand still.

It explains why the same remedy will succeed in the hands of one surgeon and not in that of another.

It explains, even on a food theory, how cases may be found at great distance from the sea.

It also explains why a leper improves when removed from the locality where he contracted the disease.

With those who adopted the food theory the difficulty lay chiefly in explaining the presence of the bacillus, but the present theory fully accounts for the bacillus and indicates its relation to the disease.

To collect material for this paper has been no easy task. I wish therefore to express my gratitude to Mrs. Atcherley for her aid in acting as interpreter to the leper patients, and in eliciting information and inspiring confidence.

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GENESIS OF HYSTERICAL STATES IN CHILDHOOD, AND THEIR RELATION TO FEARS AND OBSESSIONS.*

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In the past, the term hysteria has been with reprehensible looseness applied to almost any excitable nervous state or show of emotion. The depressed and inactive states have been called neurasthenia; while the term nervous break-down is still more vague. We have nothing to do with such imprecise classifications; so let it be clear from the beginning that by hysteria we shall only mean "those symptoms susceptible of production by suggestion and of removal by suggestion—persuasion."[1] That is to say that hysteria is purely a product of an idea. Its mechanism is a psychological one; and it is to mental agents that we must look in order to influence it.

You may justly ask then in what neurasthenia[2] differs from this; and still more cogently the question may be put of psychasthenia. The former, when real, has nothing to do with suggestion; and is not even an affair of the psyche: it is a mere exhaustion of the nervous system due to bodily conditions, generally toxic or reflex; and its cure is a question of physiopathology and is a strictly medical problem.

Psychasthenia is the term given by the medical psychologist Janet to a mental state which is characterized by (1) a feeling of inadequacy without, however, the real incapacity of the truly fatigued; (2) a tendency to unreasoning fear or horror of anything or everything; (3) a sentiment of strangeness or unreality of self or surroundings.[3]

Phobias and Obsessions.—These morbid feelings lead to intellectual ruminations, doubts, and besetments, often of so irrational a nature that they cause moral distress. Hence, a vicious circle, an unpleasant "feeling-tate" causing distressing ideas, which in turn aggravate the unpleasantness of the feelings. For example, it is from a general feeling of anxiety that is derived the notion that one may have placed in the wrong envelopes two letters, or that one may have added wrongly a column of important figures, or that an injustice to some one has been done by us. Although the patient is reasonably sure that the incident has not happened, yet he cannot dismiss the notion, which besets him and works him up to a state of distress sometimes so violent as to be mistaken for an attack of hysteria or even insanity. When the

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intellectual element predominates, we call this state an obsession; when the emotional factor is most evident it is called a phobia—that is, a morbid fear.

Now, these obsessions and phobias do not arise from suggestion; they arise, it is believed, from a physiological error in the working of the mechanism which determines the emotions. Of its exact nature we are at present ignorant, though many believe that the internal secretions play an important role; for we find strictly comparable states resulting from known perturbations of the thyroid and of the adrenal glands, the most important fabricants of internal secretions. Moreover, the remarkable exacerbations of psychasthenic symptoms at puberty, during menstruation, and at the menapause lead us to believe that the generative glands participate in the regulation of psychic functions, very likely by means of internal secretions.

A great many of these patients are labelled hystericals; and indeed it sometimes requires an expert to diagnose whether or not a patient's obsession or fear has arisen from a morbid idea or notion, or whether it is not merely the expression of a general emotionalism, and hence quite unamenable to psychotherapeusis of suggestion or persuasion.[4] By this I do not mean that mental therapy is useless; for it is of the greatest service in teaching the patient to bear his state without the natural undue alarm to which his feelings conduce until their significance is realized. For instance, it is very common for such patients to believe that their feelings are unique, that they presage some terrible physical malady, or that they are the harbingers of insanity. The idea of this does not mitigate their sufferings, but when you enable them to realize their true status, they are generally able to bear their ills. The practical difficulty is that they have usually met so much unconsidered optimism stalking in authoritative guise that they find it difficult at first not to believe that they are being soothed by medical mendacity, so often has this been imposed for what is imagined their welfare in persuance of the short-sighted policy of an immediate anodyne at all costs.[5]

Very different is the psychological mechanism of the hysterical obsession. It is typified by the following cases: After an attack of influenza, a woman returning in a crowded car from a shopping expedition, began to feel much oppressed and in want of air. The heart, enfeebled by the influenza poison, and we know not what others taken as medicaments and aliments, ceased to respond to the call upon it for a more rapid flow of blood so that aeration could be sufficient; and a faint ensued with the psychic accompaniments of irresistible terror and dread of dissolution. Never since has this woman been able to bring herself to go alone into a car; the very idea of doing so induces the fear of fainting. She is not obsessed by the idea so long as the question of entering a car does not arise; but although she knows her conduct to be unreasonable, she cannot bring herself to act reasonably about going alone in a car.

Another case[6] is that of a clergyman who once lost his voice from laryngitis while in the pulpit preaching to a large congregation. Although the laryngitis recovered, he continued to lose his voice whenever he attempted to preach from the pulpit before a congregation. He could rehearse his sermons from the same pulpit without difficulty when the church was empty. Nor had he any difficulty with his voice when there was someone on whom he could call to preach for him if he should fail. But on such occasions he never did fail. The ordinary incident of having to preach was the creator of the extraordinary dread of failure which he used to feel.

In both these cases it is a suggested idea which determines an emotion too powerful to permit of rational conduct. Experience shows physicians enlightened in psychopathology that the emotions cannot be mitigated until their causal idea is removed.[7]

The method of solicitude and sympathy merely reinforces the patient's belief in the validity of the idea for which sympathy is an implicit acquiescence. Still more injurious is direct medical treatment of the apparent physical disorder which results from the idea. For instance, a hysterical monoplegia, *i.e.* a paralysis of one limb induced by the patient's belief that it is disabled, should not be treated by the application of electricity or massage to that limb nor by the giving of an internal remedy which the patient is led to suppose is capable of removing such conditions. It is very bad practice, too, to pretend to perform an operation upon a patient who believes that she is inhabited by a lizard that she has swallowed.[8] Sometimes, it is true, a symptom disappears through the suggestion involved in such procedures; but it does so in a small proportion of cases only. It is a pure chance, and does not touch the cause; while by ascertaining and removing the root, we can generally cure permanently, as regards the present symptoms, at least.

An illustration of the method of treatment is afforded by one of my cases of traumatic neurosis;[9] for this condition is merely the expression of an induced fixed idea of a disability which is recovered from as soon as the pathogenic idea is disposed of.

After bruising his back by a fall from a car, a railroad brakeman remained for six months very lame; and the sensibility of the lower limbs appeared to be lost. His tint had become sallow, and he was dyspeptic and emaciated; he was sleepless, sad, and cried much. The neurological examination reported with the case (Medical Record, Oct. 2, 1909) showed that there was no destruction of the nerve elements. The disability was shown by psychoanalysis to be a function of the false fixed idea, induced by the belief derived from his environment that such symptoms as he showed could and should follow such injuries as he had had. One sitting sufficed to begin the correction of this false notion; and he himself completed the persuasion, and was able to return to work in a month, as I had predicted.

Now, the suggestibility of children is much more labile than that of such cases as I have cited; for, while they are very susceptible to suggestions, they do not usually hold them tenaciously, and are easily diverted from their loosely fixed ideas when morbid. For instance, it is perhaps unique for a girl so young as eleven to believe that she is utterly unable to eat, and to do so strongly enough and long enough to overcome the instinct of hunger to such an extent that she had to be removed for treatment to the hospital, where in the Salle Pinel of the Salpetrière Professor Déjérine built up her emaciated body by generous feeding, and at the same time undid the false notion she had acquired from her elder sister who had been a patient in the same place.

Now, this form of gastropathy from a false fixed idea is common enough in pubescent girls.[10] The origin of the idea is closely associated with the false shame of nubility, which is largely a product

of the suggestions of prudery. The medicosociological import of false shame is now being realized, I am glad to say, by enlightened educators; and it is high time. The obsession not to eat is only one of its numerous forms; but the principle of induction is the same in each; so I need not enlarge.

A much commoner type of hysteria in childhood is the imitative grimace and trick-of-manner which a child is suggested to do sometimes almost unconsciously. Thus, a choreic child may infect, with one or other of his movements, half the children in the schoolroom; and in some of the cases these movements may persist for a considerable time, and may even lead a doctor unskilled in neurological signs to believe that a child has the organic disease known as Sydenham's chorea. Nowadays we have a clear understanding of the differentia between a morbid movement arising from a perturbed nervous system and that type of morbid movement which is a function merely of idea.[11] The latter we term psychogenic.

I have chosen two conspicuous types to illustrate the genesis of hysterical ideas in order to illustrate the mechanism strikingly; but far commoner are the eventualities exhibited every day in the nursery and schoolroom. What is more familiar than the constant suggestion to a boy that he should not cry when hurt, and that he should fight with his fists when attacked? That this is not innate is shown by the repugnance of the Teutonic peoples to fistic encounters. Because it was not realized that the distaste for fistic encounters was not a mark of cowardice, but arose purely from a social suggestion of its unseemliness, the Boers, before the war with the British, were supposed to be cowards. A boy having this repugnance to personal encounter might very quickly become obsessed by the fear of its need if sent into an environment where fighting was often required.

We must now pass to consideration of induced morbid fears in children. They are, alas! very common. I need not enlarge upon the familiar fear of the dark too often induced by nursemaids' tales of bogies and ghosts. The fear of the policeman is inconsiderately used by the mothers of the poor who are too lazy, ignorant, or tired, to understand or control their children. No morbid affect usually proceeds from these, because the idea is not often implanted with enough insistence or dramatic power; but when the impression is powerful, or when the child is unduly susceptible, a suggestion, fear-psychosis is established with great facility.

It must be remembered that explicit utterance is not essential for the conveyance of ideas; for in the child a vague general notion is quite as effective for producing emotion as is a clear-cut concept. Thus in Henry James' novel, "What Maisie Knew," the whole suggestion conveyed by the governess to her two charges was implicit in her general attitude, for until the end there was not one explicit statement of her fear. Now, the explanation of this is very simple; it depends upon the fact that gesture precedes speech as a vehicle of thought. The infant comprehends the varying attitudes and vocal tones of its mother long before it can distinguish different words; and in most people this channel of information remains an important mode by which they are influenced, often quite unconsciously. Those of us who have studied the psychology of crowds are well aware of this, as likewise are the observers who compare nation with nation as regards gestural expression. Even adults of the same race, except the more cultivated, are swayed by a comedian much more through his gestures and intonation than by his actual utterance. So with an orator or debater, or, indeed, anyone who tries to persuade us, even to purchase something from them, our foolish minds are guided by the stress of an intonation, the cut of the hair, the character of the clothing, the glance of the eye, far more than by the arguments used or the words uttered, and with children this is far more so.[12]

If I say to a small boy that a bear will eat him up, the effect upon his emotions entirely differs whether I make the remark with portentous gravity and horror, or whether I say it with bubbling joviality, as evidently a huge joke. In the first eventuality, the boy will rush to my side in terror and try to be saved from the bear; and a phobia is in course of construction; with the latter procedure, the boy will laugh consumedly, and it would not take much to make him enter the cage and strike the bear. But even when terrified, a child feels a refuge in the protection of his elders during the day when they are rarely absent.

Night Terrors.—At night, however, the child is alone, and his little consciousness cannot find the easy support of others. Before the kaleidoscope of his dreams pass the various images and accompanying emotions of his waking life, so that if any of these images has become linked with fear, it is certain to bring with it terror, as it surges into dream in the night, and the child jumps up, awakened, in panic, finding no one near him upon whom to lean.

It should not be difficult to see that these night terrors are the product of a suggestion while awake, implicit or explicit. It should not be difficult for those who are forewarned to prevent morbid fears of this type.[13] I may cite the case of a Southern lady who could never enter a dark place without feeling an indescribable horror. No hereditary psychopathy could be invoked to explain her dread, for none of her three daughters had the least fear of the dark, and, indeed, they used to be sent by their school fellows into dark and eerie places without experiencing the least trepidation. The difference was that as children they were protected by their mother from the tales of the plantation negroes, who knew that dismissal would follow transgression of the prohibition.

The formation of a night-terror was nipped in the bud in the case of my own boy, then aged three and three-quarters. I shall try to explain the method. For several weeks he had been visiting the zoological garden every afternoon, in the company of a French maid of exceptionally forceful character, and apparently free from the superstitiousness of the average nurse. For a long time all went well, until one evening the boy began to cry in bed soon after he was left for the night. At this unusual occurrence, I mounted the stairs and inquired the cause of the boy's trouble. He said there were lions in the house, and that he did not want to stay alone, as he was afraid they would eat him. The source of the idea had been that the lions had roared more loudly than usual on that particular afternoon, and he had been much impressed, standing for some time quite motionless before the cage, though unterrified. I soon convinced the boy that the lions had to remain in their cages, and could not get out, hence there were none in the house, so that there was no occasion for fear. Of course, it was first necessary to give him the feeling of security gained by embracing me, and secondly to begin the conver-

sation by talking of something else, I have forgotten what. In this way the state of terror was dismissed, and the feeling of protection was induced before we returned to the subject of the lions; then we made rather a joke of the funny roaring of the lions before we had finished, and he finally lay down with solemn purpose to go to sleep and think, as I suggested, of the tramcars and motors passing outside his open window. It was all a very simple substitution, but it was the prevention of what might have become a serious fear-psychosis if injudiciously handled.

A fertile source of hysterical states, of obsessions and phobias, and of "anxiety neurosis," as he has termed it, is attributed by Freud, of Vienna, to sexual results occurring in early childhood. To the universality with which some of Freud's too ardent followers in America ascribe this cause to every psychoneurotic condition, I desire to invoke a skeptical attitude until such time as the genesis of psychoneurosis in children has been more widely investigated by judicially minded observers who are not wedded to an exclusive theory. It is to pediatrists and psychologically trained educators of the abnormal child that we must perhaps look for a large part of the data needed to decide what are the more common mechanisms concerned.

From the cases I have cited, and their discussion, I hope I have made clear one of the aspects of hysteria, and that you will comprehend the rôle of ideas induced by suggestion as producers of hysterical obsessions and phobias. The thoughtful hearer, too, will deduce from our facts the means of prevention and cure of such induced suggestion-psychoses as we have discussed. He will further perceive the importance of these psychological mechanisms as factors in the production of many a case of what is believed to be an abnormal child; and a knowledge of the principles we have discussed may enable him to displace that child from one of the categories of abnormality as laid down by Groszmann, Decroley, and others, and to replace what seemed a morbid child among those who are happy and normally useful, so that the little one may cease to be numbered among those who are called "exceptional children."

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1758 K Street.

AN UNUSUAL CASE OF CONGENITAL ABSENCE OF ANUS AND LOWER END OF RECTUM.

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The following case is reported on account of the unusual character of the deformity and because the infant recovered from a coeliotomy performed on the first day of life, a most unusual occurrence.

Infant Brookman, one day old, admitted December 15, 1909. Since birth of infant, twenty-four hours before admission, no meconium had been passed. On examination the parents failed to see an anus and the child was brought to the hospital.

Physical examination.—The patient was a well nourished newborn infant, with slight icterus neonatorum and the head markedly dolichocephalic. Both ears are slightly deformed. The lobule of the right ear is deeply furrowed by the projection of two hard spherical protuberances, each about two millimeters in diameter. Just in front of the tragus of the left ear there is a pedunculated firm tumor, also

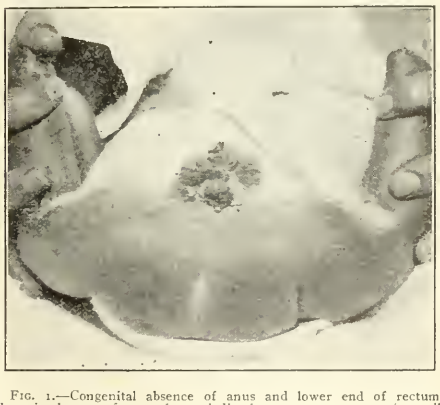

Fig. 1.—Congenital absence of anus and lower end of rectum; there is absence of even the anal dimple; one can see a cystic swelling posterior to the scrotum, which ended in a blind sack.

about two millimeters in diameter. Above the tragus there is a firm enlargement similar to the growth on the right ear. The mouth is normal, as are the heart and lungs. The liver can be felt just below the free border of the ribs, the spleen is not palpable. No lymphatic glands are enlarged. The skin on the palms of the hands and the soles of the feet is very thin, blue, and scaly. The ischiorectal region is shown in Figure 1. There is no trace of an anus, not even an anal dimple. The two halves of the scrotum are widely separated, both testicles being present, and projecting between them there is a cystic swelling one cm. in diameter. This swelling can be invaginated and when this is done the finger seems to enter a cavity.

Immediate operation December 15, 1909. Without anesthesia the cystic swelling posterior to the scrotum was incised with the expectation of finding the lower end of the rectum. However, it was found to end blindly and no trace of rectum was seen. A second incision was then made from the tip of the coccyx forward in the median line to meet the first incision. The perineal muscles were found fairly well developed. The dissection was rapidly ad-

vanced to the depth of the perineum, but no sign of rectum was found. The child was now given ether and a one and a half inch incision was made through the lower left rectus muscle. The small intestines were found collapsed. The descending colon and sigmoid were found moderately distended. The gut was found to end in a blind pouch in the midsacral region. With the half hand inside of the abdomen this lower end of the rectum was forced down into the perineal incision. The assistant then, by firm digital pressure upward, created an opening through which the operator forced down the gut. The gut was caught with clamps and opened with the immediate discharge of several ounces of meconium. The laparotomy wound was closed with through and through sutures of chromic gut, the skin with silk sutures. The opened gut was anchored to the perineal integument with four or five silk sutures. The remainder of the perineal incision was closed with

Fig. 2.—The infant shown in Fig. 1, six weeks after operation.

interrupted silk sutures. The entire operative procedure lasted thirty-five minutes, during the first part of which no anesthetic was given. On admission the child weighed six pounds, the temperature was 100.8° F. After forty-eight hours the temperature dropped to normal and remained normal for two months. During these two months we had great difficulty in feeding the child. There was a slight superficial infection of the abdominal wound, perineal wound healed rapidly. On February 15 the child developed a left otitis media, requiring paracentesis. For a week the temperatures were high, then gradually became normal and remained so. The child did not begin to gain weight until after the otitis media. On February 26 the child's weight was still six pounds. Thereafter it gained steadily until March 26, when the child was discharged, weighing eight pounds and three ounces.

46 East Seventy-eighth Street.

Typhoid Meningitis.—Claret and Lyon-Caen distinguish those cases as typhoid meningitis in which the typhoid bacillus is found in the cerebrospinal fluid in pure culture. It comes on suddenly, in general, in the course of an attack of typhoid of the ordinary type rarely with convulsions. The pathological anatomy is that of ordinary typhoid meningitis. The fluid is purulent or hemorrhagic. The convolutions are congested and glued together with exudate. There is less lesion of the nervous substance than in other types of meningitis, and only slight proliferation of the nerve cells. It may come on in the beginning, or at a later period of the disease. The diagnosis is somewhat difficult. Only examination and culture of the cerebrospinal fluid will make the diagnosis certain. Albumin in the fluid is positive. The agglutinating power of the cerebrospinal fluid with the Widal reaction, when positive, is of the greatest diagnostic value. The prognosis is relatively benign. The treatment involves hot baths, lumbar puncture, and the ordinary treatment of meningitis.—*Gazette des Hôpitaux.*

Desiccated Culture Media.—E. T. Thompson has experimented along this line. He says that the preparation of small quantities of culture media is always a tedious process and usually attended with unsatisfactory results. It occurred to him that many of the culture media might be dried and reduced to a powder containing all the requisite solid constituents which would remain indefinitely in an unaltered condition. Investigators who only have occasional use for culture media could prepare a stock on a workable scale, dry the medium, and then keep it indefinitely, weighing out sufficient quantities for a few tubes or plates as required. He heretofore determined to inquire into the practicability of such a method of preparation, and have obtained the following results by using culture media which had been subjected to the process of desiccation. The culture media under investigation were nutrient gelatin, nutrient agar-agar, nutrient beef broth, and MacConkey's neutral-red bile-salt lactose agar. These were all evaporated to dryness and when made up to their original volumes with distilled water, and dissolved at 100° C., were quite clear, the gelatin, agar-agar, and bile-salt agar solidifying with their original firmness on cooling. The reaction of the broth before drying, which was + 15 acid to phenolphthalein, remained unaltered after treatment. The agar-agar, gelatin, and broth were each distributed into test-tubes and sterilized; they were then inoculated with several of the pathogenic, saprophytic, and chromogenic bacteria, respectively, and without exception, vigorous and typical growths were obtained. The neutral-red bile-salt agar was distributed in Petri dishes and allowed to dry in the usual manner and then inoculated on the surface with a mixture of *Bacillus typhosus, B. coli, B. subtilis,* and *B. megatherium* by means of a bent glass rod. No difficulty was experienced in rubbing the surface with the glass rod; in fact, the rubbing was performed a little more vigorously than necessary in order to test the texture of the medium, but it remained unbroken. After forty-eight hours' incubation at 40° C. typical colonies of *B. coli* and *B. typhosus* had developed, the coli colonies being red and the typhoid colonies being colorless. The *B. subtilis* and *B. megatherium* had not grown. The foregoing experiments show that the typical reactions may be obtained with this medium after desiccation and that its inhibitory properties are in no way impaired. —*The Lancet.*

Myelogenous Leukemia Following Pancreatic Cyst.—Barker reports a man aged twenty-eight years. Fourteen years before he was operated upon for a pancreatic cyst, following an injury. The cyst was opened and drained, and recovery was complete. The patient was well until three months ago, when he noticed abdominal discomfort. Three weeks ago he noticed swelling of the left side of the abdomen, which proved to be a large spleen. The blood count was as follows: Red cells, 3,600,000; leucocytes, 77,700; hemoglobin, 30 per cent. There were 28 per cent. of myelocytes. After ten days' treatment with arsenic and iron, the red cell count was 4,840,000, the leucocytes 42,000, and the hemoglobin 45 per cent. Nucleated red cells were numerous.—*Proceedings of the Royal Society of Medicine.*

Radiumtherapy.—L. Chevrier says that there is good evidence that radium has a stimulating effect on the tissues of wounds causing increase of granulations and rapid cicatrization. He has treated wounds of various kinds with pomades and radiferous powders with good success. An inert powder is mixed with radioactive powder and applied to the wound under a loose gauze dressing. It causes, at first, an abundant secretion, similar to that following fulguration, but containing no pus cells; active granulation then takes place, and epidermization of ulcers and wounds goes on much more rapidly than ordinarily occurs. Atonic ulcers cicatrize as well as healthy wounds. The author gives illustrative examples. He is now making experiments with flesh colored powders, with which he will tattoo the cicatrices to render them more normal in appearance. This is rendered possible by the rapidity of granulation which takes place, such that small granules are enclosed and remain permanently in the cicatrix. —*Le Progrès Medical.*

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MANDELBAUM'S REACTION IN THE DETECTION OF TYPHOID CARRIERS, AND IN THE DIFFERENTIATION OF TYPHOID FEVER.

LAST winter Mandelbaum published an account of his so-called "fadenreaction," which may possibly come to be regarded as a test of considerable value in connection with the persistence of virulent typhoid bacilli in individuals who once suffered from the disease. In its practical bearings a rough similarity with Wassermann's seroreaction in old syphilitics will be remarked; although the latter test rather shows that a person once had syphilis, than that he necessarily still has it, since while parasyphilitics commonly give very high percentage of positive Wassermann tests, yet they cannot be said to suffer from virulent syphilis in any sense of the word; they cannot communicate the disease, nor are they amenable to specific treatment.

There is an alleged difference in the Mandelbaum reaction as to recent and past typhoid. In the recent case, with a drop of blood transferred to a suitable medium which is slightly inoculated with typhoid bacilli, the latter exhibit a marked tendency to arrange themselves in chains or threads (hence evidently the term "faden" reaction), or else in clusters. All the bacilli are alike immobile. This phenomenon in itself is said not to be present in any other form of disease, for the typhoid bacilli remained isolated and movable in all others tested. The blood of a person who years before had passed through typhoid gives both chains and clusters of immobile bacilli, but a certain number remain isolated and movable. Mandelbaum found that at any period within twenty-four years this reaction was obtainable in old typhoids. The similarities and differences between the fadenreaction and the ordinary agglutination test are at once partly apparent, but a comparison of the two cannot be instituted in this connection.

Gaehtgens and Kamm have reported on the fadenreaction in the *Münchener medizinische Wochenshrift* for June 28. They regard it as less trustworthy for the detection of a bacillus carrier than the opsonic index, for elevation of the latter is practically constant in a carrier, while the fadenreaction was often absent in 25 per cent. in these subjects. In the cases of fourteen known carriers the ordinary agglutination test proved useful in eleven, but of no value in the remainder. The fadenreaction did not seem to confer any greater degree of certainty. There were two negative results, while as in the agglutination test, the positive findings were not always typical and conclusive. Thus in regard to the mobility of individual bacilli, this was present or absent almost indifferently; and of two patients each infected three and one-half years before, one showed mobility, the other immobility. Several infected many years ago showed mobility in accordance with Mandelbaum's claim. But for that most interesting class of carriers, viz., those who apparently never went through the fever at all, three showed mobility and two immobility. Mandelbaum also insisted on the value of his reaction in distinguishing typhoid from paratyphoid and other pseudotyphoids. The authors conclude in this regard that when the "positive" finding is sufficiently characteristic it possesses some specific value (it was, however, present in two paratyphoid cases). Unfortunately, however, many so-called positive results are incomplete, or in other words dubious, and so possess no specific worth. A good positive result with an unsatisfactory agglutination test should be of value, but such a coincidence did not appear. On the contrary the most positive results gave the highest agglutination figures. While the authors do not commit themselves as to the future value of this test, they appear to regard it as an interesting development of serodiagnosis, but admit that the material upon which it was tested was not large.

PRESENT STATUS OF AURAL SURGERY.

IT is generally admitted that comparatively recent advances in aural surgery—practically middle-ear surgery—have been the means of saving many lives. Not so very long ago an intracranial infection from a middle-ear focus almost invariably ended fatally. But even as much has already been done, so much of the same sort still remains to be done in timely diagnosis or rather prognosis of middle-ear infections, as to their likelihood of causing intracranial infection; and in timely and suitable surgical intervention.

Professor Heine recently delivered an address on the present status of aural surgery, which appears in the *Münchener medizinische Wochenschrift* for June 21, and is accompanied by some discussion on the part of the society members before whom it was read, who are a body of general practitioners. Chronic otitis media with perforation should always be treated conservatively at first; but after conservative measures have failed the lecturer would proceed to radical operation, despite the quiescence or "coldness" of the process. Whenever an acute exacerbation occurs, or there is an extension threatened to the mastoid cells or labyrinth, the indication to operate becomes urgent. The recognition of labyrinthine extension has now become easy, and the surgeon is no longer taken unawares thereby. Nor does he nowadays fear to open and drain the labyrinth, a procedure which not only prevents meningitis but checks it if it is already developing.

Much has been learned as to the diagnostic significance of temperatures in otitis media, in their bearing on the question of surgical intervention. Fever, even mild, in a cold middle-ear suppuration—when all other sources of temperature rise may be excluded—is always a serious development, and warns us of the proximity of a meningitis or pyemia, the latter usually manifested by an infection of the transverse sinus. Hence, if such fever appears, we should first examine for possible meningitis, and if this is excluded, we have an indication to lay bare the transverse sinus. This done, we may usually proceed on the expectant plan, as the drainage afforded by exposing the sinus is often sufficient for recovery. If the case does not progress favorably, as shown by the persistence of fever and evidence of thrombus formation the sinus must be punctured and the clot removed. If the thrombus has become infected, the sinus must be curetted and some of its wall may require extirpation. Ligation of the jugular vein is not required as a routine procedure, but only when the case has, generally speaking, got beyond control. It must also be borne in mind that ligation or partial extirpation cannot invariably prevent pyemic infection, for the latter may occur by the retrograde route.

The developments of aural surgery are naturally known to all specialists, but the character of the advances in diagnosis and surgical procedure is often such as to place a powerful resource into the hands of the general practitioner with surgical leanings, when confronted by emergencies. He, at least, should spare no pains in becoming familiar with all such advances, for in many cases the indications will be so obvious that he can avoid the dangerous delays involved by consultations.

Fixation Abscess for Chronic Lead Poisoning.

Readers of current medical literature for the past dozen years have doubtless seen occasional reference to the treatment of various conditions by establishing an artificial abscess at a distance, and have probably thought in this connection of a revival of the old seton or issue, with its *raison d'être* of drawing bad pus or humors out of the system. For a considerable period most of the clinical reports of the use of fixation abscesses seemed to proceed from one or more provincial French clinics, and the conditions in which they effected alleged cures, such as protracted puerperal sepsis, were those for which so many other remedies have been vaunted; or such as might at times benefit by any plan of counter irritation. Hinze of St. Petersburg (*Berliner klinische Wochenschrift*, June 27) touches on a special possibility in connection with the benefits of artificial and controlled suppuration, to wit, that certain mineral poisons may actually be conducted out of the system by this means. Quite recently Carles and Arnozan showed that leucocytes may be active agents in the elimination of certain drugs. Tested on a case of chronic plumbism it was found that 32 grams of such pus contained 0.0025 gram lead in the form of sulphate. This case and another of the same kind were believed to be the only ones on record until Hinze treated a patient more from clinical than experimental motives. In all he caused his patient to lose during four weeks a large amount of pus, which always contained lead sulphate. The percentage of the latter rose as treatment progressed. The patient appeared to improve under treatment, but as he was badly affected with arteriosclerosis, interstitial nephritis, myocarditis, and lead encephalopathy there could be no hope of recovery. The patient, who had already suffered a stroke of apoplexy, soon developed a second and fatal attack. The liver was tested for stored lead, but only a mere trace was found. It looked as if the lead had been removed from storage by the leucocytes. The abscesses were set up by injecting turpentine beneath the skin of the thigh. The rationale of using these abscesses in pneumonia, sepsis, etc., is based on the belief that the toxins of the disease may be thus removed. The process has some prognostic value; for the pus should form in twenty hours, and its failure to appear is ominous. The pus formed should be sterile—so-called chemical pus; and it is claimed that the treatment is well-borne and innocuous. There is no allusion to the possibility of amyloid degeneration.

The Spread of Bovine Tuberculosis.

Professor Sheridan Delépine of Manchester contributed an article to the *Lancet* of May 14, in which he gave the results of studies recently undertaken by him, in regard to the influences determining the prevalence of bovine tuberculous mastitis. Although the evidence so far has shown that bovine tuberculosis is, on an average, more prevalent in a district where cowsheds are generally in a bad state, small, badly ventilated, or dirty, it has not demonstrated that these are by any means the sole causes. Ordinary sanitary measures will not control bovine tuberculosis. Cows with ulcerating lesions, *i.e.* cows in the actively infective stage of tuberculosis, are capable of emitting and do emit an extraordinarily large number of tubercle bacilli. Ordinary sanitary measures are of little avail to control the spread of the disease by animals in such a condition. Delépine concludes that bovine animals suffering from ulcerative tuberculous lesions, more especially of the respiratory organs, alimentary canal, genito-urinary organs, and udder, constitute the chief factor determining the prevalence of bovine tuberculosis. This conclusion indicates the great importance of inspecting every animal, of removing without delay all those that are actively infective, and of not allowing healthy animals to remain in places that have been infected, so long as these places have not been thoroughly disinfected. All animals affected with tuberculosis are potentially dangerous, and as their age advances the chance of their becoming actively dangerous increases. Consequently it is desirable to reduce as much as possible the number of old animals. After all, the only way to stamp out tuberculosis in cows is to destroy those affected with the disease in a dangerous degree and to segregate those that have the disease in a milder form.

A Marine Floating Laboratory for Tropical Research and Teaching.

A scheme is afoot in Great Britain to establish a large school of tropical medicine in Calcutta. Dr. Andrew Balfour of the Wellcome Tropical Research Laboratories, attached to the Gordon Memorial College, Khartoum, writing in the *Lancet*,

July 2, applauds the idea and goes on to suggest the establishment of a marine floating laboratory for Great Britain. In connection with the Wellcome Laboratories in Khartoum there is a floating laboratory on the Nile, and it is because this laboratory has been so conspicuous a success that Dr. Balfour has mooted the imperial floating laboratory idea. He proposes that a ship of 800 or 1000 tons should be fitted for the purpose. Such a ship would be able to visit any portion of the globe, could ascend large navigable rivers, and would be the means of bringing back a store of most valuable material, both for museum and for teaching purposes. Furthermore, it would be the duty of whoever was placed in charge to conduct abroad the best students in tropical medicine of the year. There can be little doubt, too, that many graduates would welcome the opportunity for such a course of study, as facilities would be given to visit tropical hospitals and laboratories in different countries. These institutions are often in cities on or near the sea and it is on the litorals of tropical countries that most of the diseases peculiar to the torrid zone occur. It is plainly apparent that the consummation of the plan suggested by Dr. Balfour would have the effect of advancing our knowledge of tropical diseases and would be a benefit to humanity at large. If the necessary funds to carry out the proposition cannot be found in Great Britain, there would seem to be no insuperable objections to making it an international affair.

News of the Week.

City Death Rate.—During the week ending July 23, the death rate in New York was 17.18 per 1,000 of population, an increase over last year when the rate was 16.17. The total number of deaths was 1,552, or 122 more than for the same week of 1909. Among children under five years of age there were 694 deaths; among children under one year, 523; 389 of these deaths were ascribed to diarrheal diseases. There were 674 deaths in tenements and 582 in institutions. Scarlet fever caused 9, pneumonia 106, and tuberculosis 54. Seventeen persons died from sunstroke, and 130 from violence. The rather high death rate in the city, particularly among young children, during July, has led to an interesting comparison with the figures of previous years by the officials of the Department of Health. During the years 1908 and 1909 the general death rate in July reached low figures in comparison with other years, figures which have unfortunately been exceeded during the past month. In 1908, the highest rate was 18.50 for the week ending July 25, and in 1909, 16.96 for the week ending July 30, while for the week ending July 16, 1910, the rate was 18.88. The difference is more marked in the comparison between the death rates of children under two years of age during three weeks of July in 1909 and 1910, which were as follows:

MANHATTAN.

	July 10.		July 17.		July 24.	
	Deaths.	Rate	Deaths.	Rate.	Deaths.	Rate.
1909	61	28.13	80	37.1	172	51.9
1910	108	46.00	181	92.1	190	85.8

BROOKLYN.

	July 10.		July 17.		July 24.	
	Deaths.	Rate	Deaths.	Rate.	Deaths.	Rate.
1909	72	51.00	123	87.0	144	102.0
1910	127	87.4	167	114.9	114	78.4

CITY.

	July 10.		July 17.		July 24.	
	Deaths.	Rate	Deaths.	Rate.	Deaths.	Rate.
1909	159	38.0	239	55.2	306	73.0
1910	266	61.6	424	98.2	373	86.4

The years 1908 and 1909 were, however, exceptional, largely, as the MEDICAL RECORD pointed out at the time, because the population of the city was assumed to be much greater than it really was. In 1907, the death rate for six successive weeks, from July 13 to August 24, was higher than the highest figure recorded so far this year, and in 1905 the rate rose to 28.00 for the week ending July 22. During that week 1,073 babies died in the entire city. The highest general death rate in recent years occurred in the week of July 6, 1901, when the figure was 40.82 per 1,000. During that summer, which was one of more than tropical heat, the death rate for twelve successive weeks was considerably above the highest figure so far recorded in 1910. The Department of Health ascribes the high death rate among babies in hot weather to the ignorance of the mothers, and for their edification has issued a simple list of rules for caring for infants, printed in several languages, and urging that prompt notification of illness be sent to the branches of the Department. The mortality among babies is found to be highest among the negroes, the Italians ranking second, and the Russians third. The Yiddish-speaking population of the lower East Side has a comparatively good record.

Immigration Statistics.—Immigrants to the number of 1,041,570 were admitted into the United States during the last fiscal year. Italians had the largest representation, 223,453; and Koreans the smallest, 19. The Jewish immigrants numbered 84,260; the Germans, 71,380; the English, 53,498; the Irish, 38,832; the Magyars, 27,302; African negroes, 4,966; Japanese, 2,798; East Indians, 1,782; Chinese, 1,770. During the year 156 idiots, imbeciles, and feeble-minded, 160 insane, and 2,471 persons with chronic or contagious diseases were debarred.

State Board of Pharmacy.—According to an opinion issued by the Attorney-General, the members of the New York State Board of Pharmacy will hold over in office until the State Regents appoint a new board in accordance with Chapter 422 of the Laws of 1910. The new law, which makes radical changes in the number of the members of the board, their method of selection, and their tenure of office, provided that the term of office of the present board of nine members should expire on August 1, and that the fifteen new members should take office on that day. So far the Regents have failed to appoint a new board, and it is now unlikely that they will do so until next September.

Cholera in Russia.—Figures given out by the Russian Government Sanitary Commission recently show that since the outbreak of the cholera epidemic, about the middle of May, until the end of July, 37,652 cases occurred with 16,651 deaths. The entire region affected includes forty-two provinces and territories. In the week ending July 23, 13,374 cases were reported, with 5,979 deaths.

Street Car Accidents.—During the month of June, 27 persons were killed and 232 seriously injured in accidents on the city transit lines in New York, according to the report of the Public Service Commission. In June, 1909, the figures were 30 killed and 211 seriously injured, and in June, 1908, they were 42 and 302 respectively.

Tuberculosis in the Philippines.—Secretary of War Dickinson, who is now visiting the Philippine Islands, assisted on July 29 in the organization of a national society for combating tuberculosis in the islands. The disease is said to have become alarmingly prevalent among the Filipinos.

Foot and Mouth Disease.—Owing to the outbreak of foot and mouth disease among the cattle in Yorkshire, England, the United States Department of Agriculture has prohibited the importation of cattle from that country for the present. The same action has been taken by the Canadian Government. The extent of the infection has not yet been determined, but the embargo will be strictly enforced until the authorities are satisfied that the disease has been stamped out. Most of the cattle imported into this country for breeding purposes come from the Channel Islands which have not been placed under the quarantine.

Sewage Disposal.—Plans for the disposal of the sewage of the city of Rochester, N. Y., by discharge into the waters of Lake Ontario, were recently returned to the State officials by Health Commissioner Porter without his approval. The pollution of the Genesee River has reached a point which makes it necessary for the city to dispose of its waste in some other way, but after consultation with sanitary engineers the Commissioner has decided that the present plan does not provide for sufficient treatment of the sewage. When a more complete system of disposal is mapped out the plan for using Lake Ontario will probably be approved.

Ambulance in Collision.—While answering a call on July 26, an ambulance of the German Hospital, Williamsburg, N. Y., was struck by a trolley car of the Myrtle Avenue line. Both the surgeon, Dr. Edwin A. Spies, and the driver of the ambulance were injured.

Dr. Richard C. Newton of Montclair, N. J., has received the Democratic nomination for mayor of that town.

Dr. Glenworth R. Butler of Brooklyn, N. Y., has been appointed a member of the State Board of Medical Examiners for the term of three years.

Enforced Cleanliness.—A list of eleven regulations issued by the Health Department of Aurora, Ill., and designed to improve the health of the community, includes one making a weekly bath compulsory for each resident. The Health Officer and the Chief of Police are quoted as saying that the ordinance will be strictly enforced and that violators will be arrested and punished to the full extent of the law. The developments promise to be interesting.

Dr. Leonard Wood has recently assumed his duties as Chief of Staff of the United States Army.

Censure Insane Asylum.—The Newark, N. J., Grand Jury recently returned a presentment criticising the management of the Essex County Insane Asylum, at Overbrook, and recommending the removal of the superintendent of that institution. The presentment also recommends that the Board of Freeholders be relieved of the care of the asylum, and that it be placed in the hands of a competent board of managers, or under State control.

The Antivivisectionists.—A recent order authorizing the poundmaster of the city of Washington to sell dogs picked up on the street to the Bureau of Animal Industry "for research work" caused a small tempest among the antivivisectionists. The Acting-Secretary of the Department of Agriculture explained, however, that the dogs were to be used in the investigation of the disease among sheep known as "gid," due to a parasite conveyed by wolves and dogs, giving it as his opinion that the dogs would come out of the experiments "in better health than they went in." The report of an interview with Mrs. Diana Belais is a fair sample of the exaggeration in which the supporters of the antivivisection movement habitually indulge. Mrs. Belais is quoted as saying that "It is a most shameful and disgraceful state of affairs to think that the United States Government should become a party to such cruelty. There can be nothing more debasing to its people than such a showing of wanton cruelty; and it is horrible to think that the Government, through its unthinking officials, should set up a standard for gross cruelty." It would of course be expecting too much of the antivivisectionists that they should acquaint themselves with the facts before attempting to state them.

Population of Oklahoma.—The census returns for Oklahoma give the State a population of 1,651,951, lacking the returns from three districts which will, however, affect the total by only about 5,000. This means an increase in population of 16.8 per cent. since the special census taken less than three years ago, and of 109 per cent. since the census of 1900.

Bequests to Charities.—St. Francis Hospital, New York, receives $1,000, and the Free Cancer Hospital, Hawthorne, N. Y., $500, under the will of the late Mary P. McLoughlin of New York.

The will of the late Adolph Leberman of Philadelphia contains the following bequests to charitable institutions of that city: Jewish Foster Home and Orphan Asylum, $350; Home for Incurables, $250; Jewish Seaside Home, $200; Children's Homeopathic Hospital, St. Christopher's Hospital, and Mt. Sinai Hospital, $100 each.

American Association for Study and Prevention of Infant Mortality.—The first annual meeting of this association will be held in Baltimore on November 9 to 11, 1910, under the presidency of Dr. J. H. Mason Knox of Baltimore. Dr. L. E. LaFetra of New York is the secretary of the society. The work of the association will be divided into sections on Municipal, State, and Federal Prevention, Dr. William H. Welch, *Chairman;* Medical Prevention, Dr. L. Emmett Holt, *Chairman;* Educational Prevention, Dr. Helen C. Putnam, *Chairman;* Philanthropic Prevention, Dr. Hastings H. Hart, *Chairman.* A special report on birth registration will be presented by Dr. C. L. Wilbur, Chief of the Division of Vital Statistics of the Bureau of the Census.

American Association of Obstetricians and Gynecologists.—The twenty-third annual meeting of this association will be held in Syracuse, N. Y., on September 20 to 22, 1910, Dr. Aaron B. Miller, President. Dr. Albert E. Larkin of 509 Genesee street, Syracuse, is chairman of the committee on arrangements.

The Rhode Island Medico-Legal Society.—At the annual meeting of this society, held on July 21, the following officers were elected for the ensuing year: *President,* Dr. Arthur H. Harrington; *Vice-President,* Benjamin W. Grim; *Secretary-Treasurer,* Dr. Carl R. Doten; *Censors,* E. H. Lincoln, Dr. E. P. Stimson, Dr. C. S. Christie, Dr. J. H. Morgan, Dr. C. W. Stewart.

Obituary Notes.—Medical Director James A. Hawke, U. S. N., retired, died at the Naval Medical School Hospital in Washington, D. C., on July 25, aged 69 years. Dr. Hawke was graduated from the medical department of the University of Pennsylvania in 1861, and during the Civil War served as assistant surgeon in the 114th Penn-

sylvania Volunteers, and as surgeon in the 215th Pennsylvania. At the close of the war he became an assistant surgeon in the United States Navy, and was made passed assistant surgeon in 1873, surgeon in 1879, and medical inspector in 1895. In September, 1899, he was appointed medical director, and was in charge of the Naval Hospital at Mare's Island, Cal., until 1903, when he retired with the rank of Rear Admiral.

Dr. C. H. Smith of Arcadia, Fla., died recently at Candler, N. C., following a stroke of paralysis. Dr. Smith was born in 1855, and was graduated from the Atlanta Medical College in 1880. He was a member of the State and county medical societies.

Dr. William C. Baylor of Willows, Cal., died in Sacramento following a stroke of paralysis, on June 27, aged 67 years. Dr. Baylor was graduated from the College of Physicians and Surgeons of Baltimore, Md., in 1869.

Dr. Ernest C. Blake of Boothbay Harbor, Me., a graduate of the Dartmouth Medical School, Hanover, N. H., in the class of 1892, died suddenly at his home on July 8, aged 41 years.

Dr. William W. Easton of Dowagiac, Mich., died at his home on July 14, after a long illness. He was graduated from the Bennett College of Medicine and Surgery of Chicago in 1877, and was a member of the Michigan State and Cass County Medical Societies.

Dr. Jacob Randall, a retired physician of Okawville, Ill., died at his home on July 7, aged 85 years.

Dr. Robert S. Powell of Woodview, Va., died at his home on July 11, aged 75 years. Dr. Powell was graduated from the Department of Medicine of the University of Virginia in 1857, and was a member of the Virginia State and Brunswick County Medical Societies.

Dr. Edwin S. Cave of Mexico, Mo., a graduate of the Missouri Medical College, St. Louis, in 1884, a member of the American Medical Association and of the Missouri State and Audrian County Medical Societies, died at his home on July 10, aged 54 years.

Dr. J. B. Farley of Farley, Ala., a graduate of the Medical Department of Vanderbilt University, Nashville, Tenn., died of typhoid fever at his home on July 7, aged 50 years.

Dr. Louis R. Brown of Elizabeth, N. J., a graduate of the Homeopathic Medical College of Pennsylvania in the class of 1864, died at his home on July 18, aged 70 years.

Dr. Julius Stein of New York, a graduate of the College of Physicians and Surgeons of that city in 1885, died at his home on July 22.

Dr. Richard H. Stone of Brooklyn, N. Y., a graduate of Dartmouth College and of the College of Physicians and Surgeons, 1866, died suddenly of apoplexy on July 27, aged 73 years.

Dr. Frederick Chauncey Graves of Bridgeport, Conn., a graduate of the Medical Department of New York University in the class of 1888, a member of the American Medical Association, and of the State and Fairfield County Medical Societies, and visiting physician to the Bridgeport Hospital, died suddenly, on July 26, from an overdose of morphine, aged 47 years.

Dr. Horace F. Hanson of Bangor, Me., a veteran of the Civil War, a graduate of the Berkshire Medical College of Pittsfield, Mass., in 1866, a member of the American Medical Association, and of the State and Penobscot County Medical Societies, died at his home on July 17, aged 72 years.

Dr. Mark S. Leavy of Albany, N. Y., a graduate of the Medical Department of the University of Wooster, O., in 1888, and a member of the State and Albany County Medical Societies, died at his home, on July 20, of heart disease, after a long illness.

Dr. William J. W. Cornwell of Cornwell, S. C., a graduate of the Medical College of the State of South Carolina, Charleston, in 1866, and a member of the State and Chester County Medical Societies, died at his home, on July 15, aged 69 years.

Dr. William L. Forrester of Philadelphia, Pa., a graduate of the Medical Department of New York University in the class of 1881, died at his home, on July 19, aged 49 years.

Dr. Frederick W. Lilienthal of New York, a graduate of the University of Berlin, Germany, in the year 1858, and a member of the New York Academy of Medicine, the German Medical Society, and the Eastern Medical Society of the City of New York, died at his country home in the Catskill Mountains, on July 28, aged 77 years.

Correspondence.

MEDICAL COLLEGE HOSPITALS.

To the Editor of the Medical Record.

Sir: I should like to join Medical Director Coplin in reminding President Schurman that there are others among American medical colleges that have entire control of attached hospitals. I refer now especially to the Centenary Hospital attached to Barnes Medical University of St. Louis, which owns this hospital so far as its charter will permit it to be owned by any college. The Barnes holds the bonds of this hospital and its faculty direct it; its patients are conducted for clinical purposes into the college amphitheater.

I speak of this, though not now of the faculty, as one of the founders of the Barnes College and Centenary Hospital. Others can speak for other hospitals.

C. H. Hughes, M.D.

St. Louis, July 25, 1910.

POISON IVY RASH.

To the Editor of the Medical Record:

Sir: The description in the Medical Record of July 23 by Dr. R. Ellis of his sufferings from poison ivy dermatitis, and of difficulties of relief may well justify the communication of a treatment repeatedly used by the writer in former years with full satisfaction. Here in this city these cases seem exceedingly rare, and hardly ever are seen again. The treatment consists in applying two or three times a day flowers of sulphur rubbed up with sufficient water to a thin paste. Of course it should not be washed sulphur or lac sulphuris.

C. G. Am Ende, M.D.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

CANCER AND RESEARCH INSTITUTION—DANGERS OF WORKERS WITH LEAD AND IN DUSTY EMPLOYMENTS—MEDICAL SOCIETIES—PENSIONS ON CIVIL LIST—LORD STRATHMORE'S ENDOWMENT OF UNIVERSITY CHAIR—NOTES—OBITUARY.

London, July 15, 1910.

Yesterday afternoon the foundation stone of the Barnato-Joel Memorial Hospital for Cancer and Laboratory for Research was "well and truly laid" by Prince Francis of Teck, who announced that the Queen had consented to open the building next year. The building will occupy the site bought for it adjoining the Middlesex Hospital, to which, in a way, it will be an additional wing, but at the same time an independent institution. It will not only be built but endowed out of the munificent fund bequeathed by Mr. H. P. Barnato in memory of his brother and his nephew (Mr. Joel). The cancer department of the Middlesex Hospital is too well known to need more than congratulation that its work will receive this important extension,

and we may all feel satisfaction that instead of a new competing hospital, this well tried one will have both its charitable and research work so widely extended. Prince Francis, who, as I mentioned to you, has lately become chairman of the Middlesex Weekly Board, and issued an appeal for funds, said that when he did so he little knew how much work it would entail, but he does not seem to mind it, for he is zealously pushing his appeal, and remarked that opening his morning letters without knowing what was coming was as exciting as a big bet on a race course. He said, too, it was a great day for every Middlesex man, for a hospital to receive cancer sufferers is established and a research block committed to the care of eminent men whom all hope and fervently pray may be successful and come out victors against this terrible scourge.

On Tuesday the report was issued of the departmental committee on the dangers attending the use of lead, and on injury or danger to health from dust or other causes in the manufacture of china and earthenware, and in processes incidental thereto, including the making of lithographic transfers. You will see that the reference was wide, and it is not to be wondered at that the inquiry has extended over two years. Yet the committee itself scarcely considers its report exhaustive, for it informs the House Secretary at the outset that should he desire to call it together again, all the members would be ready to give him their assistance. In pottery factories some 63,000 workers are employed, and of these 6,865 are engaged in dangerous processes in contact with lead, 23,000 incur danger from breathing dust other than lead. Efforts have been made from 1894 to make rules which would put an end to the lead poisoning, but with little success. From 1901 to 1908 the number of cases remained stationary, but there was a decrease in 1909. It was suggested to the committee to draw up a schedule of articles in the manufacture of which lead should be absolutely prohibited, but though they admit the simplicity of such a solution, after full consideration of the proposal in all its bearings they do not advise this course at the present time. The public has displayed less interest in the dust problem than in lead poisoning, but the committee makes stronger recommendations concerning it, including ventilation and temperature. They would also prohibit boys and girls under 16 from carrying the clay for the work.

Dealing with women workers, they consider the lead danger, whether it appears as poisoning or increased liability to miscarriage, would be greatly mitigated if not actually removed by the strict observance of certain precautions. Otherwise women under 45 could be excluded from the most dangerous processes. Plumbism, serious as it is, is not so widespread as lung disease from labor connected with lead, like working in hot, dusty and moist rooms. New rules are proposed, but the committee cannot hope they will be effective unless they are more strictly carried out than previous rules have been. All occupiers of factories must, therefore, be made to realize their responsibilities. Miss Tuckwell, the lady member of the committee, adds a separate note urging that inspection from without is of more value than the report intimates. She would also approve a schedule of articles to be made by leadless glazes only.

Professor Osler went to Nottingham to open the new premises of the Medical-Chirurgical Society. He gave an address in the course of which he argued that a medical society ought to be a post-graduate school or a sort of clearing house of professional experience in its locality. Good pathological specimens should be exhibited at fortnightly meetings. One might interpolate here that in a small district it might be well for the populace that none had been obtained in the fortnight. It was only natural, he declared, for the doctor to think of himself last—for the profession would not be organized on a commercial basis. He could not combine the altruistic with the business sides of his work as in many other callings, though the laborer was worthy of his hire. He warned against discord and jealousy, which, he said, was often displayed by seniors to juniors, and he laid down three rules which everyone would find good to follow: (a) Listen to no tales told of a doctor by a patient; (b) Believe no tale of a doctor even if you know it to be true; (c) Tell no tale yourself, even if you are itching to do so.

Civil list pensions have been granted in consideration of services in connection with the profession to Mr. T. Bryant, Mrs. Gamgee, widow of the late Professor Arthur Gamgee, Miss H. S. Murphy, daughter of the late Professor E. W. Murphy, M.D., Mrs. Fraser, widow of the late Professor Alex Fraser, Miss Dobson, sister of the late Sergeant-Major Dobson, F.R.S.

At the graduation ceremony of the University of Aberdeen on Wednesday it was announced that Lord Strathcona had just given £10,000 to endow a chair of Agriculture with the new professor as dean, and associated with the chairs of Botany and Zoology.

The Edinburgh Royal College of Physicians has conferred the Cullen Victoria Jubilee Prize on Dr. R. W. Philip for his investigations in connection with phthisis. The award, of the value of £100, is made every four years for the most important contribution to practical medicine.

The Astley Cooper Prize has been awarded by the Guys Hospital School to Professor E. Starling, F.R.S.

Sir Alfred D. Fripp has been appointed honorary surgeon-in-ordinary to the King.

A special reserve is to be established in connection with the Royal Army Medical Corps.

Dr. Dawson Williams, editor of the *British Medical Journal*, was thrown from his motor car on Saturday as the result of a collision. He sustained a severe shock with slight concussion, but happily is progressing well and we are all wishing him a speedy recovery.

The death took place on the 11th inst. of Mr. Harry W. Cox, at the age of 46, after 12 years of suffering as a victim of his early researches in connection with Röntgen rays. You will remember that in spite of his severe injuries as a pioneer and the steady advance of the terrible lesions produced, he did not discontinue the investigations and took out numerous patents for improvements in apparatus, as well as for an invention for locating the position and depth of a bullet. But about seven years ago his sufferings drove him into retirement. He underwent several operations without arrest of the progress of the disease in the same way as his fellow-sufferer, Dr. Hall Edwards.

News has just reached London from Forcados of the death of Dr. Alfred B. S. Powell, of the West African Medical Service, "who died of syncope during the outbreak of yellow fever," a statement which looks as if he was a victim of overwork. He was only 37 years old and qualified at the two colleges of Edinburgh in 1898. He had been medical officer to Grahamstown Asylum, and held another appointment at Cape Colony before going to West Africa.

Dr. J. Hougham Bell, surgeon for many years to the Royal National Consumption Hospital at Ventnor, died on the 8th inst., aged 64. He was a King's College student and Warnsford scholar of 1863. Earlier he had given attention to mental diseases and been assistant superintendent of Northampton Asylum, but for some 30 years had practised at Ventnor.

OUR LETTER FROM PARIS.

(From Our Regular Correspondent.)

THE RÔLE OF RADIUM IN THE TREATMENT OF CANCER—INSTANTANEOUS RADIOGRAPHY—VACCINOTHERAPY IN ACUTE PYELONEPHRITIS OF PREGNANCY.

PARIS, July 15, 1910.

WICKHAM and Degrais, presented by Charles Monod, made a very interesting communication with reference to the position of radium in the surgery of cancer. The authors stated that radium should only be applied to the treatment of cancer under the control of the physician, and especially of a surgeon competent to decide whether the circumstances are such that radiotherapy should be employed in preference to all other methods, or whether by reason of the nature of the case, its position, or its state of evolution it would not be better to make use of some other method of treatment. Until we have discovered a remedy having a specific action on neoplastic tissues the total removal of cancer by the knife will remain the most sure and rapid method at the disposition of the practitioner. In the most of the cases in which radium therapy is indicated it is best to associate it with a surgical oneration. The action of radium is in proportion not only to the depth to which the rays penetrate, but also to the number of rays which enter at a given point. Wickham utilizes a technique which he calls "crossed fire." It consist in grouping over the region to be treated several x-ray apparatuses whose rays cross each other, to act at the same time on the diseased tissues. It is above all important that the radium should be placed in actual contact with the neoplasm, and it is for this purpose that the surgeon may with advantage operate to facilitate access to the diseased portion, as well as to reduce by a previous operation the mass of tissue in which we seek to produce regression.

Access to the diseased part may be had through the natural passages for the esophagus, bladder, rectum, uterus, etc., or through an artificial orifice such as a gastric fistula, permitting the radiferous apparatus to be carried even to cancer of the pylorus. If the action of radium is often favorable the results to be expected are never other than local. There is a long distance between the regression of a tumor and the cure of the patient. The action of radium is purely local and does not surely place the disease safe from recurrences, which must be combated anew by new applications at an opoortune time. Limited in its rôle, then, radium is a resource useful above all when it is employed under the control of the surgeon. Segond has never seen radium bring about the cure of a neoplasm. At the same time he has seen it bring about such changes in the evolution of malignant growths, cause such curious transformations and such important amelioration that in every case in which an operation is not justifiable he believes that radium is indicated.

Pierre Delbet thinks that the great advantage of radium is that it can be placed wherever we wish. His technique consists in introducing tubes of radium into the thickness of the neoplasm. He does it with a large trocar, the mandrin of which he withdraws; by the cannula he introduces the tube of radium and keeps it in place with a soft mandrin while he removes the cannula; the tube furnished with a thread is placed where it can act best. Radium appears to have a selective action on epithelial cells which it kills. The phagocytes then seize on these cells of the neoplasm which have been killed and surround them. The tumor disappears without there being any loss of substance, but the marvelous action of radium is circumscribed; it never reaches more than 25 millimeters; around the radiferous tube we find three concentric zones: a zone in which the epithelial cells are destroyed; a second zone in which their evolution seems to be modified without destruction; and lastly at the periphery a third zone in which the epithelial cells show evidence of stimulation. If the tumor regresses in the center it progresses rapidly at its periphery and this is the only danger. The only means of preventing this is to riddle the tumor with radiferous tubes in such a way that each tube extends its action beyond the apparent limits of the neoplasm. Tuffier believes that there is not in existence a single case of deep cancer of the mucosa which has been cured by radium. But he has seen very remarkable amelioration which indicates the employment of it when surgical removal is impossible. In such cases it is the best palliative which we have at our disposal at present. Schwartz thinks that radium relieves, prolongs, and renders operable tumors which were previously not so, but that it has never cured a deep tumor. Ricard thinks that radium should be considered a precious resource in inoperable cases. Morestin thinks that radium therapy can only be a palliative medication, or an adjuvant treatment complementary to surgical operation. Walther asks us to observe that sometimes the application of radium, while bringing about a rapid cicatrization and an apparent cure of the tumor, brings about a deep proliferation of the epithelioma. Routier also thinks that in some cases the application of radium may be more harmful than helpful.

Potherat and Tuffier showed remarkable results from instantaneous radiography. These instantaneous radiographs are obtained by the reinforced tubes the first of which made its appearance in 1896. Nogier, in April, 1910, made use of a German tube with which he obtained images in a tenth to a thirtieth of a second. Chatenet presented a new English tube of Watson, which is only a modification of the previous ones. Each of these has a secret method of manufacture. The reinforced tubes have, then, been employed for a long time. The novelty is the systematic use of the old and new intensified tubes with intensive installation, which allows us to transform rapid radiography into instantaneous radiography.

The characteristics which differentiate pyelonephritis of pregnancy from mild infections of the kidney and its pelvis rest on their evolution and their treatment, which explains sufficiently the condition of the patient in these cases. This is an infection of a serious nature against which a conservative therapeusis is the method of choice. Aside from the old medical means, catheterism of the ureters, and the reclining position of the patient, there are several methods which have been proved and which are harmless in any case. A new method has been presented by Tuffier and Mauté, vaccinotherapy. As the microbian infection is monobacillary, the preparation of a vaccine from microbes taken from the same patient to be treated has entered definitely into practice as a therapeutic method. The vaccine is prepared by making use of a culture on gelatine for twenty-four hours, which has been isolated from the urine. The vaccine is a sterilized emulsion of the twenty-four hour culture in a certain quantity of physiological solution; sterlization is obtained by addition of a small quantity of phenic acid. It is useful to know the dose injected, and for this reason the authors proceed to dosage by weight. The result of these injections on an acute pyelonephritis of pregnancy was remarkable after three injections; the pulse and temperature were reduced, the patient felt a sense of well-being, most remarkable, which continued definitely not only during the whole course of the pregnancy, but also after labor, which occurred without any difficulty. A month after labor the mother and child were in perfect condition.

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

OBSTETRICAL PRACTICE IN THE PHILIPPINES—PROPOSAL TO IMPROVE THE STANDING OF MIDWIVES—POPULATION OF MANILA—CHOLERA—PHILIPPINE MEDICAL SCHOOL—PHILIPPINE GENERAL HOSPITAL.

MANILA, June 15, 1910.

THE regular meeting of the Manila Medical Society was held at the Philippine Medical School at 8:30 p. m., June 6, 1910. A symposium upon obstetrics was had and many of the obstetricians of the City of Manila took part.

In the Philippines it has not been customary for male physicians to attend women during confinement, this duty generally being left to a poorly instructed class of midwives; as a result many unnecessary deaths are caused and much permanent harm is done. The question of improving this state of affairs has been frequently agitated. Recently a determined effort was made by the medical officers of the Philippine Medical School and of the Bureau of Health to make proper medical service available. With this end in view an out-patient obstetrical department was established to which were attached two nurses and a sufficient number of physicians so that one or more would be subject to call at all times. Patients are visited in their homes before labor and confined there if they do not wish to enter the hospital. During the early part of April only a few scattering calls were received, but these increased rapidly so that the daily average during May was 37 or a total of 1147 for the month.

The ignorant midwives are permitted to practice their calling without restriction. To remedy this the following resolution was proposed by Dr. Calderon: "The Manila Medical Society requests from the Honorable Governor General the appointment of a Committee in the City of Manila, which, in connection with the Bureau of Health, the Department of Obstetrics and Infants of the Philippine Medical School, and the 'Gota de Leche' Society, shall suggest whatever measures are found advisable for the reduction of the high infant mortality and the disappearance of intruders among the labor cases of the city." This was modified by the Manila Medical Society appointing a Committee, and when sufficient data have been collected the Society will consider the advisability of presentthe matter to the legislature.

During the month of January a new census of the City of Manila was made by the Bureau of Health and these figures have recently become available. They show that the number of inhabitants increased from 223,542, when the last census was made in 1907, to 234,400. The total number of Americans living in Manila is 4174; Filipinos 211,859; Spaniards 2364; other Europeans 644; Chinese 14,003; all others 1275. It is of interest to note that all nationalities, with the exception of the Filipinos, show a decrease. The Americans decreased by 1025 or approximately 25 per cent.; Spaniards by 530 or approximately 15 per cent. Europeans by 333 or 30 per cent. Chinese by 3935 or approximately 15 per cent.

During the latter part of April cholera was carried from Macabebe, Pampanga, to Bayambang, Pangasinan Province. Owing to the apathy of the local officials, the introduction of the disease into Pangasinan was not discovered until several days afterwards and only after five or six towns were infected. The Insular Bureau of Health immediately took charge and sent a large force of sanitary inspectors to the province but the disease had already gained such headway that a number of additional towns became infected and a total of over 300 cases occurred during the month of May. The second week in June an increase in the number of cases took place owing to infected food having been consumed at a large wedding festivity. As the participants came from many different towns and later returned to their homes this served still further to spread the infection. The disease is believed originally to have been carried from Macabebe to Bayambang on account of the transference from Macabebe to Bayam-

bang of a company of United States Army scout soldiers and the actual conveyance of the disease was in all probability due to the forwarding of food supplies from Macabebe and the travel caused by the wives and other camp followers of the soldiers. Since then the cholera has spread to Tarlac Province and cases have been found in Manila and Pasig which were directly traceable to Pangasinan and Bulacan Provinces.

The Philippine Medical School began its fourth annual session June 13, with 22 students in the Freshman class. Owing to a recent decision of the Holy See by which the San José estate was transferred from the Dominican Order to the Jesuit Order, the income of the Santo Tomas University Medical School has been practically taken away. This institution has been in existence over a hundred years and has graduated thousands of doctors during this time. Only recently large laboratory buildings were constructed and equipped and other steps taken to change the school to a modern institution.

The recent Philippine Legislature appropriated $20,000.00 for the construction of a dangerous communicable disease pavilion at San Lazaro and $25,000.00 for continuing the construction of the Culion Leper Colony.

The new Philippine General Hospital has been definitely placed under the Bureau of Health and upon its opening about October next will be made a division of that Bureau. The present Civil Hospital which is used almost exclusively for Government employees will be discontinued and the services rendered by it will be merged with the Philippine General Hospital.

Progress of Medical Science.

Boston Medical and Surgical Journal, July 21, 1910.

Experimental Production of Actinomycosis in Guinea Pigs Inoculated with the Contents of Carious Teeth.—Frederick T. Lord has been led—by the finding of organisms resembling actinomyces in the sputum, by the lack of convincing evidence that actinomycosis is a contagious disease which suggests that the infection arises from within the individual, by the prevailing location of the disease about the neck or jaw, and by the fact that two patients recently seen gave a history of having had much trouble with the teeth—to turn his attention to the teeth as a cause of this affection. His investigations of the contents of carious teeth show that the number of organisms having the morphology and staining reaction of actinomyces, both in the smear preparations from the cavities of eleven cases and in the sections from the cavities of five cases, is variable. In some preparations they are present in great numbers and far outnumber other bacteria. This suggests that actinomyces plays an important part in dental caries. The intraperitoneal inoculation of guinea pigs with the contents of carious teeth was followed by omental tumors histologically identical with actinomycotic tissue and containing typical club bearing actinomyces granules in three of five animals. The constancy with which organisms having the morphology and staining reaction of actinomyces are present in carious teeth suggests that under certain conditions certain persons with carious teeth are liable to develop actinomycosis. In explanation of the infrequency of this condition compared with the numberless chances for infection it is suggested that invasion of the tissues by actinomyces does not always give rise to actinomycosis. It is probably that only in a small number of cases in which implantation of the organism occurs does it actually take root and lead to progressive lesions.

Suture of the Faucial Pillars for Hemorrhage Following Tonsillectomy.—R. H. Gilpatrick considers this the most efficient means of controlling bleeding but one so radical as to be advisable only in cases of continuance of hemorrhage after the application of the usual means of control. With the patient in the Rose position, the jaws open to the fullest extent and the tongue depressor introduced so that its tip presses against the base of the tongue at the lowest point of the faucial pillars and away from the side to be operated upon, a small round-pointed, fishhook-shaped needle, threaded with about eighteen inches of black silk or linen thread, is carried behind the lowest portion of the posterior pillar and is introduced forward through both pillars, taking enough tissue to insure its not tearing out. The head and tail of the suture are twisted together and secured by a shot slipped over them and crushed close to the point of suture of the pillars. The tail is secured between two convenient teeth. The suture is continued as a running, over and over, to the other end of the pillars, the bites being about one-quarter of an inch apart. The head and tail of the suture are again twisted together and secured by a shot and the long ends attached to teeth to prevent the shot falling into the larynx in case the suture tears out.

New York Medical Journal, July 22, 1910.

The Clinical Value of the Serodiagnostic Methods in the Diagnosis of Syphilis.—William Litterer gives the consensus of opinion concerning the latest interpretations of the Wassermann reaction from which he draws the tol lowing conclusions. (1) In internal medicine, neurology, pediatrics, surgery, in fact in every department of medicine, the Wassermann test is of inestimable value as corroborating or dispelling the suspicion of an active specific disease. (2) Under our present interpretation, a positive reaction means that an active syphilis exists and that it indicates that there should be an exhibition of antisyphilitic treatment. (3) Since antisyphilitic treatment invariably causes the disappearance of the Wassermann reaction, it may be an index as to the efficiency of a line of treatment in that particular case. (4) There are some nonluetic blood sera which cause a fixation of the complement. These sera are so rarely met with, and then not infrequently in such extensive pathological processes, that they do not vitiate the clinical value of the reaction.

Vaccine Therapy in Tuberculosis.—Herbert Maxon King discusses this subject from the standpoint of sanatorium treatment. At the Loomis sanatorium two classes of patients are advised to take up the tuberculin treatment: (1) Incipient cases which have been under observation long enough to justify the belief that they are not progressive and are without fever or other evidences of a marked general toxemia, and (2) that class of more advanced cases presenting evidences of arrested activity, but who still have cough and a bacillary sputum. The one demonstrable and constant result of the suitable use of tuberculin is tuberculin immunity. He feels that it gives the patient additional protection against his disease both in the form of present resistance and against future tendency to relapse. That general improvement and increased resistance follows its use in suitable cases is more and more felt by those who employ this agent therapeutically. They have been using bacillus emulsion and sometimes *bouillon filtré*, beginning with 0.00000001 gram (solid substance) bacillus emulsion and 0.0000001 cc. *bouillon filtré*, and proceeding by 50 per cent. increases until 0.0001 gram, or 0.00001 in the case of bacillus emulsion and somewhat larger doses in the case of *bouillon filtré* are reached; afterwards proceeding at the rate of 20 per cent. increases until the maximum dose is reached. They rarely if ever exceed a maximum of 0.001 gram bacillus emulsion, and 0.1 to 0.5 c.c. *bouillon filtré*. Individualization in treatment is quite as important as in other fields of therapeutics. They enjoined comparative rest on the day of the injection and strict rest for thirty-six hours afterward. There can be little doubt but that general reactions are undesirable. Tuberculin is contraindicated in laryngeal lesions where old fibroid infiltration has appreciably narrowed the glottis. In considering the treatment of secondary pyogenic infection by the specific bacterial product indicated by the character of the secondary infection the author says that they usually select cavity cases with persistent high fever, which does not yield to complete rest in bed, and have limited the cases to hospital patients where constant observation and control are possible. He describes the procedure by which it is determined as far as possible which organism is chiefly responsible for the symptoms and believes that the opsonic index determinations are of great value. An emulsion is then made from a growth of this organism, which is sterilized and standardized and given in initial dose of twenty to forty million, and which, if no contraindications arise, is increased at the rate of 100 per cent. until one hundred to two hundred million are given at intervals of from two to ten days. They have observed no untoward effects from such treatment and have never found that subsequent temperatures are any higher following an injection. In the majority of cases a relation can be traced between the treatment and the remission of symptoms, chiefly in lowered temperature. Their experience has been too limited to permit of very positive statements, but the plan seems reasonable and results seem to justify effort in this direction.

The Lacrymal Duct as a Portal of Infection in Blennorrhea Neonatorum and Its Prevention.—William Linton Philips shows that the minimum proportion of infected fetal eyes is caused by direct germ contact, and the maximum amount of infection travels indirectly by way of the nose, a cavity that remains open and would naturally become filled at the time of the rotary motion

of the head through the pelvis, with septic material, which is drawn further back by the first breath filling all nasal openings. Infection may travel from the nose to the eye in three ways, by the blood and lymphatics, by way of the antrum and frontal sinus, and by the lacrymal gland which is the more direct. The author recommends nasal cleansing and suggests disuccinic peroxide as a possible improvement over silver nitrate. Used in strength of from 1 to 500 to 1 to 30 there is no reason why it should not act better than other antiseptics because it penetrates the lacrymal canal and the conjunctival folds more deeply than those antiseptics which coagulate albumen. The mouth and the eyes should likewise receive care.

Journal of the American Medical Association, July 23, 1910.

Alcohol in Nephritis.—J. F. Hultgen gathered statistics from 150 patients in the Iowa State Inebriate Hospital and 311 cases in his private practice, making in all 461 cases, in which he found neuropathic and psychopathic lesions in 92.5 per cent.; marked and striking effects on the gastrointestinal tract in 82.7 per cent. There were no cardiovascular symptoms which might be termed characteristic of chronic alcholism unless it was the peculiar fetal qualities of the heart sounds. From these statistics it could not be proved that excessive drinking was in itself injurious to the lungs. Only 9.1 per cent. of the 461 showed evidences of nephritis, and only 5.24 per cent. showed temporary or permanent albuminuria, while 85.7 per cent. showed no evidence of deficient renal depurgation. From his observations the writer summarizes as follows: Alcohol when taken daily as it is by chronic inebriates is not an irritant to the kidneys. When nephritis occurs in a chronic alcoholic it is probably due to some other concomitant toxic agent, and not to alcohol. Alcohol when taken by chronic alcoholics, as a food or stimulant, is a diuretic. Those tissues which eliminate alcohol are least affected by it. This applies to the lungs but especially to the kidneys. Alcohol, while a toxicant, is also a detoxicant, ridding the body of various deleterious catabolic products. The comparative integrity of the kidneys in alcoholics may be due to the fact that the renal cells contain very few lipoids and lecithins and that therefore they are not at all acted upon by the narcotic molecule.

The Relation of the Blood-Vessel Wall to Coagulation of the Blood.—Bertram M. Bernheim observed, during the course of some recent surgery on the blood vessels, that clotting occurred on the adventitia with surprising rapidity, and it seemed possible that this might be accounted for by a substance contained in and secreted in the adventitia of the blood vessels, which on injury to the blood vessels was poured out and aided in the clotting process. He experimented with each of the three coats of the vessels separately and found that they all acted alike. It seems from these experiments that just as in the liver, muscle, etc., so in the blood-vessel wall itself there is a substance which, once the vessel is injured, probably aids in the formation of a clot. And if this is true, those engaged in the field of vascular surgery have still another problem to consider in connection with an already difficult and trying technique. The final solution of the problem, however, rests with pharmacologists and physiologists as in the case with many other problems of modern medicine.

Nervous and Mental Disturbances of the Male Climacteric.—Archibald Church, after reviewing the literature which seems to demonstrate that there exists a monthly rhythm in men, calls attention to the manifestations of the male climacteric. The author has been making observations upon which he bases his generalizations for the past ten years and finds that involutional insanity in men, as in women, is of tolerably frequent occurrence and presents no distinctions and practically no regular form of psychosis. In both sexes where insanity occurs there is almost invariably a well-defined tendency to mental instability. Aside from insanities he finds no considerable degree of elation, delirium, or maniacal manifestations, but almost invariably there are expressions showing an anxious tone of mental feeling. This varies from actual anxiety neurosis, with all the obsessions and phobias that mark the psychasthenic, to the rather simple anxieties of the neurasthenic and the hypochondriac. The mental features of worry and anxiety tend to fluctuate but there seems to be no monthly periodicity; the patients are apt to be more depressed during the early part of the day. Almost invariably there is a loss of weight and higher arterial tension than seems altogether attributable to their age or general physical condition. Gastrointestinal activities are reduced, and the patients are easily fatigued and show some general neurasthenia. Headaches, oppressed feelings in the chest, sudden sensations of an alarming nature, especially vertigos are generally mentioned. These conditions run a variable course of from eighteen months to three years, after which the patients regain a fair degree of their former mental and physical characteristics. In the management of these cases a reduction of the daily work is usually imperative. Vasodilators seem to be of value as well as general hygienic measures. A recognition of these climacteric features should enable the physician to maintain a more encouraging attitude toward this class of sufferers.

A Study in the Prevention of Adhesions.—J. R. Claypool, B. M. Vance, P. R. Roberts, and Cyrus W. Field have experimented upon dogs, comparing the value of olive oil and colorless liquid petrolatum in the prevention of adhesions. Every experiment has been controlled. In ten dogs treated with olive oil only one showed an adhesion, and in that case only along the line of incision between the peritoneum and the omentum. In six dogs treated with petrolatum all but one showed adhesions. In twelve dogs in which no oil was used adhesions were found in all but one. In a series in which adhesions were allowed to form, the wounds were opened and the adhesions broken down and oil introduced. In these the adhesions were not reformed. They conclude that olive oil seems to prevent the formation of adhesions in dogs and is worthy of a thorough trial in human surgery and that liquid petrolatum has but slight value for such a purpose.

British Medical Journal, July 16, 1910.

The Surgical Treatment of Varicose Veins.—M. Mamourian comments upon H. D. Sullivan's operation for the excision of varicose veins as described in the British Medical Journal of April 16, under the term "treatment by avulsion." He considers this plan unnecessarily elaborate, not sufficiently thorough, and somewhat unsafe, as it entails previous mapping out of the veins, the use of tourniquets, multiplicity of incisions, interference with the blood supply of the limb, profuse hemorrhage and contact of a foreign body with the blood with its attendant dangers. He objects to the term avulsion because the vein is not torn or pulled out, and thinks inversion or invagination should be more accurate terms. He recommends the following procedure: The prepared limb is elevated to empty the veins. A small, preferably transverse, incision is made high up in the thigh, over the saphenous opening, the long saphenous secured and divided between two forceps, and the proximal stump ligatured close to the femoral vein. Traction on the distal end of the vein makes it prominent all along its course. A small cut is now made on the inner aspect of the knee, the vein exposed and cut between two hemostats. A long probe, eye end up, is introduced through the lumen of the upper segment and pushed up until it comes out at the first incision. Next a ligature is passed through all the coats of the vessel, penetrating the vein twice and at the same time through the eye of the probe, and is tied firmly. By pulling on the distal extremity of the probe the vein is extracted in a few seconds, turned inside out. All the veins of the leg can be dealt with in similar fashion; if they are tortuous a gum elastic catheter of small caliber should be used instead of the probe. This method is not applicable to general or cirsoid varicosities.

Triplets: Mummified Male Twins and a Livnig Female Child.—George Aldridge reports the case of a primipara, aged 28, whom he first delivered quickly and easily of a mummified male fetus of about six months development. About an hour later he delivered the patient of a living female child of about eight and one-half months. About an hour and a half after this he delivered the woman of another male fetus of about four months' development. The placentæ were removed with difficulty. The two male fetuses were attached to one placenta, while the female child had a separate one.

Berliner klinische Wochenschrift, July 4, 1910.

Recognition of Syphilis and Its Activity by Provocative Injections of Mercury.—Glaser discusses the theory of Thalmann that endotoxins play a prominent part in the genesis of syphilitic lesions. In a recently published work by Wolff-Eisner on clinical immunity and serodiagnosis, the views of Thalmann are digested into formal propositions. From these it would appear that mercury destroys the spirochetes, at the same time liberating their endotoxins, the patient usually feeling and seeming worse during the earliest days of the treatment. But as a result of the operation of the endotoxins, antibodies are produced, with increasing immunity. As the undestroyed spirochetes slowly proliferate, the immunity becomes less. A delayed large macular roseola may now appear. The same mechanism is present in all relapses. The number of spirochete

foci in the body tends to diminish, so that relapses become more and more localized. In the tertiary stage the number of parasites is small, but very small quantities of endotoxins now suffice to produce lesions of an ulcerative character. When syphilis pursues a malignant course, it means that for some reason antibodies are not produced. The so-called metasyphilitic affections result from weakening of the tissues as a consequence of any severe lesion (alcoholism, infectious diseases, overexertion, etc.). The statement possessing the chief interest in this connection, is that mercury, through liberating endotoxins, causes temporary aggravation of the symptoms. This clinical observation goes back at least to 1869, when Stoehr described the fever which may follow mercurial injections. Knowledge as to this febrile reaction, however, seems to have remained latent until 1907, when Lindenheim placed the observation on record, that in early syphilis the initial injection of mercury produced temperature rise. Herxheimer had already noted that patients became worse after the first injection (so-called Herxheimer reaction). The author tested the subject of the provocative mercurial injection on latent syphilis—in the complete understanding of this term. The application of Thalmann's theory is Wassermann's reaction involves the possibility that with spirochetes present, mercurial injections must liberate the endotoxins. The febrile reaction which follows may be found in any case of latent syphilis which has given a positive Wassermann reaction. As the provocative injections have been tested with conflicting results, the technique of thermometry, etc., must be carefully elaborated, and the material selected with due care. The author's cases fall under two groups, as follows: (a) Individuals with gonorrhea, alcoholism, etc., with no history of syphilis, but positive Wassermann reaction, and fever following mercurial injection. (b) Individuals with history of syphilis, variability as to positive Wassermann, but with fever following the provocative reaction. It was learned that the very first injection did not necessarily cause fever, although subsequent ones might give rise to high tempertaures. The reaction must bear some relationship to anaphylaxis, but this must be revealed by future study. If subjects with positive Wassermann also react to mercurial injections to the extent of fever lasting from one to three days, we may conclude that the patient harbors virulent spirochetes and needs active antisyphilitic treatment.

Lesions Due to Massive Subentaneous Injections of Saline Solution.—Widerõe has sought to test this possibility on rabbits. Sufficiently large injections will after a time destroy the animals. In comparison, a man weighing 65 kilos. (143 lbs.) should receive daily in this manner about 5 liters of solution in order to produce a fatal result. The heart suffers chiefly, and is found dilated and relaxed, with subendocardial and muscular hemorrhages. Other organs showed capillary hyperemia and parenchymatous degeneration.

Relations of the Diastase in Human Blood to Diabetes.—Wynhausen, after mentioning the relative antiquity of this problem, gives his own experience and concludes that the variability of blood diastase in diabetes is very great, and that a comparison of diabetic with non-diabetic patients furnishes no diagnostic standard in regard to the severity of a case or from any other point of view. As far as we have gone, no quantitative relationship whatever has been detected between the sugar content of the urine and the amount of diastase in the blood. The same negative finding holds good for the relationship of the blood diastase to other diseases, such as nephritis and cachexia from any cause. It is not denied that in a few individuals a striking agreement between the two quantities may be present—thus in a case of diabetic coma, with high sugar content in the urine, there was a very low value for the blood diastase. The few positive cases, however, are outweighed by the negative and inconclusive results.

Deutsche medizinische Wochenschrift, July 7, 1910.

Rabies in Germany.—Lentz states that the disease is rare in Germany, and occurs chiefly in the dog. Many years ago it prevailed extensively in certain cities. To-day it occurs chiefly in localities which are continuous geographically with neighboring countries (Russia, Bohemia). From 1886 to 1901 about ten deaths annually was the mortality for mankind. These 150 fatalities in the human species are to be contrasted with nearly 10,000 deaths among dogs, and 1,664 in beeves. The mortality among certain other animals —sheep, pigs, horses—corresponds roughly to that in mankind. Cats show a smaller death-rate, while goats yield the smallest of all. About one goat per annum dies from this cause. Figures subsequent to 1901 bear out these death rates. The two Prussian institutions which supply prophylactic injections for bitten persons are located, respectively, in Berlin and Breslau, the former dating from 1898, the latter from 1906. The preventive injections have been absolutely harmless, and results obtained in animals themselves in which the disease is common furnish the best testimonial of success. For while bitten animals which are not inoculated show a morbidity and corresponding mortality of from 10 per cent. to 15 per cent., the death rate among inoculated animals is only about 1 per cent. Corresponding figures for mankind show that 235 human beings should have been rescued from this form of death since 1898. About 91 per cent. of human beings who have been bitten have been inoculated. The total deaths among this 91 per cent. and remaining (uninoculated) 9 per cent. are almost the same, and this furnishes a good idea of the value of preventive inoculation.

Secondary Saprophytic Infection with Tubercle Bacilli.—Hart relates a case in great detail which is designed to show that the deposition of tubercle bacilli in a given locality depends on a biochemical sensitiveness of the tissues. The bacilli may lead a saprophytic existence for a long period, causing no lesions, but poisoning the organism with their toxins, and producing supersensitiveness to injections of tuberculin. The author's case was one of primary bronchial cancer, with resulting stagnation of secretion in the compressed bronchioles. In this stagnant secretion tubercle bacilli settled, leading a saprophytic existence. During life the ophthalmic and cutaneous tuberculin relations had both been weakly positive, so that the diagnosis had been pulmonary tuberculosis. As already intimated, the lesions were purely cancerous; neither old nor new tubercles were present.

Appendicitis as Studied by Radiography.—Liertz concludes from a radiographic study of the appendix that the principal causal element is mechanical, chiefly anomalies of position. Bacterial infection is the second necessary factor. The anomalies of position favor stagnation, which comes about largely from fecal impaction in the cecum. Mere entrance of fecal matter into the appendix is not sufficient to cause the disease, for such entrance is much more common in the newly born and nurslings than in adults; while the incidence of appendicitis is reversed at these two periods of life. An anomalous location of the appendix therefore becomes a menace in later life.

How to Diminish Appendicitis Mortality by Preventing Abscess Formation and Peritonitis.—Kümmell concludes an important serial article with a number of weighty generalizations. Appendicitis is so common an affection that only one individual in five escapes it in some form or degree (judging from miscellaneous autopsies). It is an infectious disease, due to the greatest variety of bacteria, which attack an organ already diseased, although free from symptoms. Hardly a symptom is to be depended on absolutely in diagnosis; hardly a prognostic is to be trusted. The more recent alleged diagnostic resources, such as the leucocyte count, the determination of the viscosity of the blood, the Arneth blood picture, etc., add nothing to our resources. The author would remove any appendix, once it has become acutely inflamed; for in so doing one does away with the subsequent possibility of death from abscess and peritonitis. The early operation in acute cases (within the first 48 hours) gives a mortality of but 0.6 per cent. Nevertheless not all appendicitis cases require operation. If symptoms vanish within 12 or at most 24 hours, intervention may be unnecessary. These mild cases make up the bulk of all cases, and certainly require no early intervention. The author never saw a fatal ending in a very large number of these cases which received only medical treatment. Nevertheless, recurrence is the rule. "Physicians treat, surgeons cure," appendicitis.

The Role of the Thymus in Certain Pathological Conditions.—M. Lucien and J. Parisot say that many mishaps are laid to the hypertrophy of the thymus because we have not a sufficient knowledge of the normal size of the organ at any given age. They believe that, instead of taking on atrophy at a very early age, it continues large up to puberty. If death occurs and a large thymus is found it is laid to the gland, whereas it was, probably, of the natural size for the age of the child. In the second or third year it weighs 25 to 28 grams, whereas it has been thought to weigh, normally, 15 or 20 grams. It continues to grow for some years after this, up to puberty, and then gradually diminishes in size. Removal of the thymus in young animals causes lessened growth of the long bones. Ablation of the thymus in young children may be followed by serious symptoms, hence its total removal is contraindicated.—*Gazette des Hôpitaux.*

Book Reviews.

A Practical Study of Malaria. By William H. Deaderick, M.D., Member of the Arkansas Medical Society, American Medical Association, and American Society of Tropical Medicine; Fellow of the London Society of Tropical Medicine and Hygiene; Corresponding Member Société de Pathologie Exotique (Paris); President of the Tri-State Medical Society. Fully illustrated. Philadelphia and London: W. B. Saunders Company, 1909.

This is an excellent monograph on Malaria, and one that is calculated to be of considerable service to every medical practitioner. It is the work of one who has had an unusually large and successful experience with this disease, and is thus distinguished from similar volumes written by laboratory men. At the same time, the author not only refers to other authorities, but quotes, often at great length, from their writings; so that the volume really contains all that is worth while on Malaria. It combines with rare skill the results of scientific investigation with the practical observation and experience of the best type of practitioner. Special attention is paid to hemoglobinuric fever, and to the diagnosis and treatment of malaria. The etiology and rôle of the mosquito are fully considered; the subject of blood examination is dwelt on at length, and the author does not ignore the difficulties often attending this process; treatment is very fully discussed, and the efficiency of the various preparations of quinine is compared. Among the illustrations we are pleased to see portraits of Laveran and Ross; others worthy of special notice are those dealing with the mosquito and with blood examinations.

Year Book of the United States Department of Agriculture—1909. Washington: Government Printing Office, 1910.

This is the Sixteenth Year Book of the Department of Agriculture. It does not differ in character from the preceding ones, except that it is considerably shorter than that for the previous year, the decrease being made largely for reasons of convenience in forwarding and handling. The volume contains 36 text figures and 36 full-page plates, 11 of which are colored, and comprises numerous special papers of interest to farmers primarily. The usual statistical tables of crop and animal products are included at the back of the volume, together with a large index. The book is distributed free by Senators, Representatives and Delegates to Congress.

Die Krankheiten der Nase und des Nasenrachens. Mit besonderer Berücksichtigung der rhinologischen Propädeutic. Von Carl Zarnico in Hamburg. Dritte, neu bearbeitete Auflage, mit 166 Abbildungen und 5 Tafeln. Berlin: Verlag von S. Karger, 1910.

This is the third edition of this well-known treatise, incorporating in one volume what has heretofore been published in two. It follows along conventional lines, but is thoroughly up to date in its statements, and presents a most excellent arrangement of topics. It is undoubtedly one of the best works of its kind in the German language, and its translation into English would enable it to reach a much wider circle of readers of which it is well worthy.

Traité International de Psychologie Pathologique. Directeur: Dr. A. Marie (de Villejuif). Comité de Rédaction. MM. les Professeurs Bechterew (de St. Pétersbourg), Clouston (de Edinbourg), Grasset (de Montpellier), Lugaro (de Modène), Magnan (de Paris), Pilcz (de Vienne), Raymond (de Paris), Ziehen (de Berlin). Tome Premier, Psychopathologie Générale. Paris: Félix Alcan, 1910.

This is the first of three volumes, all of which are to appear within a year. It contains 1028 pages. The second volume will be devoted to clinical psychiatry and the third to therapeutics, in all that that word implies. The present volume is divided into ten chapters. Representative men from most of the European countries are collaborators. Among them we do not find the names of Kraepelin, Freud, Jung or any of the German school, except Ziehen. Naturally, Frenchmen predominate. Besides those mentioned in the title, we note the names of Deny of the Salpetrière and Roubinowitsch of the Bicêtre, Burlureau, Helme, Pietkiewicz and Sollier of Paris, Colin, Cullière, Dubief, de Fleury, Legrain, Lhermitte, Loiseau, Morel, Pactet, Picqué, Régis, and Sérieux of other parts of France, Bajenoff, Poussep, and Sikorsky of Russia, Winternitz of Vienna, Van Deventer of Amsterdam, Tamburini of Rome, Pick of Prague, and Moravesik of Buda-Pesth. Many of these names are well known to us, and will doubtless attract American alienists and neurologists to the work, which is intended, of course, primarily for specialists and as a work of reference. Three of the ten chapters of the first volume, the one before us, are prepared by Dr. A. Marie. These are entitled, respectively, an Essay on Psychiatric Anthropology, Chemistry of the Cerebral Substance, and Physiopathological Examination by Functions. These give one in themselves an idea of the scope of the work. Other chapters are on the Relationship between Psychiatry and Neurology (by Grasset), Neuropsychiatric Electrodiagnosis and Radiodiagnosis, General Pathological Anatomy in Mental Medicine, Psychological Evolution at Puberty, and Clinical, Psychological, Medico-Pedagogic, and Medico-Legal Methods of Examination. The work, though entitled an international treatise, is profoundly tinged with the teachings of the French school. These are somewhat at variance with the German ones at present gradually prevailing in this country. It will, however, be found extremely interesting and a valuable addition to the specialist's library. It is filled with illustrative cases, tables and illustrations, and describes in detail the principal hypotheses current at the present time concerning mental diseases.

Traitement Manuel dans les Maladies de la Nutrition; les Névralgies. Par le Dr. F. Wetterwold, Secrétaire Général de la Société de Kinésithérapie. Chargé de Mission en Allemagne par le Ministère de l'Instruction Publique (1909). Preface du Dr. H. Stapfer. Paris: Vigot Frères, 1910.

Any helpful suggestions relating to the rational treatment of painful affections are invariably welcomed by the profession. The day is happily past when we are content with the use of analgesics in the neuralgias. The general health is looked after; systemic poisons are eliminated; sources of peripheral nerve irritation are sought for and removed; yet sometimes surgery even is required as a last resort. In the little book before us the author states that he believes that in all neuralgic, neuritic, and arthritic affections attended by pain, there is present an interstitial neuritis analogous to cellulitis, panniculitis or edema of cellular tissue, whose origin is a disorder of nutrition. The seat of the neuralgia in these cases is in the microscopic ramifications of the nerves of the skin or of the subcutaneous or submucous tissue. The chief remedy is manual treatment, with special reference to nerve points.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited By Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College, Philadelphia; Assisted by Leighton F. Appleton, M.D., Instructor in Therapeutics, Jefferson Medical College, Philadelphia. June 1, 1910. Philadelphia and New York: Lea & Febiger.

The present instalment is on the usual plan of the June number, and contains articles on: Hernia, by W. B. Coley; Surgery of the Abdomen, Exclusive of Hernia, by E. M. Foote; Gynecology, by J. G. Clark; Diseases of the Blood, Diathetic and Metabolic Diseases, Diseases of the Thyroid Gland, Nutrition and the Lymphatic System, by A. Stengel, and Ophthalmology, by E. Jackson. We would again draw attention to Dr. Clark's contribution, which contains a masterly résumé on Cancer of the Uterus. Dr. Stengel's article is longer than usual, for which we are thankful. The part devoted to Diseases of Nutrition is timely and important.

Rhinology: A Textbook of Diseases of the Nose and Nasal Accessory Sinuses. By Patrick Watson Williams, M.D.; Lecturer on Diseases of the Nose and Throat at the University of Bristol, etc. Fifth Edition. London: Longmans, Green & Co., 1910.

The four previous editions of Dr. Williams' textbook have included Laryngology as well as Rhinology. He has now chosen to make two volumes instead of one, and the present is the first of the series. This portion of the enlarged work has been thoroughly brought ly to date in every department. The number of plates is unusually large, and they are arranged on the stereoscopic plan, every one displaying important points in the study of the nose and leaving more accurate and vivid impressions on the memory than can be achieved by any other means. The book is well printed on excellent paper. The author has the happy faculty of being able to distinguish the essentials from the non-essentials, and has compressed a large amount of information into a reasonable space. Naturally the general topic of sinus diseases is very fully treated, and there are interesting sections on the various ocular and other complications of this class of affections. The Appendix contains a well-balanced formulary, and there is a valuable paragraph on the proper method of making post-mortem examinations of these sinus cavities.

Emergencies of General Practice. By Percy Sargent, M.B., B.C. (Cantab.), F.R.C.S. Surgeon to Out-Patients St. Thomas' Hospital; Surgeon to the National Hospital for the Paralyzed and Epileptic, Queen's Square; and Alfred E. Russel, M.D., B.S. (Lond)., F.R.C.P.; Physician to Out-Patients, St. Thomas' Hospital. Oxford Medical Publication. London: Henry Frowde, 1910.

The purpose of this book is to supply to the general practitioner a source of information as to what to do in a case of the various emergencies which may arise in the course of the day's work. The authors do not claim that the work is intended to cover all the possible modes of treatment for every possible medical or surgical hurry call. On the contrary, in most cases but one line of treatment is given in each instance, that being the one which the authors have found to be the most useful and at the same time most easily carried out with the aids which are apt to be at hand. Opening with a discussion of the best anesthetic to be used in emergency cases, the book contains chapters notably upon the usual surgical emergencies, as wounds, burns, hemorrhage, fractures and dislocations, foreign bodies, but also the medical condition of dyspnea, pulmonary and cardiac affection, acute abdominal diseases and injuries, infectious diseases, convulsions, unconsciousness, and poisoning. Separate chapters are devoted to acute affections of the eye and the ear. In short, the book covers systematically practically all the emergencies except obstetrical, which occur in an ordinary practice. The book lives up to the title in dealing with the emergency alone, and practically neglecting after treatment. The greater part of the work is given up to treatment, though in cases where the immediate diagnosis of the condition is of importance this is briefly discussed. The book is well written, is concise, to the point, and rather dogmatic in style, most useful attributes in a book which, when needed, is needed quickly. It does, however, not lose any of its literary style by being brief. Each article is a unit, giving just such information as is necessary in the various conditions treated, giving it clearly and forcefully, and not using an unnecessary word. For the busy practitioner the book will prove to be a most valued friend in time of need.

A Practical Treatise on Fractures and Dislocations. By Lewis A. Stimson, B.A., M.D., LL.D. (Yalen), Professor of Surgery in Cornell University Medical College, New York; Surgeon to the New York and Hudson Street Hospitals; Consulting Surgeon to Bellevue, St. Johns, and Christ Hospitals; Corresponding Member of the Société de Chirurgie of Paris. Sixth Edition, revised and enlarged, with 361 illustrations and 65 plates in monotint. New York and Philadelphia: Lea & Febiger, 1910.

This book has so long been accepted as a standard work upon the subject with which it deals, and is so well known to teachers, students, and surgeons alike, that an analysis of its contents is unnecessary. The present edition consists of over 850 pages of closely written information upon the subject at hand. The additions since the last edition include the results of further study of the injuries of the small bones of the carpus and tarsus which has been made possible by the advance in *x*-ray diagnosis. Sections have been added on fractures of the floor of the acetabulum and the internal epicondyle of the femur and on backward dislocation of the lower jaw. The book is well illustrated with semi-diagrammatic drawings and numerous photographs and *x*-ray plates. The entire work lives up to the standard set by previous editions, and that is sufficient recommendation in itself.

The Care of the Child. By Mrs. Burton Chance. Philadelphia: The Penn Publishing Company, 1909.

The market has been flooded lately with booklets by physicians and nurses, the purpose of which is to tell the young mother what she should do and what she should not do to her baby. Most of these are written in an arrogant didactic style, and consist of a series of shopworn rules which tend more to confuse than to illuminate the mother. The present book, however, differs from most of those which have appeared recently. In the first place it may be understood even by a mother who is not an expert in higher mathematics. Involved feeding tables are conspicuous by their absence. Most striking of all of the features of the present book is that it not only tells the mother what is the proper thing to do for the baby, but it gives simple and satisfactory reasons for each direction. The mother who reads this book, unless her intelligence is of a low grade indeed, will become an enthusiastic supporter of the modern methods of bringing up children, and will not throw the book away disgusted with "new-fangled notions." The present book is the best and most sensible which we have seen upon this much overworked subject, and can safely be recommended by the physician to the prospective mother.

Mind Health. The Mental Factor and Suggestion in Treatment, with Special Reference to Neurasthenia and other Common Nervous Disorders. By Edwin Ash, M.D. (Lond.), Bachelor of Surgery of the University of London; Member of the Royal College of Surgeons, England; Licentiate of the Royal College of Physicians, London; Pathologist to the London Temperance Hospital; Sometime House Physician and Demonstrator of Physiology at St. Mary's Hospital, W., New York: William Wood & Co. London: H. J. Glaisher, 1910.

Physicians now for the most part accept the fact that mental impressions exert a powerful influence in the production of various forms of ill health. Do we, however, also, all of us keenly realize the powerful influence of the mind in the recovery of health? And do we utilize this factor to its fullest extent? Here is a little book, eminently practical, whose main object, as stated in the introduction, is "to show in what way we can directly bring Mind Force into play in the restoration of health, and to demonstrate the important part which should be assigned to suggestion in any reasonable system of mental treatment." The author does not consider hypnotism as necessary for success, and omits this form of treatment from the book. He first elucidates the *modus operandi* of mental impressions in the production of physical disorders; then notes the influence of surroundings and attendants, etc., and sets forth his principles and methods, and, finally, describes their practical utilization.

Prescription Writing and Formulary. By John M. Swan, M.D., Associate Professor of Clinical Medicine in the Medico-Chirurgical College of Philadelphia; Instructor in Clinical Pathology and Tropical Medicine, Philadelphia Polyclinic and College for Graduates in Medicine; Fellow of the College of Physicians of Philadelphia. Containing 1043 prescriptions. Philadelphia and London: W. B. Saunders Company, 1910.

This little volume is likely to prove very useful to medical students and recent graduates. The part dealing with prescription writing is ably and concisely presented; the Latin is much more accurate than is usually the case in books of this kind, and the United States Pharmacopeia is taken as the basis or storehouse of supplies for illustrations. This is as it should be in a book intended for students; for, while the experienced practitioner may draw his remedies from any source that seems suitable to him, the beginner will find enough (and more than enough) to learn in the preparations given in the U. S. P. The prescriptions given in the last part of the book seem to be well selected; and, while they are amply sufficient, they are not so numerous as to bewilder the seeker after therapeutic information.

Surgical After-Treatment. A Manual of the Conduct of Surgical Convalescence. By L. R. G. Crandon, A.M., M.D., Assistant in Surgery at Harvard Medical School; Assistant Visiting Surgeon to the Boston City Hospital; Consulting Surgeon, Frost General Hospital. With 265 Original Illustrations. Philadelphia and London: W. R. Saunders Company, 1910.

This volume is written for two classes of practitioners—house surgeons in hospitals and general practitioners in communities which are not surgical centers. For the latter class this work is particularly valuble, the more so as every procedure advised herein has stood the test of practical experience. The house surgeons, as a rule, have the traditions of their own particular hospital to guide them; but as a help in case of emergency or something new, this book will stand them in good stead. The first half of the work consists of thirty-nine chapters, and treats of everything that concerns the comfort and welfare of the patient in a general way. The latter part deals with the treatment necessary after special operations on the various parts of the body. There is a chapter of over 160 pages on Therapeutic Immunization and Vaccine Therapy, written by a disciple of Sir A. E. Wright. The book is well planned and clearly written, and many a practitioner will find it a most useful supplement to any volume on Surgery. It is a pity that the work runs to 800 pages, for its size may prevent many from possessing and reading it. With the utmost care it seems as if we were bound to take our Surgery in many volumes, as witness the various volumes on Surgical Anatomy, Surgical Diagnosis, Surgical Pathology, Surgery, Operative Surgery, and now Surgical After-Treatment.

Society Reports.

AMERICAN NEUROLOGICAL ASSOCIATION.

Thirty-sixth Annual Meeting, Held in Washington, D. C., May 2, 3, and 4, 1910.

MORTON PRINCE, M.D., OF BOSTON, PRESIDENT, IN THE CHAIR.

Monday, May 2—First Day.

President's Address.—Dr. MORTON PRINCE of Boston opened the meeting with an address entitled "Cerebral Localization from the Point of View of Function and Symptoms, with Special Reference to von Monakow's Theory of Diaschisis." Dr. PRINCE said he had chosen as a subject upon which to address the association that of the doctrine of cerebral localization from the point of view of function and symptoms. The doctrine of cerebral localization acquired a very different significance according as to whether it meant that the brain could be mapped out into a number of circumscribed areas in each of which could be located a definite psychophysiological faculty or function, or whether it meant only that these areas contained anatomical elements which were made use of for the physiological expression of function. The doctrine of cerebral localization resolved itself into the question whether the localization was of symptoms or of function or whether it was only an anatomical localization of fibers. It too often happened that the formulæ of localization did not work in diagnosis. It not rarely happened that clinical and pathological findings were contradictory. Thus, on the one hand, extensive lesions in one or other of the recognized cortical centers ran their course without symptoms, and, on the other hand, focal symptoms, pointing to disease of these centers, developed in cases in which no anatomical alterations were found at autopsy. There was a growing dissatisfaction with the currently accepted doctrine of cerebral localization; a feeling that it was in many respects inadequate. The first blow to the traditional localization of function in the cortex had been received when Marie launched his attack on the currently accepted doctrine of aphasia. Whatever the outcome of the reinvestigation of this question might prove to be, it was evident that the beautifully diagrammatic concepts of the function of language and of aphasic disturbances of this function had been relegated to the scrap heap of the phantasies of science. Our former naive conception of aphasia could never be revived. The fact, the author believed, it would be found to be that, whether the third left frontal convolution, the first and seond left temporal convolution or other areas took part in the function of language or not, the function as a whole, as a psychical process, was a widely distributed one in which were engaged many dynamic processes and anatomical "centers" and a lesion of any one of several "centers" might give rise to all modes of aphasic disturbance. The contest had centered largely around the question whether a lesion of Broca's convolution gave rise to the motor type of aphasia and, therefore, whether in this convolution could be localized so much of language as was lost in this type. In thus stating the problem there was plainly a confusion of concepts: the one was a clinico-anatomical question involving a particular syndrome; the other a question of localization of function. In distinguishing between these concepts perhaps the difficulties might disappear, for a lesion might theoretically give rise indirectly to a group of language symptoms without being the seat of language function. The clinicoanatomical data themselves were contradictory. As, for example, (1) lesions of the third frontal convolution did give rise to a clinical aphasic syndrome of the so-called motor type; (2) destruction of Broca's convolution might be accompanied by simple mutism—or pure motor aphasia of the so-called subcortical type; (3) it also appeared to be true that in a considerable proportion of cases of aphasia, characterized by loss of the power of word-formation and articulation, Broca's convolution had been found intact. In any theory of aphasia as a clinical syndrome and in any theory of function these discrepancies must be reconciled. Might it not be that a lesion in the third frontal convolution might occasion a disturbance of language of the so-called motor type and yet this convolution not be an essential factor in the functioning mechanism of language? If time had permitted, other syndromes and functions might have been taken for analysis, for example, astereognosis, asymbolia, apraxia, in which similar contradictions would be found. Von Monakow, whose clinical experience and pathological training entitled his views to great weight, had pointed out the inadequacy of the generally accepted doctrine of localization to account for these contradictory phenomena. He believed that there was some error in the form in which localization was conceived by most clinicians. To-day, as formerly, two sets of experiences stood opposed to one another, the negative and the positive, and invited anew discussion of the doctrine of localization which had been declared closed by many writers. We might ask how these contradictions can be explained. To answer this von Monakow had proposed a theory, of the greatest interest and challenging examination, which was known as *diaschisis,* and which had for its basis the results of experimental investigations. After removal of focal areas in the cortex certain symptoms were temporary, while others, which were purely local, were permanent. These latter, or residual, symptoms alone represented the function or part of function that was localizable in a given center. So-called focal symptoms were in large part a complicated reaction of unimpaired areas of the central nervous system to the local cortical lesions. By diaschisis was meant a functional shock-like inhibition of previously uninjured distant areas produced by the dynamic influences of a lesion anatomically connected with such areas. Through the break in the continuity of the conducting associative paths the eccentrically lying brain foci were robbed of their natural sources of stimulation and in part isolated. Only the directly injured elements gave rise to the permanent symptoms and secondary degenerations. So far as the theory definitely distinguished between the localization of symptoms and the localization of function, the author thought it might be safely insisted upon as the only interpretation that could reconcile the facts of clinical and pathological observation. The diaschisis theory was fruitful in other fields than that of cerebral localization. For example, its possible applications in the explanation of focal symptoms without focal lesions would occur to everyone.

A Report of Three Prefrontal Tumors.—Dr. F. X. DERCUM of Philadelphia read this paper, saying that his first and second cases had been inoperable; in the third the tumor had been removed, but was of enormous size, weighing 7¾ ounces. Death had occurred fourteen days after operation. The report of operation and subsequent surgical history would be given by Dr. John H. Gibbon. The symptoms presented in the above cases were of unusual interest. Vague mental symptoms had been present in all of them. Case I had suggested symptoms not unlike those of profound cerebral exhaustion or of a beginning paresis. Headache had never been a marked feature, and had been elicited only by questioning. It had existed only for a short time previous to death; vomiting had occurred but once, and that only toward the very close of the illness. There had been absence of optic neuritis and of any involvement of the visual fields. The only symptom which had been at all suggestive had been one attack of slight twitching of the left leg and possibly twitching of the left arm, which had occurred a few days

before he came under observation; the attack had been very brief in duration, and had not been attended by loss of consciousness. Occasionally psychic vesical incontinence had been present. In the second case there had been early headache, optic neuritis, and vomiting, all of the symptoms being typical and marked. The feature of special interest was the slight flattening of the lower half of the right side of the face and the equally slight involvement of the left leg and arm. These symptoms had been in all probability due in part at least to indire pressure. The subjective sensory disturbances in the left leg and left arm, namely, pain, and the hyperesthesia of the left arm and both legs were somewhat difficult to explain. The occurrence of typical areas of hysterical painful hyperesthesia under both breasts and over both groins was exceedingly interesting and important, and must be borne in mind in considering the other sensory symptoms present. The area of hyperesthesia upon the left parietal region had been also small, and resembled in other respects an area of hysterical hyperesthesia, though it had been present on the same side as the tumor; the question arose whether the left hemiparesis, present for a time only, had not been also hysterical in origin. In Case III optic neuritis had been pronounced. Headache had been scarcely, if at all, present. Vomiting had been absent. Case III was remarkable for the size of the growth, which had probably existed for a long time previous to the seizure, which occurred in the summer of 1908. That so large a growth could have been present and the patient still have been able, even in a degree, to attend to his business and ordinary affairs was very remarkable. Finally, the resemblance of the mental symptoms in Cases I and III to those of paresis was worthy of comment. Case I had been placid, indifferent, and had not manifested the least anxiety as to his condition. Case III had been at times distinctly expansive, good-humored, and not infrequently laughed and joked. Case II, though quiet, complained greatly at times of suffering; at no time had she been jocose, nor had there been any tendency to laughter or hilarity. Indifference to the sphincters had not been observed, and there had been no epileptiform seizures. Th eye muscle symptoms had made their appearance late, and were probably to be referred directly to the frontal lobe lesion; in part they might have been due to the blindness and the absence of fixation. In many respects the above cases conformed to the ordinary observations made in prefrontal tumors. This was particularly the case as regards the mental symptoms which had been most marked in Case III, less marked in Case I, and least in Case II. Psychic incontinence had been pronounced in Cases I and III. Epileptiform seizures had been present but once in Cases I and III and absent altogether in Case II. Optic neuritis had been present in Cases II and III and absent in Case I; the swelling had been more marked on the side of the tumor in Case II and slightly greater on the side opposite the tumor in Case III. Local tenderness of the skull had been present only in Case II, on the same side as the tumor, but parietal, and not frontal. Finally, it was interesting to note that in none of the cases was there present any ataxia. It should be added that no *x*-ray examination had been made in Case I. In Case II an *x*-ray examination had been negative. In Case III an *x*-ray examination had also been negative, save that it had reveald some irregularity of the inner surface of the frontal bone upon the right side; also some apparent thinning of the bone. The possible etiological value of trauma was well illustrated in Case I.

Dr. E. W. Taylor of Boston said that the two main points that Dr. Dercum had brought out were very interesting. In the first place, the mental condition; in the second place, the epileptiform seizures. From what Dr. Dercum had said, and Dr. Taylor presumed it would be generally accepted, there was no definite type of mental diseases to reveal frontal lobe lesion. He recalled distinctly a patient in which the mental symptoms, instead of being apathetic, were of precisely the opposite sort. The man had been a young Army officer, previously healthy. He had been extraordinarily apprehensive, he had developed all sorts of phobias, had been unable to go into crowded places, buildings, and so on, and had presented all the appearances of a mental state. He had had slight epileptiform convulsions, which Dr. Taylor misinterpreted as hysteroid convulsions. He had disappeared from view, and if he had not heard his subsequent history he would have regarded him as a psychasthenic patient. He had later come under treatment and died. There had been found an extensive prefrontal tumor, gliomatous in type, very difficult to distinguish from the brain itself. The points of importance had been incidence of slight seizures, epileptiform in character, and, secondly, and still more confusing, were the phenomena one so often sees in the neuroses of psychasthenic character.

Dr. Edward B. Angell of Rochester, N. Y., said he had been impressed with the lack of symptomatology of prefrontal tumors. We got many of these cases without headache, nausea, vomiting; without any of the motor symptoms, and without any of the hemiplegias or disturbances of one side of the body. A case had come under his observation one year ago, a very successful and intelligent business man. He had suddenly become apathetic. His family had first noticed this because he had received news of a disaster with unconcern. Aside from that condition he had had no symptoms whatever. He had had an attack of grippe and had had quite a nasal discharge and quite an increase in the white blood cells. Here had been a case where we would have had reasons for believing we had had acute trouble by extension from the nasal chambers. The mental symptoms had been such as to indicate much pressure. When he died it was shortly. He had a tumor as large as Dr. Dercum's patient in the left prefrontal lobe.

Dr. Hugh T. Patrick of Chicago inquired the state of the sense of smell in these cases.

Dr. Herman H. Hoppe of Cincinnati said he wished briefly to refer to one symptom-complex which had obscured the diagnosis in a case he had seen in which there had been absolutely no general symptoms of brain tumor. This tumor had grown from the sella turcica and involved both portions of the frontal lobes. The earliest manifestations had been in reference to the optic thalamus. This man had gone on with business after developing atrophy of the optic nerve, then he had begun to develop sluggishness of the pupils. In the subsequent history there had been a pure, simple dementia, so much so that the diagnosis of dementia paralytica had been made. The man had died in an insane hospital, and the autopsy had revealed the tumor.

Dr. George W. Jacoby of New York said he had had the pleasure and benefit of seeing the case Dr. Dercum had reported, and, after having seen that case had compared it with a couple of others he had previously seen. It seemed to hi mthat we could be very positive that there is no pathognomonic series of symptoms of prefrontal tumors. One way diagnosis could be made was by sequence of symptoms or symptoms dependent upon pressure; the occurrence of aphasia and involvement of the motor tract, the significance of reflexes, all of which were helpful and indicative of the associated pressure.

Dr. E. E. Southard of Boston said that he had found that in some cases it was profitable to examine histologically other parts of the brain than those directly involved in the tumor. He recalled a case of tumor of the prefrontal lobe in which epilepsy had not existed, but in which there had been a unilateral paralysis on the same side as the tumor,

and histological study of the precentral gyri had shown that for some reason on the opposite side there had been absence of cells.

Dr. B. Sachs of New York said that in regard to frontal tumors, he did not know why they were spoken of as prefrontal tumors. There were two points of vital importance in regard to the question of operability. First of all, the focal signs, as in many instances they gave no idea of the actual size of the tumor and the probable result of an operation. So much depended upon shock, the shock seemed to be in direct proportion to the size of the tumor, that one of the most essential points for determining the operability of a tumor was to try to decide whether the tumor was of large size or not, and whether the symptoms gave one any idea of the size of the tumor. The other points belonged to all tumors. A great deal depended upon the character of the tumor, particularly in the development of symptoms. It was a very different thing whether the brain substance was being invaded by tubercle or sarcoma, or whether it was being gradually invaded by a glioma, and some of the peculiarities in regard to tumor of the frontal lobe might be explained by the fact that many of these tumors had been slowly invading gliomata, whereas the cases in which the tumor had been much more destructive the symptoms were more marked. The destructiveness of the tumor was in direct relation to the distinctness of the symptoms. Dr. Sachs had observed a case which had presented during life absolutely nothing else but epileptiform seizures, suddenly die from hemorrhage from a tumor which on post-mortem examination had proved to be a huge glioma involving the entire one hemisphere of the brain. This was a point we often lost sight of, that is, the different character of the symptoms in relation to different structure of the tumor. Glioma seemed to cause fewer symptoms than any other tumor because the brain tissue accommodated itself much more readily to the slow invasion of the glioma.

Dr. D. D. Wolfstein of Cincinnati referred to a case in which he had made the diagnosis of tumor of the frontal lobe. It had been in the left frontal lobe, and of very large size, but there had been absolutely no mental disturbance. The only symptoms had been progressive optic atrophy, with complete loss of vision. There had been a suspicion of epileptiform seizure. Very often these tumors passed far back, and tangental fibers which passed through the capsule were involved. Those cases which simulate epileptiform seizures might in this way be explained.

Dr. Dercum, closing, said that in these cases the sense of smell had been preserved. In a case which he had reported to the association some years ago the sense of smell had been destroyed. He thought Dr. Southard's position well taken. It seemed to him that the epileptiform attacks in these cases were perhaps due to pressure about the base. He was in entire accord with what Dr. Sachs had said in reference to the size of the tumor. The first two cases had been round-celled sarcomata, the third had been endothelioma, and sprang from the dura of the base. As regards the term prefrontal, Dr. Dercum felt it was a justifiable term, provided we strictly meant that the tumor had advanced up in front of the motor tract itself.

Report of a Case of Resection of Dorsal Spinal Nerve Roots for Gastric Crises of Tabes.—Dr. John Jenks Thomas read a paper which was prepared jointly with Dr. Edward Hall Nichols, saying that gastric crises of tabes might be very severe, and have such effect upon the general condition as to lead to death. The attacks not infrequently constituted the earliest symptom of the disease. This fact had frequently led to error of diagnosis and the performance of useless operations. Post mortem, in fatal cases, the stomach usually showed no changes, even when blood had been vomited. The most probable theory as to causation was that the pathological basis consisted in changes in the sympathetic nerve. This view had been adopted by Förster, and led him to resect the dorsal thoracic nerve roots, by which the sympathetic nerves were connected with the central nervous system. Aside from the first case of resection of dorsal nerve roots for this symptom, reported by Förster and Küttner, one other case had been found in the literature, reported by Bruns and Sauerbach, both operations having been done in the summer of 1909, and both followed by complete relief. The patient, whose case was reported in this paper, was a man of 32 years, a widower, with one healthy child, a girl of 13. This child had been followed by three or four miscarriages of unknown cause. Syphilis was denied. The gastric crises had begun about eight years before, and in October, 1905, the abdomen had been opened at a hospital, but nothing abnormal found except a few adhesions of the omentum to the gall bladder, which did not pull upon the stomach. These adhesions had been freed. The attacks had continued, and he entered the Boston City Hospital August 3, 1908. At that time his attacks came at intervals of one week to one month, and lasted from one to ten days—with severe pain and vomiting, accompanied usually by diarrhea. There had been no loss of control of the bladder, but some diminution of sexual desire. No lancinating pains, no diplopia, and no ataxia in walking or standing, but very slight ataxia in movements of legs with eyes closed. Hypotonicity in legs well marked. Pupils moderate size, regular, and equal, reacting with accommodation, but not to light. Patellar and Achilles reflexes equal and present. At this time he had become habituated to the use of morphine, and was taking about a grain a day. The attacks continued, gradually becoming more frequent, seldom a week passing without one. In August, 1909, the Noguchi serum test for syphilis had been positive. At the time of operation the weight, formerly 145 pounds, had fallen to 100 pounds, sensation for touch and pain was diminished on the chest from the third to fifth rib, and the abdominal reflexes were lively, the left Achilles jerk had disappeared, though the right one and the patellar reflexes were present. March 3, 1910, the seventh, eighth, ninth, and tenth thoracic dorsal roots were cut. After the operation for a time there was severe twitching of the abdominal muscles at times and pain about the chest, which gradually diminished. He had vomited once, while still in the hospital, after being given mercury by mouth, and once after his discharge, after eating beans, but neither time had there been any pain, nor was the vomiting persistent, being over within an hour. There had been the same condition on examination, but an absolute loss of the sense of touch and pain from the level of the sixth rib to three fingers breadth above the umbilicus, and from this area no abdominal reflex could be obtained, but it was present, and increased on irritating the skin of the lower abdomen. The man regarded himself as cured of his crises, but had not gained in weight, and was attempting to diminish his morphine, and had reduced it to two quarter-grain doses a day.

Dr. John K. Mitchell of Philadelphia asked how Dr. Thomas justified the diagnosis of locomotor ataxia with knee jerks still present. In the last year he had seen one case of tabes in which gastroenterostomy had been done and two cass in which operation had been done for gastric crises, and two in which gallstones had been hunted for. Presumably in none of these cases had the surgeons taken the pains to examine either the knee jerks or the eye reflexes.

Dr. Philip Coombs Knapp of Boston said he must confess that theoretically he was somewhat skeptical about the results of operating upon the posterior roots for the gastric crises of tabes because of the physiological fact that the nerve supply of the stomach is dependent very

much more upon the vague than upon the sympathetic. The success of Dr. Thomas' case, however, had led him to have another case, which was very similar to his, operated upon by Dr. Blake a day or two ago. In answer to the objection Dr. Mitchell had raised to the diagnosis in Dr. Thomas' patient, he said that in the last few years, as well as previously, he had seen a good many cases with pretty clear tabetic symptoms but with retained ankle jerk.

Dr. Harvey Cushing of Baltimore said he was far from being in accord with Dr. Mitchell's statement that surgeons were a bad lot, especially in Baltimore. However, he would like to make an arrangement with Dr. Mitchell whereby he would turn over for Dr. Mitchell's collection the list of cases of the kind he mentioned of which Dr. Cushing had cognizance in return for the list of cases of brain tumor long treated for gastric headaches. Dr. Cushing did not think any surgical cases of disease reported after they had been done a month really conveyed a fair general impression as to what the author's results were.

Dr. Joseph Collins of New York said that in the discussion the association was liable to lose track of what they had started out for, that is, to determine the feasibility and advisability of this operation. He was very much in favor of the operation in cases that were intractable. Relative to Dr. Mitchell's question in reference to knee jerks being present in tabes, Dr. Collins said that in ten out of twenty cases of tabes the knee jerks and ankle jerks were present.

Dr. Thomas, closing, said that he was very sorry that Dr. Mitchell should have been disturbed by the patient's having knee jerks. He agreed fully with Dr. Collins in saying we frequently made the diagnosis of tabes in the presence of knee jerks and ankle jerks. The reflex of the pupils had been absent to light, although retained at first, and the man had had marked hypotonicity, which Dr. Thomas thought was fully as important to tabes as taxia, and he had felt justified in calling it one of tabes. Dr. Thomas tried the Noguchi test, and it had been positive for syphilis. The count of the cerebro-spinal fluid was not made. At operation there was a marked degeneration of the pia. Operation should be done only in the most severe and intractable cases, those where some danger to life existed.

Oculomotor Palsies Due to Vascular Constriction in Cases of Brain Tumor.—Dr. Harvey Cushing of Baltimore read this paper, saying that oculomotor, and particularly abducens palsies, more or less fluctuating in degree, often occurred in cases of tumor, and were included among false localizing signs. Various explanations had been offered for their occurrence. Contrary to the usual anatomical description, these nerves underlaid the lateral branches of the basilar artery, which had a rubber band effect, and so constricted the nerves as to block their transmission of impulses. The condition was most apt to accompany tumors of the posterior fossa.

Tuesday, May 3—Second Day.

A New Type of Pressure Myelitis.—Dr. Graeme M. Hammond of New York read the paper, saying that the description of this disease was based upon the study of seven cases which had come under the author's observation. The pathological conditions seemed to consist of the development of an enormous amount of new bone tissue, which spread over a number of vertebræ and adjacent rib ends, obliterating all articulations and giving the effected vertebra and ribs the appearance of being one single piece of bone. The development of new bone also occurred within the vertebral canal, and gave rise to compression of the cord, causing both sensory and motor symptoms, but eventually leading to the most intense rigidity of the entire voluntary muscular system below the level of the lesion. There had been the gradual development of the "Bible back" or forward curvature of the vertebral column seen in spondylose rhizomelique, but in none of the cases had there been any evidence of rheumatism.

Dr. B. Sachs of New York said that he had seen a number of cases that had offered some difficulties in diagnosis, particularly in trying to make the differential diagnosis between such conditions as described and a simple myelitis. Within the last few months he had had at Mt. Sinai Hospital, New York, two cases of absolute spinal rigidity. An *x*-ray picture had been taken in one case and showed a condition very much like the one presented by Dr. Hammond. In this case, a man of about 35, the rigidity of the spinal column had been absolute from the third or fourth cervical vertebra to the very end of the spine. In fact, in this case there had been no movement of the body possible except slight movement of the head forward and a slight lateral movement of both sides. There had been extreme contractures and atrophies. The man as he lay in bed had his knees so completely contractured that you could hardly put a hand between the posterior surface of the thigh and the posterior surface of the calf, the legs were locked together, and there was absolutely no motion of any part of the leg except of the toes. The atrophy was more extreme than he had ever seen it in any case of ordinary spinal origin. There was hardly a bit of tissue left; when you pressed the skin it seemed as if you had the bone in the hand. So far as the diagnosis was concerned, he was not ready to suppose this represents an entirely new type of disease, although he did not want to deprive Dr. Hammond of the honor if he could prove it. Dr. Sachs thought these cases were closely related to the *spondylose rhizomélique* type. He hoped that in all these cases of mysterious spinal disease an *x*-ray picture would be taken, for nothing was more serviceable in case of mysterious spinal disease in reaching a diagnosis when medical signs have been wanting.

Dr. D. J. McCarthy of Philadelphia said that his feeling was that we were dealing in these chronic cases of rigidity of the spine with not only a factor involving the bone and cartilages, but an involvement of the spinal dura on its external surface, and this should be examined very carefully microscopically. It is more rational to suppose that where you have an extensive process, it would more likely be due to inflammatory changes in the dura than a condition localized to one group of joints. The bone changes were secondary, and were not the primary disease.

Dr. William G. Spiller of Philadelphia said he had not quite understood from Dr. Hammond the distinction between the type he had described and that which von Bechterew described. Von Bechterew made a distinction between his forms and those of Marie. There were in this connection two other kinds of disease. They were not likely to cause confusion in diagnosis, but they were interesting to mention. Eight or ten years ago Dr. Mills and Dr. Spiller reported a case of a man who had been paralyzed and had had rigidity of the spinal column. They had found that the dura was firmly adherent to the bodies of the vertebræ throughout the whole course of the spinal canal, and in removing the cord it had to be cut away inch by inch. This could be recognized by the *x*-rays. In the past winter Dr. Spiller had had an interesting case in a man who developed paralysis and exaggerated reflexes of his lower limbs. The disease gradually progressed upwards, involving his left arm and then the other arm, and the course of the disease had been only a few weeks. He found a growth on the outside of the dura which under the microscope showed probably endothelioma. This was the first case he had seen of real endothelioma developing primarily between the dura and the bodies of the vertebræ.

Dr. Hammond, closing, said in regard to the case Dr.

Sachs spoke of, he thought there was no doubt that it was a case of spondylose rhizomelique; he had the muscle changes which go with such conditions. In none of Dr. Hammond's case had there been any anchylosis of the hip joints, or atrophy. The rigidity had been a muscular spasticity, just as we see in a myelitis of the crossed pyramidal tract, with the attendant symptoms of clonus, Babinski reflex, and exaggerated reflexes. This had persisted until rigidity had become great. All these cases died; not so the cases of spondylose rhizomélique; many of them lived on for years. He agreed with Dr. McCarthy that the bone changes were secondary. In all the cases the first symptom elicited had been the curvature and rigidity of the spine, coming on three or four years before the first spinal symptoms became apparent. In regard to the changes of the dura spoken of by Dr. Spiller, in the only case he had a chance to examine the dura showed no adhesions. So he doubted whether adhesions of the dura had anything to do with the symptomatology of this condition. It simply seemed to him that on account of the increase in the bony tissue the spinal cord was gradually compressed and destroyed, and these patients died. He did not think it tallied at all with any of the cases described by von Bechterew. It might not be a new disease, but it was new to Dr. Hammond, and he had no doubt that when attention was called to it we would find a good many cases of similar type, but it was not that of spondylose rhizomelique.

Cyst (Possibly Traumatic) of the Spinal Meninges Removed by Operation, with Recovery of the Patient. Remarks on the Location of the Centers for Testicular Sensibility.—Dr. Charles S. Potts of Philadelphia read this paper, saying that a farmer, aged 42 years, received a blow upon the back eighteen years before coming under observation. No serious symptoms had been caused at that time. Two years before admission to the German Hospital he had begun to have attacks of severe shooting pains in the left hypochondrium. During the attacks the lumbar muscles of the left side had been thrown into spasm. At this time a girdle pain extending through the umbilicus had also been present. A few months before admission first noticed difficulty in walking. Examination showed a very ataxic gait. Muscular power of the legs good. The Babinski reflex was present on the right side. The cremaster reflex was present on the left side, but absent on the right. Abdominal reflex absent. Station poor, heel to knee test poorly performed, unable to recognize the direction of passive movements of the toes. An area of possible hypaesthesia and hypolgesia extending about four inches below the right groin. Both testicles completely insensitive. Sphincters normal. The laminæ of the sixth, seventh, eighth, ninth, and tenth thoracic vertebræ had been removed. A soft growth, pronounced by the pathologist to be a traumatic cyst, had been found, extending subdurally from the lower angle of the wound (first lumbar segment) upwards for about three inches. Complete disappearance of pain. Testicular sensibility returned and there had been nearly complete disappearance of all the other symptoms.

Dr. Sanger Brown of Chicago said he was struck in reading over the abstract of Dr. Potts' paper with the fact that the author had spoken of centers for sensibility in the spinal cord. Now if one spoke of a center of sensibility Dr. Brown thought he usually had in mind a group of bodies of neurons which presided over a particular function. This was well understood to apply properly to motor neurons. We have pretty well-defined and pretty well-demonstrated centers for motion, but we might safely say that in this sense there were no sensory nerve centers in the sensory nervous system. He thought that it was strictly speaking incorrect, though not uncommon, to speak of sensory centers anywhere in the central nervous system.

Dr. Potts, closing, said that he admitted that the use of the word centers was not strictly correct. He afterward changed that to spinal centers, which would be more nearly correct. Still there were in common acceptation sensory centers; they were made up of sensory neurons. In this case they would probably be in the first lumbar and lower dorsal segments of the cord. The nerves derived their supply from these particular areas, therefore they were in a sense centers.

Tumors and Cysts of the Spinal Cord and its Envelopes.—Dr. Charles K. Mills of Philadelphia read this paper, saying that he would speak first of the revival of interest in the question of spinal tumors and cysts, especially with regard to operative procedure. Special attention had been attracted to the subject recently by contributions of Horsley, Spiller, Oppenheim, Krause, Bliss, and others, who had particularly discussed the subject of chronic circumscribed meningitis in its relation to cystic formations and their surgical treatment. Dr. Mills presented the histories of three cases of intraspinal disease. The first was one of tumor of the lower cervical region; the second was a cyst of the thoracic region, similar to those which had been described under the designation of circumscribed serous meningitis; the third was a sarcoma involving the cauda equina and lumbosacral roots, and to some extent the cord. In addition to these cases several cases of intrapelvic tumor were reported with the view of emphasizing the differential diagnosis between spinal and pelvic growths. The chief points of interest in the case of subdural cervical endothelioma were the exact localizing phenomena present—early pain at the upper pole of the growth as indicated by its distribution, the moderate but distinct atrophy, and loss of power in the hands and fingers. Compression of the pyramidal tracts, as shown by paresis and exaggerated reflexes in the lower extremity, and impairment of the reflexes in the upper extremity on the side of the tumor. Anesthesia in the case was very slight, and chiefly confined to tactile loss in the postaxial portion of the hand and forearm. After the operation contraction of the pupil and ptosis or pseudoptosis were present, these apparently being caused by injury or section of communicating branches to the sympathetic. The case of thoracic "cyst" was distinctly in its appearance like those which have been described as instances of circumscribed serous meningitis. It was localized by hypalgesia, the upper limit of which was two or three inches above the umbilicus. Severe and persisting pain, both in the back and in one of the lower extremities, at first without and later with complete paralysis in both extremities, exaggerated reflexes, including the Babinski response, with bladder and rectal involvement were the most marked manifestations. After evacuation of the cyst the pain was for a time relieved, the patient recovered the use of his limbs so that at first coarse movements, and afterwards the movements of the toes, could be performed. He suffered, however, from serious cystitis and delirium, probably dependent upon toxemia. He made what might be termed a partial recovery, but relapsed. In the third case, that of sarcoma of the cauda equina and lumbosacral roots, the early manifestations were pain of an extremely severe character, which affected the back and the extremities first on one side and then on the other. In this case the anesthesia which developed indicated involvement of the posterior nerve roots, at first of the conus and later of roots higher up, as high as the second lumbar. They were distinctly root areas, not segmental or of the extravertebral neural type. The patient eventually was completely paralyzed, with marked atrophy, paralysis of the sphincters, and the whole train of phenomena showing destructive implication of the nerve roots originating from the lumbosacral spinal cord. The cord itself was also apparently involved by pressure or extensions of the lesion. The differentia-

tion between tumors and cysts because of the vacillation of symptoms in the latter was possible only in rare cases. Surgical treatment was advised in all cases like those recorded in the paper. Sometimes for radical treatment, that is, removal of the growths; sometimes for relief as by emptying the cysts; and sometimes simply for what might be termed spinal decompression. Effects comparable to those of decompression by cranial operations are sometimes brought about by operations upon the spinal column. Instead of optic neuritis, headache, nausea, and vomiting being relieved, as in cerebral decompression, the good results were seen in the relief of pains, hyperesthesia, spasticity, etc. Of course, spinal decompression must be separated from cutting posterior roots, although both might be of service in the same case.

Dr. William G. Spiller of Philadelphia said that the case of circumscribed serous spinal meningitis reported by Dr. Martin, Dr. Musser and himself was the first of its kind reported. The patient is now in perfect health, except that she occasionally had a little pain in the back, possibly from catching of some fibers. Dr. Weisenburg believed he could distinguish between a circumscribed serous meningitis and a tumor, and presented a case to prove his contention before the last meeting of the Philadelphia Neurological Society. There was no possibility of diagnosing a circumscribed serous meningitis from a tumor. As Oppenheim had pointed out, there would be variation with the fluctuation of the fluid in the dural canal. We could not have symptoms which would enable us to decide as to whether the condition was one of circumscribed spinal meningitis or tumor.

Dr. George W. Jacoby of New York presented two specimens. One had been taken from a man who had suffered with symptoms of gradually increasing pressure paralysis and paresis, and disturbance of sensation for a period of ten or twelve years. He had been able to walk to the hospital, but had marked weakness of both lower extremities. There had been sufficient sensory disturbance to enable him to make a diagnosis of probable intraspinal tumor at the sixth dorsal vertebra. At operation there had been found at this sixth dorsal segment an enchondroma growing from the body of the vertebra into the spinal canal, compressing the cord so that the cord was attenuated to simply a filament. The second case had been operated on by Willy Meyer, and a glioma removed from the cord substance. In this case the entire history of illness had been only three months. The first symptoms had been weakness of the lower extremities, which progressed so that there had been spasticity and paraplegia, and all the symptoms of complete pressure paralysis of the cord. The tumor in this case was only the size of a large cherry stone. It was easily understood how the difference in location would produce this difference in symptomatology.

Dr. George L. Walton of Boston said that with regard to the level of anesthesia as determining the position of the spinal tumor, one very practical point was to be borne in mind, namely, that the accumulation of fluid, whether in the cord itself or in the membranes, was likely to produce symptoms which might be erroneously credited to the tumor itself. It was true that in the majority of cases the point selected for operation should err in the direction of being set too high rather than too low. But if we always followed this plan we might be misled, as in a case in which he had recently had occasion to advise operation. In this case severe pain in the lower back and extending down the thighs had been rapidly replaced by paraplegia, with numbness extending nearly to the umbilicus. Finding it hard to credit the tumor itself with such rapid growth, he had been guided rather by the initial pain, and advised removing the tenth and eleventh dorsal laminæ. Operation at this point disclosed the upper limit of the tumor, above which the cord was apparently normal. If the cord has been exposed at the level indicated by the level of anesthesia, its normal appearance would have led to the erroneous conclusion that no tumor existed. He was inclined to credit accumulation of fluid with the rapid extention of sympsoms.

Dr. John Jenks Thomas of Boston agreed with Dr. Spiller in reference to diagnosing circumscribed serous meningitis from tumor. In regard to the point of differential diagnosis between growths of the spinal cord, whether from the pia or dura, he confessed that he had less confidence in our ability to differentiate them exactly. In the case that Dr. Walton referred to Dr. Thomas had been rather opposed to operation because of the intense character of the symptoms, coming on suddenly, which seemed to him to point to total destruction. Within two or three days the man had become completely paralyzed in both sensation and motion.

Dr. Hugh T. Patrick of Chicago said that the upward movement of the umbilicus when the patient, lying with his arms folded across his chest, raised his head from the pillow, known as Beevor's sign, was of service in diagnosis in spinal cord tumors. The recti muscles were not paralyzed, but the muscles below were paralyzed, and the umbilicus made an excursion of a half inch or even more.

Dr. Ernest Jones of Toronto, Can., said that he had been Dr. Beevor's assistant for a couple of years, and he would add two points. In some cases you would get it obliquely, not only drawn upwards, as one of the muscles was paralyzed below, but sometimes obliquely to the right or left, which gives a clue to the side of the tumor. Further, in cases of congenital dystrophy with paralysis the umbilicus was drawn downwards.

Dr. M. A. Bliss of St. Louis stated that he had had quite a distinct case of circumscribed serous meningitis. A laminectomy had been done, then a second laminectomy had been done, and an endothelioma had been found.

Dr. C. K. Mills, closing, said that he was not altogether satisfied with the term circumscribed serous meningitis or with the explanation which was involved in the use of this term. In the case which he reported he thought it quite possible that there had been more than was apparent. Horsley had written on chronic spinal meningitis with cysts, etc., and the probabilities were that there was a universal serous meningitis and possibly chronic meningitis, with perhaps two or three pockets, where cystic foci appeared, as in the present case. The differentiation between intrapelvic and spinal tumors could usually be made. We simply had not been careful enough.

A Case of Fracture of the Bodies of the Fourth, Fifth and Sixth Cervical Vertebræ, with Injury of the Spinal Cord.—Dr. W. H. Swan of Colorado Springs, Dr. Charles A. Powers and Dr. Howell T. Pershing of Denver presented this paper, saying that a man, aged 70, had fallen from a stumbling horse, striking on his forehead. There had been immediate motor and sensory paralysis below the neck, with evacuation of bladder and bowel, without loss of consciousness. Extreme shock, followed for some months by improvement, without restoration of ability to stand, sit alone, or turn in bed. Daily catheterization had been done, with no ill effects. Death had taken place 28½ months after injury, from uremia. Operation had been considered and rejected on account of patient's age, and the improbability that a remediable lesion would be found. Fixation of head has been deemed inadvisable. The dried preparation of the cervical spine of this patient shows no lesion of the arches or articular processes, but a moderate crushing of three bodies which could not have been remedied by operation. Localization diagnosis had been based on retention of power in deltoids and biceps, with paralysis of both triceps muscles, which indicated a lesion of the seventh cervical segment. Faradic tests indicated almost complete escape of anterior gray

horns and anterior roots. Autopsy showed the bodies of the fourth, fifth, and, to a lesser extent, the sixth cervical vertebræ to have been fractured by a crushing force, but the fragments united in normal position. The arches and articular processes showed no injury. A preliminary histological examination showed the usual ascending and descending degeneration.

Dr. Harold N. Moyer of Chicago stated that this case followed the general rule that the fifth cervical was the most frequent seat of these cervical fractures. So far as operation was concerned, this case rather favored operation. The value of operation in these cases was unquestioned. The distinguishing features for the neurologist was to understand if there was extrinsic pressure. The hematomyelia was not, of course, to be operated upon. Moyer did not wish to be understood as saying that this old man of seventy ought to have been operated on. He was speaking of the broad, general principle of operation. He believed it to be a sound rule to fix the cervical vertebræ where you had a fracture if you don't operate. At least in all the cases he had seen he had recommended fixation.

Dr. Pershing, closing, said he thought when it came to a question of operation in a case of this kind, you had to consider the individual patient, but you had to consider the advantage of accomplishing anything when you did your operation. In this case, of course, we could not have reached the seat of fracture in the bodies and done anything with them. The risk from the operation *per se* was very great, and, of course, with this particular man would have been very much greater. There were many things aside from age which made it necessary to be very cautious about operation. The question of fixation had been discussed very carefully and very earnestly, and it was decided in the negative, mainly on account of the absence of rigidity and pain; the disposition of the patient after being warned had been to keep his head still on the pillow. Also, because of his temperament, it would have been very difficult to have made him submit to fixation.

Disturbance of Sensation in a Case of Syringomyelia.—Dr. Alfred Reginald Allen of Philadelphia read this paper, stating that the concept of Brown-Sequard paralysis has needed in the past fifty odd years material revision. This was most strikingly exemplified in the question of tactile sensation. As methods of examination became more exact we found fewer reports of cases of hemisection or the equivalent lesion of the cord producing tactile anesthesia of the opposite side of the body below the lesion. At present there were many writers who questioned the occurrence of this tactile anesthesia when the lesion was strictly hemisection in extent. A case of syringomyelia had been studied as a basis of this contribution, in which there had been practically a total loss of pain and temperature over the entire body from the mandible of the jaw downward, involving all four limbs. A few scattered areas in the lower limbs impossible to define possessed a possible appreciation of heat, cold, and pain. The tactile sensation had been everywhere perfectly preserved. The histological examination of the spinal cord showed a gliomatous and syringomyelic process, isolating completely the posterior columns of the cord down to the twelfth thoracic segment. Below the twelfth thoracic segment there was, for a distance of possibly 5 cm., an albuminous infiltration of the tissue surrounding the small arteries of the anterior fissure. This process at times extended back as far as the central canal. The anterior white commissure showed degeneration by the Marchi method. The extensive dissociation of sensibility in the lower limbs was discussed. The symptom-complex and the histopathological changes were considered, and in the light of Mann's hypothesis it was held that the pathway for tactile sensation lay in the posterior columns, and that for pain and temperature in the anterolateral columns. A number of seeming inconsistencies to these conclusions were taken up and explained.

Dr. Morton Prince of Boston said that he recalled the case which he reported to this society some years ago. It was a case of stab wound of the spinal cord. It was as neat an instance of vivisection in the human being as Dr. Prince thought we could desire. It was a neat, clean-cut section of the cord, extending obliquely across from one side to the other, taking in both posterior columns, and extending towards one side to the anterolateral column to a point close to the anterior cornua. In that case there had been total loss of sensation on one side, but on the other side tactile and pain sensation were preserved. Immediately after the wound there was complete loss of tactile and pain sense on one side and it was preserved on the other. Dr. Prince said to his mind there could not be a more crucial experiment. His examination of the cord showed that there must be a path for sensation which could be located in the triangle close to the anterior cornua. There were other cases on record in which sensation had been lost when the posterior columns alone were destroyed. Therefore it seemed to him that there were two paths of conduction for sensation, one by the posterior and one by the anterolateral column. He believed that was one of the conclusions we should draw from the evidence at our disposal.

Dr. William G. Spiller of Philadelphia stated that Dr. Allen's case had been very carefully presented and very carefully studied, and he was quite sure Dr. Allen had not overlooked Dr. Prince's paper. One point was the loss of pain and temperature sensation in the lower regions. Then we might conclude regarding the thoracic and cervical regions that this case seemed to show that in the lumbar region the fibers for pain and temperature did not cross until the sixth or seventh segment. Dr. Allen's case showed clearly the fibers of pain and temperature are in the posterior columns or positively in the gray matter, though Dr. Spiller doubted that they ascend some little distance before decussation. He did not agree with Dr. Prince's findings. Dr. Spiller thought that Dr. Prince believed the pain fibers were in the posterior column. Dr. Spiller thought they were probably entirely with the temperature fibers in the anterolateral column.

Dr. Morton Prince said he did not mean to say that the pain fibers were necessarily in the posterior column, but that they were in the posterior and anterolateral columns.

Dr. Allen in closing said that this case was one of Dr. C. W. Barr's, and it was through his generosity that Dr. Allen had been able to study the specimens. Dr. Prince had said that there were two pathways for tactile sensation. That was perfectly consonant with Mann's hypothesis. All Dr. Allen accepted was the views of Sherrington, that no tactile sensation resided in the posterior column He thought very likely Mann's hypothesis explained why when the posterior column of one side was destroyed you often had preservation of tactile sensation on that side, because the anterolateral columns were brought into requisition, but that did not mean that the anterolateral were the primary paths.

A Successful Operation for Tumor of the Hypophysis.—Dr. Hugh T. Patrick of Chicago said he would like to show a case in which the hypophysis had been removed. The patient illustrated the occasional usefulness of the neurologist and the esteem in which he was held in some quarters. Last June Dr. Patrick made the diagnosis of tumor of the hypophysis in the man he presented to the association. Dr. A. E. Halsted of Chicago was called on to operate and he had the nerve to operate and removed the hypophysis successfully. The man made a beautiful recovery, and his vision, which had almost disappeared, had returned in a very large measure. He had been able

to see only very faintly, that is, the face of an individual looked like a blurred white something, and now he was able to read a newspaper.

Dr. A. E. Halsted of Chicago said that in operating on the patient he had followed the usual preparation. The anesthesia was started with ether. A high tracheotomy was done and a Trendelenburg balloon cannula inserted. Chloroform was now used for the anesthetic. The nasal cavities were packed with adrenalin gauze and the pharynx tamponed. The upper lip was raised, and an incision made in its mucous membrane about five-sixths of an inch from the mucocutaneous junction, and parallel to the alveolar process. The soft tissues were freed and the nose gradually drawn up with retractors. The septum was divided with bone forceps, and displaced upwards and laterally. The lower turbinates, the vomer, and the perpendicular plate of the ethmoid were removed. At a previous operation, at the Illinois Charitable Eye and Ear Infirmary, the middle turbinates had been removed by Dr. Norval H. Pierce. An opening was then made through the anterior wall of the sphenoidal sinus and a blue-colored pulsating mass seen. The membrane covering the tumor protruding into the opening into the sphenoid was incised. The tumor was then curetted out with a dull curette. The whole cavity, now the shape of a cylinder, one inch in diameter and five inches long, was thoroughly flushed with normal salt solution and subsequently packed with iodoform gauze. The septum was sutured back, the mucous membrane of the mouth replaced and sutured, and the tracheotomy tube removed. During the first 48 hours the patient's temperature varied from 100° to 102°, rectally, and the pulse from 100 to 120. His condition was fair, his mind clear, and he was free from pain. At the end of forty-eight hours the packing was removed and replaced immediately by the senior house surgeon. Following the repacking of the cavity the temperature rapidly rose until it reached 105°, with a pulse of 160. The patient became somnolent and could only be aroused with difficulty. This condition lasted for 24 hours. Upon removing the gauze pack and irrigating the cavity, the temperature fell rapidly until, at the beginning of the fourth day, his temperature reached normal, and from that time on no untoward symptoms developed. The patient left the hospital at the end of five weeks, free from pain, and with marked improvement in the vision. The right eye was 4/200 before operation, and at the end of the second week after operation it was 6/15; left eye was 5/200 before operation, and 6/22 after the operation. He continued to improve, resuming his occupation as driver of an express wagon on the first of December, and since that time had enjoyed good health.

Dr. James J. Putnam of Boston narrated the case of a young man, with a temporal hemianopsia and an almost complete loss of sight, in which the x-rays had shown a large sella turcica. A diagnosis of tumor of the hypophysis was made. Operation was done and a cyst containing 1½ ounces of fluid was found, and the patient made a complete recovery. The eyesight had been restored almost to normal, although considerable atrophy of the optic nerve had taken place.

Myositis Fibrosa Following Nervous Breakdown.—Dr. John K. Mitchell of Philadelphia read this paper, saying that a nervous breakdown from overwork had been followed by an attack of fever of unknown origin, with great prostration. Four months later a stiffness in the extensors of one thigh had been noticed. A like stiffness and hardness successively appeared in muscles of other parts. This increased in degree until the patient had become almost wholly crippled. A portion of muscle excised during life exhibited widespread fibrous degeneration, the muscle fibers being in some places replaced by fibrous tissue, in others pushed aside by it.

(To be continued.)

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of July 30, 1910.

	Cases	Deaths
Tuberculosis Pulmonalis	523	167
Diphtheria	227	21
Measles	206	8
Scarlet Fever	83	3
Smallpox	1	—
Varicella	9	—
Typhoid Fever	91	17
Whooping Cough	42	14
Cerebrospinal Meningitis	2	5
Malarial Fever	—	—
Totals	1,184	235

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, during the week ended July 29, 1910.

CHOLERA.

		CASES.	DEATHS.
India, Bombay	June 15–21	..	1
Calcutta	May 29–June 4	..	27
Negapatam	May 14–20	..	8
Philippine Islands, Manila	May 29–June 4	3	3
Provinces—			
Bulacan	May 29–June 4	7	5
Pampanga	May 29–June 11	15	8
Pangasinan	May 29–June 11	281	186
Tarlac	May 29–June 11	43	28
Russia, Odessa	June 24–July 3	17	8
Straits Settlements, Singapore	June 8–14	8	9

YELLOW FEVER

Brazil, Manaos	June 19–25	..	3
Para	June 26–July 2	4	3
Costa Rica, Limon	July 9–14	1	1
Ecuador, Guayaquil	June 16–30	6	2
Venezuela, La Guaira	June 16–30	..	1

PLAGUE.

China, Amoy	June 5–11	..	5–8 daily
Kulangsu, international city	June 5–11	..	1
Chang-pu district	June 11	..	Epidemic
Ching-chew district	June 11	..	Epidemic
Swatow	June 14–20	..	..
Present in vicinity			
Ecuador, Guayaquil	June 16–30	6	1
India, Bombay	June 15–21	..	71
Calcutta	May 29–June 4	..	28
Kurrachee	June 12–18	39	37
Rangoon	June 4–11	..	47
Turkey in Asia, Basra	June 12–18	1	1

SMALLPOX.

Austria, Galicia	June 26–July 2	1	..
Brazil, Pernambuco	May 1–15	..	42
Rio de Janeiro	April 18–24	1	..
Canada, Sydney	July 10–16	10	..
Toronto	June 26–July 2	1	..
Winnipeg	June 19–25	1	..
Chile, Santiago	June 19–25	..	Present.
Valparaiso	June 19–25	1	..
China, Chefoo	June 12–18	..	1
Hongkong	June 5–11	1	1
Shanghai	June 13–26	1	11
Cases among foreigners, deaths among natives. June 9, Three cases from U. S. cruiser "New Orleans" from Nanking.			
Swatow	June 14–20	..	Present.
Tsingtau	June 12–18	2	..
Egypt, general	May 21–June 3	161	30
Alexandria	May 1–31	2	7
Cairo	June 11–17	2	2
France, Paris	June 19–25	1	..
Gibraltar	July 4–10	1	1
Great Britain, London	June 26–July 2	1	..
India, Bombay	June 15–21	..	14
Rangoon	June 5–11	..	4
Italy, Genoa	June 16–30	1	..
Naples	June 28–July 4	19	3
Japan, Kanagawa, ken	June 15–21	1	..
Mexico, Veracruz	July 3–9	1	..
Portugal, Lisbon	June 26–July 2	43	..
Russia, Libau	June 28–July 3	19	..
Odessa	June 12–25	11	3
St. Petersburg	June 19–25	36	17
Warsaw	Mar. 27–April 30	..	48
Siam, Bangkok	April 25–May 24	1	1
Spain, Almeria	June 1–30	..	1
Valencia	June 26–July 2	1	..
Straits Settlements, Singapore	June 8–14	15	5
Switzerland, Zurich, canton	June 19–25	2	..
Tripoli, Tripoli	June 12–18	1	..

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Original Articles.

THE VALUE OF SURGICAL PROCEDURES IN THE SOLUTION OF THE PROBLEM OF RACE BETTERMENT.

By J. EWING MEARS, M.D., LL.D.,

PHILADELPHIA.

In the number of the *Boston Medical and Surgical Journal* for October 21, 1909, there appeared a contribution of mine upon the subject of "Asexualization as a Remedial Measure in the Relief of Certain Forms of Mental, Moral, and Physical Degeneration."

At the meeting of the Georgia Medical Society held in Savannah, March 22, 1910, I read a paper entitled, "The Problem of Race Betterment, Considered in its Medical, Legal, and Social Aspects." In this paper, I incorporated, as a preliminary portion, an introduction, as it were, the paper which had appeared in the *Boston Medical and Surgical Journal*. This I did as they were related in intent and purpose, and as the occasion gave me an opportunity to extend the subject and to discuss it somewhat more at length along certain lines, especially in the direction of arranging a classification of the subjects to be treated by the surgical methods proposed and the character of the operation which should be performed.

In this first paper, I designated a "class of perverts and degenerates, idiots, imbeciles, epileptics, and the vicious insane, as well as criminals of a certain type, who, as a rule, are the subjects of sexual perversions and abnormal indulgences; who are a charge to the State and communities in which they live and a constant and perilous menace to the well being and welfare of the human race, through the potentiality they possessed of propagating their kind." In these subjects I advocated the performance of a surgical operation, which it was believed would abrogate the function of the testes and control the sexual power—ligature of the spermatic cord—as a substitute for that of castration, which is regarded as a very serious mutilation of the body, and one, to the performance of which it is very difficult, if not, in the majority of cases, impossible, to obtain the consent of the individual, if an adult, or of the parents or guardians if a minor.

Experimentation on dogs, made by me, showed that the operation was feasible, so far as the occurrence of any untoward results in the condition of the testes were concerned, and the reparative process in the simple wound made was prompt and favorable. The method of operation having been shown to be correct as a surgical procedure, I was interested in studying its efficiency in securing the results which I believed of the highest importance in the treatment of the defective subjects. Invaluable as I regarded the results to be obtained in the annulment of the procreative power, there still remained that which may be justly considered a duty to the defective subject, removal through the operation, of all sexual desire.

Ligature of the spermatic cord I first advocated in the year 1894 in a paper read before the Philadelphia Academy of Surgery, as a substitute operation for castration in the treatment of hypertrophy of the prostate gland. A few years later I was led to suggest this operation in the treatment of defectives in order to produce a state of asexualization. Since then the subject has elicited quite wide attention, and the operation of "vasectomy," or resection of the vas deferens, has been performed in a large number of instances, chiefly on criminals in State penitentiaries in which it was authorized by legal enactments of the State. It has also been performed, I believe, upon defective minors in private institutions with the consent of parents or guardians.

The advantages claimed for the operation of vasectomy are "the simple character of the operation—an office operation; absence of atrophy, or cystic degeneration of the testes; no diminution of sexual power or "pleasure,"—the discharge at orgasm but slightly decreased—the production of sterilization." Reunion of the divided ends of the vas deferens, a more delicate operation than was resection, can be done, it is stated, if the subject be cured of "masturbation, insanity, or the criminal tendencies."

In performing resection one-half inch of the vas deferens is advised to be removed, the secretion of the testicle to be emptied around the pampiniform vessels, and there absorbed. "The operation has been performed upon married men who chose this means rather than criminal abortion, to prevent transmission to offspring of their own hereditary taints, such as insanity and syphilis." One operator states that in cases of those who indulge in sexual perversions, "he has refused to castrate, but has sterilized by vasectomy and cured many and many such cases." Another operator reports, "the improvement, mentally and physically, and cures are little short of marvelous in subjects who were insane, consistent (*sic*) masturbators." Another subject was cured of "sodomy and masturbation by vasectomy."

In March, 1907, the Legislature of the State of Indiana passed a bill authorizing the sterilization of "confirmed criminals, idiots, imbeciles, and rapists" in the State institutions. Over eight hundred, it is reported, have been sterilized by vasectomy. Of this number, it is stated, over two hundred were operated upon at their own request. Since this time laws of similar character have been enacted in three or four other states.

Vasotomy, simple section of the vas deferens, is not advised as an effective operation owing to the

supposed ease of reuniting the divided ends of the excretory duct of the testes, an operation not desired in case of criminals sterilized by State authorities.

I have made these liberal extracts from published articles upon the subject of the operation of vasectomy in order that the claim made for its employment in the treatment of defective subjects may be studied in connection with the consideration of the true purposes of surgical procedures, which may be instituted for their relief, as well as for the betterment of the human race through the inhibition of the procreative power.

Further study of the operation of "ligature of the spermatic cord," has led me to modify somewhat the technic in order, if possible, to increase its efficiency. I think it desirable that the ligature should be applied as high up as it can be done with due regard to its relations to the external opening of the inguinal canal—that a double aseptic ligature should be applied, and the cord divided between the ligatures—the nerve should not be included in the ligature, but it should be divided and the ends folded back so as to interfere with reunion. The secreting power of the testes being abrogated through the deprivation of the blood and nerve supply, the danger of cystic degeneration of the vas deferens would be reduced to a minimum. It is the purpose of the operation to produce, so far as is possible, the same conditions as those which follow removal of the testes, conditions which I believe to be of the greatest value in the treatment of the defective subjects.

Let us now consider the subjects included in the class of defectives who it is thought may be relieved by any surgical procedure which has for its objects the abrogation of the sexual function.

While, as I have stated above, I regard the abolition of the procreative power to be of paramount importance in stopping the flow of degeneracy, in this way relieving the State of the burden of the care of a rapidly increasing class of defectives and in promoting, in most positive manner, race betterment, I feel that an important duty rests in the selection of the surgical procedure to be employed in accomplishing this result.

It is, therefore, desirable, I think, to classify the defective subjects, and consider the surgical procedure best adopted in the treatment of each. In general, it may be stated I believe, that sexual perversions exists to greater or less degree in all subjects included in the class of perverts, degenerates, idiots, imbeciles, the vicious insane, and a certain class of criminals—rapists. In some idiots, imbeciles, and epileptics, sexual perversions may develop, even before puberty, and grow in intensity with the increasing years of the subject, despite all ordinary methods of treatment. In degenerates and perverts, a large class existing everywhere in social life, inherited or acquired sexual perversions, manifested in unrestrained gratification and debasing methods of indulgence dominate their lives and confer upon them personal qualities which make them very undesirable members of society.

In confirmed criminals, the study of their lives and of their descendants, would seem to show that the sexual instinct was not controlled in most cases, and that indulgence, in contravention of the law led, in the mildest form, to the begetting of large families of illegitimate children; in one family as reported, the number reaching fourteen.

In one class of criminals, rapists, the uncontrolled sexual appetite is the dominating factor in their criminal lives, which inspires them to commit the most atrocious assaults upon unprotected females, and for which crimes, in certain parts of our country, swift punishment is meted out at the hands of the infuriated mob by the halter, the bullet, or at the stake.

If these statements are correct and are confirmed in the experience of those whose special work it is, or it has been, to study and treat the subjects of the defective classes, then it would seem, in the employment of a surgical measure that only should be chosen which in the absolute abolition of the procreative power, at the same time exerts a controlling influence to the extent of obliteration of the function of that part of the generative system which initiates the orgasm and stimulates the act of copulation.

The testes are concerned in the generation of the fertilizing spermatozoon, accomplished through the peculiar structure of the organ provided for that purpose—the function of the organ is maintained by the blood and nerve supply. It is a fact, well established, I think, by observation, that the obliteration of the function of one organ destroys that of other organs of parts which may be associated with it—Nature, using the term in its general sense, recognizes the fact that there is no need of the associated parts as their services have, it may be said, been dispensed with, and their functions gradually cease.

In the case of the testes, castration abolishes function absolutely, and if the operation is performed *before* puberty, the sexual instinct is not generated or the sexual power of intercourse initiated. If the operation is performed *after* puberty, in the adult, the virile power may remain for a short time but gradually disappears. This, I believe, is the experience of surgeons who have performed the operation in pathological conditions and who have had the opportunity of observing the after-condition in this respect.

In the article which appeared in the *Boston Medical and Surgical Journal*, I referred to patients exhibited to the Fellows of the American Surgical Association at the time of its meeting in New York —in the New York Hospital—into the scrotal cavities of some of the number, celluloid imitations had been introduced for the mental effect, after ablation of the diseased organs.

Dr. Robert F. Weir, the eminent surgeon who had operated in these cases, writes me as follows: "Most of my cases (some ten or twelve) of removal of both testicles and substitution therefore of celluloid imitations were of a tubercular character. I can recall but two instances (having no notes at hand), where a moderate retention of the virile power (quoad desire and erection) lasted for many months after the operation. In one of these two cases, after a lapse of a year, he made sexual effort, though he said he 'wasn't as able' as he formerly was. The second one had some power of penetration and enjoyment for not longer than six months. Of my other cases, I cannot speak now without notes, but the impression is strong with me that sexual appetite and power soon passed away after my operations. In the early cases we did not know much of the possibilities of the invasion by the original infection (tuberculosis) of the vesiculæ seminales, which may influence the value of the deductions made."

The gradual cessation of sexual desire is ob-

served by horse breeders in stallions altered *after* service, although they continue to show some of the characteristics of the stallion in form and action. Partial excision of the testes is sometimes performed for the purpose of maintaining the appearance and action of the stallion in the gelding and is known among horsemen as "cutting the stallion proud."

I think, we may conclude, therefore, that in the human subject, castration or any operation which approaches it as a substitute, performed *before* puberty, prevents the initiation of the sexual desire, and that when done *after* puberty, when the sexual desire has been initiated and gratified, the virile power gradually subsides.

Dr. Charles K. Mills, the distinguished neurologist, whose views I requested on the subject, concludes in a letter to me: "that in my experience both removal of the ovaries in women, who have reached mature years, and the testicles in men, have showed, if not at first, eventually some influence in the way of sexual repression."

We are now prepared to discuss the method of operation which should be adopted in the different subjects of the classes designated and in whom the operation is authorized by legal enactment. Exacting the absolute prevention of the procreative power by surgical procedure, does not the State owe to the defective subject the removal also of the sexual desire, which is so largely associated with the condition of degeneration and which exerts a controlling influence on its development? Is it possible in the case of the idiot, imbecile, and epileptic in whom perverted sexual indulgences exist, to effect mental or physical betterment of a pronounced character, so long as the sexual desire is present as an exciting cause of perverted indulgence? Would not any operation which, as is claimed for that of vasectomy, does not involve "diminution of the sexual power or pleasure—or but slightly decreases the discharge at orgasm," fall far short of giving to the subjects of the above class the help to which they are entitled at the hands of the surgeon? Would it not be an act of gross injustice to the community, in a moral sense, to turn loose the sterilized pervert and degenerate, still endowed with sexual power, which invites them to continue their lives of degeneracy freed by sterilization from some of the consequences of their acts?

Still more, may this not be said of the rapist, whose inspiration to commit the special crime which distinguishes him, takes its origin in his possession of uncontrolled sexual desire? Unsterilized, he is unable to do much more harm, since rarely, if ever, in such cases of assault does the ability to procreate produce impregnation. The purpose of any surgical procedure in his case should include not only the betterment of future generations but the protection of the community in which he lives, by removing the inspiration to crime—suffering as it may be said he does from a form of insanity, the treatment should be directed to his present condition as well as to the prevention of the propagation of his kind.

It may be of interest to consider one statement made by an operator of vasectomy, to the effect that "reunion of the divided ends of the vas deferens, a more delicate operation than was resection, can be done if the subject is cured of masturbation, insanity, or the criminal tendencies." Speaking in a surgical sense, and without any experience to confirm results, I think it may be stated that reunion by operation of the divided vas deferens, a tube with a lumen so very diminutive, would be, so far as regards the restoration of function, impossible. Especially would this be true after a lapse of time when the proximal end of the tube would have undergone such changes as to obliterate the lumen. Furthermore, it would seem to be inconsistent with expected curative results in case of masturbators, of the insane, or the subject with criminal tendencies, to permit the function of the testes to continue with the sexual perversions which are regarded to be the exciting causes of the diseased conditions. The simple emptying of the testicular secretion upon the pampiniform vessels where, it is stated, it would be absorbed instead of its passage to the vesiculæ seminales from which it is ejaculated at the time of the orgasm, would seem to be ineffective in obtaining curative results.

In the case of mental and moral defectives, a physician of wide experience in their care and in their treatment, Dr. Martin W. Barr, Chief Physician to the Pennsylvania Training School for Feeble Minded Children, writes me as follows: "Unfortunately, I find that there are no results obtainable from an operation where the inverted or perverted sexual appetite is not restrained. In every case operated upon in my experience, there has been marked mental, moral, and physical improvement. Personally, I very much prefer *actual castration* as this leaves nothing in doubt."

This opinion is given by a physician whose extended experience justifies its expression as that of an expert, trained in the daily contact with defective subjects, young children, minors approaching adult age, and those beyond this age, who is qualified to speak with authority upon the subject.

From this evidence alone may we not conclude that an operation which restrains sexual appetite, is essential to the accomplishment of mental, moral, and physical improvement, not one which permits sexual indulgence "with pleasure, or one which does not abate sexual power, or diminish to any great extent the discharge at orgasm."

The surgical procedures advocated in promoting race betterment should in no sense be regarded as punitive in character. They should be performed as all surgical measures are, or should be, instituted for the purpose of obtaining curative results, if possible, in the defective subjects. The highest motives of philanthropy should inspire the surgeon and should guide him in his work to the position of a noble benefactor of the human race, not only in protecting future generations from the contaminating influences of a maintained flow of degeneracy, but also in bettering the unhappy defective subject, by removing the causes which contribute to his disordered condition—thus opening his mental powers to cultivation, developing his moral attributes, promoting his physical betterment, and eventually making him a useful member of society.

The Measure of the Function of the Heart.—G. Morelli describes the usual methods of measuring the functional power of the heart, and tells of the unsatisfactory nature of the results. He then puts forward a new method, which consists in a pressure of an elastic bag on the lower extremities, covered with an inelastic covering, between the layers formed by which air under pressure is injected. The pressure in the bag is measured with a monometer, being gradually increased. The arterial tension gradually augments and, according to the different reaction and capacity of the veins and heart, the author observes in the radial artery a pressure of 10, 20, 30, or more millimeters of mercury.—*La Riforma Medica.*

REPORT OF FIVE CASES OF TETANUS AND REMARKS ON THE TREATMENT OF THE DISEASE.*

By CHARLES D. FOX, M.D.,

PHILADELPHIA, PA.

Case 1.—Summary: Symptoms of benign tetanus appeared four days after the infliction of a trivial wound. Immediate onset of an uneventful convalescence after the injection of 3,000 units of antitetanic serum.

November 15 the patient, age 21, cut her right index finger with a piece of china. The wound, a superficial one, not over a half inch in length, discharged a little pus for a few days. Four days after the accident the jaw began to ache, and on the following day auditory hyperesthesia, trismus, and rigidity of the neck developed. Her temperature rose to 103° on November 22. Becoming alarmed at the increasing severity of symptoms, whose significance was suspected, the family decided upon a change of physicians. Accordingly, Dr. Charles J. V. Fries was telephoned to November 24, and the history and symptoms of the case described. For certain excellent reasons, which need not be mentioned, Dr. Fries requested me to treat the patient.

During the first visit, the afternoon of the same day, physical examination showed her pupils to be equal, normal in size, and reacting well to light and accommodation. The ocular muscles functionated well and without nystagmus. Hearing appeared to be normal. Trismus existed to the extent that she was unable to open her mouth more than one-quarter of an inch. Moderate nuchal rigidity also was apparent. The patellar reflexes were equally, and greatly, exaggerated. So pronounced was this that the slightest tap of the hammer on the patellar tendon produced a reaction so strong as to resemble that seen in old cases of spastic paraplegia. Static ataxia, spasticity, and clonus could not be elicited. Decidedly exaggerated plantar reflexes were found in association with typical bilateral Babinski sign. Her temperature was normal at this time. The patient showed no evidence of a nervous temperament. In fact, she exhibited unusual self-possession. Without having been told of the nature of the disease, she knew, as she afterwards confessed, that it was tetanus; yet her manner would not have led any one to suspect that the gravity of her illness was known to her. After the examination had been made she was told to go to bed and to remain there. The evening of the same day, November 24, 3,000 units of antitetanic serum was injected into the subcutaneous tissues of the inferior interscapular region. At the same time, the wound, a clean fissure, was completely excised under cocaine anesthesia, and the resulting exposed area thoroughly cauterized with carbolic acid. The following day her temperature was normal, and Dr. Victor Fries reported that slight improvement had occurred.

November 26 the pulse was 94 and the temperature 99.2°. There was not any decrease in the rigidity of the neck, but she was able to open her mouth about three-quarters of an inch. The patellar, plantar, and Babinski reflexes remained the same, and decided bilateral Kernig's sign was found to be present. Though the whole spinal column was rather sensitive and painful, there was not any inflammatory reaction about the two points of injection. Two days later trismus had disappeared almost entirely, and the neck was freely movable. The patellar reflexes still were much exaggerated, but the plantar reflexes had become normal and the Babinski sign had disappeared. Improvement had been noticed in the pain and tenderness of the back. The operative wound was granulating satisfactorily.

November 29 the patient commenced to leave her bed for four or five hours daily, and increasing the time so that, after a week had passed, she remained up all day. Trismus disappeared soon after December 5. Further convalescence, according to Dr. Victor Fries, was uneventful, and she commenced to go out December 15. Even then, however, the Kernig sign still was present on the left side, though the patellar reflexes had become normal.

It may seem to have been unnecessary to have kept the patient in the house for so long a time, but in view of the reflex excitability caused by the toxin of tetanus, and inasmuch as slight trismus, the Kernig sign, and exaggeration of the patellar reflexes persisted, it was thought best to be cautious, first about permitting her to get out of bed, and later to go out of the house.

Regardless of the length of the period of incubation, death resulted in 84 per cent. of 150 cases of tetanus developing from Fourth of July injuries in the United States during 1909. In these cases the average duration of the disease, after the onset of symptoms, was three and one-half days.[1] In the Rose and Carless "Manual of Surgery" the mortality of tetanus is said to be 96 per cent., when the period of incubation is under ten days; 73 per cent. when symptoms develop after the expiration of eleven to fifteen days, and 55 per cent. when the onset is delayed for from fifteen to twenty days. In his discussion of a recent paper on tetanus, C. H. Mayo[2] expressed the opinion that the mortality of tetanus is 80 per cent. when the period of incubation is less than seven or eight days, and that 80 per cent. of the cases can be saved if the period of incubation is greater than ten to twelve days. Having examined the summarized reports in the compilation, by Jacobson and Pease[3], of 203 cases of tetanus I found seven deaths out of eight cases in which the period of incubation was four days. In view of the dismal prognosis inspired by these figures it is indeed remarkable that, with a period of incubation of only four days, the disease was not more serious in the first patient reported in this paper.

The only reason I can ascribe to the comparative mildness of the disease in this patient is the fact that the wound was so superficial, and that it was constantly being torn open by the movements of the fingers. Being kept open in this manner the entrance of air was facilitated to an extent that the growth of the anaerobic tetanus bacilli was inhibited. That the condition was not tetanus scarcely seems worthy of consideration in view of the unequivocal nature of the symptoms.

The lack of severity of the manifestations and the absence of any tendency for them to become worse, after having existed for several days in their completely developed form, leads me to believe that the patient eventually would have recovered under the other recognized forms of treatment without

*Read before the Clinico-Pathological Society of Philadelphia, March 10, 1910.

resorting to the use of the serum. The prompt improvement, however, within twelve hours of the injection is presumptive evidence in favor of the use of the serum as a curative agent in developed cases of tetanus; even though in many such cases it is valueless.

Having retained in my possession the clinical records of two fatal cases of tetanus which came under my observation in St. Mary's Hospital, Passaic, N. J., these are now reported for the first time, with the kind permission of Dr. Charles A. Church.

Case II.—Summary: Period of incubation, twelve days; treatment begun three days after the onset of symptoms and twenty-two hours before death; treated with sedatives and injections of serum into various structures.

While working in a garden, September 11, 1904, Miss M. P. M., age 9, ran a splinter from a fence rail deeply into her calf muscles. Twelve days later trismus appeared. Without having received any treatment for the condition she entered St. Mary's Hospital three days after the onset of symptoms. At this time, September 26, her condition immediately was recognized as hopeless, for the reason that she had marked and constant opisthotonos, and, at intervals of a few minutes, severe general tonic convulsions, with symptoms of asphyxia. Through the kindness of Dr. Hollister, in whose service the patient belonged, the treatment of the case was placed in my hands. The wound, a deep laceration, which was filled with pus and large sloughs, was freely opened, cleansed, and deeply cauterized. The serious nature of the case and the character of the treatment can be shown in an adequate manner only by presenting, in a condensed form, the clinical record.

quantities. It is remarkable that these tremendous doses were tolerated in a girl of nine years. Not any ill effects, though, could be attributed to the administration of the drugs. In fact, their hypnotic qualities were not exhibited in the usual manner, in spite of the quantities given. It seems that there is an antagonistic action between hypnotic drugs and the toxins of tetanus and eclampsia. That such large doses were justified was demonstrated by the persistent recurrence of severe convulsions about every ten to forty minutes, by the presence almost constantly of less severe spasms, and by the fact that the patient was conscious the greater part of the time. Harvey[4] has reported a severe case of tetanus, whose period of incubation was only six days, in which recovery followed the employment of serum and hypnotic drugs in large quantities. In this case 20 grains of chloral and 40 grains of potassium bromide were administered every three hours.

In spite of the favorably long period of incubation, the outcome in Case II was fatal because of the advanced stage of the disease when the patient was admitted and because of the severity of the infection, due to neglect of the deep and filthy wound. The operation, performed by Dr. Charles A. Church, for injection of serum into the motor nerves of the infected limb, was suggested by the favorable report, that had just been published by Rogers[5], of a case treated in this manner.

Case III.—Summary: Period of incubation, six days; treatment begun with the onset of symptoms; death in two days.

A man, about 35 years of age, had the terminal phalanyx of his thumb crushed between a heavy object and the ground. The fragments of bone having been removed a palmar flap had been made

Admitted September 26, 1904, at 12:45 P.M.

Day	A.M.	P.M.	Temperature	Pulse	Respiration	Treatment	Remarks
26	. . . .	12:55	102 3/5	109	30	Morph., ¼ hypo; Atrop., 1 100 hypo.	Wound operated.
		1:15	....	....	.	Serum, 10 c.c.	Injected into or near the sciatic nerve.
	. . .	1:30	....	....	. .	By rectum—Chloral, gr. 15; Sod. brom., gr. 60	
	. . .	4:45	.....	121	34	Serum injected into Ant. crural, n. 3 c.c.; Obturator, n. ½ c.c.; Sciatic, n. 4 c.c.; Sp. subdural space, 7 c.c.	Under chloroform anaesthesia the injections were made into the exposed nerves.
	. . . .	6:00	103	112	30		
	. . . .	7:15	.....	130	27	By rectum—Chloral, gr. 5; Pot. brom., gr. 10, Tinct. cannabis, m. 5.	
	.....	8:30	.....	....	.	Morph., gr. ¼ hypo.	
	. . .	8:45	.....	....	. .	By mouth—Chloral, gr. 5; Pot. brom., gr. 10; Tinct. cannabis, m. 5; Serum, 3 c.c.	Injected into sciatic nerve under chloroform.
		10:10	103 2/5	129	30	Chloroform anesthesia; by mouth and rectum—Chloral, gr. 10; Pot. brom., gr. 20; Tinct. cannabis, m. 5.	Necessitated by a severe convulsion.
		11:00	.....	. .	. .	Serum, 10 c.c.; Chloroform.	Under primary anesthesia equal amounts of serum injected into the three operative wounds.
		11:45	.....	. .	. .	Chloroform.	Chloroform and artificial respiration necessary during the convulsions.
27	12:45	.....	.....	....	. .	Morph., gr. ¼ hypo.	
	1:15	.....	.....	....		Tinct. cannabis, m. 10.	
	2:30	.....	103	135	28	Chloroform.	
	2:35	.....	.....	....	. .	Morph., gr. ¼ hypo. By rectum—Chloral, gr. 10; Pot. brom., gr. 20, Tinct. cannabis, m. 5.	Severe convulsions every half hour. Attacks increasing both in severity and in duration. Patient becomes conscious and decidedly asphyxiated during each convulsion.
	4:20	.....	.....	....	.	Chloroform; Tinct cannabis, m. 10.	
	5:00	.....	.....	146	27	Morph., gr. ¼ hypo.	
	8:00	.....	.....	142	35	Chloroform; Morph., gr. ¼ hypo.; Atrop., gr. 1 100 hypo.	
	10:40	. . . .	103	145	28	Morph., gr. ¼ hypo; Atrop., gr. 1 100 hypo.	Convulsions almost continuous since 10 a.m. Oxygen and chloroform given for each.
	.....	12:20	.....	....	. .		Died from asphyxia caused by a convulsion

Thus in almost 24 hours the patient was given one grain of morphine sulphate hypodermically, 45 grains of chloral, 120 grains of bromides, 40 minims of tincture of cannabis indica, 60 c.c. of antitetanic serum*, and chloroform and oxygen in unknown

*The serum used in the five cases herein reported was that of the H. K. Mulford Co. According to the method of standardization used by this company in 1904, 10 c.c. of the serum was said to possess an activity of 1,000,000 immunizing units. As made at present, 10 c.c. of serum is said to contain 1,500 units. Dr. Stewart, of the H. K. Mulford Co., informs me that it is impossible accurately to state the equivalent in present serum of 10 c.c. of that furnished in 1904. He says, however, that the present serum is almost three times as strong as the older one. Unfortunately, there are five or six different methods of standardization now in use in different parts of the world. This diversity leads to much unnecessary confusion.

and the wound tightly sutured. Six days later, April 18, 1904, trismus became apparent. At once he went to Dr. Church, who amputated his thumb in the hospital at 7 P. M. Through the kindness of Dr. Church he was then placed in my care.

case, however, hope was not entirely abandoned until the last moment, for the reason that prior to 4 P. M. the rigidity, at times, became greatly ameliorated, and we were thus led to believe that the serum was neutralizing the toxin.

CLINICAL RECORD

ADMITTED AT 7:00 P.M. APRIL 18, 1904

Date	A.M.	P.M.	Temperature	Pulse	Treatment	Remarks
18	.....	7:00	98 1/5	90	Serum, 10 c.c.	Thumb amputated. Trismus the only symptom. Can open mouth only one-half inch.
	.....	12:00	.....	80	Serum, 10 c.c.	
19	2:30	.....	.....	...		Neck has become rigid.
	4:00	.....	.....	...	Serum, 10 c.c.	Subsultus tendinum has developed.
	10:00	.....	98	68	Serum, 10 c.c.	Opisthotonos now present constantly. General tonic spasms about every two hours or less.
	11:45	.....	100 2/5	76	Chloral, gr. 30; Sod. brom., gr. 60	
	.....	2:10	.....	...	Serum, 10 c.c.	Unable to swallow.
	.....	4:30	.....	...	Serum, 10 c.c. By rectum—Chloral, gr. 20; Sod. brom., gr. 60.	Back painful.
	.....	5:30	100 3/5	97	By mouth—Chloral, gr. 30; Sod. brom., gr. 10.	Is able to swallow.
	.....	7:00	.....	...	Serum, 10 c.c.; Bromide, gr. 10, by mouth	Profuse perspiration.
	.....	8:00	.....	...	Bromide, gr. 10, by mouth; Serum, 10 c.c.	Feeling better, but spasms are more frequent. Short periods of light sleep.
	.....	9:00	.....	...	Bromide, gr. 10, by mouth	Tongue lacerated by spasms which occur every ten to fifteen minutes.
	.....	10:00	.....		Bromide, gr. 10, by mouth; Serum, 10 c.c.	
	.....	11:00	101	116	Bromide, gr. 10, by mouth	
	.....	12:00	.....	...	Bromide, gr. 10, by mouth	
20	12:30	.....	.....	...	Serum, 10 c.c.; Chloral, gr. 30, by mouth	Light sleep between spasms.
	2:30	.....	.....	...	Serum, 10 c.c.	General rigidity worse.
	3:00	.....	.....	120	Bromide, gr. 10, by mouth	
	4:00	.....	100	115	Bromide, gr. 10, by mouth	Much better. Light interrupted sleep.
	4:30	.....	.....	...	Serum, 10 c.c.; Chloral, gr. 20, by mouth	
	7:00	.....	.....	...	Bromide, gr. 20, by mouth	
	8:00	.....	.....	...	Serum, 10 c.c.; Bromide, gr. 20, by mouth; Chloral, gr. 20, by mouth.	Profuse perspiration.
	10:00	.....	.....	...	Serum, 10 c.c.; Bromide, gr. 10, by mouth	Frequent mild spasms.
	11:00	.....	.....	...	Chloral, gr. 30, by mouth; Bromide, gr. 40, by mouth.	
	12:00	.....	100	107	Chloral, gr. 30, by mouth; Bromide, gr. 40, by mouth; Serum, 10 c.c.	
	.....	1:25	.....	...	Bromide, gr. 20, by mouth	
	.....	2:00	.....	...	Morphine, gr. ¼ hypo.; Atropine, gr. 1/100 hypo.; Serum, 10 c.c.	Frequent mild spasms.
	.....	3:00	.....	...	Morphine, gr. ¼ hypo.; Atropine, gr. 1/180 hypo.	Almost constant spasms of short duration.
	.....	4:00	.....	...	Morphine, gr. ¼ hypo.; Atropine, gr. 1/100 hypo.; Bromide, gr. 20, by mouth; Serum, 10 c.c.	Spasms becoming very severe.
	.....	6:00	.....	...	Bromide, gr. 20, by rectum; Serum, 10 c.c.	Artificial respiration and chloroform now necessary.
	.....	6:25	.....	...	Morphine, gr. ¼ hypo.; Atropine, gr. 1/100 hypo.; Serum, 50 c.c.	
	.....	7:20	101 4/5	142	Morphine, gr. ¼ hypo.; Atropine, gr. 1/100 hypo.	Very severe spasm. Artificial respiration, oxygen and chloroform necessary.
	.....	9:15	.....	166	Morphine, gr. ¼ hypo.; Atropine, gr. 1/100 hypo.; Serum, 20 c.c.	
	.....	11:40	.....	...	Morphine, gr. ¼ hypo.; Atropine, gr. 1/100 hypo.	Death from asphyxia during a spasm.

In this patient the convulsions became more severe and more frequent whenever an attempt was made to withhold hypnotic drugs. As the end approached chloral no longer could be depended upon, because, to have been effectual, it would have been necessary to administer such tremendous doses as to render the use of the drug too dangerous. The convulsions, too, became so severe that a more rapidly acting drug was necessary. Therefore hypodermics of morphine were employed.

Beginning at 4 P. M., April 20, the spasms became so intense and so prolonged that, without other assistance, he would have died from asphyxia. Accordingly, the method adopted was to attempt to prevent the recurrence of convulsions by keeping him as deeply under the influence of morphine as was compatible with safety. Then, when one appeared, a hypodermic of morphine was given at once, and, respiration becoming completely suspended by the spasm, artificial respiration was performed while oxygen and chloroform were administered for the purpose of relaxing the tonic spasm of the respiratory muscles. From 4 P. M. until death occurred, at 11.40 P. M., it was necessary for two nurses and myself constantly to be in his room in order to carry out this treatment as soon as the occasion arose. Considering the circumstances, it may seem like needless cruelty to have prolonged the patient's life for almost seven hours. In this

The amount of the drugs given in this case was as follows:

Total amount in 52½ hours: Sodium bromide, gr. 370; chloral, gr. 200; morphine sulphate, gr. 1 2/3; atropine sulphate, gr. 1/16; serum, c.c. 250. Total amount during the last 24 hours: Sodium bromide, gr. 220; chloral, gr. 130; morphine sulphate, gr. 1 2/3; atropine sulphate, gr. 1/16; serum, c.c. 160.

As tetanus is such an extremely fatal disease, the prophylactic treatment of wounds is of far greater importance than the treatment of the disease after it has developed. The resistance of the disease to treatment and the consequent high mortality can be understood better when we remember that tetanin, the toxin of tetanus, is said to be four hundred times more toxic than strychnine.

Prophylaxis includes freely laying open all suspicious wounds, removal of extraneous matter, thorough cauterization, and then allowing the wound to granulate. In addition to these local measures a subcutaneous injection should be made of 1,500 units of antitetanic serum. The tetanus bacillus being anaerobic lacerated wounds with deep pockets and punctured wounds, such as result from being stabbed or shot, and from stepping on rusty nails, naturally are the ones most apt to be followed by the development of tetanus. For this reason it is wise to use the serum prophylactically

in all such cases. This precautionary measure becomes a necessity when treating wounds which have been received in localities where tetanus is of frequent occurrence; as in New Jersey and in Long Island.

Just as a mild form of variola infrequently attacks successfully vaccinated individuals, so a nonmalignant form of tetanus has been known to occur, though rarely, in those who have received prophylactic injections of the serum. This is shown by the six American and Canadian cases collected by Jacobson and Pease[3], in which tetanus developed even though serum had been used prophylactically. Of these death resulted in but one. Of seven similar cases mentioned by Delbet[6] five recovered. Vaillard[7] compiled 41 French and foreign cases, including those of Jacobson and Pease, Suter[8], and Lotheisen[9], in which tetanus developed in spite of the fact that serum had been used at or near the time of receipt of the injury. Of these he discarded ten cases on account of diagnostic uncertainty or of lack of details in the reports. After studying the remainder he came to the conclusion that antitetanic serum is protective only for about ten days, and that in but five of these cases could it be considered a complete failure.

Some interesting facts concerning the prophylaxis of tetanus have been adduced by Scherck[10]. His figures show that of 56 cases of Fourth of July injuries treated other than with serum in the city dispensaries of St. Louis in 1903 16 deaths occurred from tetanus. During the three succeeding years there were not any deaths from this disease in 291 similar cases treated with the prophylactic injection of serum. The statistics of Delbet[6] relative to the increase in the number of deaths from tetanus in Paris appeared to be very damaging evidence of the value of the serum. These showed that between the years of 1886-1890, before the serum was used prophylactically in the Paris hospitals, there were 135 deaths from tetanus. During the years from 1891-1895 there were 128 deaths from the disease. Now, during the period from 1896-1900, when the serum was used as a prophylactic and as a curative agent in some of the Paris hospitals, the deaths from tetanus increased to 176. During the years from 1901-1905 there were 153 deaths from tetanus in spite of the fact that the serum was used in nearly all hospitals These cases having been investigated by Vaillard, it was found, he says, that of the 329 deaths from tetanus occurring in Paris since the introduction of antitetanic serum, only 11 of the cases had received injections of the serum.

In veterinarian practice the prophylactic use of the serum has been productive of even more satisfactory results than those which have been mentioned. Wells[11] speaks of a stable where, prior to the introduction of serum as a prophylactic agent in the treatment of all wounds about the feet, from 6 to 8 horses died from tetanus every year. During the first 5 years subsequent to the adoption of this treatment not a single case of the disease developed among 300 horses treated in this manner. According to Vaillard[7] not a single case of tetanus developed among 13,124 horses who had received prophylactic injections of the serum.

In 1906 Jacobson and Pease called attention to the possibility of infection from the intestinal tract and they collected five cases in which tetanus followed operations even though these had been performed under aseptic conditions. More recently Richardson[12] studied a group of 21 cases of post operative tetanus and found that more than 90 per cent. of these cases followed operations during which the peritoneal cavity had been opened. He concluded that these operations favored the activity of tetanus bacilli which already were present in the intestinal tract.

It has been said that the feces of 5 per cent. of ordinary men contain tetanus bacilli, and that in those who work around horses this proportion is increased to 20 per cent. It has been demonstrated, too, that the tetanus bacilli, without losing their vitality, are capable of passing through the intestinal tract of domesticated animals. The bacilli gains entrance to the human body by being ingested with uncooked food products that have been grown in soil fertilized by manure. In view of these facts, and having had two deaths from postoperative tetanus in his own practice, Matas[13] advocates thorough purging and restraint from uncooked food for three days prior to operations in regions exposed to fecal contamination. If these measures cannot be taken then 10 c.c. of antitetanic serum may be administered.

In spite of the great value of antitetanic serum as a prophylatic this agent is not as efficient when used for curative purposes after symptoms of tetanus have developed.

A fact which one always must take into consideration in the making of statistics is the inherent tendency of many physicians to report only their successful cases. For this reason any mortality percentages which are based upon compilations of the case reports in the literature must be more favorable than the reality. To my knowledge there are only three extensive compilations of reports of tetanus cases treated with serum. These are the table of Anders and Morgan[12] and the collections of reports summarized by Moschcowitz[13] and by Jacobson and Pease[3]. As the first two of these consist of material collected from the literature the mortality percentages which are deduced are entirely too favorable. Statistics based upon the collection of Jacobson and Pease must be reliable for the reason that their compilation contains abstracts of all the cases of tetanus treated in many large hospitals or by surgeans connected with these institutions and of all the cases in New York State for which the State Department of Health furnished serum.

According to Moschcowitz the use of serum has reduced the general mortality of tetanus from 90 per cent. to 40 per cent. But the more reliable statistics of Jacobson and Pease show that the mortality was 69.6 per cent. in 191 cases treated with serum. Of these cases the mortality was 84.2 per cent. in 127 cases whose period of incubation was less than 10 days, and in 64 cases whose period of incubation was greater than this, the mortality was 40.6 per cent. The statistics which Anders and Morgan and which Moschcowitz have based upon case reports gleaned from the literature and which are less reliable on this account, decrease the mortality of tetanus to 61 per cent and 51 per cent., respectively, when the period of incubation is less than 10 days. As typical of the mortality statistics of tetanus before the introduction of antitetanic serum Richter's table[13] of 205 cases of the disease may be drawn upon. This table, consisting almost entirely of cases which had resulted from

injuries received in the Franco-Prussian war, shows that the general mortality was 84.6 per cent. The mortality rose to 95.7 per cent. in 116 cases whose period of incubation was less than 10 days, while it fell to 70 per cent. in 89 cases whose period of incubation was more prolonged. Taking these statistics as standards we may say that serum has reduced 11.5 per cent. the mortality of acute tetanus, 29.4 per cent. the mortality of subacute tetanus, and 15 per cent. the general mortality.

In consideration of the extremely fatal nature of tetanus and in spite of the fact that most cases seem to be uninfluenced by serum, we are never justified in refraining from its use in the treatment of developed cases of the disease. In an editorial in the *Journal of the American Medical Association*[14] the value of the serum has been summed up as follows: "it may be stated, dogmatically, that the value of tetanus antitoxin as a prophylactic agent is very great, and its efficiency nearly absolute; as a curative agent it is by no means worthless, and undoubtedly it saves not a few lives when properly used." When using the serum for curative purposes it is advisable to administer large quantities. Harmful effects of this agent have not been known to occur and some cases seem to have been saved only by reason of the large quantity of the serum which had been used. Larned[15], for instance, speaks of an apparently hopeless case which recovered following the injection of 198,000 units.

Some years ago Roux and Borrel[16] originated the intracerebral method of injection of antitetanic serum. This procedure, since then, has been tried in a small number of cases, though not only is it dangerous but its value over others is decidedly questionable. The recovery of tetanus bacilli from a large suppurating wound, even after the patient had begun to improve, was an interesting feature of a successful case, reported by Church,[17] of intracerebral injection of serum.

Intraspinal injection of serum, evolved by Blumenthal and Jacob,[18] besides being less dangerous than intracerebral injection, is more rational and is productive of better results. The intraneural method, employed in the second case reported in this paper, is based upon principles which seem to be worthy of consideration. According to experimental research the toxin of tetanus is conveyed by the motor nerves from the injury to the spinal cord, and by injection of these nerves high in the wounded limb the upward flow of toxin is supposed to be blocked. This method, combined with intraspinal and even intramedullary injection of serum, has been strongly advocated by Rogers.[19, 5] In a recent case whose period of incubation was about 17 days which was reported by Stimson,[20] injection of serum into the sciatic nerve of the affected side was not followed by relief but, on the contrary, four days later the patient developed general tetanic convulsions. Though this patient eventually recovered the apparent inefficiency of the intraneural injection would be accounted for, according to Rogers' explanation of a similar case of his own[5] by the failure to inject all the motor nerves of the wounded limb.

Probably the most common mode of administration of serum is by means of a combination of subcutaneous and intraspinal injections.

Concerning the comparative virtues of the different methods of injection the following table, constructed from the figures of Jacobson and Pease, speaks for itself:

Subcutaneous				Combined				Intraspinal			
Acute		Subacute		Acute		Subacute		Acute		Subacute	
Cases	Mort.	Cases	Mort.	Cases	Mort.	Cases	Mort.	Cases	Mort.	Cases	Mort.
70	81.1	34	32.3	41	90.2	19	57.8	7	57.1	3	0

In this table a case was termed acute when the period of incubation was less than 10 days and subacute when it was longer than this. The heading "combined" comprises those cases in which the serum was injected into two or more different structures. According to these figures the intraspinal method is productive of the lowest mortality. Of 11 patients who received intracerebral injections of the serum only 1 recovered. The mortality, 91 per cent., when this procedure is adopted, is the highest of any of the methods.

The Baccelli treatment of tetanus consists in the subcutaneous injection, every 2 to 4 hours, of a 2 per cent. solution of carbolic acid. Commencing at a daily dose of 150 minims of this solution the quantity administered rapidly should be increased until three or four hundred minims are injected daily. In Italy, this method is said to have a mortality as low as 10 per cent., but it is thought, by many observers, that tetanus is not severe in that country. In other countries the results of this form of treatment have been unsatisfactory. Not any favorable results could be attributed to the injections in the single case, a fatal one, in which I employed the Bacelli treatment in addition to serum and hypnotic drugs.

Recently it has been discovered that subarachnoid injections of a solution of magnesium sulphate is more effectual than all other methods of treatment of tetanus. Inspired by the experimental researches of Meltzer and Auer[21, 25] and of Haubold and Meltzer,[26] Blake[27] made use of subarachnoid injections of magnesium sulphate in the attempt to produce surgical anesthesia. In this his results were not entirely satisfactory, but upon applying the same procedure to two cases of tetanus he was successful in saving one. Since then a number of cases of tetanus have been treated in this manner. The reports of these cases show that one subarachnoid injection of magnesium sulphate is capable, in a few minutes, of producing a state of complete relaxation that persists for an average of 24 hours. In this manner not only are the tetanic convulsions abolished, but the patient's strength is conserved.

The disadvantages of the treatment are: possibility of excessive secretion of bronchial mucous which, however, may be inhibited by the use of atropine; catheterization perhaps necessitated by

incontinence of urine; and, if the quantity of magnesium sulphate be too large, the danger of death resulting from the depressing effect of the drug upon the respiratory center. The strength and quantity of the solution of magnesium sulphate has varied much in the hands of those who have made use of the drug in tetanus. If possible, it would appear to be preferable to commence with a dose of 1 or 2 c.c. of a 25 per cent. solution and to increase the quantity if necessary. Four c.c. of this solution seems to be the maximum safe dose. It has been recommended to inject 1 c.c. of a 25 per cent. solution for every 20 pounds of body weight. In some of the cases that have been reported the dose seems to have been too large when determined by this posological rule.

The following table contains summaries of all the reported cases of tetanus treated with intraspinal injections of magnesium sulphate that I have been able to collect in a careful search of the literature:

Case	Reporter	Age	P. I.	Other Treatment	Dose 25% Mg.	No. of Inject.	Result	Remarks
1	Blake[27]	15	7	Serum and hyp.	4 to 4½ c.c.	7	R	
2	Blake	4	7	Serum and hyp.	1½ c.c.	1	D	Hopeless from start. Tetanus bacteriemia.
3	Logan[28]	11	9	Serum and hyp.	4 c.c. and 50 m.	2	D	Cardiac collapse. Bronchorrhea.
4	Logan	24	17	Serum	4 c.c.	2	D	Death from asphyxia during a convulsion. No good results.
5	Meltzer and Auer[25]	35	4	Serum and hyp.	1 c.c. for 18 lbs. 1 c.c. for 25 lbs.	2	D	Resp. not paralyzed.
6	Franke[29]	32	12	Hypnotics	1 c.c. to 2 c.c.	3	R	
7	Robinsion[30]	11	—	Hypnotics	3 c.c. to 4 c.c.	3	R	
8	Henry[31]	9	39		3 c.c.	3	R	Severe case.
9	Henry	19	6		6 c.c.	1	D	Severe case, collapse on fourth day.
10	Henry	9	6		2 c.c. to 2½ c.c.	2	D	Hopeless from start.
11	Henry	45	18	Serum	6 c.c.	2	D	Collapse probably due in part to the inject.
12	Miller[32]	7	7	Serum and hyp.	3 c.c. of 25% 2 c.c. of 16.6%	11	R	Bronchorrhea and resp. red. in freq.
13	Heineck[33]	17	6	Serum	5 c.c.	5	R	
14	Powers[34]	adult	10	Serum and hyp.	2 c.c.	2	R	
15	Ramond et Doury[35]	21	6	Serum and hyp.	6 c.c. to 3 c.c.	3	R	
16	Griffon et Lian[36]	18	14	Serum and hyp.	2 c.c.	2	R	
17	Tanton[37]	adult	8	Serum and hyp.	12–15 c.c. of 7%	3	D	
18	Debre[38]	8	—	Serum and hyp.	2 c.c.	1	D	Death from asphyxia during a convulsion. Inj. should have been repeated.
19	Winthrop[39]	13	9	Serum and hyp.	3 c.c. to 4 c.c.	3	R	
20	Goepp[40]	8	20	Serum	2 c.c.	12	R	
21	Hessert[41]	8	6	Serum	3 c.c.	1	D	Cardiac collapse probably due to overdose of Mg. sulph.
22	Hessert	13	7	Serum and hyp.	3 c.c. to 5 c.c.	8	R	
23	Fox	12	4-6	Serum and hyp.	25 m. of a sat. sol.	2	R	Injections devoid of benefit. Recovery due to the hypnotics. Very severe case.
24	Fox	41	5	Serum and hyp.	3 c c. of a sat. sol.	1	D	Injection was beneficial. Probably prolonged life many hours. Death from asphyxia during a convulsion. Very severe case.

A study of this table shows that 11 cases having died the general mortality was 45.8 per cent. Of 22 of the cases in which the period of incubation was known there were 16 in which this was 10 days or less, and 6 cases in which the period of incubation was greater than 10 days. The mortality in the acute cases was 50 per cent. and in the chronic cases 33 per cent.

These figures seem to indicate that intraspinal injection of magnesium sulphate, in combination with other forms of treatment, offers the greatest chance of cure. Naturally, statistics drawn from these few cases are open to the same objections that I have mentioned in speaking of the unreliable nature of all statistics based upon compilations of cases drawn from the literature. Even so, the magnesium sulphate treatment in individual cases seems to have been productive of more immediate, more decided, and more lasting beneficial results than those which are obtained by the other methods in vogue. When employing this treatment it may be necessary to make use of morphine, bromides, and chloral, and it is advisable to administer serum for the reason that magnesium sulphate is not a cure for tetanus. The treatment may be looked upon only as a means to prevent exhaustion of the patient by reason of the tremendous amount of energy that would be expended in tetanic convulsions and, in this manner, his natural forces of resistance, assisted by antitetanic serum, are enabled more successfully to combat the infection.

Case IV.—Summary: Period of incubation, four or six days; magnesium sulphate treatment ineffectual; recovery probably due to chloral and sodium bromide; a severe case.

Between April 23 and April 25, 1910, the patient, a boy of twelve, while playing around a stable ran a nail a short distance into his great toe. Four or six days later rigidity appeared, first in the jaw, and then rapidly increased so that his jaws became completely locked and his whole body extremely rigid. At this time, May 4, he entered the West Philadelphia General Homœopathic Hospital. Opisthotonos was so great that he was unable to lie upon his back; yet there was little tendency to tonic convulsions. Although entirely healed the wound was opened up and thoroughly cauterized with carbolic acid. At first he was given subcutaneous injections of increasing doses of a saturated solution of magnesium sulphate in addition to subcutaneous injections of antitetanic serum. As his condition rapidly was becoming extremely grave, is was decided to administer magnesium sulphate by means of the intraspinal route. So rigid were his muscles that it was impossible to palpate the crests of the ilium, and, opisthotonos being extreme, it was with difficulty that a needle could be introduced between the vertebræ. The first intraspinal injection of 25 minims afforded little if any relief, so increasing doses of sodium bromide and chloral were ordered. A second intraspinal injection was attempted the next day, but the needle probably did not enter the dural sac and no effect was noticed. After this magnesium sulphate was abandoned. It was found necessary to administer as much as 10 grains of chloral and 60 grains of sodium bromide every four hours in order to produce any effect at all. After giving 27,000 units of antitetanic serum during the first two days without any signs of improvement this treatment was discontinued. After the patient had been in the hospital five days he began slowly to improve and the hypnotics were gradually withdrawn so that at the end of four days all medical

treatment was discontinued. Subsequently the symptoms gradually improved, and he was discharged perfectly well June 6, 1910. During the height of the rigidity the patient exhibited scarcely any stupor in spite of the large amount of chloral and bromide that was being administered. But during the withdrawal of these agents increasing stupor became apparent, and even after the drugs had been discontinued for several days he was more stuporous than at any time before. The stupor gradually disappeared during the course of twelve or fourteen days.

CASE V.—Summary: Period of incubation, five days; treated with serum, hypnotics, and intraspinal injections of magnesium sulphate; death on the fifth day.

May 19, 1910, a woman, æt. 41, bruised her thigh, but there was not any break in the continuity of the skin. The same day she swallowed a sharp piece of bone which seemed to cut her throat. During the evening of May 24 slight nuchal rigidity and pain appeared and she bit her tongue several times. The following morning trismus, headache, and vomiting developed and she was unable to swallow. May 26 the trismus had become absolute, nuchal rigidity was pronounced, the knee jerks were greatly exaggerated, and Kernig's sign was present, but there had not yet appeared any rigidity or spasms of the muscles of the extremities or trunk. Commencing early in the morning of May 26 the patient received a subcutaneous injection of 3,000 units of antitetanic serum every four hours. As she had not been able to swallow any food since the morning meal of May 25 rectal alimentation was adopted. Being called in consultation with her physician, Dr. George F. Baier, Jr., it was decided not to begin treatment with hypnotics and injections of magnesium sulphate until the condition became severe enough to necessitate such measures. The period of incubation being short a severe type of the disease was expected, and, consequently, it seemed best to reserve these methods of treatment for the period when they would be most needed. May 27 in the afternoon opisthotonos appeared and the patient began to have frequent attacks of slight general twitching. From the onset of symptoms she had expectorated profusely but now each attempt to raise mucus resulted in laryngeal spasms. Moreover, respiration was somewhat superficial and cogwheel in type. So hyperesthetic had she become that the preparations for lumbar puncture brought on a severe and prolonged general tonic convulsion, with almost complete suspension of respiration. Asphyxia being imminent she was quickly chloroformed and 3 c.c. of a saturated solution of magnesium sulphate was then injected after removal of about an equal quantity of clear spinal fluid. About a half hour later the rigidity had entirely disappeared except from the muscles of the head and neck. Rectal injections of 5 grains of chloral and 60 grains of sodium bromide were then commenced; the mixture being administered every six hours, or more frequently as the occasion arose. Three hours after the injection of magnesium sulphate the patient's respiration became more labored and superficial and the secretion of mucus more profuse. These symptoms continued about ten hours and though alarming they were kept under control by three injections of atropine, gr. 1/100 each. At 4 A.M., May 28, a severe tonic convulsion developed affecting only the respiratory muscles and those of the head and neck. In the course of this attack, which lasted about two minutes, the tip of the patient's tongue was bitten off. During the morning of May 28 and the previous night the patient was comatose and her extremities continued to be completely relaxed. Even the trismus had almost entirely disappeared. Towards afternoon she became delirious and her temperature, which had been gradually increasing from May 26, had risen to 104°. Later in the afternoon the delirium disappeared and the patient was able to recognize members of her family and to talk with them. Decided spasms only of the muscles of the head and neck and of respiration commenced in the evening; one being severe enough to necessitate the use of chloroform. As the muscles of the extremities were completely relaxed it was thought inadvisable to repeat the intraspinal injection at that time. Accordingly 10 grains of chloral and 90 grains of sodium bromide were administered by rectum every four hours and as often as necessary in the intervals. Death from a prolonged spasm of the respiratory muscles occurred May 29 at 6.30 A.M. The one injection of magnesium sulphate produced what appeared to be complete paralysis of both the upper and the lower extremities. At the end of about twenty hours voluntary use of the extremities returned, but until death occurred not any of the spasms affected the muscles of the extremities. The injection did not appear to exert any effect upon the rate of the heart or upon the character of its action. The poor quality of the respiration was aggravated but there was not any decided change in the respiratory rate. In Miller's case, however, the respiratory rate dropped to 7 per minute after one injection and as low as 5 per minute after another. Urinary retention was not produced by the drug; the urine continuing to be voided involuntarily. The probable location of the point of infection in the upper alimentary canal may have had some bearing upon the early development of respiratory symptoms and dysphagia, and upon the great intensity of these manifestations as compared with the symptoms dependent upon spasmodic muscular activity in other parts of the body.

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2126 PINE STREET.

ELECTRIC SLEEP IN PATHS OF DISPLACEMENT CURRENTS: NEW FINDINGS.

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AT the annual meeting of the American Medical Association, held at St. Louis, June, 1910, we presented, in the Section of Pathology and Physiology, studies on "electric" sleep. The currents used were direct currents frequently interrupted, as well as displacement currents. In order to eliminate all doubt as regards the effects of displacement currents on animals, we studied the effects of these currents on muscle-nerve preparations of frogs. The reactions obtained both by "unipolar" and "wireless" methods showed conclusively the positive effects of these currents. Sleep obtained in dogs placed in paths of displacement currents was not a misinterpretation.

Since the above meeting we have made further studies of muscular reaction in paths of displacement currents. In our first studies the muscle was not insulated; the stand holding the muscle-nerve preparation was upon an ordinary table. It was naturally supposed that in the "unipolar" as well as the "wireless" reaction the "grounding" of the preparation was a foregone conclusion. The myograms shown here demonstrate that excellent reaction is also obtained when everything connected with the experiment is insulated. The experiment was conducted as follows:

An insulating platform made for a twenty-four plate static machine was used. The legs of the platform are one foot high and two inches in diameter. The apparatus, muscle-nerve preparation, registering drum, as well as the operator, were upon this platform. The muscle reactions registered in the accompanying myograms demonstrate that "grounding" of the preparation is not necessary; that the currents affecting the tissues in this case are currents of free waves in the air; there are no grounded waves here.

It is not necessary to report here the complicated experiments requiring special and rare apparatus unknown to the profession. With special apparatus may be shown reaction at considerable distance with wireless currents. It is more useful to present here the traces registered in the accompanying myograms, showing wireless reaction at short distances and unipolar reaction. The apparatus used is a simple primary coil without the secondary coil. Every experimenter can verify these results.

This primary coil is ten inches long; it is made of six layers of wire; the diameter of the wire is 12/10 mm.; the core is one inch in diameter. The interrupter is a ribbon vibrator. The direct current used for running the coil is 120 volts of one-half ampere. There is a condenser on the primary current.

The muscle-nerve preparation, the registering drum, the coil, as well as the operator, are upon the platform. The muscle-nerve preparation is covered with a glass globe. There are two non-polarizable electrodes in the wet chamber; these electrodes are filled with a saturated solution of zinc sulphate; wires connect these electrodes with binding posts on the disc of the wet chamber. The nerve of the preparation lies across the two non-polarizable electrodes.

The primary coil is put into function by turning on the direct current. The reactions obtained are explained below.

Myogram No. 1.

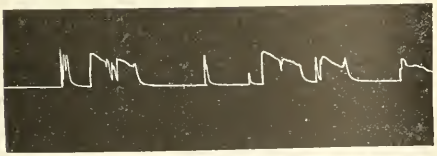
Myogram No. 1. Wireless method.—One end of a wire is screwed into one binding post of the wet chamber; the free end of the wire is held by the operator with his hand near the magnetic flux—two inches away from the core.

Myogram No. 2.

Myogram No. 2 Unipolar reaction.—Operator touches with free end of wire anode or cathode of binding post of direct current running primary coil. This reaction is also obtained when switch connecting the two binding posts is open. These latter reactions are more marked in the beginning of the experiments—before the muscle becomes exhausted. In these experiments the reactions died away with contact of the negative pole before they did with that of the positive pole.

Myogram No. 3.—Operator touching with free end of wire metallic rod near vibrator; with the other hand any metallic part of the registering drum

holding this trace or any metallic part of stand of wet chamber.



Myogram No. 3.

Reaction was also obtained as follows: An assistant standing on concrete floor touched with one hand the free end of wire attached to gas jet (the direct current is a three-wire current, the neutral wire being grounded), with the other hand he touched the free end of wire screwed into wet chamber. With this method reaction was not always obtained. Touching the free ends of the two wires gave better results, but not invariably.

There was no weight on this muscle. The frog was of splendid vitality before the muscle was dissected out from it. It had been caught in the open the day before the experiment.

Trace No. 1 leaves no doubt as regards the effect of free electric waves in the air on living tissue. Our studies on electric sleep by means of displacement currents reported at the above mentioned meeting present the following interest: The currents used by us (direct, frequently interrupted) for electric sleep as well as for surgical operation in man* cause a disagreeable sensation of tingling in the brain when applied centrally. Whereas free electric waves in the air or wireless currents do not cause any disagreeable sensation. We have demonstrated the possibility of producing physiological effects on living tissue and on animals (dogs) by means of wireless currents. In the case of the frog's muscle the work is done on a miniature scale. The displacement current was too weak to be detected with an ordinary telephone receiver. This scale will have to be enlarged for purposes of practical application in man. Further researches are now in progress for this purpose.

In view of these experiments the laboratory method of demonstrating to students muscular reaction in "wired" and "closed" electric circuits seems to be out of date, and failure to demonstrate reaction because of "bad contact" in the secondary circuit becomes amusing, when reaction can be obtained without "contact" and without secondary currents.

When an ordinary small primary coil is used, the size currently used by physicians in their induction apparatus, reaction is obtained as follows: The wet chamber is put into a wired "circuit" with a gap of from 2 to 5 centimeters; a switch in the circuit is opened to cause the gap.

But even without this gap the method is practically unipolar, because the circuit does not exist, properly speaking; it is formed as follows: one wire is fastened to any metallic part near the magnetic flux—any binding post, the operator touching with the free end of the other wire any part of the ribbon vibrator, or either of the binding posts of the switch controlling direct-current, feeding primary coil, etc. While making these contacts, additional reaction is obtained if the operator touches with the other hand the base of the stand holding the preparation, base of registering drum, or any other metallic part in the path of displacement current.

We are indebted to Dr. F. M. Law, of New York, for various suggestions in this work.

28 W. 126TH STREET.

*Dr. M. M. Johnson: "Electric Anesthesia," MEDICAL RECORD, April 23, 1910.

IMPORTANT EVENTS IN THE DEVELOPMENT OF GASTROENTEROLOGY.*

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IN the president's address, which I had the honor to deliver last year, I attempted to draw attention to some of the important events occurring in the field of gastroenterology in America during the 19th century, and it appeared to me after this undeserved honor had been bestowed upon me again, that I could not do better than present to your consideration a few of those epoch-making events in the development of gastroenterology which have accomplished so much in placing this branch of medicine upon a firm scientific basis, and have elicited so much interest in its special study.

No one who is especially interested in diseases of the stomach should fail to read that most important article "Uber die Behandlung der Magenerweitering durch eine neue Methode mittlest die Magenpumpe" by Kussmaul in the *Deutsches Archiv fuer klinische Medicin* in 1869, in which a most ingenious method of treatment laid the foundation for an exact mode of diagnosis in gastric disturbances. In this valuable work, Kussmaul tells of the difficulties besetting the treatment of advanced forms of dilatation of the stomach due to narrowing and closure of the pylorus. "Very exceptionally was it possible to obtain any results in the treatment of this dreadful disease. As a rule it may hardly be possible ever to expect an amelioration of the symptoms, and never possible to produce a cure." Kussmaul, who was director of the Freiburg Medical Clinic, was rather reluctant in admitting to his clinic a country girl, Marie Weiner, twenty years of age, who had been troubled with gastric disturbances for 11 years, and in whom he found a typical example of dilatation of the stomach, produced by stricture at the pylorus due to ulcer. The patient was very pale and emaciated and so weak as to be unable to leave her bed; she suffered greatly from vomiting of extremely large quantities; from gastric pain, sleeplessness, and attacks of tetany and was relieved of her suffering only by means of morphine. Kussmaul says: "Often when I observed the patient in the wretched prodromal stage of vomiting the thought had occurred to me that I might relieve her suffering by the employment of the stomach-pump, as the removal of large masses of decomposed acid gastric contents should cause relief from the agonizing burning and retching at once. The introduction of the sound could be performed without difficulty, for where a gastric dilatation has existed for so long a period of time the esophagus is usually dilated. The artificial emptying of the stomach by the pump could be no more painful or distressing than the condition existing before and during vomiting; at any rate, its effect would be more rapid and complete than the emptying of the stomach by means of vomiting,

*President's address, read at the thirteenth annual meeting of the American Gastro-Enterological Association at St. Louis, June 6, 1910.

with its prolonged prodromal stage of nausea, pain, and retching. Often, even after vomiting, palpation and percussion indicated that the stomach still contained considerable masses of contents. This condition reminded me of the so-called ischuria paradoxa, in which large amounts of urine flow daily from the dilated bladder without its actually emptying itself and without reducing its size. By means of the pump it is possible to empty the stomach completely, and, if its elastic and contractile powers have not been entirely lost, perhaps even give to it the tone to contract a certain degree, as the catheter occasionally brings about recovery in ischuria paradoxa." "In our patient the gastric dilatation was occasioned by stricture at the pylorus. At the post-mortem examination of cases of extreme gastric dilatation, I have repeatedly found that the stenosis which was present would still admit the passage of a small finger from the stomach into the duodenum, although there had appeared to be complete closure of the pylorus toward the end of life. In such cases I had at times observed at the bedside through the abdominal walls active movements of the stomach. It appeared to me as though the excessive distention, the filling and overloading of the stomach itself, produced a mechanical action which increased the constriction of the pylorus to complete closure. I was desirous of removing this condition by emptying the stomach and decreasing its size. Finally, it appeared to me that the use of the stomach-pump would permit a more thorough treatment of the diseased gastric mucous membrane than was ever before accomplished. In the case of our patient this had for 2½ years been constantly irritated by extremely acid contents. The stomach-pump would not only make it possible completely to evacuate these acid acrid masses, but would permit the washing and cleansing of the diseased mucous membrane, which had been irritated by acids with alkaline fluids, as, with vichy water or with an artificial soda solution." "The introduction of the stomach-tube, the pumping out, and washing with vichy water were usually easy. We withdrew three liters of acid, dirty-gray, sarcina-containing fluid, with particles of food of all kinds undergoing softening and decomposition." This was first accomplished on July 22, 1867.

Although most enthusiastic over this new method of treatment, Kaussmaul realized its limitations. He recognized that only where slight constriction of the pylorus existed, was he able to cure cases of dilatation of the stomach by lavage. In cases of malignant stenosis of the pylorus, and marked cicatricial contraction relief only could be afforded, and not a cure. He says: "Naturally it is impossible to expect a cure of a dilated stomach by means of lavage when the pyloric orifice is narrowed to such an extent that it will hardly admit even as much as a goose quill." It is here that Kussmaul points out the possibility that surgery may at some future day bring relief to these cases, and it is possible, as Fleiner suggests, that perhaps it may have been the inspiration of this remark that led Billroth at a not very distant date to attempt to cure in curable forms of gastric disease by surgical measures. Thus a new method of treatment, this epoch-making work of the great master Kussmaul, furnished the impetus for the study of gastric diseases according to modern scientific methods and led to the use of the stomach-tube, not only as a new method of treatment but also of diagnosis.

A year later (1870) Jürgensen pointed out the disadvantage of the stomach-pump, as recommended by Kussmaul. The pump is difficult to cleanse and in fact its use is superfluous. Jürgensen here introduces the principle of syphonage into the practice of gastric lavage, which entirely eliminates the use of the pump in this form of treatment. The soft rubber tube is also here recommended, and Jürgenson fully explains the method of introduction of the stomach-tube, the position to be assumed by the patient as well as the method of practising the syphonage in freeing the stomach of its contents. This contribution must be classed as a distinct advance in the therapeutics of gastric diseases. Jürgensen utilized the rubber tube terminating in a perforated ivory bulb. The bulb was guided by means of a wire stylet. Four years later (1875) Ewald called attention to the fact that any rubber tubing having sufficient resistance could be introduced into the stomach without the use of a guide.

While Kussmaul drew attention to the therapeutic value of the stomach-tube, it remained for Leube at the Rostock Naturforscher Versammlung in 1871 to point to the value of the stomach-tube as a diagnostic measure and also to emphasize the fact that it is impossible to arrive at a proper conclusion concerning the nature of gastric conditions without the use of this instrument.

Twelve years later (1883), Leube established his test meal as a means of determining the state of motor sufficiency of the stomach, concluding that a normal stomach should be empty seven hours after the ingestion of a meal of soup, broth, steak, and bread. This test of Leube's is recognized to-day as a most valuable means of determining variations in the motor function of the stomach. Leube also at this time analyzed the gastric secretion obtained from the stomach by utilizing mechanical influences, for instance, from the irritation produced by the prolonged use of the sound; by chemical influences, the ingestion of soda-water; and by thermic stimulation in swallowing ice-water. It was not long after (1883) that Leube developed his well-known scale of the digestibility of various foods, which he earnestly advocated as a means of diet in the treatment of ulcer of the stomach. He divided the various food stuffs, according to their digestibility, into four classes. This work is most valuable, pointing as it does to the importance of diet in gastric diseases, and marked an advancement in the therapeutics of diseases of the stomach.

Riegel (1881) showed the difficulties encountered in obtaining gastric juice by stimulating the gastric secretion by means of ice-water, according to the method of Leube, as but minimal quantities are thus obtained. He therefore advised the withdrawal of the gastric contents after his well-known test dinner of soup, beefsteak, bread and water, and also established the fact that the most favorable time for removal is at the height of digestion. He demonstrated here, too, that the absence of hydrochloric acids is a usual occurrence in cancer of the stomach, though this acid is at times absent in other conditions.

In their classical work on the "Physiology and Pathology of Digestion" (1885-1886), Ewald and Boas presented their experiments regarding the appearance of free hydrochloric acid and lactic acid in the stomach contents and also drew attention to other important factors connected with the chemistry of gastric digestion. They, too, accept the height of digestion as the period best adapted for the withdrawal of the gastric secretion for the pur-

poses of examination. Ewald here fully described his test breakfast and presented its advantages as well as its importance in the diagnosis of gastric disease. The expression method of obtaining gastric juice is also described and is adopted as the simplest method for obtaining this secretion.

Van den Velden (1879), an assistant of Kussmaul, was the first to use anilin dyes as a means of detecting free hydrochloric acid, adopting the idea of Witz published several years before, who utilized these reagents in detecting free mineral acids present in vinegar found in the market. He also utilized acid rosanilin (fuchsin) for this purpose and advised the use of tropaeolin, presenting the following table indicating the change in color produced by the presence of free hydrochloric acid.

	Gastric Juice.	
	—HCl.	+HCl.
Methylanilin violet	Violet.	Light blue.
Acid rosanilin	Red.	Colorless.
Tropaeolin	Yellow.	Red.

Van den Velden also points out that there are certain cases of dilatation of the stomach which are not due to a carcinomatous stricture at the pylorus and which present free hydrochloric acid while those forms due to carcinoma usually show an absence of free hydrochloric acid.

Ewald (1880) soon combated the conclusions arrived at by Van den Velden concerning the significance of the anilin dyes in the detection of free hydrochloric acid, and some years later (1886) Cahn and Mehring also presented evidence to invalidate the significance of the anilin dyes in the detection of this secretion. These investigators were able to detect the presence of hydrochloric acid in certain instances in which Methylanilin violet no longer indicates its presence and as a consequence they declared against the use of the color reagents in the determination of hydrochloric acid. Honigmann and von Noorden (1888) also observed that the gastric juice, which did not react to color reagents still contained some acid that reacted to litmus. If a known quantity of hydrochloric acid were added to this gastric secretion a deficiency of the hydrochloric acid was afterwards always observed. This demonstrated that a certain amount of the hydrochloric acid was not free acid but combined. The necessity was therefore shown of differentiating between free and combined hydrochloric acid. A marked advance in the diagnosis of gastric diseases was made by Guenzburg's (1887) announcement of his test for the detection of free hydrochloric acid. This test reacts to free mineral acids alone, and never to organic acids. Uffelmann (1880) added another advance by the presentation of his test for lactic acids.

Reichmann (1882) was the first to draw attention to a peculiar symptom complex associated with a continuous secretion of gastric juice, in the fasting stomach. This condition was termed gastrosuccorrhea. He here reports a single case: The patient, a man of twenty-seven years, had been suffering with a digestive disturbance for six years; believing that his trouble had its origin in drinking large quantities of cold water. The symptoms manifested were pains in the stomach, heartburn, and frequent attacks of vomiting, especially after meals. The vomiting finally ceased but the pain continued, especially at night, and was most violent in the early morning.

Reichmann obtained from the stomach a liter of dirty green fluid of an acidity of 0.2 to 0.3 per cent., containing bits of bread and barley. The patient felt improved when his stomach was emptied. Lavage was then practised in the evening and yet a marked quantity (180 to 300 c.c.) of gastric fluid of an average acidity of .25 per cent. was obtained the following morning. But little attention was attached to this observation and two years later Reichmann reported a second case of the same disorder. In the following year (1885) Riegel thoroughly investigated this condition and added materially to our knowledge of the subject. His pupil Honigmann assisted in this work. Almost coincidently Sahli published his investigations in which he showed that gastric hypersecretion not only occurred continuously but also intermittently. This subject was further elucidated by Riegel, Jaworski, Gluzinski, Van den Velden, Stricker, and others, and created a considerable controversy as to whether this disorder is a disease *sui generis* or whether a gastrectasia is the primary factor in its causation.

Following the well known investigations of Beaumont, and similar experiments upon individuals having gastric fistulæ made by Richet and by Uffelmann, Penzoldt's work on the study of the digestion of food in the stomach published in the *Deutsches Archiv fuer klinische Medizin* in 1893 is most valuable. In these remarkable investigations Penzoldt describes the work undertaken by his students upon themselves under his direction. Each individual ingested certain quantities of food and removed the same at varying intervals with the tube in order to determine the length of time each food stuff remained in the stomach, assuming that the digestibility of food depends largely upon the time required for the stomach to empty itself. The experiments were undertaken by 14 students and the results collated by Penzoldt form a valuable and exhaustive investigation upon the digestibility of the various food stuffs and a most important addition to the study of modern dietetics.

The greatest credit is due J. P. Pawlow (1902) and his pupils for the many new facts discovered relating to the physiology of gastric digestion. Pawlow constructed a blind pouch from a portion of the stomach separated from the stomach itself by means of a septum of mucous membrane and communicating with the outside world by means of a fistula. He was thus able to study carefully the secretion of the gastric juice. Inasmuch as the innervation of the pouch was not interfered with, after the introduction of food into the stomach, the blind sac exhibited most clearly the secretion of gastric juice without the admixture of the food.

Among the conclusions arrived at by Pawlow, the following are most important. The amount of gastric juice secreted is proportionate to the quantity of food ingested; the secretion is acid and the more rapidly it appears the greater is the quantity of acid produced. The gastric juice appearing after a bread diet shows the most marked digestive activity; following this is the gastric juice appearing after a meat diet, and the least digestive activity is presented after a milk diet. Every variety of food stimulates a definite quantity of secretion; the average quantity of juice secreted every hour is one and a half times less after a bread diet than after a milk or meat diet, the digestion consuming a longer period of time. A latent period exists between the ingestion of the food and appearance of the secretion lasting from four and one-half to ten minutes. Nervous influences play an important rôle in the secretion of gastric juice as is demonstrated by

the fact, after feeding a dog in whom an esophagotomy has been performed (sham feeding), a certain quantity of gastric juice will appear in the gastric fistula within a few minutes.

Sham feeding has no longer any influence upon the secretion of gastric juice, provided the vagus has been severed, demonstrating the fact that the vagus is the secretory nerve of the glands of the stomach. Not only is gastric juice secreted by sham feeding, but also when the dog is tempted by the sight of food (appetite juice), the appetite being a strong stimulant to the secretory nerves of the stomach. Pawlow found that water is a weak stimulant to gastric digestion, the ash of meat as well as sodium chloride, hydrochloric acid, and soda do not stimulate the secretion; egg albumin and pure peptone have no effect on the secretion, while meat juice and beef extract are marked stimulants to the flow of the gastric juice. Starch, cane-sugar and grape-sugar have no influence, while starch paste and meat extract together markedly increase this secretion. Fats have no influence on the secretion of gastric juice, and when introduced into the stomach together with other food, diminish this secretion. Gastric digestion, therefore, is usually inaugurated by a central stimulation of the secretory fibers of the stomach glands (appetite juice); a certain time after the introduction of food, reflex stimulation begins in the stomach, while the psychical stimulation gradually disappears.

The value of surgical procedures in the treatment of certain disorders of the stomach was first discerned by the great master Kussmaul. In his work on gastric lavage he says "Naturally a cicatricial narrowing which cannot be dilated, even to the extent that a goose quill may pass through the pylorus, can never be cured by gastric lavage." "Whether in the most daring ages of a distant future an attempt may be made to produce radical results by gastrostomy and to form a gastric fistula and dilatation of the stricture by the knife or sound, no one can to-day positively assert. We fear that even the proposal of such a method of relief may expose us to silent or expressed ridicule." It was probably the inspiration of these remarks that led his friend, the great surgeon Billroth, to attempt to treat certain hitherto incurable forms of gastric disease by surgical methods. Billroth in 1877 first published a paper on a successful case of partial resection of the stomach, stating that this was but a step leading to an operation for removal of cancer of the stomach. But two years later, in reporting a similar case, he attempted to show that there were no insurmountable obstacles to the partial resection of the stomach either on anatomical, physiological, or operative grounds; "it must succeed."

Czerny and Kaiser (1878) experimented on a dog from whom they removed the entire stomach. The animal lived a long time after the operation and increased in weight. Pean (1879) was the first surgeon to perform resection of the pylorus. The patient died after five days. Rydygier (1880) performed the second operation, removing a cancer of the pylorus. The patient lived twelve hours.

Billroth and Woelfler (1881) reported four cases of partial resection of the stomach and pylorus, three of which were performed by Billroth and one by Woelfler. The first patient, Theresa Heller, age 43 years, was suffering with a large cancerous mass at the pylorus. The pyloric area was completely resected. The patient died four months after the operation. At the autopsy cancerous infiltrations of the peritoneum and of the retroperitoneal lymph glands were revealed. The second patient, Johanna Schoenstein, age 39 years, presented a carcinoma of the stomach situated in the left side between the umbilicus and arch of the ribs. The mass involved the pylorus, which was resected. The patient lived eight days after the operation and died of inanition. At the autopsy it was demonstrated that the cancer had been completely removed and no trace of peritonitis existed. The third patient, Franzika Heininger, presented a cancerous mass, rather nodulated, in the region of the pylorus. The mass was removed, the patient collapsed during the operation, and died from shock the same night. The fourth patient was operated on by Woelfler, who was given the opportunity of resecting a cancerous pylorus in a patient 52 years of age. The patient recovered from the effects of the operation, and two months afterwards was perfectly well, and was able to take all forms of nourishment without discomfort.

Woelfler (1881-1882) introduced the operation of gastroenterostomy into surgery. He first performed the operation in inoperable carcinomata of the pylorus in which complete resection of this portion of the stomach was no longer possible. Woelfler selected a portion of the jejunum about 40 cm. from the pylorus, drawing it over the transverse colon and omentum; the stomach and jejunum were finally incised and the two openings sutured together. The Heinecke-Miculicz pyloroplasty was devised by both Heinecke and Miculicz independently of each other. Heinecke's operation was first reported by Fronmueller in 1886 and Miculicz reported his operation in 1887.

I have pointed to but a few of the many contributions that have added to our knowledge of diseases of the stomach. To the great masters in medicine we owe a great debt of gratitude for placing the study of diseases of the stomach upon a firm scientific basis, and for attracting especial attention to this branch of medicine from which many of the more recent investigations in gastric diseases have emanated. Much has already been accomplished. May the great work continue, and may much in the future that is new, true, and great be accomplished under the auspices of this Association.

WHY THE EXCEPTIONAL CHILD IS ENTITLED TO RECEIVE TRAINING SUITED TO ITS NEEDS AT PUBLIC EXPENSE.*

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When we follow mankind in its path through centuries, beginning with the self-worshipping individual of the Greeks, on through the dark middle ages, where the value of the individual is absolutely nil, and approach the threshold of the modern era, there dawns upon us one of the most brilliant achievements of human reason in its path of progress, a most wonderful awakening of the social consciousness, the rise and development of the social sense of duty and obligation—the social conscience.

The beholder of the past meets with rather gloomy experiences; he finds villagers working as serfs, meekly submitting to oppression; men are

*Read before the conference of the Association for the Education of Exceptional Children April 20, 1910.

sold into bondage by greedy rulers; here and there chained into gangs like animals and succumbing to pitiful and heartrending suffering. One smitten by an infectious disease is cast into wilderness with neither medical care nor even a word of comfort or encouragement. But the era of enlightenment, the age of reason furnish a different picture. Hugo Grotious writes his "Jus Naturale and Jus Civile" and Herbert of Cherbury publishes his book "De Veritate." Laws are promulgated for the proper protection of the masses; the physically and mentally disabled are receiving proper care, not only are devastating epidemics combatted, but prophylactic measures for the prevention of diseases are instituted and irrespective of whether the individual is poor and incapacitated or not, he feels and knows his relation and obligation to society in general, and to the individual in particular. Here the value of the individual looms up as a positive one. And this social consciousness is manifesting itself gradually in wider circles. While Ellen Key terms the nineteenth century the century of the infant, for it is in this century that parents become more and more cognizant of their duties toward the offspring, it became the mission of the twentieth century to awaken in its social consciousness the sense of duty and obligation toward the growing generations, the most precious asset of the nation.

Fortunately, to most of our children society owes no other obligation than the shaping of the circumstances of their parents in such a manner as not to interfere with the successful progress of their progeny. In the discharge of its social obligations toward the adult, the exterminating of the slums and substituting of humane conditions for the poorest, the community has fulfilled its obligation toward the most of our children. But alongside of these—the normal and healthy children, who are in need of nothing more than parents and a home—there are thousands of abnormal, atypical, or exceptional children, who do not fit into the normal family or ordinary school environment, and to them and to itself through them society owes quite another obligation. They are in need of a particular kind of education in a particular environment and under specially trained guardianship. Thus we are facing the question: Is it the duty of the community to comply with this crying need? Shall the atypical or exceptional child receive training appropriate to its needs at public expense?

While the normal child is successfully nearing its goal in various walks of life, the atypical one is very apt to follow by-ways that may lead it on to inspiring and lofty aims or to frightful depths. A more or less nervous, eccentric, and unstable child under inexperienced supervision, or without any guidance at all, is apt to degenerate into a shiftless, turbulent, irresponsible mind, which frequently—nay, very frequently—ends in insanity or criminality; in a word, they may become leaders or misleaders. And that is exactly where the danger lies. Society suffers from these elements which are shiftless, erratic, and ineffective. They cause disturbances, they corrupt the morals, they are responsible for irrational modes of life, they harbor sinister methods in their vocations, they nourish perverse ideals and theories. The feeble-minded and otherwise abnormal and defective types of persons will, in most cases, be handed over to institutional care, or otherwise eliminated from the ranks of the struggling millions, even in childhood. But the "atypical or exceptional" cases, as we understand them to be, will not be so readily segregated and kept away from the life of society. They are apt to grow up among us as pointed out above, and become a constant menace to our institutions and to our national progress. From their ranks come the cranks, the demigogues, the mischief-makers, the trouble-brewers in homes and in public life; those whose warped mentality and eccentric intensity will distort the problems of the day. And yet if rationally trained and early disciplined they would materially add to our leadership, to the bone and sinew of our community, to some of the most valuable elements of progress.

Examples are numerous, and it is sufficient to mention the case of the boy Sidis, who discovered the fourth dimension. If this boy were put in ordinary schools and kept strictly to the required time and curriculum he certainly would not have proved so early a valuable addition to our progress, and who knows what would become of him were he not receiving proper training in a proper environment.

Is it not the manifest duty of the community, both from an ideal and a material standpoint, to pave the way of the exceptional child toward lofty aims and to bar it from debasement? Would not society act for its own best interests, would it not relieve itself of a cumbersome and dangerous burden, if the number of its insane and criminals should be materially reduced by proper prevention? Surely! But it is not only a matter of interest, righteousness as well demands this of the social body. As long as society arrogates to itself the right to punish crime, it is also its imperative duty to prevent crime, to nip it in the very bud.

Classes for the care and education of the unfortunate consumptive are being established and maintained; certainly a very wise precautionary measure against the dissemination of the disease, and at the same time guarding against ignorance with its inevitable consequences. Do we not in the same measure owe a duty toward the community in the case of the child that shows a tendency to suffer or already suffers from an infectious mental ailment with a proclivity to exert a baneful influence upon the plastic mind of its playmates and schoolmates in its youth with the dire consequences to the social body in their adult life? The segregation of the exceptional child is just as much indicated, as in the case of the consumptive. Ungraded and special schools and classes, such as are now being connected with public school systems, can do very good work with the so-called pseudo-atypical children—that is to say, those with whom a more individualized instructional training or discipline will suffice. Pseudo-atypical children are such whose progress in school had been hindered by repeated illness, change of schools, slower rate of development, or physical difficulties, such as lameness and deformities, slightly impaired vision or hearing, etc. Also children of unusually rapid physical development, without the genuine pathological precocity, and that class which is difficult of management (the naughty, troublesome, spoiled children) can be very satisfactorily reached by individual attention in such classes. But the atypical child requires, in most instances, irrespective of whether rich or poor, a removal from its home, which often has been a direct or indirect cause of the atypical conditions, into an environment where all educational forces can be scientifically coordinated. They require the closest observation and study, so that each manifestation can be understood in its causal-

ity and as a developmental symptom. Educators and physicians must cooperate in the study of the problem of the atypical child. It certainly is an appalling mistake to mass these exceptional children together with the normal ones in classes, the curriculum of which requires some kind of common proficiency in a large number of studies, the maintenance of which depends upon lockstep methods of teaching and of such reaction by the child as must inevitably destroy in the exceptional child the ability of asserting its individual growth. In fact, what is best and strongest and necessarily individual is as a rule irreparably curtailed and deformed by this mechanical grading, which is worse even in the well-equipped city schools than in those of rural districts, where one finds more freedom for the pupil if the teacher is at all conscious of the possibilities of the exceptional child.

Among some exemplary institutions Dr. Groszman's school for atypical children is the best evidence of how the apparently impossible can become an actual possibility in the matter of turning the abnormal child into a useful member of society. We have attained to the age of analysis and synthesis and have wrought marvels in the field of scientific research through the application of these principles. Dr. Groszman's school has proven eminently successful by applying these principles to the education of the exceptional child by analyzing its potentialities and synthesizing its units in proper proportions, thus creating a new equilibrium, a new readjustment in a new environment, a rearrangement of erratic ideas into normal streams of thought, and thereby inculcating new habits leading to normal, useful action. I plead that humanity, as well as selfishness; that charity, as well as justice, imperatively demand the education of the exceptional child in a manner suitable to its needs at public expense.

111 Second Street.

FURTHER OBSERVATIONS ON ALCOHOLIC GASTRITIS AND ITS RELATION TO EXPERIMENTAL GASTRITIS IN ANIMALS.*

By NELLIS B. FOSTER,

NEW YORK.

In a preliminary report[1] in 1904 I called attention to the effects on gastric secretion and motility of habitual excessive use of alcoholic beverages. That alcohol produces a disturbance in normal digestive processes has, of course, been long recognized by clinicians, but no one up to 1904 appeared to have studied in a systematic way the state of the secretion found in the stomach of chronic alcoholics.[2] This question is of peculiar interest because in the protracted use of alcohol we have in fact a long continued experiment which shows in some measure the effect which an irritating substance produces upon the gastric mucous membrane in man.

Those who habitually use alcohol in excessive amounts are subject to a certain train of symptoms with which clinicians are familiar; the most prominent of these being the morning retching. This nausea disappears after taking some alcoholic drink or after breakfast. If one investigate the secretory function of the gastric glands in these individuals it is found that the secretion is below normal in amount; the rule is that there is no free hydrochloric acid present, or if there be any it is only a trace. There is also an excessive amount of mucus. This diminution in the amount of secretion, along with the presence of an abnormally large amount of mucus, is to be understood as indicative of a gastritis, reflecting in this case, I think, a twofold effect, depression of the acidophylic cells and irritation of the mucous cells. It was constantly noted in my earlier cases that if a full hour be allowed to elapse before removing the test meal the amount recovered was very small, often not enough for an analysis, although lavage showed the stomach to have been emptied. It became necessary then to supplement the routine test breakfast by a larger meal which would remain longer in the stomach and give better data in respect to the motility. The modified Riegel meal best answered these demands and also served as a control on the data secured from test breakfasts. The results of more careful study confirmed the statements made in my first paper, namely, that there is an increase in motility causing the food to leave the stomach sooner than the same food substances do in normal persons.

Before discussing the causes of this condition I wish to mention that disturbances in the normal gastric secretion are not confined to those alcoholic patients who present the characteristic symptoms of the disorder. Not a few who give a history of over-indulgence in alcohol have no symptoms referable to digestion; yet when the gastric functions are investigated they are not found to be normal. There is seldom an anacidity as in the first group, but the secretion is very much diminished, the free hydrochloric acid not exceeding 10. This would suggest that we have to do in this group of cases with a less well developed grade of the same disorder, a supposition borne out not only by the absence of symptoms, but by the less profuse secretion of mucus; moreover, there is no evidence of hypermotility at this stage of the disease.

Aside from neurogenic causes, we can conceive of the stomach emptying itself more quickly in consequence of readjustment of the normal factors to meet abnormal demands. Normally the pylorus relaxes for the passage of chyme when free acid comes in contact with the antrum, but here there is no free acid, and either there must be a readjustment or serious results would ensue. It is conceivable also that the muscular tone of the pyloric sphincter is, under these circumstances, considerably impaired. That there is a hyperkinesis in this form of gastritis is then exactly what might be expected on purely theoretical grounds. Then, too, there is always a marked power of compensation in organic functions of which the increased motility may be regarded as an example, since, with the amounts of secretion found peptic digestion cannot well proceed at its optimum, and the passage of the food to the duodenum would initiate the tryptic process which is normally more efficient in proteolysis and digestion would continue uninterrupted. Briefly, this gastric disorder may be classified into two groups, first, the less advanced pathological state, where there is serious impairment in the activity of the gastric glands, but free, unbound acid still is present in the test meal and the food remains in the stomach for a normal period. Second, the advanced type of gastritis with anacidity, copious mucous secretion and hyperkinesis.

To the stomach not inured to alcohol this substance acts as a stimulant to gastric secretion, a fact

*Read before the American Gastro-Enterological Association at St. Louis, Mo., June 6 and 7, 1910.

first demonstrated by Sawriew in Pawlow's laboratory. In exciting secretion alcohol stands in contrast to other irritating chemicals which have been studied in this relation; silver nitrate, for example, inhibits acid secretion, but causes a copious secretion of mucus. On this account it seemed of some interest to note what effect repeated doses of alcohol would produce in dogs having the Pawlow double stomach. I imagined that while alcohol might cause an increase of secretion at the beginning of its use, this effect being in the nature of an excessive stimulation, it would, in a short time, be followed by a diminished secretion representing either a fatigue inhibition or a change in the gland substance. This in result is what occurs. If alcohol be mixed with the food of these dogs there is an increase in the amount of gastric juice beyond what is found in control dogs with the same diet. But if the alcohol be given several days in succession there is a prompt falling off after a few days in the amount of juice secreted. At the same time there is a gradual increase in the mucous secretion from the small stomach. The conclusion at which one would arrive from this experiment is that the initial stimulation of the gastric glands caused by alcohol is followed by a period of diminished irritability to this stimulus, and such an idea is quite in accord with general physiological principles. This is in unison also with what is known of the action of alcohol in other relations; a transitory stimulation while the organism is unaccustomed to its presence. The increasing mucous secretion indicates an increasing grade of irritation of the mucosa, in which respect alcohol is somewhat analogous to silver nitrate Pawlow's interpretation of this mucous secretion is that it is protective in its action, and is increased whenever substances irritating or injurious to the glands come in contact with the gastric mucosa.

With regard to increased gastric motility in experimental animals I have never had an opportunity of noting it following the ingestion of alcohol, probably because I have not endeavored to secure the maximum results by long continued use. It has happened several times, however, that dogs have developed what appeared to be a chronic gastritis due to faulty feeding; an abnormally small amount of secretion with only a trace of free acid and enormous amounts of mucus, and in such dogs I have repeatedly observed that the stomach emptied itself in about three-quarters of the normal time.

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69 East Fifty-fourth Street.

PRIMARY STREPTOCOCCUS DIPHTHERIA.*

By DAVID H. ORGEL, M.D.,

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ADJUNCT ATTENDING SURGEON HAR MORIAH HOSPITAL.

While it is frequent to find pseudomembrane upon the tonsils, pharynx, larynx, and in the trachea, secondary to scarlet fever and measles, due to the streptococcus, I am going to confine myself to the primary infection of the tonsils, pharynx, etc., accompanied by the formation of a pseudomembrane with complications produced by streptococcii.

In an examination of the literature on this subject, we find that most authorities, Holt[1], Pfaundler and Schlossmann,[2] Osler,[3] Tyson,[4] Northrup,[5] and Park[6] refer to primary streptococcus diphtheria, usually as a mild affection with no complications and sequelæ, in which the pseudomembrane is usually limited to the tonsil. Park,[7] in the study of eleven cases, notes, however, instances where the pseudomembrane extended into the pharynx, larynx, and nostrils, and among these, two cases with albumin in the urine. Kerley,[8] notes a case where the patch extended further than the tonsils and was complicated by enlargement of the cervical glands. This has also been substantiated by Fischer[9] and Koplik[10] admits that suppuration of these may occur.

Prudden,[11] in an exhaustive study of 24 cases of diphtheria due to the streptococcus, reported that nine were simple (primary), uncomplicated by any previous disease, the membrane extending over the tonsils, pharynx, larynx, and bronchii—in one case albuminuria and in another parenchymatous degeneration of the kidneys.

I believe that we have never accorded to this disease the frequency of the severe type in which it occurs, and it will be my purpose to report to you some of the cases which I have seen, with their complications and sequelæ. It is a well-known fact, as proven by Baginsky, Park, Morse, and others, in an examination of the cultures of the throats of patients that 25 to 35 per cent. of cases diagnosed as true diphtheria are cases of infection with the streptococcus or streptococcus and staphlococcus.

With a record of 100 of these cases in private practice, I have found that 80 per cent. have been of the mild or moderately severe type, with no complication, except in some cases slight glandular swelling and albuminuria. In the other 20 per cent. the disease was severe in character with complications of severe glandular enlargement with suppuration and acute exudative nephritis. In the diagnosis of all of these cases no reliance was placed on the clinical manifestation of the disease, but upon the result of the microscopical examination of cultures made from the membrane on the first, second, and third day of the disease, showing the absence of Klebs-Loeffler, pseudodiphtheria bacillii, or pneumococcii, but the presence of streptococcii in pure culture or their predominance over straphlococcii.

As was said by Jacobi[12] "The tonsils being a portal of microbic and toxic invasion, any exudate which extends from the tonsils to its neighborhood, brings with it, immediate swelling of the lymph glands," I have found this uniformly in the severe cases, to wit: Swelling of the cervical lymph glands.

The kidneys in these twenty cases have all been involved, with the diminution and sometimes the entire suppression of urine. Upon examination albumin was present, microscopically epithelical cells, red blood cells, and sometimes casts.

The mortality in these twenty severe cases has been 9 or 45 per cent. Park says the mortality may be 0 to 20 per cent.

The onset in most of these cases was usually sudden with chills, vomiting, and high temperature—104-5 degrees F. The patients were restless, apathetic and sometimes delirious. The throat showed an erythema of the tonsils and pharynx, and within 12 to 24 hours the tonsils and pharynx were covered with a dirty yellowish membrane, which was at first easy to remove. The membranes extended to the Posterior nares in three cases. The cervical glands were immensely swollen and tender at this time. The symptoms never abated as in the

*Read before Har Moriah Clinical Society, April 10, 1910.

mild cases, on the third or fourth days, but remained the same. When the membrane was forcibly removed it left a raw area which bled freely. The urine at this stage showed its changes, being very much diminished, and in the fatal cases nearly suppressed.

The severity of the symptoms in those cases that recovered abated from the tenth to the fourteenth day, and went on to resolution, which was slow. The membrane first disappeared; then the glandular swelling, and lastly the kidneys cleared up, or the inflammation became subacute and later chronic.

In the eleven cases that recovered, there was suppuration of the glands, requiring incision in five. The examination of the urine of those cases within the last two weeks show that four are suffering from a chronic affection of the kidneys. Of the other nine, three died of uremia, and six from toxemia of the disease.

As an instance of the severity of these cases, let me cite you the history of three as examples.

Case I.—B. F., 11 years old, called January 26, 1910. Previous personal history: The child had two attacks of bronchopneumonia, and occasional attacks of follicular tonsillitis and measles. Present history: On January 25 she suddenly became ill with chill, vomiting, headache, and fever; vomiting was continuous; she was restless and at times delirious. Examination: The face was flushed, the child restless and vomiting. The temperature was 104½° F., respiration 28, pulse 120. The lungs, heart, and abdomen were negative. There was no enlarged spleen. There was erythema of the tonsils, slight membrane on posterior pharynx. A culture was taken. The urine was scanty and dark red in color; albumin was present, and microscopically epithelial cells, and red blood cells. On January 27 the condition of the patient was worse. The child was restless and delirious. The temperature was 105° F. There was a pseudomembrane covering tonsils and extending. The cervical glands were swollen. 5,000 units diphtheria antitoxin were given and a culture taken. Ten c.c. of urine was passed in 24 hours. January 28: The pseudomembrane extended over the tonsils, pharynx, and posterior nares. The glands were immensely swollen; 5,000 units diphtheria antitoxin were given and a culture taken. This condition continued until February 6 when the temperature began to drop gradually and the pseudomembrane started to disappear, leaving necrotic areas. The urine increased in amount. On February 10 the glands were diminishing in size. The urine still contained albumin and epithelium, but was clearing up. The report on the cultures showed no Klebe Loeffler bacilli, no pseudodiphtheria bacilli to be present, but a great many streptococci and many staphylococci.

Case II.—Child S., 10 years old. called March 17, 1903. Present personal history: Child had two attacks of diphtheria, enlarged tonsils, bronchitis, and pneumonia, but otherwise had been well. Present history: On March 16, at night, the child vomited and complained of pain in the neck, and headache. The temperature was 105° F., the pulse 130, and the respiration 28. The lungs, heart, and abdomen were normal. The throat was red, swollen, and with patches of membrane on tonsils and pharynx. The urine was not examined; 3,000 antitoxin units were given and a culture taken. On March 18 the culture was negative, containing streptococci. The cervical glands were swollen and tender; the patch covered the tonsils, pharynx, and the nose was discharging; the temperature was 105° F. 3,000 units diphtheria antitoxin were given and repeated in the evening. The urine contained albumin, red blood cells, and epithelium.

This condition continued without improvement until April 1, when she started to improve. The throat cleared up, the urine cleared up, but the glands on both sides of neck underwent suppuration, and were incised. For more than four weeks the child was confined to bed.

Case III.—M. S., 2½ years old. Called January 11, 1910. Previous personal history: The child had always been well, except for occasional attacks of bronchitis and tonsillitis. The child became ill on January 10, complaining of headache, pain in the throat, and high temperature. There was no rash upon the body. The child was prostrated, face flushed, temperature 103° F., respiration 30, and pulse 140. The lungs, heart, and abdomen were negative. There was redness of the tonsils and pharynx, the glands were swollen, and there was a small patch on the pharynx. 5,000 units of diphtheria antitoxin were given and culture taken. The urine was dark brown in color, containing albumin, red blood cells, and epithelial cells. January 12: The culture showed no Klebe Loeffler bacilli, no pseudodiphtheria bacilli, but streptococci; 10 c.c. of antistreptococcus serum was given and repeated in the evening. The child appeared to be worse than yesterday. The temperature was 104° F. The urine was small in amount—not over one-half glass (water tumbler) in 24 hours. Another culture was taken. January 13: The child was still no better, was delirious continuously; the glands of the neck were immensely swollen; the throat was the same; the urine not more than in last 24 hours. 5,000 units diphtheria antitoxin were given. Culture, same report. January 14: The child was in the same condition. The urine was suppressed for 12 hours, then after a hot rectal irrigation 2 ounces were passed. This continued until January 19, when child died in uremic coma.

In the treatment, I have found very little of any avail, except thorough toilet of the mouth and nose, with stimulation to tide the patient over the time until the toxemia subsides. Diphtheretic serum has been given even in large doses, up to 20,000 units without any effect. Antistreptoccus serum has also been given without effect. The only thing I have found of value is the spraying of the throat with peroxide of hydrogen, ice bag to the neck, and douching of the mouth and nose with salt solution. When the urine becomes scanty or suppressed, hot rectal irrigations or hot water bags to the region of the kidneys are advised. I have not seen them able to withstand the hot packs or the hot bath without great prostration. If the cervical glands show evidence of pus, I have incised freely.

Summarizing these results, we find:

1. That the severe form of primary streptococcus diphtheria occurs oftener than we have been led to believe.

2. That complications of suppuration of the cervical glands occur frequently.

3. That complications of acute exudative nephritis occurs in all severe cases and in some becomes chronic.

In conclusion, let me thank Dr. N. Kruskal for his cooperation in this report and for microscopical examination of the cultures of these cases.

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277 RIVINGTON STREET.

AEROTHERAPY.

BY J. GEORGE SAUER, M.D.,

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THE knowledge that practically every city resident has had or will have and may recover again and again from tuberculosis, together with a knowledge of the physical fortification against its invasions, might produce in the laity a phthisiophobia which could serve as a prophylactic measure of the wholesome educational variety and thus enable them to avoid many of the debilitating infections, not only of tuberculosis, but of many of its catarrhal forerunners.

That the normal individual is quite competent to resist, and does continually resist, its invasion is evident from the existence of this disease germ on the nasal mucous membrane of every subway passenger, pedestrian, and city resident, practically all the time, and the postmortem discovery of the healed pulmonary lesions by the pathologists and their more frequent antemortem discovery by the radiologist are conclusive evidences of the universality of this disease which was formerly regarded as inevitably fatal.

That the treatment of the person sick with this chronic disease has justly passed out of the hands of the city physician, and is now a matter of prophylaxis and the fortification of the natural human forces of physical resistance is manifested by the establishment and maintenance of the many municipal and private institutions in the location where aerotherapy is practically the only remedial measure. The city resident is now living in an age when he is compelled to exist, at least for a large percentage of the time, in an atmosphere which has just left the lungs of other individuals. This unfortunately is a necessary evil of existence in the larger cities, but the rebreathing of the exhausted atmosphere of one's own bedroom is, even for the city resident, an unnecessary and wanton endangerment, and its continuance is rather an exhibition of ignorance; for, if we cannot improve the aerial environment of the city resident during his waking hours, we can with ease and absolute certainty do so during the long hours of his sleep, which represent at least one-third of the whole time of his existence. It was with this idea in mind that the writer some time ago devised the bed herewith illustrated, and he has used this form of open-air sleeping continuously and satisfactorily for the past five years.

It consists of an ordinary single iron bedstead from which the front legs have been moved to the center of the frame; this permitting the entire legless portion to be pushed up to and out of the window, and then the window to be closed across the sleeper's waist line. This leaves the head and chest in the open air, but maintains the room temperature for the lower portion of the sleeper.

The sensation of sleeping with the upper half of the body out of one's back room window (if necessary under an awning) is not only healthful, but delightful. The resulting restful, quiet sleep out in the open air causes one to wake up invigorated, rejuvenated, and with a pleasantly large appetite for breakfast. With the head well hooded and the body warmly clad, the coldest night in winter is no bar to its healthful enjoyment. All the writer's family, as well as many of his patients, to-day prefer to sleep with their heads out of the window, and without a single exception they all fail to enjoy sleeping indoors; in fact, many of them wake up continuously for air while thus confined, and this in my opinion is evidence conclusive of its universal adoption when once its enjoyment becomes universally known.

This illustration shows the head of the cot projecting from the window, the sash of which can be lowered; the awning can be let down if desired.

In the heat of the summer evening is to be found its greatest delight and comfort, for from whatever point of the compass the breeze chooses to come, the sleeper is bound to receive its beneficent influences. Rain, snow, or neighbors only necessitate the awning, which can be lowered or partly lowered with one hand and without making it necessary for the sleeper even to raise himself in the bed.

106 WEST 136TH STREET.

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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RESECTION OF THE POSTERIOR SPINAL NERVE ROOTS.

In a recent issue of the MEDICAL RECORD there was a brief editorial reference to this mode of treatment of spastic paralysis, but with this subject we are not directly concerned in the present discussion. When Förster published in 1909 his first report of work done since 1907, there was, if we remember rightly, no reference to earlier operators; and the Breslau neurologist is undoubtedly entitled to whatever credit is due for first using this resection for spastic paralysis. Clark and Taylor of New York were not far behind in the claim of priority; and the operation was soon pressed into service for the relief of the gastric crises of tabes dorsalis. A singular feature in the reports published up to and including Förster's first article is absence of reference to much earlier cases of nerve-root resection as a general procedure, without reference to the aim of the operation. Förster, as well as others who have used the method, was plainly at considerable pains in looking up a possible literature of the subject. Laminectomy, without reference to resection of nerve-roots, has, of course, its own literature.

In an article on posterior root resection for tabic crises in the *Münchener medizinische Wochenschrift* for July 5 Flörcken has been at pains to trace the old and forgotten literature of this operation. The latter was done at least as far back as 1888 for neuralgia, and Dr. Abbe of New York is mentioned as one of the earliest operators. Chipault, so well known for his tireless work on the literature of surgery of the nervous system, published in 1895 a small series of known cases of this character. The half-dozen or so of cases then known shows that the intervention was formidable, and that the operative mortality was high; but that the success in recovered cases was perfect. During the next two years Chipault kept the subject alive by reporting a few more cases. But the question then slept for a decade until Förster, as a result of exhaustive investigations extending over several years, ventured to demonstrate that "radiculectomy" might be made a safe and satisfactory procedure in spastic paralysis.

There is one break in this interval of silence, in which—as often happens—peculiar traumatisms entailed some emergency procedure. An American surgeon, in 1904, performed root resections in connection with the treatment of extensive injuries. The fact that no benefit attended these operations naturally served to keep them in the background.

The silence in literature as to radiculectomy—which silence had become confirmed when Förster devised his method—seems to have been due to the high percentage of fatalities and to negative results. The few brilliant cures of neuralgia effected between 1888 and 1898 seem to have been more than neutralized by unfavorable results. It is therefore small wonder that Förster, in reviewing the operation, believed himself a pioneer from every point of view.

VOTES FOR WOMEN AND THE BIRTH RATE.

As the agitation of the suffragists and suffragettes for an equal voice with men in legislation goes on, the search for arguments pro and con is bringing all sorts of questions to the fore and presenting them with all their bearings on the main subject. One argument of those who would oppose the movement is concerned with what is commonly called race suicide. The movement is characterized by them as a direct menace to the race and to public health. The deterioration of inhabitants of towns is held to be greatly due to the fact that mothers, instead of staying at home to nurse their families, are generally away from home, either on pleasure bent or in order to earn money. Therefore, the contention is made that to encourage women in their endeavors to become voters would be to add further impetus to the already too prevalent neglect of home duties evinced by modern women.

There is no doubt that in this country and in Great Britain the present day woman shows a decided distaste for or disability to assume home duties. In Great Britain mothers of the poorer class work in factories, leaving their children to the care of strangers, and in this country similar conditions exist, although probably not in so accentuated a form. The point then is, does it seem likely that the granting of votes to women will render them still more neglectful of their children and home, having a bad influence on the birth rate and on the future of the race?

Opponents of the movement assert that nine-tenths of the decline of the birth rate is preventable. It is greatest in towns employing woman labor. Woman labor involves a decline of the birth rate. Consequently, would not giving woman suffrage promote female independence, female labor, and decline of the birth rate? On the other hand, the advocates of votes for women declare that there is no reason to presume that female suffrage would affect injuriously the birth rate. In support of this view, they point to New Zealand and to Australia, those countries in which reforms of all kinds are ever being initiated. In New Zealand, up to the time of the granting of woman suffrage, the birth rate was greatly on the down grade. Since the movement became law, some seventeen

years ago, the birth rate has increased because, it is said, motherhood has become intelligent and thoughtful. It is claimed that the same result has occurred in Victoria, where woman suffrage has also come to pass, and that in New Zealand and Australia, now that women have a voice in furthering legislation for the benefit of their children, they desire children and make every effort to reduce infant mortality by feeding naturally and by other means of rearing children in a healthy manner. It is hardly fair, however, to compare the conditions in a purely agricultural country like New Zealand, or even in Australia, with those which exist in the cities of Great Britain and of America, besides which the movement in the lands under the Southern Cross has not been long enough established to warrant any definite conclusions as to its results.

More About Cancer.

The report of the British Cancer Research Fund has been issued recently. Dr. Bashford and his coadjutors give a conservative and cautious account of the results obtained from their researches and investigations into the cause of the disease. No striking progress, they say, has been made in solving the mystery of the origin of cancer, nor does the report lead us to hope that the end is yet in view. With the origin of the disease not known, it would be rash to predicate a successful mode of treatment. This appears to be the opinion of a large proportion of the medical profession, in fact the majority of surgeons have little hesitation in stating their views that at present the only reliable means of treating cancer is by the knife. Dr. Gilbert Barling at the meeting of the British Medical Association, the special report of which appears elsewhere in this issue, voiced the opinion of most surgeons when he said that operative measures were, as yet, the sole effective methods of relieving and curing the most deadly forms of cancer. Of course, it is well known that the knife is frequently futile in such cases, but it is said to afford the one reasonable chance of saving life. Early diagnosis and prompt operation, therefore, offer the best opportunities of cure. Much has been claimed for radium in the treatment of cancer and Dr. Louis Wickham of Paris, who also read a paper on the subject at this meeting of the association, is, with Abbe of this city, one of the best known exponents of this form of treatment. However, the form of cancer thus successfully treated by radium is generally localized, superficial, non-inflammatory, and of comparatively small size. It is true that claims have been made by several well known specialists that deep-seated malignant tumors have been cured by the agency of radium, but experience has been too limited for even the most enthusiastic to assert that radium is a cure for such growths. There is no doubt that the rays emanating from radium exercise a selective action on certain diseased tissues, and in many cases cause their destruction. Therefore the rôle of radium would seem to be its employment in cases of superficial cancer of the kind noted above. Dr. Wickham has warned medical men that in all other cases than those of cancer of the skin it is their duty before applying radium to decide if other agents will not give better results. This is probably sound advice, in spite of the many wonderful cures by radium which Abbe has reported from time to time during the past four years. It must be borne in mind, however, that frequently radium may be a valuable auxiliary of the knife. Indeed, in the opinion of the best authorities, the parts played in the treatment of cancer by operative means and radium are different, but they may be, on occasions, employed together with good effect.

Malta Fever.

In a lecture delivered at the Polyclinic, London, on May 2, and published in the *Medical Press and Circular*, July 13, F. M. Sandwith discussed Malta fever. In the first instance, it was explained that Malta fever was the term given to the disease because Bruce discovered the causal microbe in Malta and it was there where the Royal Commission discovered the interesting fact that this fever is communicated by milk, generally by goats' milk, although cows, if infected, can also communicate it. In 1886 Bruce discovered the specific microbe, a diplococcus, the *Micrococcus melitensis*. The gardens in Malta are few, there is little grass, and there are hardly any cows. The people use goats' milk, and the goat is an unclean feeder, living on any garbage it can find. The goatherds bring the animals to the door, the housekeeper produces the jug, and the man, with unwashed hands, of course, milks the goat. When the British Royal Society, combining with the War Office and the Admiralty, sent out a commission to Malta to study the question nobody blamed the goat or the milk supply. It was, however, accidentally found that the goats' blood gave the same agglutination reaction as did that of a human being suffering from the same disease. It was then discovered, on further investigation, that at least 50 per cent. of the goats in Malta were suffering from the disease and that at least 10 per cent. of the goats which were being brought round to the houses to supply the milk were giving the disease at the same time. The commission succeeded in persuading the military and naval authorities to banish goats' milk from hospitals, barracks, and certain private houses. In all places in which goats' milk is not used there is no Malta fever. A section of the British medical profession, that section which disbelieves in vivisection, says that the fever in Malta had suddenly come to an end and that the result was not due to any precautions taken. But the civilian population of Malta, which is not under control of the War Office or the Admiralty, still drink goats' milk and still suffer from Malta fever. This disproves the statements of the antivivisectionists and likewise supplies remarkably strong negative proof that Malta fever is spread by infected goats' milk. The treatment of the disease consists in being certain of the milk supply, otherwise a patient is treated in the same way as one with typhoid fever would be treated, only with not so rigid dietetic regulations as are prescribed for the latter malady. The drug treatment is symptomatic and the sole drug found to be of any real use is bichloride of mercury, given with the view of cleansing the intestines.

Transplantation of the Kidney.

Owing to the frequency and seriousness of the diseases of the kidney, much work in the surgery of these organs has been done, and among other operations experimental transplantation of them has been attempted in animals. The conclusions

given by E. Villard and L. Tavernier in an article in *La Presse Médicale*, for June 29, 1910, are these: Autotransplantation has given durable results; homotransplantation permits the survival of the kidney, and to all appearance a normal function, but there is as yet no proof that these results will remain durable; heterotransplantation is not as yet proven to be possible. There are still great opportunities for experimentation in this line of work. In order to give the best results so far obtained the interruption of the circulation must be as short as possible, not more than half an hour to an hour; longer interruption causes necrosis of the kidney. Perfusion is both useless and injurious to the operative results. The ureter should be made to open into the bladder and not externally. In the choice of the arteries with which anastomosis is to be made the femorals and iliacs should be eliminated; the renal and the aorta are physiologically the best, but the technique necessary renders their choice impossible. The splenic by its accessibility, its calibre, and its functional conditions appears to have the greatest number of advantages.

News of the Week.

Vital Statistics of New York.—During the month of June the total number of births in the State of New York was 16,782, and of deaths 10,893, while for New York City alone the figures were 10,400 births and 5,946 deaths. During the month there were 6,837 cases of measles with 136 deaths; 2,692 cases of tuberculosis with 1,055 deaths. The suicides numbered 142, and 124 persons lost their lives by accidental drowning. The deaths from old age were 146, while 520 occurred in early infancy. It is interesting to note that while the excess of births over deaths was 4,454 in New York City, the excess in all the rest of the State was only 1,435.

Dr. Isham G. Harris of Poughkeepsie, New York, has been appointed by the State Commission in Lunacy as superintendent of the new Mohansic State Hospital, at Lake Mohansic, near Peekskill. Dr. Harris was graduated from the New York University Medical School in 1890. The appointment was made from the Civil Service eligible list.

Plague in China.—An epidemic of plague in Canton, China, is reported. A hot and dry summer is said to have made health conditions in the city unusually bad.

Dr. Benjamin F. Beardsley of Hartford has been nominated on the Prohibition ticket for Lieutenant-Governor of the State of Connecticut.

Iowa State Boards.—The Iowa State Board of Medical Examiners recently elected Dr. George E. Decker of Davenport as its president. The State Board of Health elected as president Dr. A. C. Moerke of Burlington. Dr. G. H. Sumner of Waterloo was reelected secretary; and Dr. Henry Albert of Iowa City was appointed director of the State laboratories, and Prof. Charles M. Kinney of Des Moines, State chemist.

Osteopaths Continue Fight.—Another move was made in the long fight which the osteopaths are carrying on for recognition by the Board of Health of New York, when a motion was argued before Justice Putnam of the Supreme Court of Brooklyn for an injunction to restrain the Board of Health from enforcing Section 163A of the Sanitary Code. This section provides that no transit permit shall be granted for the burial of the body of a person who has been treated by an osteopath until the body has been examined by a regular physician. Decision was reserved.

Gift to Dr. Grenfell.—The forty-foot hospital tender "Yale," which was built expressly for the work of Dr. Grenfell on the Labrador coast, and was presented to him as a wedding present, is reported to have arrived safely at Indian Harbor, Newfoundland. The "Yale" is ketch rigged, with an auxiliary engine using kerosene, as gasoline cannot be obtained in Labrador.

New Zoological Laboratory.—Plans have been completed for the University of Pennsylvania for what is expected to be the finest zoological laboratory in the world. The building will be three stories high and of fireproof construction, and will occupy a lot 216 by 256 feet. The cost will be about $300,000. Work on the new building will be begun in the autumn.

Dr. F. M. Shook, Medical Corps, U. S. Navy, has been detailed to conduct lectures and laboratory courses in tropical medicine at the New York Post-Graduate Medical School during the months of August and September.

Dole for the Blind.—The Department of Charities of New York made the city's annual distribution of money to the needy blind last week, when more than seven hundred persons living in the Boroughs of Manhattan and the Bronx received $48 each. The entire appropriation for the city is $70,000. The majority of the applicants were newsdealers, but chairmakers and basket-weavers and a few pianists were included.

Esperanto Congress.—The Sixth International Esperanto Congress will be held in Washington on August 14 to 18. Delegates representing twenty-two nationalities are expected. The entertainment provided will include a production of "As You Like It" in Esperanto.

Instruction for Health Officers.—The twelfth annual School of Instruction for Health Officers was in session at the hall of the Kellogg-Hubbard Library, Montpelier, Vermont, from August 1 to 4, inclusive. The program included papers by Dr. George M. Kober of Georgetown University, Washington; Dr. Livingston Farrand, secretary of the National Association for the Study and Prevention of Tuberculosis; Dr. S. Dana Hubbard of Brooklyn, N. Y., and Dr. A. D. Melvin of the Bureau of Animal Industry, Washington.

Railway Accidents.—During the first quarter of the present year 1,100 persons were killed and 21,232 were injured on the steam railways of the United States. These figures show an increase of 466 killed and 6,110 injured, as compared with the same period of last year. On the electric railways 19 were killed and 669 were injured.

Opium Conference Postponed.—In reply to the proposal of the United States that some date in September be agreed upon for the International Congress to devise measures for combating the opium evil, the Chinese Government has stated that its representatives cannot be ready for the conference before some time in November. It is planned to hold the sessions of the congress at The Hague.

Practical Courses in Abdominal Surgery.—It is announced that a free course in abdominal surgery will be given during October at Duesseldorf, Germany, by Professors Witzel and Opitz and Dr.

Janssen; those attending the course can also attend the courses in internal medicine, especially those having reference to gastroenteric diseases. The program can be obtained from the Secretary of the Duesseldorf Academy, No. 1 Mooren Street.

City Death Rate.—For the week ending July 30, the death rate in New York was 18.80 per 1,000 of population, an increase over the corresponding week of last year, when the rate was 16.96.

Cholera and Coal Famine in Russia.—The epidemic of cholera in Russia is especially severe in the coal-mining districts on the Donets River, in the southern part of the Empire, and a general exodus of miners has been the result. The Government has been appealed to for more strenuous measures in combating the scourge in this region, as the output of coal from the infected districts has already been reduced to one-half the usual quantity, and a coal famine is feared if the exodus of miners is not checked.

Civil Service Examination.—An examination under the Civil Service Commission will be held early in September for the purpose of filling the position of statistician and editor to the State Commission in Lunacy, Albany, N. Y., which will be open only to male residents of the State of New York. Candidates must have a college training and some knowledge of medicine or biologic science, and must have completed a course in statistical work. Further information may be obtained from the Civil Service Commission of Albany, N. Y.

The American Electro-Therapeutic Association.—The twentieth annual meeting of this association will be held at Saratoga Springs, N. Y., on September 13 to 15, 1910. Programs and circulars may be obtained from the secretary, Dr. J. W. Travell, 27 East Eleventh Street, New York, N. Y.

Obituary Notes.—Dr. Leander S. Porter of Port Clinton, Ohio, a graduate of the Cleveland University of Medicine and Surgery in 1880, died on July 26, aged 81 years.

Dr. Thomas Cammack of Milford, Ind., a graduate of the George Washington University, Medical Department, Washington, D. C., in 1845, died at his home on July 9, aged 88 years.

Dr. Jules F. Menestrina of St. Louis, Mo., a graduate of the Medical Department of the Washington University, St. Louis, in 1890, and a member of the American Medical Association and the State and St. Louis County Medical Societies, died at his home of paralysis on July 26, aged 43 years.

Dr. David F. Woods of Philadelphia, Pa., a graduate of the Medical Department of the University of Pennsylvania in 1864, a Fellow of the College of Physicians of Philadelphia, and a member of the American Medical Association and of the State and Philadelphia County Medical Societies, died at his home on July 28, aged 72 years.

Dr. Joseph W. Crowley of Philadelphia, Pa., a graduate of the Medical Department of the University of Pennsylvania in the class of 1895, died at his home of pneumonia on July 23, aged 43 years.

Dr. Benjamin F. Emrick of Carlisle, Pa., a graduate of the College of Physicians and Surgeons of Baltimore in the class of 1881, and a member of the State and Cumberland Medical Societies, died at his home on July 26.

Dr. William G. Perry of Exeter, N. H., who was graduated from the College of Physicians and Surgeons, New York, in 1847, died recently at his home, aged 87 years.

Obituary.

CHARLES JEWETT, M.D., Sc.D.

BROOKLYN, NEW YORK.

Dr. Charles Jewett, president of the Medical Society of the State of New York, died of apoplexy at his home in Brooklyn on August 6, aged 70 years. Dr. Jewett was a graduate of Bowdoin College and received his medical degree from the College of Physicians and Surgeons, New York, in 1871. He was a member of the Medical Society of the County of Kings, of which he was elected president in 1878, serving until 1880, of the Medical Society of the State of New York, and of the American Medical Association. He was also a member of the New York Academy of Medicine, the American Academy of Medicine, the Brooklyn Gynecological Society, of which he was president in 1893, the Brooklyn Pathological Society, and the New York Obstetrical Society, of which he was president in the year 1894, and also a member of the gynecological section of the Royal Society of Medicine of Great Britain. In 1880 he became professor of the diseases of children and obstetrics in the Long Island College Hospital, and in 1890 was appointed gynecologist to the same institution. He was also consulting obstetrician to the Kings County Hospital, consulting gynecologist to the Bushwick, the Swedish, and the German Hospitals, and consulting surgeon to St. Christopher's Hospital. He was the first surgeon in America to perform symphyseotomy.

The death of Dr. Jewett removes from the ranks of the profession one of those rare men in whom advancing years diminish neither the capacity for work nor the power of leadership. Only recently elected to preside over the State Society, he had shown during the few months of his administration the same high efficiency and sterling character that had distinguished his long professional career. He brought to this office a ripe experience and an executive skill that he had already displayed as head of his County Society, and as chairman of its legislative committee. With a keen vigilance he had scrutinized the numerous projects of medical legislation, and had stoutly championed the cause of the profession, both in the committee room at Albany and on the floor of his parent society. He died fighting in the vanguard of the battle for elevating the standards and conserving the interests of the profession. This aspect of his career formed a fitting complement to his eminent activities as practitioner, scientist, and teacher. His numerous contributions to obstetrics and gynecology placed him among those whose achievements in these branches have shed lustre upon American practice. As an appropriate eulogy one may apply to Dr. Jewett the very words with which he greeted the venerable Jacobi in the recent celebration of the latter's birthday: "Most of all at this time are we mindful of your long and distinguished service in the Medical Society of the State, not alone through the unique value of your many contributions to its scientific work but as well by your ever helpful counsels in shaping its policy and in furthering its highest aims, and no less by your lofty example of professional character and good citizenship. We are keenly sensible how much your learning and achievements have contributed to the proud position we hold in American medicine."

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

CANCER RESEARCH: A STATESMAN'S REVIEW—CARE AND CONTROL OF FEEBLE MINDED—BRITISH MEDICAL ASSOCIATION—ROYAL INSTITUTE OF PUBLIC HEALTH—CAFFEINE AND THEOBROMINE—QUEEN ALEXANDRA'S SANATORIUM—OBITUARY.

LONDON, July 22, 1910.

At the Royal College of Surgeons, on Wednesday, Mr. Balfour, vice-president of the Imperial Cancer Research Fund, presided over the annual meeting. Though he modestly said that everyone he was addressing was more competent to say something to him than he was to them, it might not be without value for an outsider and a layman to give his impressions of the work done and being done by the Fund. I think your readers will be interested in his impressions, for no outsider is more competent, if so competent, to submit the views of scientists to searching philosophical examination. He has strong proclivities toward scientific study and knows the difficulties that surround research, can appreciate the most delicate investigations and present their results in a manner at once exact, precise, and charming.

The report of the year was moved by Sir Wm. Church, who said it had been largely devoted to immunization and breeding experiments. Prof. Sims Woodhead seconded and said if no great advances had been made many important questions had been tackled, as those who read the report "from the inside" must acknowledge.

Then came the distinguished "outsider" with a vote of thanks to the committee.

Mr. Balfour said it was seven years since he took the chair and he thought much had been done in that time. Considering the enormous class of diseases now known to be due to microbic invasion, progress was not to be made by accidental discoveries but to that broad scientific outlook which has produced unexpected results in every field apart even from human pathology. Who could have expected, he continued, within the lifetime of myself and others listening, that we should see some sort of common course in such utterly different things as the production of alcohol, of pearls and of whooping cough? Yet our knowledge of these different things has come about by investigations into the actions of microscopic organisms. The public ought to know that all that has been done in tropical medicine, in vaccine therapy, all the triumphs won and the greater triumphs which are going to be won, are based upon this broad investigation into great scientific issues. I gather, he said, that the results of the Fund's work go to show that while ordinary infectious diseases are due to external invasion, tumors are due to domestic rebellion, and so are entirely different in their causes. Two important generalizations appeal to me strongly. One is with regard to heredity, as to which it is impossible to draw conclusions without observation on short lived animals. I gather that systematic work with these enables our staff to conclude that heredity in connection with cancer is almost negligible. If so, these malignant tumors are not innate in the organism at birth, and the researches of the Fund go to show that there are undoubtedly causes which produce cancer even in the best behaved tissues, even in tissues which, in people leading normal lives, scarcely ever show malignant growths. Well, surely that indicates that something may be done to prevent or diminish cancerous growth. I do not wish to put it in the least too high. I know Dr. Bashford is listening with nervous anxiety lest I give too sanguine a view of his conclusions. I wish to put it in the most cautious way, but even Dr. Bashford, with all his caution, will not deny that our Fund's investigations into the manner in which chronic irritation produces cancer may enable us to diminish the causes by which it may be produced.

As to the problem of how malignant growths, when present, have to be dealt with, it would be cruel kindness to suggest that we are within sight of anything that can be called a new remedy. But surely we may draw encouragement from researches which show that the growth and spread of implanted cancer can be checked. No experiments have given the same results with original tumors. But I think it is difficult to doubt that the difference between original and implanted growth is only of degree—not of kind——and therefore not too sanguine to say we need not abandon hope by further researches of becoming able to deal with the more refractory original form. That is how it strikes the lay mind, and I hope Dr. Bashford will not think I have gone too far in indicating hopes I entertain, though whether I may live to see them bear fruit I cannot say. If that is not an overstatement of the case let no man think because our work is so extensive, its foundation laid on the broadest base of scientific experiment, that it is other than the only possible method which is going to produce results for the good of humanity.

The care and control of the feeble-minded has of late been a subject of much discussion, both within and without the profession. Besides the efforts of the voluntary institutions and meetings connected with them, we have had a deputation to the government and a conference of persons interested in defectives, at both of which the proposal of the Royal Commission to set up a central authority was supported by many advocates of such control, though others offered important criticism. Dr. H. B. Donkin favored the new board recommended by the Royal Commission, provided its constitution be predominantly medical, as its work would be of that nature and certification and inspection of institutions could only be properly entrusted to highly qualified and experienced medical men.

Various speakers pointed out that the several authorities at present concerned with defectives often differed in their views and should therefore be consolidated or superseded. Most of them seemed inclined to regard the lunacy commissioners as best able to deal intelligently with the problem.

Dr. Mercier, whose authority as an alienist is second to none, was for caution and remarked that though he was generally in a minority of one, he deplored the tendency of modern legislation to coop up the population in institutions. He rather thought some should be left out if only to turn the key on the others. The certificate framed by the royal commission was such that almost any one could be brought under it. The burden of too many institutions might become intolerable, and there was further danger in breaking up home life and permanently detaining the weaker members of a family on whom the most devotion was often lavished. Dr. Mercier's warning was not altogether unappreciated.

At the deputation to the government the Lord Chancellor expressed an opinion which to a considerable degree coincided with Dr. Mercier's. He regarded the phrases as to control and detention as identical and said the difficulty of deciding when such could be applied deeply concerned the administration of the Lunacy Laws, for nothing could be more fatal to the object of protecting the defective than the misapplication of the powers of control. Mr. Burns, too, told the deputation whether they wished so or not they were practically working for such compulsory control as was now exercised over adult lunatics; of course, with safeguards to prevent abuse. Detention meant more institutions and other costly changes which no government could give unless public opinion was decided in its favor. He had hoped to hear something about the causation of feeble-mindedness.

The seventy-eighth annual meeting of the British Medical Association, which is to occupy all next week, practically begins to-day, with certain official proceedings which do not concern the profession generally. For the opening, a general meeting and an extraordinary general meeting to follow, as well as a meeting of the representatives, have been fixed, after which the councillors and representatives are to dine together.

Many provincial members are already in town, taking the opportunity of visiting friends, their old hospitals and other medical institutions, at almost all of which special arrangements are made to show their most interesting work and otherwise welcome their visitors.

Of course, considerable advance has been made with the museum of medical, surgical and sanitary instruments and appliances, as well as drugs, books, etc., which is usually held, but it will not be opened until Monday. In connection with this x-ray and high frequency apparatus will be shown. In the medical department the specimens illustrating the papers read in the various sections form an important display, particularly in reference to tropical medicine, protozoology, etc. These and the business meetings will fill up the time on Monday and Tuesday. On the evening of the last-named the president's address, always an interesting event, will be delivered, and on the succeeding days the sections will be at work and your reporters will supply you with some of the chief discussions.

The Royal Institute of Public Health is this week holding its annual congress. Birkenhead is the place of meeting this year and the president, Mr. Lever, gave an inaugural address in which he pointed out that the sphere of the institute's activity is not limited to sanitation, but every fact and circumstance affecting home life and bodily and mental health came within the field of their study and research. Side by side with researches into the courses of ill health, decay and death of the body he would place research into the everyday life of people engaged in the rush of business as affecting body and mind.

Caffeine is commonly regarded, I believe, as a stronger alkaloid than theobromine; at any rate coffee is thought to be a more stimulating beverage than cocoa. A paper contributed to the Royal Society by Drs. Veley and Waller points in the other direction. By measurements of the contractility of isolated muscle, they find the toxicity of theobromine greater than that of caffeine in the proportion of 3 to 2. The effects of the extracts of tea and coffee were also studied, the conclusion arrived at being that they were due to the contained caffeine and not to tannin.

Queen Alexandra's Sanatorium at Davos has been opened free of debt and has now six months' successful work to its credit. This is the report submitted to the supporters on the 15th at the meeting held in the hall of the Medical Society of London. There are 54 beds for patients. From the date of opening (November 15) to March 31 there were said to have been over 7,000 patients' days." The receipts amounted to £43,130, and there was a balance of £5,277 to the good. But a shortage was in prospect on the income and expenditure account. Princess Christian became a vice-patron, and Sir T. Barlow, F.R.C.P., has joined the council.

Inspector-General R. Grant (R. N., retired) died on the 14th inst. at the age of 68. He took M.A., Aberdeen in 1863, and M.B.C.M., 1866, and entered the Navy in 1868. He served on shore in the Kaffir War, 1877, was specially promoted for services in charge of smallpox patients on the Boadicea, and as staff surgeon landed during the Zulu war accompanying the naval brigade to Fort Durnford, for which he was awarded the medal as he was also in the Egyptian War, 1882, together with the Khedive's star. In the Eastern Soudan in 1884 he accompanied the Royal Marine batallion in action; was again mentioned in despatches and received medal and clasp. In 1901 he retired as Inspector-General, receiving the C.B., and became a magistrate and deputy-lieutenant for Banffshire.

Lieutenant-Colonel Walter Conry, late of the Bengal Medical Service, has died at the age of 61. He took the diplomas of the two Edinburgh Royal Colleges in 1875, the M.B.Dub. next year, and joined the Indian Medical Service in 1877. He went through the Burmese Expedition in 1885-7, for which he held the medal and clasp.

OUR BERLIN LETTER.

EHRLICH'S NEW SPECIFIC FOR SYPHILIS.

BERLIN, July 20, 1910.

PAUL EHRLICH is doubtless the German physician upon whom the interest of many more than his own colleagues is concentrated, for the knowledge of his pioneer labors has penetrated through the lay press to the general public, who follow his work with the highest degree of interest. I have already had occasion in my letters to speak of Ehrlich's method of work, in a representation of his lecture on specific therapy. From the commencement of his labors Ehrlich has had in his eye the design of annihilating at a blow the living causes of disease in the body—the "therapia sterilisans magna." It appears that the efforts of himself and his collaborator, Hata, have been successful in the case of syphilis. The remedy, to which he has given the name of "Hata-preparation," is an arsenical body—dichlorhydrate-dioxyamido arsenobenzol—a light yellow powder, which is applied in a 0.5 to 2 per cent. solution. An injection should consist of 0.3 gm. of this substance plus 0.8 gm. arsenophenylglycin.

At the end of June a discussion took place in the Berlin Medical Society at the close of a lecture by Wechselmann on the treatment of syphilis with this preparation. Patients were presented, and the brilliant results of treatment were admitted on all sides. The lecturer regarded the preparation as a specific for syphilis. A series of patients in the florid stage of disease was presented; they had received but a single injection and in all manifestations of disease had vanished in from 8 to 14 days. Patients were shown who had been treated in vain with mercury, and recovery had also been obtained in chronic cases. Syphilis maligna and visceral syphilis likewise yielded fully to this treatment. With insufficient dosage recovery did not take place. The dose must be so measured that even by the second day spirochetes are no longer found. The Wassermann reaction gradually disappears as the treatment progresses. The excretion of the remedy is completed by the third day. Thus far no toxic symptoms have been noted in adults. In animal experiments no affection of the optic nerve had been observed. Nurslings may be temporarily damaged as a result of the liberation of endotoxins upon the death of the spirochetes.

In the discussion L. Michaelis reported two cases, one of which had been treated without success by all the older remedies, while the other was oversensitive to mercury. Both recovered under a single injection of the new arsenical preparations. He presented a child with infiltration of the palms and soles and an exanthem. It received a single injection and all symptoms vanished within eight days. Alt, who was the first to use the new arsenical preparations in man, mentioned the difficulty at that period of testing arsenical compounds on mankind, by reason of bad reports. The labor itself was simple, as Ehrlich had already worked out fully all the details. First, at his institution for mental diseases arsenophenylglycin was injected, and an alteration in the lecithin metabolism, likewise a disappearance of the Wassermann reaction, determined. The remedies may be injected intragluteally as well as intravenously. By the first named method absorption is delayed, while this is not the case if the latter is used. Very notable improvement was obtained in tabes and paresis. Also cases of epilepsy on a syphilitic basis were favorably influenced.

Schreiber of Magdeburg had seen good results in severe cases of syphilis. Among 128 cases there were but 10 which showed a relapse inside of four weeks. In these cases the dosage had been insufficient. The speaker had never seen an unfavorable result. He preferred the intravenous to the intramuscular injection. An alleged death from the treatment reported in the daily press was a pure invention.

Ehrlich, who had hurried from Frankfurt to be present, now took the floor, amid great applause. The credit for the good results, he said, should be ascribed not to him, but to the practitioners who had used the remedies. Certainly it is difficult to discover a good remedy, but it is just as difficult to apply one in practice. Only continued application will reveal the best method for injecting it, whether intramuscular or intravenous. Thus far the following preparations have proved themselves the best: For intramuscular injection the new arsenical compound should be dissolved in a graduated tube in 3 c.c. glycol, stirring with a glass rod being used to aid in solution. The addition of a few drops of water also aids solution. The latter is now shaken with 12 c.c. water, and to the whole is then added, all at once, 10.3 c.c. normal one-fifth sodium lye. Upon shaking a clear fluid is produced, to which 60 c.c. water is added. For intravenous injection two solutions are prepared. Solution A consists of 0.6 gm. of the new preparation, 0.3-0.5 c.c. methyl alcohol (or 3 c.c. glycol). Solution B consists of 240 c.c. physiological saline solution or upward, and 10.3 c.c. normal one-fifth sodium lye. Solution A is then poured into solution B, the whole being well stirred the while.

Kromayer had treated 15 cases with success, cases in which mercury had failed to cure. It appeared that epithelization had been powerfully promoted by the remedy. One severe case of psoriasis had yielded almost completely to the remedy.

Progress of Medical Science.

Boston Medical and Surgical Journal, July 28, 1910.

Nephritis Without Albumin.—C. A. Howland endeavors to show that gross and severe lesions of the kidney may exist without albumin being present in the urine or at least without it being discernible by methods ordinarily used in hospital and office work. In the routine examination of 550 specimens of urine, nephritis without albumin was found 21 times, or 3.8 per cent. The writer gives the history of these 21 cases, and concludes that no examination of the urine can be called thorough unless a microscopical examination is made. This cannot be satisfactorily done unless the urine is centrifuged in a good centrifuge. No physician can be sure that his patient is free from a kidney lesion without such an examination. Acute nephritis may exist without the presence of albumin, and death may occur with all the symptoms of uremia. Care-

ful pathological study of kidney tissue, when during life acute nephritis without albumin has been diagnosed, may reveal a distinct type of hitherto unrecognized nephritis. The fact that nephritis may accompany other severe diseased conditions does not lessen its importance. The knowledge of its existence will to a great degree influence the treatment and prognosis.

The Sputum of Typhoid Fever Cases as a Possible Source of Infection.—Elmer S. Tenney reviews the literature on this subject, from which one derives the impression that the bacillus typhosus is not frequently to be found in the mouth, and that it may be, but usually is not, the cause of pneumonia complicating typhoid fever. He describes the technique which he used in his experiments, and summarizes as follows: In a study of the saliva and sputum of 53 cases of typhoid fever, several of which showed bronchial symptoms, but none pneumonia or any laryngeal complications, the bacillus was not found by means of the technique employed. Typhoid bacillus will live for at least 125 days in the saliva and sputum, and can be readily transplanted from one specimen of such material to another and kept growing in it at room temperature for a long time. In view of the reported finding of the bacillus in cases complicated by pneumonia and by laryngeal inflammation, it would seem that more work should be done along the lines followed in this series. While the sputum does not frequently contain the typhoid bacillus, it does so occasionally, and on that account it cannot be ignored as a source of infection.

New York Medical Journal, July 30, 1910.

Spondylitis Deformans.—Antonio M. Crispin reports this case which he believes is the only one thus far reported occurring in the dorsal vertebræ and presenting the unusual symptoms herein observed. This case is a man 53 years of age who was struck in the back with a stone three years ago. He experienced no inconvenience at the time, but a year later began to suffer pain in his back and consulted a physician. Later he came under the writer's observation, complaining of pains over the chest and back excruciating in nature. Examination revealed an angular deformity of the rhachis, at the level of the seventh and eighth vertebræ. The spine was rigid and the gait of a peculiar shuffling character. The heart was slightly hypertrophied with slight accentuation of the second aortic sound. The thorax was flattened anteroposteriorly, due to the kyphosis. The epitrochlear glands were somewhat enlarged. Knee reflexes were greatly exaggerated, ankle clonus very marked and other reflexes were also present. There was no muscular atrophy, but impairment of motion with fear of falling. The muscular sense was retained. Paresis was more noticeable on the left leg with a small area of tactile anesthesia in the upper part of the thigh with some rigidity. Thermoanesthesia and analgesia were noted on the right side below the eighth dorsal vertebræ with normal motion, slightly constrained. There was a circumscribed zone of anesthesia on the outer side of the thigh and above all a hyperesthetic band. The location of the lesion in this case seems to uphold the conclusion reached by Brissaud that Gower's tracts are the conductors of pain and temperature, and lends support to the clinical evidence that lesions of the upper dorsal region are productive of an excessive lowering of the temperature and pulse. The writer urges the importance of the early recognition of pressure symptoms which constitute a formal indication for surgical intervention, which must be undertaken before complete degeneration of the cord results. For the relief of pressure symptoms he recommends rest and mechanical appliances. When the compression of the cord is marked resection of the vertebral arch is indicated. Two other cases of spondylitis which he had seen did not have the Brown-Sequard syndrome which was present in this case.

A Method of Anesthetizing to Be Employed in Operating on the Aged.—John H. Gleason, led by the effects that were observed when scopolamine combined with morphine was used before the administration of a general anesthetic, began experimenting with this agent and conceived the idea of combining partial scopolamine anesthesia with local anesthesia, using 0.1 per cent. cocaine. This proved so successful that he began using scopolamine anesthesia in operating upon the aged. Satisfactory results are dependent upon the technique; the operator must be thoroughly familiar with anatomy in order that the nerves may be blocked by depositing the water around and close to them. He usually administers 0.01 grain of scopolamine with 1/6 to ¼ grain of morphine, and repeats the dose at the end of an hour. The dose is varied according to the condition of the patient. The writer cites a number of cases in persons over eighty years of age in whom he has used this method successfully, and urges its adoption in the management of surgical diseases in old people. Realizing the danger that may result from heart, lung, kidney, or bladder complications in these cases, they are often classed as inoperable. This is a mistake when we have this safe and accurate method which permits the patient to take nourishment regularly and enables him to avoid functional disturbances of the stomach and other organs.

Does Internal Medicine Tend to Abort or Cure Abscess and the Tendency Thereto.—Robert E. Coughlin believes that if individuals predisposed at all times to the development of abscess were examined carefully at different times when supposed to be in a condition of health they would undoubtedly show some abnormality in their makeup that would give some light on the etiology and predisposing factors. Abscess of the appendix may be anticipated by attention to the etiological factors. The use of serum to produce immunity in typhoid and the antiseptic treatment of the disease may prevent extension into the gall bladder and a subsequent abscess. Internal medication in the case of pyelitis may abort a suppurating kidney. Internal medication in a case of dysentery, malaria, or tropical fever may prevent a liver abscess. Vaccines have been used with some success in pyemia, pyosalpinx, and tuboovarian abscess by indicating opsonins, etc. Following out this line of reasoning abscesses of the skin, boils, furuncles, furunculosis, and carbuncle are due to a disordered condition of the system, and in the latter staphylococcus serum has worked well along with supporting treatment; as, for instance, strychnine as a stimulant with opium to relieve pain. Calcium sulphide is effective in modifying all suppurative processes in a most decided manner, the dose used being one-half to one grain three times daily in adults and for children one-tenth to one-twentieth of a grain three times a day. When indications have been carried out in the manner suggested one cannot fail to be convinced that internal medication does tend to abort or cure abscess.

Journal of the American Medical Association, July 30, 1910.

Treatment of Localized Appendicular Abscess.—Van Buren Knott discusses the question as to whether the surgeon should or should not remove the appendix in practically every case of localized appendicular abscess. During the past two years he has operated upon 161 cases of sharply localized appendicular abscess, and in every instance has removed the appendix at the first operation, whether it could be easily detected in the abscess cavity or whether deeply buried by adhesions. The mortality was 1.4 per cent. Drainage of the larger pus collection does not reach smaller hidden septic foci. As to the technique the author makes the incision through the right rectus muscle, splitting the fibers and opening the peritoneal cavity freely. Small packs are used to prevent extravasation. The appendix is exposed and removed after mopping away pus with gauze sponges. All adhesions separating the abscess cavity from the lower pelvis are freely separated, pus removed, and drainage instituted by means of a large split rubber tube from one-half to one inch in diameter and carrying a wick of iodoform gauze which is inserted through the lower angle of the wound to the bottom of the rectovesical pouch or cul-de-sac. The protecting gauze is removed and the wound closed down to the tube. The writer urges the more frequent use of this form of drainage by competent surgeons and thinks that the instances in which it is contraindicated are rare. The appendix should be removed at the first operation rather than subject the patient to a prolonged and serious secondary operation.

Cryptophthalmia.—David H. Coover describes this condition as usually found and reports two cases. The first in a woman twenty-four years of age is otherwise perfectly developed. There is an indication of the palpebral fissure in the form of a shallow depression corresponding to the curvature of the lids. Well-formed eyebrows are present. About midway between the lower margins of the upper lids and the margins of the orbits are two rows of hairs. At these points there are slight depressions in the lids. The patient gives a history of light impression at an early age. There is no history to which any congenital defect can be traced. The woman married a man who had lost his sight and a child was born which is the exact duplicate of the mother. The right eye was chosen for operation. There was complete symblepharon. Retracting the lids and inserting a finger a small eyeball could be felt and on dissecting away the tissue an imperfect eyeball was exposed. A small point brought into view had the appearance of corneal tissue. No extrinsic eye

muscles could be detected macroscopically, but the presence of an optic nerve was determined. The sclerotic was accidentally snipped and some vitreous fluid escaped. There was no possibility of vision.

The Action of Alcohol on the Normal Intact Unanesthetized Animal.—After reviewing his methods of connecting the manometer with the blood-vessels without pain to the animal and therefore without need of an anesthetic Clyde Brooks reports concerning a series of blood-pressure tracings showing the effect of alcohol on an animal not under the influence of an anesthetic. The alcohol was administered by three different modes, namely, by mouth, by intravenous injection, and by gastric fistula. The primary action of alcohol varies according to the mode of administration. By mouth it causes a marked rise of blood pressure with increased amplitude and a constant, or slightly slowed, rhythm of heart beat. This rise gradually passes off in five or ten minutes. In some instances at the time of pouring the alcohol into the dog's throat there is a sudden drop and almost immediate recovery of blood pressure. When administered intravenously, it causes a sharp drop in blood pressure, during which the heart is greatly slowed or almost stopped; very soon, unless the dose is too large, recovery follows. By gastric fistula there is no specific primary action. By whatever method administered, alcohol, when circulating in the blood stream, causes a gradual, progressive lowering of the blood pressure, with decrease of amplitude, but increase in rate of the heart beat.

The Danger of Sympathetic Ophthalmia from the Use of the Cautery in Treating Iris Prolapse.—H. Gifford recalls the histories of ten cases of sympathetic ophthalmia in which the authors mention incidentally that a wound or an iris prolapse had been cauterized a suitable length of time before the outbreak of the disease in the other eye. He then reports a similar case in his own experience and summarizes his views as follows: (1) Fresh non-infected prolapses should be replaced if possible; preferably by Dunn's method. (2) Prolapse which cannot be cleanly excised should, if possible, be cauterized and the area scraped and protected at once by a conjunctival flap. (3) On account of the danger of sympathetic ophthalmia, no prolapse should be treated by a hot metal cautery, unless a protecting conjunctival flap can be made to adhere to the area to be cauterized; it is probably safer to let the prolapse alone. (4) In some cases of large corneal prolapses to which conjunctival flaps can be made to adhere with difficulty, or not at all, the use of trichloracetic acid (and probably of various other chemicals) produces a firm non-irritable scar. Whether this method is entirely devoid of danger remains to be seen.

Serum Treatment of Hemorrhagic Disease of the New Born.—Edward B. Bigelow believes that the lack or modification in some manner of the fibrin ferment, as in Weil's explanation of hemophilia, is often a factor and the possible cause of this disease. He reports three cases which were treated with injections of clear rabbit serum, 5 c.c. of the serum being injected immediately after securing it from the animal and a second injection being given later. Two of these patients were apparently moribund when the serum was administered. The other case had not progressed so far, but was in a serious condition, for previous to the injection the bowels had moved each hour for nine hours, with large results of dark, tarry, meconium-like material and bright red blood, and on the sixth day the baby weighed 24 ounces less than at birth. Although the condition is self-limited in 25 per cent. of the cases, the sequence of three recoveries in serious cases should be ascribed to the action of the serum. The most impressive fact in each case was the almost immediate control of the hemorrhage after administering the serum. This was shown directly by observation of the umbilicus in the first case and the nose in the third, and, indirectly, in all three by the condition of the stools. The serum gave absolutely no untoward effects in these cases. Serum treatment has a distinct place in the therapy of this condition because of its simplicity and the lack of operative shock attendant upon transfusion.

The Lancet, July 23, 1910.

A Case of Dermatomyositis Ending in Recovery.—N. C. Gwynn and W. Gordon report this case because of the rarity of this affection, there being only about thirty cases reported in literature. The patient was an officer in the Indian Army, aged fifty years, in whom the onset and course of the disease and the grouping of symptoms left no reasonable doubt as to the diagnosis. Trichiniasis was ruled out by the grouping of the symptoms, the fact that there was no ascertainable source of that disease, the absence of considerable eosinophilia, and the absence of trichinæ from the stools. As is usual in dermatomyositis, no culture could be made from the blood, and the case throws no light on the etiology of the disease. The clinical picture suggested a toxemia arising from some infection of the alimentary canal, and efforts were directed to disinfection of the mouth, throat, stomach, and bowels. There was no doubt but that the mouth symptoms responded to the treatment, and there is reason to believe that the rest of the alimentary canal was benefited because of the marked improvement and ultimate recovery from an extremely grave condition.

An Examination of the Blood Serum of Idiots by the Wassermann Reaction.—H. R. Dean gives the results of the Wassermann test in 330 idiots of the Wilhelmstift Asylum at Potsdam. Of these 330 cases 51, or 15.4 per cent., gave a positive reaction, but only seven showed conclusive evidence of congenital syphilis from a clinical standpoint. Among 13 parents of these children 9 gave a positive reaction. In an examination of the cerebrospinal fluid from 12 cases which had given a positive serum reaction a positive reaction was obtained in only one case. The tests seemed to show that the percentage of positive results diminishes rapidly after the sixteenth year, and that a larger percentage of positive results might be expected from the examination of a series of very young cases. A careful examination of the cases giving a positive reaction failed to show any symptom or group of symptoms common to all. It seems reasonable to think that many cases of idiocy should be classed with that form of syphilis which manifests itself alone by a selective toxic action on the elements of the central nervous system. When it can be shown that a considerable percentage of idiots afford evidence of syphilitic infection, and since it is well known that the virus of syphilis is capable of exercising a selective action on the central nervous system in cases in which there is no other evidence of the disease, it is not unreasonable to infer a causal relation between the two conditions.

Tuberculosis in Its Relation to the Generative Functions.—James T. R. Davison makes a study of the mortality from tuberculosis in Buenos Aires which confirms the fact that youth is not the period of predilection for this disease. The table shows that tuberculous mortality reaches its highest level in the case of Argentine men from 20 years upwards, especially between 30 and 60 years of age. In the case of Argentine women the highest level of tuberculous mortality obtains between 15 and 50 years of age, but especially between 20 and 40 years. These epochs of life correspond to those in which the generative functions are most active in each sex. The low levels of mortality correspond to the ages of infancy and childhood in both sexes, and to the period after the menopause in the female. The high level corresponds to maturity and advanced age in the male and only to maturity in the female; that is to say, the high level corresponds to the periods of greatest sexual activity in both sexes. The generative functions require a great expenditure of nervous force, and thus tend to lower resisting power, and Koch's bacillus is consequently not so well resisted.

Notes on the Treatment of Rheumatism by Bee Stings.—F. H. Maberly relates his experience with a number of severe cases of rheumatism which refused to respond to any of the usual methods of treatment and in which bee stings gave relief. In elderly people he starts with about six stings for the first three applications and then increases the number gradually up to a couple of dozen. The stings should remain in for a few minutes before removing them. He concludes from his experience that this remedy, if it does not effect a complete cure, gives relief in almost hopeless cases.

British Medical Journal, July 23, 1910.

Tubercle Bacilli in the Feces in Tuberculosis.—R. W. Philip and Agnes Ellen Porter, after describing the technique which they employed in their examinations, summarize their results as follows: Of 100 specimens examined 99 were from patients suffering from pulmonary tuberculosis, and none had intestinal tuberculosis. The remainder had no suspicion of tuberculosis with the exception of one case of tuberculous peritonitis. Of these 100 persons only 34 had sputum in which the tubercle bacilli were found, 24 had sputum in which no bacilli were found, and 24 had no sputum. The feces of the 100 tuberculous cases yielded tubercle bacilli in 70 instances. Of the nine specimens from presumably normal subjects none yielded tubercle bacilli. All the tuberculous patients whose expectoration showed bacilli presented tubercle bacilli in the feces also. Of 42 cases in which bacillary examination of the sputum was negative, 20 gave tubercle bacilli in the feces.

Of the 24 cases without sputum 17 showed bacilli in the feces. Thus it may be stated with absolute certainty that the occurrence of tubercle bacilli in the feces is independent of the presence of an intestinal lesion. The bacilli were actually absent in the case of tubercular peritonitis. The remarkable frequency of their occurrence in relation to pulmonary tuberculosis would seem to afford an important addition to our means of diagnosis in doubtful cases of that condition. Even where swallowing of the sputum was carefully guarded against the tubercle bacilli were constantly found in the stools. These findings raise the question of the need of disinfecting stools.

Scarlatina Maligna.—Arnold Gregory believes that the malignant and toxic form of scarlet fever is rarely met with nowadays, and that such cases are sufficiently rare to justify their publication. He relates that a few days after the development of a case of scarlatina in a family of seven children a second child became very ill with vomiting, diarrhea, and abdominal pain. A temperature of 104, rapid, weak pulse, and great delirium followed, and the child died forty-eight hours from the time of the onset. The day following that upon which this child had been attacked a third child suddenly became ill with similar symptoms. Recovery seemed impossible, but he finally improved; rash appeared in this case four days after the onset of the illness. A fourth child was attacked in the same way as these two, and died at the end of thirty-eight hours after the onset of his illness. Two other children suffered from typical attacks of scarlatina. No eruption appeared in the two cases that succumbed, probably because of their early death. In regard to the proportion of cases of malignant scarlet fever to the total number of cases statistics are of comparatively little value, for most of the toxic cases succumb before it is possible to make the diagnosis. The writer considers the part that family susceptibility plays in regard to infection and refers to the fact that susceptibility is less after puberty.

Recurrent Monstrosity.—E. Napier Burnett reports the case of a woman thirty-five years of age who gave birth to a healthy male child. A second pregnancy ended in an abortion at the end of the third month; the fetus was anencephalic. The third pregnancy ended in an abortion at the end of the fifth month, this fetus being also anencephalic. The fourth pregnancy concluded at term. Labor being delayed, the writer incised a presenting mass which he supposed was a tumor and emptied out a large quantity of brain tissue, which showed both cerebral and cerebellar structure. He then reached the cranial vault and what appeared to be a normal cranial cavity. The child was of female sex, with large shoulders and short neck, eyes protruding, and nose flattened. There was little liquor amnii. The child lived about a half hour after delivery. The cephalocele was situated in the usual position for such tumors. Cephaloceles are comparatively rare, Trelat being quoted as having had three cases in 12,900 labors, and in his series of 325 specimens of antenatal deformity there are only eight cases of cephalocele, in contrast with 46 of anencephaly. In this case there was nothing whatever that would account for this condition.

Turpentine Enemata in the Treatment of Enteric Fever.—W. J. J. Arnold urges the importance of early recognition of this disease, the value of skilled nursing, regulation of diet, and attention to oral hygiene, and recommends a measure which he has employed for the past four or five years which results in a distinct shortening of the average duration of the illness and a remarkable ameliora tion of all symptoms. This measure consists in the administration, by the bowel, of an enema of one ounce of turpentine to one pint of olive oil given by a funnel and tube when the case first comes under observation and after a preliminary dose of calomel and castor oil. On the following day or the day after the quantities are repeated. The quantities may then be reduced to one-half ounce of turpentine to fifteen ounces of oil administered on alternate days throughout the course of the disease and continued until convalescence is fairly established. This method enables one to treat the disease with a confidence that other methods fail to impart.

A Fatal Case of Hemophilia.—L. A. Parry relates the case of a boy, four years of age, who bled very freely from a cut about one-third of an inch in length on the front of the right side of his tongue. Stitching the edges of the wound together did not stop the bleeding. The cut ends of the blood-vessels were then caught with forceps, which lessened the bleeding, but on putting in two more stitches free oozing took place from the needle punctures and continued uninterruptedly until a few hours before death, which occurred about forty-eight hours after he had first seen the patient. Calcium chloride was given in large doses. The child had nearly bled to death on a previous occasion from a small cut on the finger. This case illustrates the well-known facts that the tendency to hemophilia usually appears early in life, the first hemorrhage rarely kills, and over 50 per cent. of those thus affected die before the age of seven years.

Artificial Respiration in New Born Infants.—W. E. Fothergill considers the Shultze method of artificial respiration both dirty and risky, and says that he has used and taught the Buist method for many years and has found it effective, clean, and free from risk, and it can be continued for a long time without causing fatigue. The child is placed face downward on the palm of the hand with the head away from the operator. The upper and lower parts of the body and limbs are thus dependent over the edges of the hand. The child is then rolled over and at the same time transferred with a slight throw to the right hand in the dorsal position, the legs and arms being again dependent. It is then transferred to the left hand in the first position and the movement repeated twelve to sixteen times a minute.

Dislocation of the Neck During Sleep.—Douglas E. Derby writes that while in Nubia, in connection with the Archæological Survey, a native boy, eight years of age, was brought to him whose head was tilted to the right side and rotated in the same direction. Any attempt to turn the head was accompanied by pain; muscles on the left side of the back of the neck were extremely tender, and there was a definite lump slightly to the left of the middle line which appeared to be contracted muscles. The father said it might have come on during sleep. Three weeks later, having read a paper on the subject in the meantime by F. M. Sherman, he put the boy under an anesthetic and had him held while he pulled strongly and steadily backwards, keeping the head still in the twisted position, and then rotated it into the middle line, as described in Dr. Sherman's article. The lump entirely disappeared, and the head could be easily turned to the left. The patient no longer complained of pain when the originally painful muscles were palpated.

Berliner klinische Wochenschrift, July 11, 1910.

Results of Serotherapy of Diphtheria in Amsterdam.—Timmer presents a number of tables which show the mortality of diphtheria before and after the serum period, with the incidence and mortality of operative cases. The number of deaths between 1890 and 1894, inclusive, was almost exactly the same as that between 1895 and 1908, inclusive. In other words, the number of deaths for five years (411) before serotherapy coincided practically with that (409) during fourteen years of serotherapy. The corresponding percentages are 37.8 under the old and 9.7 under the new régime. The highest annual death percentage under serum was 12, lowest 3.5. Highest annual percentage of preserum period 45, lowest 30. In the five last years of the preserum period 55.5 per cent. of all patients came to operation (tracheotomy and intubation); while in the fourteen years of serotherapy but 29 per cent. required surgical intervention. The material for these statistics comes entirely from two children's hospitals. It is of interest to note that the mortality figures of the two institutions differ somewhat in respect to operative cases, *i.e.* a high mortality in one hospital for a given year was sometimes offset by a low one in the other. In the Emma Children's Hospital deaths in intubated (and tracheotomized) cases varied from 14 to 40 per cent., and in the Wilhelmina Gasthaus the limits of variation were nearly the same. Further, it is apparent that there has been little change in the death rates of operative cases since the favorable influence of serotherapy was first exerted in 1895. The author is forced to conclude that the higher mortality in one hospital for a given year can only be explained (in conformity with hospital figures in general) by the fact that certain institutions are bound to get the worst cases at certain periods. In 1906 the total death rate of diphtheria for both institutions was 10.2; yet in this year the mortality of operated cases in the Emma Hospital reached 40 per cent.

Lipoidemia.—Adler, who has already written on this subject, has examined the blood in various diseases as to its lecithin and cholesterin content, and both in natural and experimental disease. He finds a connection between lipoidemia and acidosis, irrespective of whether the latter is diabetic or non-diabetic. From animal experiment he generalizes as follows: In acidosis with glycosuria, the blood is notably richer than normal in cholesterin, and correspondingly poorer in lecithin. On the other hand, in acidosis without glycosuria we have a lipoidemia of the Klemperer type, *i.e.* both cholesterin and lecithin show increase.

Arabinosuria.—Schüler, who has studied the nature of pentosuria for a number of years, in the attempt to assign to it some clinical significance, has found that in certain cases of this condition the pentose has been present chiefly as dextrorotatory arabinose, although in most cases the pentose has not been optically active. In regard to the significance of pentosuria, this may be purely alimentary, but the author was never able to find arabinose in the urine after feeding with substances containing the pentosans. The patient with arabinosuria also had orthostatic albuminuria, and both disappeared at the same time. Attempts have been made to show that pentosuria indicates an anomaly of metabolism. The author discredits this view. He thinks there is enough clinical evidence to show that it may be due to a temporary functional disorder of the nervous system. The amounts of pentose formed are too trifling to justify any comparison with glycosuria as a disorder of metabolism, although patients with pentosuria have been found in diabetic families. There is no reason for supposing that special significance attaches to special forms of pentose in the urine.

Münchener medizinische Wochenschrift, July 5, 1910.

Studies in Chlorosis.—Morawitz finds that chlorosis may occur with normal or approximately normal blood count, and believes that such cases are by no means rare. They are benefited by iron just as much as cases of chlorosis with the blood count of anemia. We can no longer regard anemia as essential to chlorosis. In like manner certain symptoms of chlorosis once imputed solely to the coincident anemia—such as dysmenorrhea and retention of water—are now shown to be due to some other factor. The curative action of iron in chlorosis must be contrasted with the inutility or iron in nonchlorotic anemias. The influence of iron in chlorosis depends on some association as yet unknown.

New Theory of Narcosis.—Bürker, under this head, naturally covers the work of Overton and Meyer in speculations on this topic. It is of interest to note in passing that from the very first days of narcosis, the theory of anesthesia has borne strongly upon a supposed relationship between the fat-dissolving properties of anesthetics and the soluble fats of the brain. Soon after the discovery of ethernarcosis, this association was suggested by von Bibra and Harless, respectively. This was in 1847. Twenty years later Hermann brought up the question anew, in asserting that narcotics, besides dissolving the red corpuscles of the blood, also attacked all lipoid substances, such as protagon, lecithin, cholesterin, and fats. Nearly a generation elapsed before this subject was agitated anew by Meyer and Overton, each acting independently of the other. The joint conclusions of these authors bear chiefly on the fact that fat solvents of any character must tend to produce narcosis as a result of solution. Chemical affinity is left out of question. The general principles of the Meyer-Overton doctrine are doubtless known to all readers. Numerous distinguished biologists and chemists have from time to time sought to reconcile the crude solution theory with other known fact. Thus Verworn, Hoeber and others in equal authority have made contributions of a constructive character to the Meyer-Overton doctrine. The present author has worked along an entirely different line, to wit, electrolysis. Most of the anesthetics which have been tested biologically he has also investigated from the standpoint of electrolysis. He does not accept the physical solution theory because he finds that chemical affinity plays an important rôle in narcosis. He generalizes to the extent of stating that the greater the narcotic effect the greater the consumption of oxygen. The author's new theory of narcosis is as follows: Narcosis comes about in the first place because of lipoid solubility, which operates as it does on nerve-substance. But aside from this physical property, there is chemical affinity at work. Tissues naturally greedy for oxygen part with the latter, thereby undergoing a sort of local asphyxiation. Hence oxidation of the products of narcosis results, with acidulation of the economy, to meet which ammonia is produced for neutralization. The mobilized and decomposed fats and lipoids may appear as aceton. Narcotics are known to disturb metabolism, which they could not do as mere physical solvents. Narcosis affects metabolism as diabetes does, and hence perhaps diabetes bear narcosis very poorly.

Radium Excretion in the Urine.—Ramsauer and Caan, in connection with the injection of radioactive substances into animal organisms, note that such substances are constantly eliminated by the urine. That is to say, when a deposit of radioactive substance is made in the body, radioactive material appears indefinitely in the urinary secretion. Both blood and urine are constantly charged with emanations for an indefinite period. This problem came about naturally in response to the question "What becomes of the radioactive material so extensively used to-day in the treatment of cancer, etc." The practical bearing of this subject appears to lie in the original supposition that a radioactive substance once injected into an organism remains therein indefinitely. The authors believe that it escapes by the urine.

Deutsche medizinische Wochenschrift, July 14, 1910.

Traumatic Tuberculosis.—Kappis describes a case of severe complicated fracture of the thigh, followed by acute infectious osteomyelitis and suppuration of the knee joint, requiring amputation. The patient, although a seemingly healthy young man, had a latent apex tuberculosis, which became manifest five or six months after accident. The autopsy showed that the slight callus formed at the site of the fracture was imbedded in tuberculous granulation tissue. As the possibility of bacillary introduction from without was very slight, it was necessary to assume that the germs reached the blood from the latent focus when the latter became active, and were deposited in the seat of the injury. The acute osteomyelitis had doubtless had much to do with depressing the vitality of the patient. Death was due primarily to this and to the rapid march of the reanimated tuberculosis in the chest, secondarily to the shock of amputation.

Subcutaneous Lymphnodes in the Thorax in Pulmonary Tuberculosis.—Von Zebrowski, from numerous appended data, generalizes on this subject as follows: In about 20 per cent. of cases of tuberculosis in adults the lateral inferior thoracic lymphnodes are noticed to be enlarged in the fourth and fifth intercostal spaces at the median axillary line. This enlargement is due to the penetration of bacilli from within the thorax into the lymphnodes. The latter usually correspond to the infected side of the thorax. In a very small percentage of cases without intrathoracic symptoms these nodes may also be involved from miscellaneous diseases of other regionary organs, such as the breasts. These enlarged nodes are sometimes of diagnostic significance, as indicating a latent tuberculous focus in the chest.

Diagnosis of Duodenal Ulcer.—Günzberg, from a comparison of clinical histories with surgical and necropsy findings, and from the experience of other writers, concludes that the testimony of the patients is fairly constant in the case of duodenal ulcer, and in fact typical. There is pain two or three hours after eating, removed by taking more food. From 1 to 2 o'clock in the morning pains are often felt. These pains last for days or weeks, and are but little amenable to therapeutic efforts. This history is clinched by the occurrernce of hemorrhages—considerable losses of blood, sometimes occult blood—from the intestines. Another crucial symptom is motor disturbance as revealed by the use of a test meal—as when a von Leube meal is not disposed of in seven hours. By skillful percussion a dilated duodenum may sometimes be mapped out.

Granulation Tissue and the Gonococcus.—Klingmüller, in considering the ability of the gonococcus to produce simple granulation tissue, naturally does not refer to papillomatous growths or venereal warts, which are familiar to all. He discusses primarily certain proliferations about the anus of doubtful origin, which are distinguishable alike from hemorrhoids, pointed and flat condylomata. They are not papillomatous in structure, at least macroscopically. So distinguished an observer as Jullien describes the same perianal formations without apparently feeling free to assign them to a definite niche. The author, through the peculiar histological character, with the association of gonococci, has no hesitation in regarding them as gonococcic granulomata.

The Vascular Pathology of Congenital Syphilis.—Oscar T. Schultz says that in congenital syphilis the widespread involvement of the smallest vessels is more characteristic than the diffuse fibrosis. The primary vascular change consists of a swelling and proliferation of the endothelium and a slight lymphoid infiltration immediately around the arterioles and capillaries. It is set up by a transplantation of the treponemata from the blood stream. In the medium sized vessels there may occur in the adventitia and media an inflammatory reaction characterized by the presence of lymphocytes and young connective tissue cells. In congenital syphilis the involvement of arterioles and capillaries is more widespread than in acquired lues.—*Cleveland Medical Journal.*

Book Reviews.

A Text-Book of Nervous Diseases. By William Alden Turner, M.D. (Edin.), Fellow of the Royal College of Physicians of London; Physician to King's College Hospital and Lecturer in Neurology; Physician to Out-Patients, National Hospital for the Paralyzed and Epileptic, Queen Square, London, and Thomas Grainger Stewart, M.B. (Edin.), Member of the Royal College of Physicians, London; Assistant Physician to the West London Hospital and to the National Hospital for the Paralyzed and Epileptic, Queen Square, London. Philadelphia: P. Blakiston's Son & Co., 1910.

This is essentially a textbook for the student and general practitioner. In it may be found especially good clinical descriptions of most nervous disorders, briefly stated and with particular reference to diagnosis. The arrangement of the book and the classification of diseases are eminently practical, and follow the well-known lines of usage at the National Hospital for the Paralyzed and Epileptic at Queen Square, in London. There are 188 illustrations, most of which were made at this hospital, from which also much of the clinical material utilized in the preparation of the book was drawn. We regret to note the absence of a bibliography, scarcely any references being made even to recent literature. Several disorders, usually described in works on the nervous system, *e.g.* myxedema, acromegaly, exophthalmic goiter, are omitted. The majority of subjects treated seem to be brought well up to date. In plan, the book is divided into nineteen parts. Part I is devoted to the anatomy and physiology of the motor, sensory, and cerebellar systems. Part II, to the examination of the nervous system in a case of nervous disease. Part III to the special senses. In succeeding chapters, on the cranial nerves, diseases of the brain, diseases of the spinal cord, etc., the descriptions are preceded in each case by a discussion of the anatomy and physiology appertaining to the particular subject in hand. This immediate juxtaposition, as it were, of structure, function, and disease or disorder adds to the practical nature of the work. While calling it a textbook, the authors do not claim for it completeness, and it is possible that in this respect the reader may be occasionally disappointed in the book.

Modern Medicine. Its Theory and Practice. In original Contributions by American and Foreign Authors. Edited by William Osler, M.D., Regius Professor of Medicine in Oxford University, England; formerly Professor of Medicine in Johns Hopkins University, Baltimore; in the University of Pennsylvania, Philadelphia, and in McGill University, Montreal. Assisted by Thomas McCrea, M.D., Associate Professor of Medicine and Clinical Therapeutics in Johns Hopkins University, Baltimore. Vol. VII, Diseases of the Nervous System, Mental Diseases, General Index. Philadelphia and New York: Lea & Febiger, 1910.

In this, the closing volume of Osler's system of medicine, the high standard of the previous volumes has been well maintained. The list of contributors comprises men who are all well known and many of them prominent, and the character of the articles they have prepared evidences the interest they have taken in the work. The opening chapter, by Lewellys F. Barker, is an introductory to diseases of the nervous system, in which the general phenomena attending nervous disorders are described and the methods of examination broadly sketched. William G. Spiller contributes a section on the diseases of the motor tracts, and Colin K. Russel discusses the combined system diseases of the cord, including pellagra. The following chapters on the scleroses of the brain and the diseases of the meninges are by Edwin Bramwell, who gives an excellent résumé of the value of lumbar puncture in the diagnosis of nervous diseases. E. Farquhar Buzzard takes up the diffuse and focal spinal diseases, and the important subject of the topical diagnosis of disease of the brain has been allotted to Joseph Collins, who also contributes the article on aphasia. Henry M. Thomas is the author of an admirable discussion of the diseases of the cerebral vessels, most of which, of course, is devoted to apoplexy. Two chapters of more than usual interest are those on tumors of the brain and meninges and on hydrocephalus, both by Harvey Cushing. The chapter on diseases of the peripheral nerves is by Gordon Holmes, and is a good one, though it must be admitted that the five lines devoted to the treatment of shingles by this author will probably disappoint the young practitioner who turns to this volume for help on encountering his first case of the disease. The article on the cranial nerves is by E. W. Taylor, and those on paralysis agitans, chorea and allied states are by Daniel J. McCarthy. Acute encephalitis and brain abscess have been given to E. E. Southard. A masterly chapter on epilepsy is contributed by William P. Spratling. Bernard Sachs writes on the important subjects of the syphilitic and parasyphilitic diseases of the nervous system, and also on amaurotic family idiocy. Charles W. Burr is the author of an excellent chapter on neurasthenia and the traumatic neuroses and psychoses. Two of the most interesting and valuable sections in the book are those on migraine, neuralgia and occupation neuroses, and on hysteria, by Smith Ely Jelliffe, the latter being an especially noteworthy contribution to the literature of the subject. With a work that is the product of so many different hands it is not possible in a brief notice to deal critically with the individual sections, and the reviewer must confine himself to generalizations. While it is true that some defects present themselves, such, for example, as a deficiency in anatomical illustrations, diagrams of functions, etc., and the scantiness of the bibliographical references furnished by many of the writers, on the whole the volume is eminently satisfactory. With the completion of the enormous task involved in the preparation of such a series of volumes, editors, contributors, and publishers deserve the gratitude of the profession for having made a contribution of the greatest value to medical literature and for having thus summed up, as it were, and placed on record the present state of knowledge in our profession. The work is truly worthy of its title, and no doubt will long stand as one of the most useful and practically valuable systems of medicine.

Studies in Immunization and Their Application to the Diagnosis and Treatment of Bacterial Infections. By Sir A. E. Wright, M.D., F.R.S.; Director of the Department for Therapeutic Immunization, St. Mary's Hospital, London, W.; late Professor of Pathology, Army Medical School, Netley. New York: William Wood & Company, 1910.

Now that the status of vaccine therapy as a remedial agency of the highest value has been definitely established, it has become a matter of the greatest importance that all the data so far available—both experimental and clinical—should be presented in concrete form, so that the practitioner may properly inform himself as to the utility and limitations of the method. It is, after all, for his benefit that the vast amount of research has been carried on, and he is the one who can most usefully employ any new weapon against disease that science has forged. It is therefore very desirable that the present volume should find a wide circle of readers, for in it Sir A. E. Wright traces the development of the subject from its earliest stages by the exceedingly instructive method of presenting in suitable order the relevant papers published by himself and his pupils. This plan of presentation, in which the reader is obliged to follow step by step the processes of the investigator's mind, is not only interesting, but also distinctly useful in that each new fact ascertained impresses itself with the greatest precision, and every link in the chain of reasoning becomes apparent. Part I contains papers on the bactericidal elements of the blood fluids, and these fall into three groups, dealing respectively with the agglutinins, the bactericidens, and the opsonins. In Part II the author has arranged in chronological order the papers dealing with therapeutic immunization proper, and these he groups into three periods. In the first the conception of vaccine therapy is developed from laboratory experiments into a method susceptible of practical application. In the second the difficulties and complicating factors that present themselves are considered and means for their control suggested. The three papers of the third series express the author's present views and summarize both the theoretical considerations and the practical questions involved. Of especial interest in this connection are the pages in which he considers the arguments of those who hold that regular determinations of the opsonic index are not necessary to success in vaccine therapy, and expresses the conviction that while there are cases with sufficiently pronounced external clinical manifestations to justify such a course, there are others in which it is absolutely essential to check the results of the treatment by systematic determinations of the index. The book is fascinating, both in subject matter and in style, and familiarity with its contents is a requisite to a proper understanding of this highly important development in the treatment of disease. The index is worthy of especial mention, for by means of its very ingenious and complete system of subheadings it forms what is practically a synopsis of the entire work and does much to overcome any element of discontinuity that the mode of presentation in separate papers entails.

Society Reports

BRITISH MEDICAL ASSOCIATION.

Seventy-eighth Annual Meeting, Held in London, July 26, 27, 28, and 29, 1910.

(Special Report for the MEDICAL RECORD.)

GENERAL MEETINGS.

Tuesday, July 26.

The presidential address was delivered in St. James Hall, Great Portland street, on the evening of July 26. There was a large assembly brilliant with the academical dresses of the various universities, foreign as well as English. On the platform members of the Council were accommodated and foreign guests and oversea delegates occupied the front of the area. Punctually at 8:30 P.M. The president, Mr. H. T. Butlin, P.R.C.S., D.C.L., LL.D., took the chair, all the audience standing up to greet him.

Presentation of the Presidential Badge.—Dr. FORD ANDERSON then presented him on behalf of the Metropolitan Counties Branch a presidential badge of gold, and some amusement was caused as he went to place it round the neck of the president, as the latter showed much uncertainty as to whether he should turn his back to him for the purpose or his face. A smaller gold replica was then presented to him, that he might retain it as a permanent memento of his year of office. The president then announced that H.M. the King-Emperor had graciously consented to become Patron of the Association. The assembly then rose to their feet and sang "God Save the King." The foreign guests and the delegates from the oversea dominions were then presented to the president. Among the former were Prof. Kocher of Bern, Dr. Lucas Championnière of Paris and Drs. L. Duncan Bulkley and Tait Mackenzie of the United States.

Mr. EDWARD OWEN in a felicitious speech introduced the Right Hon. Walter Long, M.P., who, together with the Right Hon. the Earl of Crewe, K.G. (unavoidably absent), had been elected an honorary member of the Association. He dilated on the great services of the Right Honorable gentleman in the prevention of disease, chiefly in the complete eradication of hydrophobia from these islands, a result which he attributed to his intelligence, his perseverance, in fact he might say his "doggedness." Finally he announced that in the interests of the Right Honorable gentleman's friends he had to inform him that the membership did not carry with it license to practice.

Mr. LONG was heartily received when he came forward to return thanks and spoke in high praise of the way in which his staff and the officials under him, mentioning especially Major Tennant, had by their loyalty, energy, and perseverance rendered possible the attainment of the goal of his work. The Stewart prize had been awarded to Major George Lamb, I.M.S., Director of the Pasteur Institute of India and Senior Member of the Plague Research Commission in India, in recognition not only of his own work, but also of the entire work of the Plague Research Commission and of every member thereof. The Major was unfortunately prevented by illness from coming personally to receive the award.

The President's Address.—Mr. HENRY T. BUTLIN, the president, then gave his address; he said that in the choice of a subject for his present address he was actuated by a knowledge that he had been chosen for that high post on account of his past services to the Association. In electing him to the office of president they had in effect said to him "Thou faithful servant, enter thou upon this office." He, therefore, desired to tell something of what the Association had accomplished for medical reform, especially for the benefit of the foreign delegates who might be less cognizant of it. They must not think that the annual meeting was a time of mere feasting and junketing, on the contrary, great, solid, and lasting work had been performed at these meetings. He would take them back to the annual meeting of 1871 at Plymouth, when Lord Lister was in the chair. Lord Lister was then a quiet, unassuming, little-known surgeon, and his address might have appeared tedious from the amount of detail contained in it, yet it was an historical address because in it Lister announced the great teachings on aseptic surgery which will always be associated with his name and concluded with the prophetic words "the sooner the profession come to recognize this the better it will be for humanity." Following this they had a remarkable meeting at Worcester when Sir William Stokes with the impassioned eloquence of the Irish race advocated the same principles. Then he would remind them of the meeting of 1904 at Oxford when the great Listerian principles were summed up in a remarkable address on surgery by a Scotchman, Sir William Macewen.

Thus the Association had been instrumental in bringing these great principles before the profession and hastening their adoption. He would remind them again of a remarkable address by Sir James Paget at Cambridge in 1880 when he spoke of the consequences of injury and disease to the structure of plants. Thus the meetings of all their twenty-one scientific sections were calculated to promote the progress of medical science and the benefit of humanity at large.

He then went on to speak of all that the Association had accomplished in the matter of medical reform, vaccination, registration of birth and deaths, medical treatment of paupers, suppression of quackery, and so forth. Eighty years ago the legal qualifications required to enable a man to practise medicine, surgery, and midwifery were very hazy and unsatisfactory, and through the influence of the Association a Royal Commission was appointed in 1834 to investigate. In 1842 a memorial was sent up to the Home Secretary, Sir James Graham, urging the necessity for a uniform minimum qualifying examination. The memorial was rejected and though again presented in the following year, it met with the same fate. In 1844, however, a bill for this object was brought into Parliament, but lost. In 1854 another medical bill was brought forward, but shared the fate of its predecessor. In 1856, the year in which the old Provincial Medical and Surgical Association adopted its present name of British Medical Association, another bill was brought into the Houses and supported by Lord Palmerston, but though the cause of medical reform was steadily advancing, it was only in 1858 that the Medical Act was passed and the General Medical Council was constituted. This body did not, however, give that satisfaction to the profession which had been hoped for from it chiefly from the want of direct representation of the medical profession thereon; when Sir Charles Hastings, the original promoter of the scheme, died no other medical representative was appointed in his place. In 1868 another attempt was made, though unsuccessfully, to gain direct representation in the council. In 1881 a royal commission was appointed, and in 1886 the Medical Act Amendment bill became law and it became necessary for everyone who desired to practise as a doctor to obtain a qualification in medicine, surgery, and midwifery, and the profession obtained direct representation in the General Medical Council. Mr. Butlin then went on to describe how the Association had encouraged original research. They did this firstly in 1874 by setting aside money for scientific grants to original investigators. One of the first investigations was on the subject of alcohol. In 1884 they went a step further and established two scholarships for research of £150 each. This departure was severely criticized at the time by certain members who would have preferred to have seen their money expended

on more directly utilitarian objects, such as the suppression of quackery or the defence of members, but he was reminded of the history of Faraday, which taught us that research, which seemed at the time to be purely scientific and far removed from practical application, turned out to be of the greatest practical importance to the profession and to humanity. Then they had expended £1,500 in the formation of committees for the investigation of chloroform anesthesia.

In 1883 the committee for the investigation of myxedema was instituted and this led to the grant of £50 to Sir Victor Horsley for his researches, which form the foundation of our modern thyroid therapy. A grant was also made to Surgeon Captain Bruce for the study of Malta fever, though this grant was returned as it was not required. They had thus been instrumental in equipping and advancing some of the most epoch making researches of the age. Then there was the Benevolent Society which had expended £76,000 in annuities, and an equal amount in grants to impoverished medical men and their families, and by the expenditure of £4,500 annually were doing much to relieve those who were in reduced circumstances through unavoidable misfortunes. Finally he appealed to the 22,000 members of the Association to stand by it and by one another and to look more and more to the British Medical Association for the realization of the objects of Medical Reform and Scientific Progress.

Sir William Whitla then proposed a vote of thanks, which was seconded by the Professor of Surgery at the Melbourne University, and carried by acclamation.

Address in Medicine.—Dr. J. Mitchell Bruce of London delivered this address, taking as his subject, "Recent Progress in Medical Science." In his opening remarks the speaker dwelt briefly on the advances made in medicine during the past few years, instancing, among other things, the discovery of the spirochete of syphilis; the rôle played by the mosquito in malaria and yellow fever and by the goat in the diffusion of Malta fever; the connection of a trypanosome with sleeping sickness, of the Leishman-Donovan body with kala-azar, and of the *Diplococcus intracellularis meningitidis* with cerebrospinal fever; the existence of typhoid carriers had been fully demonstrated. Investigation had been pushed forward into the relation of human to bovine tuberculosis and stringent regulations had been framed in respect of milk and meat as foods. The effects of oral sepsis had been worked out. We had improved methods of diagnosis in blood examination, special interest attaching to the Widal reaction in typhoid and the Wassermann reaction in syphilis. A read advance had been made in the introduction of lumbar puncture in cerebrospinal diseases. Among the new methods of treatment special place should be given to serum-therapy and vaccine-therapy. Of new drugs the most important were synthetic compounds with hypnotic and analgesic actions. In touching upon the inroads of surgery the claim was made that medicine had gained as much as she had lost by them, for while surgery had effected in treatment much that medicine failed to do or could never attempt, she had greatly increased our knowledge of diseases of the viscera, and not only of their diseases but of their disorders, and even of their condition and functions in health.

From this Dr. M. Bruce passed to the consideration of the greatest of the changes wrought in medicine by the discovery of phagocytosis, by virtue of which she steps forward from the study of lesions to the investigation of processes, of original causes, and of controlling circumstances. He reminded his hearers that with a few exceptions all the advances of the past 15 years had been in the field of etiology, and the doctrine of causation had been lifted to a dominant position in medicine, so much so that a methodical investigation was now made of the bacteriological relations of infective processes in the blood and tissues in every instance of acute febrile disease. With all that had been done in this field much still remained to be done. The usefulness of serum-therapy and vaccine-therapy was still far from settled. Diphtheria, typhoid fever, the pathological effects of the *Bacillus coli*, and certain skin diseases yielded to the method, and acute pneumonia sometimes, but the medical septicemias, tetanus, and even tuberculosis, after all the work with tuberculin, too often did not. The speaker then discussed at some length the influences concerned in the causation of disease, dividing them into three heads: (1) The cause which we called essential, the specific infection, an extrinsic influence; (2) the patient's resistance to the specific infection, an intrinsic element, and (3) the incidental or concomitant circumstances, which were of great variety both in kind and in their manner of action, and which were peculiarly the province of the medical practitioner, whose duty it was to know the circumstances and life-history of his patient, and to recognize that what we dignified with the name of natural resistance was but the product, after all, of all the influences that had befallen the man—racial, congenital, and personal. Reference was then made to the almost countless disorders of the different systems, especially the nervous system, outside of the acute infections, with which medicine must deal, and the question was considered as to how far it was possible to trace the common diseases to the common influences around us; and here the practitioner had the field in great measure to himself. He approached each case in the spirit of a naturalist, seeking the assistance of the pathologist when necessary. After citing many instances in which the naturalist method was now employed Dr. Mitchell Bruce concluded this section with the remark: "We are no longer satisfied with what may be called the 'anatomical' stage of diagnosis, but must press our inquiry deeper and do our best to discover in what the anatomical change originated. The minds of the profession will not rest until the cause of cancer has been found."

The speaker, in his summing up, would convince his hearers that though much had been done in the past, much more yet remained to be accomplished, and a great part of it was waiting to be done by the family practitioner. Conviction of the importance of etiology must carry with it a sense of duty. Everything could not be left to the bacteriologist. General practice was the most fruitful and promising field for the study of the natural history of disease in the living body.

This address was listened to by a very large and appreciative audience, and at its conclusion Dr. Mitchell Bruce received a vote of thanks from the association.

In the evening a reception was held at the Guildhall and was attended by large numbers.

Thursday, July 28.

The Temperance Breakfast.—The day began with a breakfast given to members of the Association by the National Temperance League. This has now become an annual institution and is looked forward to by advocates of the temperance movement and by a number of sympathizers with it. There is, of course, some speechifying on the subject, and the arguments for and against the consumption of alcohol by the healthy and its use in disease are set forth year by year at this breakfast.

Address in Surgery.—Dr. H. Gilbert Barling, Professor of Surgery in the University of Birmingham, delivered this address. After tendering his thanks for the honor implied in the invitation to address the meeting, Dr. Gilbert Barling announced that he had chosen "Malignant Disease" as his subject. He said that in spite of the new era in surgery founded on the genius of Pasteur and Lister, and the revelation of bacterial and allied infections as the cause of so many diseases, which had inspired the hope that the origin of cancer would be dis-

covered, the secret was still hidden. At the same time our knowledge of the processes of malignant disease, of the struggle made by the organism against it, and of the means by which we might relieve or cure was advancing in a most hopeful manner. The view held but a few years ago that cancer was a systemic disease, of which the tumor was the local manifestation, provided a disastrous example of the influence of bad theory on practice, as it led in most cases to a totally inadequate removal of the disease. We could appreciate our present advance only by reviewing our position from the three sides—experimental, pathological, and clinical. The speaker then divided his subject into the three main considerations—(1) What experiment has taught us as to the growth of transplanted carcinoma and the methods by which immunity can be conferred on inoculated animals; (2) our knowledge of resistance to malignant disease in the human subject; (3) the means available for its successful treatment.

Experimental investigation had taught us that carcinoma was a parasite, the essential element the epithelium, living its own life and using its host as a provider of nutrition through the new stroma and its accompanying blood-vessels. But we had learned also that, not content with exciting a production of new stroma and blood-vessels to supply its needs, the epithelial cell so impressed the tissues in which it was implanted that a stroma was produced exactly similar to the stroma in the primary growth. If the stroma of the primary tumor were highly vascular, so that the growth was of the hemorrhagic type, this would be exactly reproduced by successful inoculation. Experiments had been devised to determine whether what seemed to be natural resistance on the part of some mice could be increased, the results proving that this could be done, but only within narrow limits. We had also learned something by our study of the action of radium upon malignant tissue. If a portion of mouse carcinoma were exposed to the action of radium for a period insufficient to produce any structural change, gross or microscopic, and this fragment were subsequently inoculated into other mice, the inoculation failed, no growth taking place. In mouse carcinoma already established by inoculation, exposure to radium caused some of the tumors to disappear, others continued to develop normally, and a few perhaps flourished more actively. Study of these tumors would show as the most noticeable change an active proliferation of the connective tissues and an invasion of the parenchyma of the tumors by young fibrolasts which, as they completed their development, contracted on, strangled, and destroyed the epithelial cells they embraced. We had, however, no evidence here of a direct specific effect on the epithelium of the growth which was found to be still actively proliferating. Some experimental observations made by Mr. Percival Mills showed similar changes induced by exposing the liver of a healthy mouse to the action of radium. In his consideration of human resistance to malignant disease Mr. Barling said that we had evidence, both pathological and clinical, of a real struggle which occasionally ended in a spontaneous cure. In its progress through the lymphatic vessels, the latter become more and more distended until the walls ruptured; a slight hemorrhage might occur and some reaction of surrounding tissue. As a result fibrous tissue was produced, contraction followed, and the cancerous epithelium was strangled. Similar resistance might be found in the blood-vessels, as was most easily demonstrated in the lungs. Human resistance was also shown by late recurrence in patients who had been thought cured by operation perhaps ten years before, so that it was impossible to avoid the conclusion that minute foci might lie latent in the tissues for long periods. Spontaneous recovery was perhaps oftener cited than verified, yet rigid scrutiny would show not a few cases which appeared conclusive, among them notably the classic case of Pearce Gould, in which a woman with recurrent breast cancer, extensive gland infection, nodules in the skin, and growth in one femur with spontaneous fracture, who was reduced to death's door, was found four years later to have lost all sign of her disease, save a shortening of the femur from the spontaneous fracture.

In his consideration of treatment Mr. Barling dismissed treatment by serums, by drugs, and by the enzymes as futile. The *x*-rays had a real field of usefulness in relieving pain, and reducing the activity of inoperable growths. Of radium it was necessary to speak cautiously. Often it produced a profound impression; malignant tumors of great size might diminish or disappear. Unhappily their subsequent return was too often seen, and in some cases, instead of recession of the growth, there was a more rapid evolution. It was to be welcomed in inoperable cases for the lessening of pain and discharge and for the cicatrisation of open sores. In his consideration of Coley's toxin treatment Mr. Barling was not able to speak with much optimism, although he said that in cases that were inoperable, or where operation was refused, he would certainly advise the use of the toxins, with the expectation of benefit in a few cases. But we must still rely upon operative measures as the great remedy for malignant disease. The one real opportunity of cure was offered at the first operation, which should be pressed to its fullest extent. Our great hope for the future was in the direction of earlier recognition; in its earlier stages cancer was generally a silent disease, and physicians owed it to the public to urge special methods of investigation by instruments of precision, by radiography, by exploratory incision, or even by prophylactic excision. Mr. Barling concluded by expressing his belief that all malignant growths could be cured if they could be excised at a certain stage in their development.

In the evening some 350 ladies dined together on the invitation of the Ladies' Reception Committee. The Countess of Aberdeen and Mrs. Butlin received the guests.

Entertainments of various kinds and hospitality have been the order of the day—or rather of the week. So much so that few can be mentioned for they seem to have quite overshadowed the serious work. On Monday the president gave a dinner at the Hotel Cecil to 350 guests. On Wednesday he was in turn entertained at a luncheon by the staff and school of St. Bartholomew's Hospital, when there was much glorification that for a second time a Bart's man had been made president, and moreover, that Mr. Butlin was at the same time president of the Royal College of Surgeons. The Master and Warden of the Apothecaries gave a dinner in the evening, when, too, the Lord Mayor and Lady Mayoress and Corporation gave a conversazione in the Guildhall to about 1,500 guests, to whom the band of the Royal Artillery and that of the Coldstream Guards contributed the music for dancing which took place in the library.

To-day, Friday, some sections continue, but entertainments prevail, and to-morrow will be given up to excursions for the benefit of those who remain in town.

SECTION OF MEDICINE.

Wednesday, July 27—First Day.

Pathogenesis, Prophylaxis, and Treatment of Acidosis.—Professor D. L. EDSALL (Philadelphia) opened this discussion. It was known from experiment on animals that acid intoxication could occur and that the organism fought it by using ammonia in chief. In diabetes in human beings it was known that oxybutyric acid was the chief toxic element which was fought by ammonia and other bases. Diacetic acid and acetone were of little importance as toxic factors. Acid intoxication might not be the whole cause of the severe symptoms of diabetes, the kidneys were apt to be

damaged, giving an uremic factor and the acid itself gave rise to disorders of metabolism carried on in other organs. While there was an important distinction between acidosis and acid intoxication, there was from the clinical as well as from the pathological standpoint another equally important distinction between the forms of acidosis, sometimes severe and sometimes mild, that were due to lack of carbohydrates or inability to utilize them, as in diabetes, and those forms which were incidental to severe disease which was most commonly situated in the liver. Even in the latter forms, however, diet at times played an important part in treatment as to alkalies, probably less through checking the direct effects of acidosis than through controlling secondary effects, perhaps an autolysis. While therefore it was not certain that acid intoxication was the prime cause of the violent toxic symptoms in diabetes —and some evidence points to the contrary—it was highly probable that it was the main cause, as well as in the occasional cases of coma of the same type in nondiabetic persons. Starvation, post-anesthetic intoxication, acute yellow atrophy of the liver, vomiting of pregnancy, cyclical vomiting, eclampsia, and other conditions had probably a similar causation. It had been shown for example that anesthetics flooded the organism with fat. Changes in the liver were clearly demonstrable. Even a small quantity of acidosis might produce profound changes in the liver. The manner in which the acids produced their effect was probably a direct effect on the nervous system. The effect of the acidosis might be much of the same nature as the effect of a narcotic on the system possibly directed, especially to the lipoids of the nervous system, although part of the toxic effect was probably on the circulation. The relation of the loss of inorganic salts to the production of symptoms, and the possible relation of the same salts to the production of acidosis, needed further study. It was not improbable that these salts had some relation to the symptoms in the earlier course of diabetes before severe toxic symptoms came on, especially to the common muscular fatigue. Interdependence of carbohydrate metabolism and fat metabolism was alluded to, also to the equilibrium in the body of oxybutyric acid, diacetic acid and acetone. Alcohol had a marked influence in controlling acidosis and should be administered in generous quantities; glycerine aldehyde was another substance with a controlling effect, and it had not a toxic influence. The more a patient had the power of protecting himself in regard to carhobydrate the greater power he had against acid intoxication.

Dr. E. I. Spriggs thought the distinction that had been made between the different forms of acidosis was a superficial one, as also was that between cases in which there was obvious degeneration of the liver and in those in which there was not. It was doubtful if the acidosis itself had a direct effect on the autolysis of the liver—it was probably due to a separate poison. In diabetes it had been proved that the condition was one of acid poisoning and that the coma was mainly, if not entirely, due to it. Reference was made to the observations of Dr. Pembrey, Dr. Beddard, and himself on cases of diabetes. Acidosis might be produced by excess of carbohydrate or by starvation or a too rapid diminution of carbohydrate. Slight evidence of acidosis appeared in a few days after a diabetic diet was commenced which might develop into coma. To prevent acidosis the patient should have precisely the amount of carbohydrate that he could assimilate. A slight increase in carbohydrate in the diet might be followed by a fall in the oxybutyric acid. The other chief treatment was by sodium bicarbonate, which was only palliative.

Dr. Langdon Brown said that starvation was the chief cause of acidosis, particularly to the deprivation of carbohydrates. But acidosis might be due to oxygen starvation as in mountain sickness and in bronchopneumonia. It was not that oxybutyric acid was toxic so much as that they were evidence of severe destruction of the tissues. The alkalinity of the blood was not always diminished. In prophylaxis it might be found that the intolerance for certain carbohydrates was less than for other forms, *e. g.* cevulose might be well assimilated. Potassium citrate was a very valuable adjunct to the treatment by sodium bicarbonate. It was important that the tissues should not be flooded with sodium bicarbonate. The relative proportion of the salts that seemed necessary to maintain was in the ratio of 1 drachm of sodium bicarbonate, half a drachm of potassium citrate, and 3 grains each of carbonates of magnesia and lime.

Dr. A. P. Beddard also believed that acidosis was always due to carbohydrate starvation and that diabetes was the only condition in which acidosis was dangerous to life. In regard to the effect of exercise it was possible to give a diabetic too much exercise, but it was also possible to give him too little. Alkalies in diabetes might be used in diagnosis and treatment. It should be made out what dose of alkali was necessary to make the urine alkaline, the amount varying in different cases.

Dr. Leonard Guthrie referred to the question of post-anesthetic intoxication. It was not a question of overdosage or overconcentration, or idiosyncrasy. Starvation in this relation had, perhaps, been made too much of. He thought that all children the subject of cyclical vomiting were potential victims of postanesthetic intoxication.

Dr. M. S. Pembrey said that the acidosis was really a question of physiology in which the law of excitation came much into play. Sudden changes were more serious in their effect than gradual ones manifested in the effect of exercise or anesthetics on metabolism.

Dr. J. H. Ryffel alluded to the effect of severe exercise in producing acidosis and suggested that in this case the acid producing the acidosis was lactic acid.

Dr. Edsall, in reply, said the lack of success of the administration of alkali in many cases of acidosis was an argument used with force by those who held that the acid factor was not the only one in the intoxication known as acidosis.

Dr. Leonard Hill gave a demonstration on improved methods of giving oxygen with an account of the influence of air in treatment, arguing for the mere movement of the air in ventilation as distinguished from its change.

Section of Gynecology and Obstetrics.

Wednesday, July 27—First Day.

The president, Mrs. Mary A. D. Scharlieb, M.D., in her introductory remarks, welcomed the foreign visitors to the Section, Professors Gottschalk (Berlin), Doederlein (Munich), Nagel (Berlin).

Dysmenorrhea, Its Causes and Treatment.—Dr. G. E. Herman of London opened a discussion on this subject. He said that the first question to be answered was what was dysmenorrhea? Some said any pain or discomfort at the menstrual period, but this would involve a discussion of the whole field of diseases of women. His definition would be that the disease was one "sui generis" and that it was characterized by the occurrence of painful spasms of the uterine, the disease was frequently associated with deficient sexual feeling and sterility. It could be cured by dilatation of the cervix; he had come to the conclusion that about one-half of women menstruated without any pain or discomfort, and that about 1 in 8 were forced to lie up at the period. The pain was not relieved by lying down and did not last more than 24 hours, the patient often vomited and sometimes felt faint. The extreme severity of the pain was characteristic. Dr. Mackin-

tosh, in 1836, treated cases by dilatation of the cervix and had a large percentage of cures, but in those days before anesthetics and antiseptics, only the most severe cases would be submitted to this treatment. In his opinion the condition called obstructive dysmenorrhea did not exist, in complete obstruction leading to cryptomenorrhea there was little pain. In his opinion also the condition called membranoal dysmenorrhea did not exist, as robust women passed membrane without pain, and when there was pain with membrane it was due to weakness of the nervous system; when the latter condition was relieved the pain disappeared, although the passage of membrane might still continue. The size of the canal of the cervix had no bearing on dysmenorrhea. He would not include inflammatory dysmenorrhea in this discussion. The spasms of uterine colic were due to the absence of active dilatation of the cervix associated with uterine contractions. Nothing was known about the causes of dysmenorrhea, and it was impossible from a physical examination to predict the cases in which it would occur. Two-thirds of the cases began at puberty and one-third later, it very rarely began after 25. It occurred chiefly in women with highly developed nervous systems and showed no tendency to spontaneous cure; the only natural cure was pregnancy and this was usually effectual.

Discussing the treatment, the speakers said every patient could be cured by removing the ovaries and so arresting menstruation, but in many cases the cure would be worse than the disease. The pain could always be abolished by injecting morphia, but this was a dangerous proceeding. Coal tar analgesics were valuable and in his opinion were not productive of harm, in some cases they failed to relieve. Good food, rest, and sound sleep were all important. He had found most benefit from Guiacum resin given in 10-grain doses in cachet three times a day, beginning one week before the period; if this produced diarrhea he added 1 grain of pulvis ipecac co. (Dover's powder). The most effectual cure was dilatation of the cervix by mental bougies; he dilated up to No. 12, English catheter size, and preferred this scale to the millimenter graduation of Hegar's bougies. With regard to tents they sometimes remained constricted at the internal os and expanded above and below, and much difficulty might be experienced in their removal; if they were used he preferred two small ones to one large one. With regard to removal of the ovaries, if the patient had reached the age of 35 he thought science entitled to ask that this should be done, and, even at an earlier age, if a young woman was prevented from earning her living by the disease, he thought removal was quite justifiable.

Professor Gottschalk of Berlin said that narrowing of internal os and antiflexion might both be a cause; he treated cases by introducing laminaria tents, increasing in size on three successive days, and then packing with iodoform gauze for forty-eight hours. He spoke of mittelschmertz (middle pain) and said that it was caused by intermediate ovulation in severe cases, and by premenstrual engorgement of the graafian follicle in the slighter ones, and he treated it by scarification of the portio vaginalis.

Professor Magel of Berlin believed in membranous dysmenorrhea and in one case had removed the uterus for this condition after the remedies failed. He spoke of dysmenorrhea due to nasal conditions and he had seen some cases relieved by treatment applied to the nose.

Dr. Curtis Webb of London had seen great benefit from guiacum, also from abdominal compresses saturated in hot alcohol, as recommended by some French physicians. He found that the painful spasm could be relieved by static electricity and he had used an American static machine, passing one electrode into the rectum; he combined this with abdomen's dorsal application of the constant current of a strength of 60 milliamperes, or used the latter alone in single women. In the case of married women he used zinc-mercury ionization.

Dr. R. J. Johnstone of Belfast said that he would add to the definition Dr. Herman had given that the disease had no clear anatomical basis, and he compared the condition to the painful spasms met with in cases of anal fissure He believed that there must be some tearing of the fibres of the constricting muscle at the internal os if good was to be done, and, in some cases where dilatation had failed, he had seen good results from incision (Dudley's operation). In dysmenorrhea coming on some years after puberty he always found erosion present and treated these cases by excision of the erosion.

Dr. Inglis Parson of London divided cases into occasional and persistent; the former might be due to neuralgia, gout, or anœmia, the latter were always due to acute flexion; after dilatation he always left in a glass intrauterine stem for 14 days keeping patient in bed during this time.

Dr. Edge of Birmingham thought that many cases were due to girls being insufficiently fed between the ages of 9 and 17.

Dr. Blair Bell of Liverpool thought that atrophy of the uterine muscle and diseased endometerium lead to the formation of clots in the uterus and that these clots might cause an obstructive dysmenorrhea; he thought removal of the ovaries absolutely unjustifiable.

Dr. Murdock Cameron of Glasgow thought anteflexion a common cause and treated cases with silver intrauterine stem pessaries.

Dr. Frances Ivens of Liverpool thought that many cases were much relieved by purgation; he believed anteflexion was a cause.

The President thought some cases were due to obstruction of the cervical canal by pieces of membrane; he found good results from administering valeiranate of zinc and belladonna continuously for three or four months; he could not countenance removing healthy ovaries; he would prefer to remove uterus, leaving ovaries, if radical treatment was necessary.

Dr. Herman, in reply, said he would like to know what happened to the ovaries after removal of the uterus; he was under the impression that they would atrophy. Anteflexion was the natural position of the uterus and could not be a cause of dysmenorrhea. Grave dangers of septic infection were increased by using stem pessaries and there had been many fatal cases.

Bacteriology of the Genital Canal and the Prevention of Puerperal Fevers.—Professor Doederlein of Munich read this paper. He first discussed the question of preliminary disinfection of the genital canal in labor and said that he had made careful experiments in his wards at the same time; one part of the patients having the vagina washed and swabbed out with perthloride of mercury 1-1000, and in the others nothing of the kind was done, the genital canal not being touched; in all other respects the patients were treated exactly alike; in the first class the morbidity was 12 per cent., in the second 8 per cent., and he had come to the conclusion that preliminary disinfection of the vagina was contraindicated. He discussed the question of abdominal palpation, and while strongly advising its use he did not go so far as to prohibit internal examinations; as it had been proved that it was impossible to remove all microbes from the hands he advised rubber gloves for all internal examinations.

Dr. Ballantyne of Edinburgh drew attention to the difficulty of carrying out strict aseptic precautions in emergencies, such as severe postpartum hemorrhage, but urged that as much should be done as possible in this direction.

Dr. Herman thought gloves unnecessary, and apt to beget inattention to other means of disinfection; their cost was prohibitory for midwives.

Dr. Purslow of Birmingham used gloves for operative midwifery, but thought that it was difficult to separate an adherent placenta when wearing gloves.

Dr. Munro Kerr of Glasgow strongly advised gloves in all cases.

Dr. Kirkby Gomes of the Straits Settlements used gloves regularly in all obstetric work.

Dr. Blair Bell of Liverpool used sterilized cotton gloves for separating placenta and washable gloves for ordinary outdoor wear.

Dr. Edge of Birmingham drew attention to danger of introducing germs if the vulva was not carefully disinfected bfeore giving an intrauterine douche, when required in the puerperium.

Dr. Hastings Tweedy of the Rotunda Hospital, Dublin, filled the gloves with methylated spirit before putting them on and had tested the inner surface at the end of a two hours' operation and found it sterile; he agreed as to the difficulty of removing an adherent placenta when wearing rubber gloves.

Dr. Thomas Wilson of Birmingham strongly believed in gloves, but thought that they might be a passing phase and that some better method might take their place.

The President used glycerin instead of spirit to facilitate the putting on of gloves; in many cases of septic uterus he preferred the introduction of a glycerin pessary to washing out.

Air Embolism Due to Labor.—Dr. John Campbell of Belfast read a paper on this subject. He said that it was more common than was generally supposed. The symptoms in severe cases were like those of pulmonary embolism from clot, but in mild cases there were recurrent attacks of dyspnea. These attacks were due to contractions of the uterus forcing air into the blood stream. The cause of the entry of air into the uterus was delivery under anesthesia in the left lateral semi-prone position. In this position the expulsion of the child was followed by an inrush of air, but embolism was not produced until the placenta was detached. When this had happened the placenta might remain in the cervix, plugging it like a cork, and each contraction of the uterus would drive air into the sinuses. The prophylactic treatment was to complete delivery and carry out all obstetric operations with the patient in the dorsal position. When embolism had taken place the placenta should be immediately removed by hand and an intrauterine douche of saline solution given. In addition saline subcutaneous infusion, oxygen inhalations, and digitalis should be given. The patient should remain in bed five or six weeks.

Additional Cases of Rupture of the Uterus.—Dr. Munro Kerr of Glasgow read a paper with this title. As a result of his further experience he recommended that the cases should be treated by panhysterectomy followed by drainage of the lacerated broad ligament into the vagina, using a large rubber tube and gauge.

The Puncture of the Stroma in the Uterine Mucous Membrane and Its Bearing on the Menstrual Changes.—Dr. James Young of Edinburgh read this paper. He said that there were three theories of menstrual loss: (1) Transfusion from the blood vessels as a result of increased pressure in their interior, (2) Osmosis, (3) secretory activity of the epithelium, and he favored No. 2.

Section on Surgery.

Wednesday, July 27—First Day.

Sir Victor Horsley, President.

Operative Treatment of Simple Fractures.—Mr. Arbuthnot Lane said the subject under consideration was a very simple one. We had to determine whether the unoperative treatment of fractures was satisfactory in securing a useful limb or whether it was necessary to obtain acurrate apposition of the fragments by operative measures. Personally he was convinced that in the very large majority of cases of simple fracture of the long bones perfect result could be obtained by operative treatment alone. As regards the necessity of obtaining perfect apposition of fragmnts he was entirely in agreement and he could not urge the truth of this teaching too strongly. But as to the possibility of effecting such accurate apposition by the methods usually employed there was now no doubt whatever that the principle was not and never had been carried out in practice. In fractures of the shafts of the long bones where there existed any considerable displacement of the fragments, it was almost always impossible to restore the broken bone or bones to their original form by manipulation. If any one would still wish us to believe that he was able to obtain accurate apposition by such means let him produce *x*-ray photographs of his cases. That the inability to obtain accurate apposition of fragments was now fairly generally recognized was shown by the fact that the opponents of the operative treatment of fractures had changed their ground. They now asserted that the functional result did not depend on the perfection of the restoration of the form of the skeleton, but upon causes which they did not clearly define. These surgeons seemed to have a very vague idea of the mechanics of the skeleton. They experienced a great difficulty in arriving at a correct conclusion as to the amount of benefit their own patients derived from the treatment they themselves have employed. The speaker repeated a statement contained in a paper read before the Clinical Society in 1894 in which he urged on the profession the folly of continuing the old methods of treatment and the necessity of having recourse to operative procedures, namely, "That the treatment of fractures, as it exists, is a disgrace to surgical practice, because those who have sustained fractures, especially of the leg, only too often experience enormous physical disability. When dependent on labor for their income, they frequently suffer great finanial depreciation in their wage-earing capacity. In not a small proportion the depreciation in certain occupations amounts to 100 per cent." All his subsequent experience of fractures, treated by means other than operative, had fully borne out the accuracy of the conclusions he arrived at many years ago.

The advent of *x*-rays compelled surgeons to be more careful of their statements as to the necessity of effecting accurate apposition of fragments, and the temptation to cast discredit on the interpretation of *x*-rays became too great to be resisted by the surgeon. If these surgeons could have shown that the nature and amount of displacement of fragments were exaggerated by *x*-rays then the surgeons would have believed that they had succeeded in propping up a creed which was rapidly slipping away. Now as far as *x*-rays were concerned when taken by competent operators on up-to-date apparatus the results were in the speaker's experience perfectly intelligible and gave a thoroughly reliable indication of the displacement of the fragments. Far from exaggerating the difficulties of displacement they often underestimated them very greatly, since they did not afford any evidence of the soft parts which intervened between fragments and opposed their replacement. Mr. Lane would, therefore, assume that the *x*-ray photographs taken in planes crossing each other at right angles by an efficient *x*-ray expert with an up-to-date apparatus afforded sufficiently accurate evidence of the displacement for the purposes of the surgeon, and also that the same amount of information could not be obtained by any manipulation of the surgeon, however experienced and skillful.

The advantages gained by operative interference were that the broken bone was restored to its original form and

was capable of performing its normal functions. There was no doubt whatever that if the operation could be performed easily and safely by an average surgeon the operative treatment of fractures would have become popular long ago. The difficulties that beset the operative treatment of fractures were that to insure success an asepsis which was much more perfect than sufficed for other operations was requisite when a foreign body was left in a wound, as it was in the operative treatment of fractures, and the degree of asepsis requisite varied directly with the bulk of the foreign body. Also it was not possible to insure this degree of asepsis and to perform the large majority of these operations with the appliances in ordinary use and instruments specially adapted for the purpose must be employed. Otherwise we would not hear so much about plates and screws coming out of wounds, of the development of rarefying osteitis about screws, etc. If infection of the wound took place the result might be disastrous to the patient. Many of the operations were difficult to perform, especially when there were much comminution of bone and swelling of the surrounding soft parts, and, unless very great care was taken, a failure to secure perfect asepsis might arise during the course of a prolonged and complicated procedure. Until this was generally recognized by surgeons much harm would result from the general use of the operative treatment of fractures, but with an improved technique and an increasing familiarity with the operative procedure the danger of asepsis would cease to exist.

As to the best method of retaining the fragments of broken bones immovably in position the buried steel plate is in Mr. Lane's opinion the most effective and simple of application. A plate was readily secured to the fragments by screws, which in the adult engaged the proximal compact tissue alone. These were threaded along their entire length. If properly introduced they produced no irritation in an aseptic wound. The skin of the patient should be carefully excluded from wound area by means of sterile cloths fixed to the margin of the incision. The incision should be of ample length so as to avoid damage to important structures and to minimize any risk of infection. The instruments used for bringing the fragments into position for the introduction of the plates and screws for controlling hemmorrhage, etc., should be very long and powerful. No ligatures were required and no portion of the instrument, sponges, etc., which had touched even the gloved hand should come into contact with the wound. An epiphysis which was separated rarely required to be retained in position by a plate or screws, but should it be necessary to employ such means the plate should be removed as soon as union had taken place to avoid any interference with the growth of bone at the epiphyseal line. In fractures of the ends of long bones it was also rarely requisite to retain the fragments by means of a plate, once accurate apposition had been effected, provided the joint were fixed in a suitable position. One must always remember that whatever means were used it was absolutely requisite to immobilize the fragments, and to adapt the plates accurately. There were of course limits to this operation, especially in cases where the bones were so soft that the screws could not hold; but in regard to this the speaker was convinced that alcohol had a worse influence on bones than on any other tissue of the body. Finally Mr. Lane emphatically asserted that it was often impossible to replace fragments satisfactorily by manipulation, and any compromise was unjustifiable.

Dr. Lucas-Championnière of Paris admitted that Mr. Lane had given a good demonstration of the possibilities of operative treatment in cases of simple fracture. Possibly others could not have given such good results. For himself, he was satisfied with other methods of treatment in most cases. Perhaps in very bad cases of fractures of the lower part of the leg Mr. Lane's method would be especially useful. Accurate position of the bones was not the only consideration, and he had seen many cases of good results so far as usefulness of the limb, with bad apposition of the fragments. With his own methods he usually obtained good results after 14 days' massage. In two cases in which he had sutured the olecranon, the result was bad from immobilisation. In conclusion, he was satisfied with a simple operation, and he thought the major operation should only be undertaken by an expert who would not kill his patient. You had no right to kill a patient with a simple fracture, although Mr. Lane might expect some of his patients to die. They were so nearly dead to begin with.

Mr. Gilbert Barling of Birmingham said it was difficult to reconcile the two views on this subject. He suggested that possibly the time had now arrived for the British Medical Association to appoint a committee to determine the truth of this matter. Or, were we to go into two camps? The profession wanted some guidance. There was some excuse for conservatism, for, as the last speaker had said, a living dog was better than a dead lion. Operative measures unquestionably implied danger to life in some cases, and suppuration with necrosis and delayed recovery in others. Much depended on the technique. He had seen Mr. Lane operate, and he knew that his technique was perfect. For his own part, as methods of surgical asepsis improved, he felt able to undertake operative cases which ten years ago he would have hesitated to touch. He would plead for a careful selection of cases, and also for a careful selection of operator. In the light of radiography many of the conclusions we arrived at without its aid were now proved to be inaccurate—especially in the case of fractures involving joints. And with the more frequent check to our diagnosis, we should probably be called upon to operate more frequently. It must not be forgotten that *x*-rays were not infallible, and we should often have to decide whether to be guided by *x*-rays, or by the question: "Is the patient likely to get a useful limb?" In all those cases in which we had to depart from our conservative methods, particularly in the case of oblique fractures and those of the olecranon, the method devised by Mr. Lane was unquestionably the best.

Mr. Deansley of Wolverhampton said that he had some correspondence with Mr. Lane on this subject 10 years ago, and although at that time he did not see eye to eye with him, he had now quite changed his own views. He still held, however, that in certain fractures perfect restoration of function may be obtained, even although the fragments are not in good position. It was not fair to compare the results obtained by Mr. Lane with those which house surgeons and comparatively inexperienced practitioners obtained from older methods. He thought that a skilled surgeon might often obtain good results by conservative methods, but even then, he believed that many cases might be operated on with advantage. We ought not to lay down any law, but the decision in each case should rest with the individual surgeon. And a man should not operate unless he felt certain of being able to exclude sepsis, and was willing to take the great responsibility which operation involved.

Professor Ch. Willems of Belgium thought we should be better employed in making ourselves perfect in the many bloodless methods of treating fractures, rather than in devising variety in open methods. He considered operations were justifiable only in rare cases. In those cases which were irreducible owing to the interposition of soft parts between the fragments, he made an incision for the purpose of reduction, but condemned any attempt at operative fixation. He preferred to fix the parts by plaster bandages applied above and below the wound. He did not maintain that his method gave such absolute accuracy of

opposition, but it ensured an excellent functional result. He considered his method more simple and less dangerous.

Mr. Walter Spencer of London was opposed to Mr. Lane's method in Pott's fracture and in fractures of the shafts of the femur. In the cases of Pott's fracture shown by Mr. Lane, the foot was still extended. He did not consider mechanical fixation was necessary, even in compound fractures of the leg.

Mr. Whitelock of Oxford considered the technique was difficult. He did not agree that you never get rarefying osteitis. In many cases the screws come loose, and may require removal. Even Mr. Lane admitted that he removed his early when near a joint—which was a concession. He (Mr. Whitelock) frequently used some absorbent suture, especially for the patella and near an epiphysis. If wire was used, a good result may apparently be obtained, and then in 6 or 12 months the patent may return with the wire loose. The justification for operation was not to get perfect alignment, but to remove any intervening soft tissue. If these are removed, good results may be obtained, even without suturing.

Mr. Paterson of London thought the trend of the discussion must be satisfactory to Mr. Lane. In former days he had been the subject of a good deal of hostile criticism, but we all ought to recognize the brilliant pioneer work he had done in the operative treatment of fractures. Hitherto too much attention had been paid to *immediate* results, and too little to remote ones. In addition to a good functional result, it was now-a-days necessary to get a good anatomical result as well to satisfy the law courts. The ordinary methods of treatment are not satisfactory, and the risk of operation is nil if properly performed in the way done by Mr. Lane.

Mr. Morton and Mr. Shenton gave some illustrations of skiagrams descriptive of cases of fracture treated by the two methods.

Mr. Hey Groves was surprised Mr. Lane had not shown any plates of fractures of the lower jaw, as he considered such cases very suitable for treatment by Mr. Lane's method. He considered that many cases of fractures of long bones might be treated more easily by inserting bone pegs into the medullary cavity of each fragment. He also advocated direct transfixion of bones as a means of using forced extension.

Mr. Fullerton thought many surgeons did not take sufficient interest in cases of fracture. He was not satisfied with the older methods, especially as used in many cases, and in the worst cases the only method was to mechanically fix as advised by Mr. Lane. Unfortunately, other operators do not share the same immunity from disaster.

Mr. Heygate Vernon contended that operative measures were imperative in all cases in which the displacement could not be reduced by manipulation.

Mr. Huggins said there was no record of any trouble with the plates or screws in any of the cases treated by operation at the East Ormond St. Children's Hospital.

Mr. Lane in reply said that hitherto whenever he had spoken on this subject, he had met with no support. Today, all his opponents had vanished and he met with practically unanimous support.

(*To be continued.*)

Pathological Society of Philadelphia.

At a stated meeting, held May 26, Dr. B. S. Veeder exhibited a specimen of "Duodenal Ulcer in an Infant Six Months Old." The child had presented signs of gastro-intestinal disorder, with malnutrition and blood in the stools. The condition is considered by some observers a relatively common one and operation has been successfully performed. Dr. Nate Ginsburg presented "A Left Kidney with Two Ureters." Each ureter arose from a separate pelvis of the kidney, while they entered the bladder by a common orifice. Dr. Ginsburg exhibited also "A Calculous Cast of the Renal Pelvis and Calyces." The kidney was cystic and the calculus entirely filled the pelvis and calyces. In addition the gall-bladder contained a calculus. Both specimens came from the dissecting room. Dr. B. A. Thomas exhibited a specimen of "Acute Suppurative Hematogenous Nephritis Caused by the Bacillus of Friedlander." Although a considerable portion of the kidney appeared to be diseased, urine stained with indigo-carmine was seen on cystoscopic examination to enter the bladder through both ureters after a short interval. The affection is often due to the *Bacillus coli communis*. Dr. Thomas exhibited also a specimen of "Acute Hemorrhagic Nephritis," the kidney being removed on account of repeated unilateral renal hematuria, and exhibiting well-marked histological changes. He exhibited also a kidney from a case of "Essential Nematuria." The organ was removed for the control of hemorrhage, but histological examination failed to disclose alterations in the texture of the kidney sufficient to explain the condition. The patient had had an attack of scarlet fever in early life. Dr. C. M. Montgomery presented a communication entitled "The Relation of Intestinal Absorption to Pulmonary Anthracosis," reciting the results of experimental observations undertaken for the purpose of determining whether insoluble materials introduced into the digestive tract found their way to the lungs and the bronchial glands or not. For this purpose an insoluble form of Prussian blue was employed, and after being mixed with batter and baked, it was introduced, in the form of cakes, or it was ingested in a dry state. Under the former conditions the powder found its way into the wall of the bowel and into the mesenteric lymphatic glands, but never to the lungs and the bronchial glands, while under the latter condition the lungs and the bronchial glands were affected. In other words when the possibility of inhalation was excluded lungs and bronchial glands escaped. Dr. H. T. Karsner presented a communication entitled "Primary Carcinoma of the Liver," in which he detailed the results of a clinical and anatomical study of nine cases, five of which belonged to the class of adenocarcinoma and four to that of solid carcinoma. The former apparently originated from the biliary apparatus, the latter from the parenchyma of the liver. In all of the cases there was some degree of cirrhosis. Pain was a relatively uncommon clinical phenomenon.

Drs. A. J. Smith and F. D. Weidman presented a communication entitled "An Amebiform Parasitic Infection Found in a Stillborn Child." Delivery was somewhat belated and the fetus had been dead but a short time. On examination of the body of the fetus amebiform bodies were found in liver, kidneys, and lungs. No source of infection could be determined.

Should the Cesarean Section Be Performed for Hemorrhage Due to Vicious Insertion of the Placenta?—J. Mouchotte gives the result of a study of 183 cases of placenta previa treated by the method of Pinard at the Baudelocque Hospital. This method is absolute inaction as long as there is no rise of the pulse beyond 100; when this rise occurs rupture of the membranes and the introduction of a Champetier de Rives balloon to act as dilator and tampon at the same time. Out of these 183 cases all but four survived, and 101 infants left the hospital alive. Of the 83 children which died, many were either not viable, or were so reduced by the loss of blood of the mother that when they came to the clinic, it was not possible to save their lives. Hence, none of them were worth doing a cesarean section with a view of preserving a living child. Of the mothers who died, one was infected before entry; another died of infection from handling in introducing three different balloons because of bursting of the rubber; another was exsanguinated when she reached the hospital; the fourth died of delay in introducing the balloons. Of the children who might have lived, twelve in number, only five were well developed when the mothers entered the hospital.—*Annales de Gynécologie et d'Obstetriques.*

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

UNIVERSITY OF THE STATE OF NEW YORK.

May, 1910.

ANATOMY.

(*Answer ten questions only.*)

1. What structures pass through the foramen magnum of the occipital bone?
2. Describe the patella.
3. Distinguish synarthrosis and diarthrosis. Illustrate each.
4. Give the origin, insertion, action, and nerve supply of *one* of the following muscles: Deltoideus, psoas major (psoas magnus), sternocleidomastoideus.
5. Mention the openings and the valves of the left ventricle of the heart.
6. Give the origin, course, and distribution of the arteria pulmonalis.
7. Describe the venæ intercostales.
8. Locate and describe the lymph nodes of the head.
9. Give the origin, course, and distribution of the nervus ischiadicus (great sciatic nerve).
10. Describe the nasal fossæ.
11. Give the structure of the stomach. What is the average size of the adult stomach.
12. Give the gross anatomy of the tongue.
13. Describe the pelvis of the kidney.
14. Describe the urogenital triangle (urethral perineum).
15. Give position and the shape of the pancreas.

PHYSIOLOGY.

(*Answer ten questions only.*)

1. What are the general functions of epithelium? What are the specific functions of ciliated epithelium?
2. Explain the dangers of transfusing blood from lower animals into man.
3. What are the forces that cause the circulation of the lymph?
4. Describe the mechanical relation of the ribs to the vertebræ. Explain the relation of this arrangement to respiration.
5. Give *three* examples of enzymes and state the specific functions of each.
6. Describe the plicæ circulares (valvulæ conniventes). Where are they found, and in what numbers? What purpose do they serve?
7. Mention in order of importance the avenues through which the heat of the body is lost.
8. Describe the glycogenic function of muscle.
9. What is the origin of urea?
10. Is a muscle dependent on its nerve connection for the reception of a stimulus? Explain.
11. Describe the effects of paralysis of the nervus facialis.
12. Describe the tuba auditiva (Eustachii), and state its function.
13. Illustrate by diagram or otherwise the formation of the image of an object on the retina, considering the refractive surfaces of the eye as a biconvex lens.
14. State the physical changes in the human body that are characteristic of senility.
15. What is the significance of the presence of polynuclear leucocytes in the blood?

CHEMISTRY.

(*Answer ten questions only.*)

1. Give the graphic formula of (*a*) sulphur trioxide, (*b*) phosphoric acid.
2. Give the meaning and illustrate the use in chemical nomenclature of (*a*) id, (*b*) ous, (*c*) ic, (*d*) hypo, (*e*) per.
3. State the centigrade and the Fahrenheit registration of (*a*) the boiling point of water, (*b*) the freezing point of water, (*c*) the freezing point of mercury.
4. Define and illustrate (*a*) distillation, (*b*) pentad element, (*c*) molecular weight, (*d*) gas, (*e*) acid salt.
5. Describe H_2O_2 as to (*a*) preparation, (*b*) uses, (*c*) test by which it may be recognized.
6. Give the occurrence, preparation, properties, and uses of NH_3.
7. What are the chief sources of iodine? Describe a method of preparing iodine. Give the formulas of *five* compounds of iodine.
8. Give the preparation, properties, and uses of sulphuric acid.
9. Give the chemical name, the properties, and the chief sources of K_2CO_3.
10. What is the chemical antidote for poisoning by lead?
11. Give an emergency method of preparing ferric hydroxide for use in a case of arsenic poisoning.
12. Mention the sources of glucose. Give a test for glucose.
13. Describe normal urine as to (*a*) specific gravity, (*b*) reaction, (*c*) color, (*d*) constituents, (*e*) quantity voided in twenty-four hours.
14. Give the formulas of *three* substances commonly employed as disinfectants. State in detail an approved method of using *one* of these substances as a disinfectant in a private house after an infectious disease.
15. Give the relative proportion of water found in (*a*) gastric juice, (*b*) human milk, (*c*) blood, (*d*) urine.

DIAGNOSIS.

(*Answer ten questions only.*)

1. Differentiate cerebrospinal fever and typhus fever.
2. Give the clinical history of a case of bubonic plague.
3. Describe the typical course of scarlatina.
4. Give the symptoms of pernicious anemia.
5. State the diagnostic value of blood count.
6. Give the symptoms of (*a*) cardiac hypertrophy with dilatation, (*b*) cardiac hypertrophy without dilatation.
7. What are the characteristics of acute endocarditis?
8. Give the symptoms and the physical signs of chronic bronchitis.
9. Make a diagnosis, by exclusion, of retropharyngeal abscess.
10. What are the symptoms of carcinoma of the stomach?
11. Give the clinical history of a case of invagination of the bowels.
12. Give the signs and the symptoms of acute hepatitis.
13. What are the symptoms of pyuria? Give laboratory methods of confirming the diagnosis.
14. Give the symptoms of chorea.
15. Describe an ambulance case of alcoholism, and show how the possibility of its being a case of cerebral hemorrhage has been eliminated.

PATHOLOGY.

(*Answer six questions only.*)

1. Describe the changes in the dura mater in pachymeningitis.
2. Describe a teratoma (dermoid cyst).
3. Describe the tissue changes in syphilitic ulcer.
4. Differentiate the blood pictures in lymphatic leukemia, Hodgkin's disease (lymphadenoma) and trichinosis.
5. Describe *three* varieties of thrombus.
6. Describe the tissue changes in an apoplectic area.
7. Describe the appearance of a section of the spinal cord in progressive spinal muscular atrophy.
8. Describe the tissues of the uterus in acute metritis.
9. What is metastasis? What are the most frequent channels of metastasis?

BACTERIOLOGY.

(*Answer four questions only.*)

10. Describe and illustrate a spirillum.
11. Describe the streptococcus, and mention *two* lesions caused by streptococcus infection.
12. Mention and describe the microorganism of influenza.
13. Describe the bacillus diphtheriæ. Mention *two* organisms that are frequently found with the bacillus diphtheriæ in cultures from the throat.
14. Mention and describe the organism that usually causes lobar pneumonitis, and state how its presence can be demonstrated.
15. Give *four* sources of infection, and state the comparative importance of each.

SURGERY.

(*Answer ten questions only.*)

1. Describe *two* methods of producing local anesthesia, and mention indications for the employment of each.
2. Describe aseptic wound fever (post-operation rise), and give the theory of its cause.
3. Give the symptoms and the surgical treatment of ischiorectal abscess.
4. What complications should be feared in a wound made by the wad of a toy pistol, and how should such a wound be treated?
5. Define lipoma. Describe the surgical treatment of a single subcutaneous lipoma.
6. Describe an amputation at the ankle joint.

7. What are the indications for osteotomy? Describe in detail osteotomy for deformed tibia.
8. Give the symptoms of subcoracoid dislocation, and describe a method of reduction by manipulation.
9. Describe in detail the operation of lumbar puncture.
10. Give the symptoms of ulcer of the stomach, and describe the surgical treatment.
11. Make a differential diagnosis of aneurysm and growth over a vessel.
12. Describe the surgical treatment of genu valgum.
13. Describe in detail the diagnostic points of prostatic hypertrophy.
14. Give the symptoms and the management of trachoma.
15. What measures should be taken to check primary hemorrhage following removal of the faucial tonsil?

OBSTETRICS AND GYNECOLOGY.

(*Answer ten questions only.*)

1. Define the terms abortion, miscarriage, and premature labor as employed in a strictly scientific sense.
2. What changes take place in the uterus after impregnation?
3. Give general directions for the management of a normal pregnancy.
4. What care should the breasts receive (*a*) during pregnancy, (*b*) during the puerperium?
5. Give the signs and the symptoms of pregnancy before and after quickening.
6. Describe the several stages of a high forceps delivery.
7. Mention *three* causes of dystocia and give the management of each.
8. Give a clinical description of puerperal insanity. State the causes and give the management of puerperal insanity.
9. Give an exact description of Credé's method of delivering the placenta.
10. What conditions indicate version, and how should it be performed?
11. Describe the secondary operation for laceration of the perineum.
12. Give the causes, symptoms, and management of puerperal eclampsia.
13. Describe the clinical management of a head-last labor.
14. Make a differential diagnosis of vaginitis and vaginismus. Give the treatment of each.
15. Give the causes, pathology, symptoms, and diagnosis of chronic endometritis.

HYGIENE AND SANITATION.

(*Answer ten questions only.*)

1. What are the functions of vegetable acids?
2. What precautions should be used in the collection and storage of rain water for drinking?
3. What general rules should be observed in bathing? Mention the benefits of cold baths. What physical conditions render cold baths inadvisable?
4. What should be the relative arrangement of desks and windows in schoolrooms? What injurious effects may result if this arrangement is not observed?
5. Describe *two* processes of freeing water from bacteria.
6. Describe the principles of construction of a self-cleaning sewer.
7. Why is unripe fruit unwholesome? Wherein are fruits valuable as food?
8. What general characteristics of an outbreak of disease would lead to the suspicion that the milk supply had become contaminated?
9. What is koumiss? What is kefir? How are these products made?
10. Illustrate the theory of immunity by means of antitoxins.
11. What agents are used for disinfecting ships and their cargoes? Describe the procedure.
12. Mention the principal means of preventing the spread of contagious diseases in schools.
13. Mention *six* diseases that may be acquired by eating the flesh of diseased cattle.
14. What relation has soil to malaria and to yellow fever?
15. What food principles predominate in (*a*) beef, (*b*) wheat, (*c*) eggs?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

UNIVERSITY OF THE STATE OF NEW YORK.

February, 1910.

ANATOMY.

1. *Structures that pass through the foramen magnum:* The medulla and its membranes, vertebral arteries, spinal accessory nerves, anterior and posterior spinal arteries, and the occipitoaxial ligament.

2. See Cunningham's "Anatomy" (1909), page 229; or Gray's "Anatomy" (1908), page 233.

3. *Synarthrosis* is an immovable joint; as in junction between cranial and facial bones (except lower jaw). *Diarthrosis* is a freely movable joint; as elbow, hip, knee.

4. DELTOID. *Origin:* From the outer third of anterior border and upper surface of the clavicle, from the outer margin and upper surface of the acromion process, and from the lower edge of the spine of the scapula. *Insertion:* Into the deltoid impression on the middle of the outer side of the shaft of the humerus. *Action:* It raises the arm from the side so as to bring it at right angles with the body; its anterior fibers draw the arm forward; its posterior fibers draw the arm backward. *Nerve supply:* The circumflex.

PSOAS MAGNUS. *Origin:* Transverse processes of lumbar vertebræ; also from bodies of last thoracic and all lumbar vertebræ, with the intervertebral substance. *Insertion:* Lesser trochanter of femur. *Nerve supply:* Second and third lumbar.

STERNOCLEIDOMASTOID. *Origin:* Upper and anterior part of manubrium, and inner third of upper border and anterior surface of clavicle. *Insertion: Mastoid* process of temporal bone and outer half of superior curved line of occipital bone. *Action:* Draws head to same side, or rotates face to opposite side; if both muscles act together, the head is flexed upon the neck. *Nerve supply:* Spinal accessory.

5. *Openings of left ventricle:* Aortic and auriculoventricular; *valves:* mitral and semilunar.

6. See Cunningham's "Anatomy" (1909), page 795; or Gray's "Anatomy" (1908), page 589.

7. See Cunningham's "Anatomy" (1909), page 873; or Gray's "Anatomy" (1908), page 752.

8. See Cunningham's "Anatomy" (1909), page 909; or Gray's "Anatomy" (1908), page 783.

9. See Cunningham's "Anatomy" (1909), page 648; or Gray's "Anatomy" (1908), page 1030.

10. The *nasal fossæ* are two large, irregular shaped cavities, situated one on each side of the middle line of the face, extending from the base of the skull to the roof of the mouth, and separated from each other by a median septum. They open in front by the anterior nares, with the face; and behind, by the posterior nares, with the nasopharynx. They are wider below than above. *Bones entering into their formation* are: Frontal, sphenoid, ethmoid, lacrymal, nasal, palate, superior maxillary, vomer, and inferior turbinated.

11. See Cunningham's "Anatomy" (1909), pages 1058 and 1053; or Gray's "Anatomy" (1908), pages 1281 and 1279.

12. See Cunningham's "Anatomy" (1909), page 1009; or Gray's "Anatomy" (1908), page 1007.

13. See Cunningham's "Anatomy" (1909), page 1141; or Gray's "Anatomy" (1908), page 1424.

14. See Cunningham's "Anatomy" (1909), page 1277; or Gray's "Anatomy" (1908), page 1549.

15. PANCREAS. *Position:* Transversely across posterior abdominal wall, behind the peritoneum, from the duodenum on the right to the spleen on the left; in the epigastric and left hypochondriac regions. *Shape:* Long and irregular prismatic; its shape has been compared to that of a human or dog's tongue.

PHYSIOLOGY.

1. *General functions of epithelium:* (1) Protection; (2) secretion; (3) motion (ciliary); (4) special sensation; (5) absorption. *Special functions of ciliated epithelium:* To keep foreign particles out of the respiratory tract, to assist the ovum in the Fallopian tube onwards to the uterus, to enable the spermatozoa to progress; generally—protection and motion.

2. *Dangers of transfusing blood from lower animals to man:* "The serum of certain animals possesses the property of dissolving the red corpuscles of another species of animals. The serum of a dog destroys the red corpuscles of a man; the hemoglobin is dissolved out. The serum, besides its action on the red corpuscles, is also active against the white corpuscles of the same animal, stopping their ameboid movements. The globulicidal action of the serum is related to its poisonous action on microbes. The normal serum of certain animals kills microbes, as the serum of the dog kills the typhoid bacilli. The power to kill red corpuscles and microbes is due to the presence in the serum of a substance, an alexin. In transfusion this plays an important part."—(Ott's *Physiology.*)

3. The forces concerned in the circulation of the lymph

are: (1) The presence of the blood in the blood-vessels; (2) thoracic aspiration; (3) muscular contractions of the voluntary muscles; (4) contractions of the intestine; (5) the action of the valves in the lacteals and lymphatics.

4. See Cunningham's "Anatomy" (1909), pages 269 and 272; or Gray's "Anatomy" (1908), page 285.

5. *Three enzymes:* (1) Ptyalin (of the saliva), which changes starches into dextrin and maltose.

(2) Trypsin (of the pancreatic juice), which changes proteids into proteoses and peptones, and afterwards decomposes them into leucin and tyrosin.

(3) Amylopsin (of the pancreatic juice), which converts starches into maltose. All of these act in an alkaline medium only.

6. See Cunningham's "Anatomy" (1909), page 1062; or Gray's "Anatomy" page 1299.

According to Sappey, there are about six hundred of these valvulæ conniventes in the upper half of the small intestine, and about two hundred to two hundred and fifty in the lower half.

7. Avenues through which heat of body is lost, in order of importance: (1) Skin, by radiation and conduction; (2) skin, by evaporation of the perspiration; (3) expired air; (4) excretions: urine and feces.

8. *The glycogenic function of muscle:* "It has been estimated that the percentage of glycogen in resting muscles varies from 0.5 to 0.9 per cent., and that in the musculature of the whole body there may be contained an amount of glycogen equal to that in the liver itself. Apparently muscular tissue, as well as liver tissue, has a glycogenetic function—that is, it is capable of laying up a supply of glycogen from the sugar brought to it by the blood. The glycogenetic function of muscles has been demonstrated directly by Kulz, who has shown that an isolated muscle irrigated with an artificial supply of blood to which dextrose is added is capable of changing the dextrose to glycogen, as shown by the increase of the latter substance in the muscle after irrigation. Muscle glycogen is to be looked upon as a temporary and local reserve supply of material; so that, while we have in the liver a general depot for the temporary storage of glycogen for the use of the body at large, the muscular tissue, which, considering its bulk, is the most active tissue of the body from the standpoint of energy production, is also capable of laying up in the form of glycogen any excess of sugar brought to it. . . . It is found that the supply of glycogen is greatly affected by conditions calling for increased metabolism in the body. Muscular exercise quickly exhausts the supply of muscle and liver glycogen, provided it is not renewed by new food. In a starving animal glycogen finally disappears, except perhaps in traces, but this disappearance occurs much sooner if the animal is made to use its muscles at the same time."—(From Howell's *Physiology.*)

9. Urea is principally formed in the liver; it is the end product of the metabolism of the proteids, being the result of the conversion, by the liver, of amino-acids absorbed from the intestines into the liver.

10. Ordinarily muscle is dependent upon its nerve connection for the reception of a stimulus; but muscle *can be* stimulated without any regard to nerve supply. Thus exposure of muscle to dilute ammonia (which has no effect on the nerve to the muscle) will cause contraction.

11. "When the facial nerve is paralyzed, the muscles of the face being all powerless, the countenance acquires on the paralyzed side a characteristic, vacant look, from the absence of all expression; the angle of the mouth is lower, and the paralyzed half of the mouth looks longer than that on the other side; the eye has an unmeaning stare, owing to the paralysis of the orbicularis palpebrarum. All these peculiarities increase the longer the paralysis lasts, and their appearance is exaggerated when at any time the muscles of the opposite side of the face are made active in any expression, or in any of their ordinary functions. In an attempt to blow or whistle, one side of the mouth and cheeks acts properly, but the other side is motionless, or flaps loosely at the impulse of the expired air; so, in trying to suck, one side only of the mouth acts; in feeding, the lips and cheek are powerless, and, on account of paralysis of the buccinator muscle, food lodges between the cheek and gums."—(Kirkes' *Physiology.*)

12. For *description* of the Eustachian tube, see Cunningham's "Anatomy" (1909), page 762; or Gray's "Anatomy" (1908), page 1163. Its *function* is to keep the atmospheric pressure within the tympanic cavity the same as that on the outside.

13.

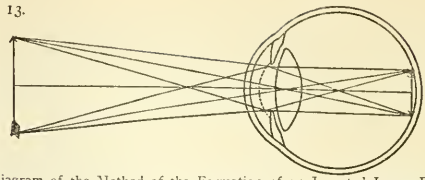


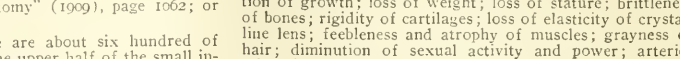
Diagram of the Method of the Formation of an Inverted Image Exactly Focussed upon the Retina. The dotted line is the ideal surface of curvature.

14. *Physical changes characteristic of senility:* Cessation of growth; loss of weight; loss of stature; brittleness of bones; rigidity of cartilages; loss of elasticity of crystalline lens; feebleness and atrophy of muscles; grayness of hair; diminution of sexual activity and power; arteriosclerosis, or other diseased conditions of the arteries; lessened capacity of chest; atrophy and degeneration of digestive glands, kidneys, and testicles or ovaries; slowed reflexes; impairment of the special senses.

15. Polynuclear leucocytes are present normally in the blood; they are decreased relatively in leukemias; and increased in inflammatory and purulent conditions.

CHEMISTRY.

1.



Sulphur trioxide. Phosphoric acid.

2. *Ide* denotes the salt of a hydracid, or a binary compound. *Examples:* KCl, potassium chloride; H_2S, hydrogen sulphide.

Ous denotes either a binary compound with a smaller proportion of the more electronegative element, as SO_2, sulphurous oxid; or a ternary compound, an oxyacid, with less oxygen than is contained in the corresponding *ic* acid, as H_2SO_3, sulphurous acid.

Ic denotes either a binary compound with a greater proportion of the more electronegative element, as SO_3, sulphuric oxid; or a ternary compound, an oxyacid, with more oxygen than is contained in the corresponding *ous* acid, as H_2SO_4, sulphuric acid.

Hypo prefixed to an acid or a salt denotes less oxygen than the "*ous*" acid or the "*ite*" salt.

Per prefixed to an acid or a salt denotes more oxygen than the "*ic*" acid or the "*ate*" salt.

Examples:

HClO = *Hypo*chlor*ous* acid: KClO = Potassium *hypo*chlor*ite.*

$HClO_2$ = Chlor*ous* acid: $KClO_2$ = Potassium chlor*ite.*

$HClO_3$ = Chlor*ic* acid: $KClO_3$ = Potassium chlor*ate.*

$HClO_4$ = *Per*chlor*ic* acid: $KClO_4$ = Potassium *per*chlor*ate.*

3.

	C.	F.
(*a*) Boiling point of water.....	100°	212°
(*b*) Freezing point of water.....	0°	32°
(*c*) Freezing point of mercury.....	—40°	—40°

4. (*a*) *Distillation* is the conversion of a liquid into a gas, followed by the reconversion of the gas into a liquid. *Example:* The distillation of water.

(*b*) A *pentad element* is one that has a valence of five. *Example:* Phosphorus. See graphic formula for phosphoric acid in question 1.

(*c*) *Molecular weight* is the weight of a molecule of a substance as compared with the weight of an atom of hydrogen. It may also be said to be the sum of the weights of the atoms composing the molecule. Thus, the molecular weight of sulphuric acid, H_2SO_4, is (2 + 32 + 64), that is, 98; or 98 times the weight of an atom of hydrogen.

(*d*) A *gas* is that form of matter in which the molecules tend to get away from each other; it has neither definite shape nor definite volume. *Example:* Oxygen.

(*e*) An *acid* salt is one in which only part of the replaceable hydrogen has been replaced by a metal. *Example:* $KHSO_4$, monopotassic sulphate.

5. H_2O_2. *Preparation:* By the action of a dilute acid on sodium dioxide:

$$Na_2O_2 + 2HCl = 2NaCl + H_2O_2.$$

Uses: Disinfectant, antiseptic, and bleaching agent; as an oxidizing agent; for renovating old oil paintings and bleaching hair.

Test: Add freshly prepared tincture of guaiacum and a few drops of a cold infusion of malt; the presence of H_2O_2 is indicated by the appearance of a blue color.

6. NH_3. *Occurrence:* In nature, from the decomposition of animal or vegetable matter containing nitrogen and hydrogen. *Preparation:* By heating solution of ammonium hydroxide:

$$NH_4HO + \text{heat} = H_2O + NH_3.$$

Uses: It is used as a respiratory stimulant, a circulatory stimulant, a counterirritant; it neutralizes acids, making definite salts known as ammonium salts, which are formed by the direct combination of the ammonia with the acid. It is also used in the artificial preparation of ice.

7. IODINE. *Chief sources:* Seaweeds, and in seawater in combination with sodium, potassium, calcium, and magnesium. *Preparation:* From Chili saltpeter, in which it occurs as sodium iodate. this latter is treated with a mixture of sodium sulphite and sodium bisulphite, when the iodine is precipitated as a black deposit:

$$2NaIO_3 + 3Na_2SO_3 + 2NaHSO_3 = 5Na_2SO_4 + H_2O + I_2.$$

Five compounds: Hydriodic acid, HI; Iodic acid, HIO_3; Potassium iodide, KI; Phosphorus triodide, PI_3; Iodoform, CHI_3.

8. SULPHURIC ACID. *Preparation:* By the union of sulphur trioxide and water: $SO_3 + H_2O = H_2SO_4$.

Properties: A colorless, heavy, oily liquid; it has a strong attraction for water, and in combining with it there is an increase in the bulk of the liquids and a rise of temperature; it is a strong corrosive. *Uses:* It is used in all branches of chemical industry and in many industrial pursuits.

9. K_2CO_3 is Potassium Carbonate, or dipotassic carbonate. *Properties:* It is a white, granular, deliquescent, soluble powder, making an alkaline solution. *Chief sources:* Wood ashes and cream of tartar.

10. Magnesium sulphate.

11. Ferric hydroxide may be hurriedly prepared by precipitating solution of ferric sulphate with magnesia. The two solutions should be kept in separate bottles, and when needed they may be mixed and administered. It is used as an antidote in acute arsenical poisoning.

12. GLUCOSE. *Source:* Grapes, honey, diabetic urine. *Test for glucose (in urine):* Render the urine strongly alkaline by addition of Na_2CO_3. Divide about 6 c.c. of the alkaline liquid in two test tubes. To one test tube add a very minute quantity of powdered subnitrate of bismuth, to the other as much powdered litharge. Boil the contents of both tubes. The presence of glucose is indicated by a dark or black color of the bismuth powder, the litharge retaining its natural color."—(Witthaus' *Essentials of Chemistry.*)

13. URINE. (*a*) *Specific gravity*, about 1015 to 1025. (*b*) *Reaction*, acid. (*c*) *Color*, yellowish or amber. (*d*) *Constituents:* Water; urea, uric acid, hippuric acid, xanthin, hypoxanthin, creatin, creatinin, extractives; chlorides, phosphates, sulphates (of sodium, potassium, calcium, and magnesium). (*e*) About forty to fifty ounces is voided in twenty-four hours.

14. *Three disinfectants:* (1) Sulphur dioxide, SO_2; (2) Formaldehyde, HCOH; (3) Potassium permanganate, $K_2Mn_2O_8$. One of the best means of fumigating by formaldehyde gas is by Trillat's apparatus, which "allows the solution of formalin to flow in a fine stream through a copper coil heated to redness by a flame beneath, and the gas and vapor passing directly into the room. The apparatus may be operated outside of a room, and the amount of gas liberated depends directly upon the strength and quantity of the solution evaporated."

15. *Relative proportion of water* in: (*a*) Gastric juice, about 99+ per cent.; (*b*) human milk, about 87 per cent.; (*c*) blood, about 78 per cent.; (*d*) Urine, about 95 per cent.

DIAGNOSIS.

1. See French's "Practice of Medicine" (1907), pages 146, 148, 126, and 127; or Osler's "Practice of Medicine" (1909), pages 163 and 107.

2. See French's "Practice of Medicine" (1907), page 284; or Osler's "Practice of Medicine" (1909), page 240.

3. See French's "Practice of Medicine" (1909), page 317; or Osler's "Practice of Medicine" (1909), page 132.

4. See French's "Practice of Medicine" (1907), page 510; or Osler's "Practice of Medicine" (1909), page 726.

5. *Value of a blood count:* Diagnosis may be made of pernicious anemia, secondary anemia, lymphatic leukemia, splenomedullary leukemia, and Hodgkin's disease; also of various inflammatory conditions and conditions in which pus is present. A negative finding is of considerable value. In the first group, the diagnosis is made absolutely by the blood count; in Hodgkin's disease the count is negative; in conditions with pus or inflammations the blood count is of great assistance in arriving at the diagnosis.

6. See French's "Practice of Medicine" (1907), pages 598 and 601.

7. See French's "Practice of Medicine" (1907), page 569; or Osler's "Practice of Medicine" (1909), page 789.

8. See French's "Practice of Medicine" (1907), page 651; or Osler's "Practice of Medicine" (1909), page 604.

9. See Rose and Carless' "Surgery" (1908), page 872.

10. See French's "Practice of Medicine" (1907), page 755; or Osler's "Practice of Medicine" (1909), page 481.

11. See Rose and Carless' "Surgery" (1908), page 1121; or Da Costa's "Surgery" (1908), page 838.

12. See French's "Practice of Medicine" (1907), page 822; or Osler's "Practice of Medicine" (1909), page 539.

13. *Symptoms of pyuria* may be absent, or slight; there may be pain over neck of bladder, in urethra, or in lumbar region; also scalding pain on urination. To confirm diagnosis: Centrifuge the urine and examine with microscope; the addition of a 1 per cent. solution of acetic acid makes the nuclei of the cells more evident. Addition or liquor potassæ to the deposit of pus cells produces a ropy gelatinous mass. A bacteriological examination may show the gonococcus, tubercle bacillus, colon bacillus, typhoid bacillus, or the ordinary pyogenic bacteria.

14. See French's "Practice of Medicine" (1907), page 1118; or Osler's "Practice of Medicine" (1909), page 1048.

15. See French's "Practice of Medicine" (1907), page 953; or Osler's "Practice of Medicine" (1909), page 369.

COMA FROM INTRACRANIAL INJURY.	APOPLECTIC COMA.	ALCOHOLIC COMA.
Deep coma; may have history of onset after fall or injury. Evidence of fracture of vertex or base.	Deep coma; sudden onset. If any injury, only a scalp wound.	Can be aroused by supraorbital pressure unless very profound.
Pupil dilated on side of lesion. Choked disc.	Pupils unequal or dilated. Contracted in hemorrhage into the pons.	Pupils normal or somewhat dilated.
Pulse very slow.	Pulse full and slow, often arteriosclerotic, high-tension pulse.	Pulse more rapid than normal and full.
Respiration slow and stertorous.	Respiration slow and irregular.	Regular respiration.
Temperature higher—101°.	Temperature higher on paralyzed side, but lower in rectum.	May be low or normal.
Urine normal or contains trace of albumin.	Urine contains trace of albumin, but may be same as in uremia.	Normal.
Hemiplegia on opposite side to that of injury. If contusion of brain is also present, may have generalized convulsions.	Hemiplegia with convulsions on one side.	

PATHOLOGY.

1. See French's "Practice of Medicine" (1907), pages 1062 and 1063; or Osler's "Practice of Medicine" (1909), page 924.

2. See Rose and Carless' "Surgery" (1908), page 220; or Da Costa's "Surgery" (1908), page 339.

3. *Syphilitic ulcer:* "The initial lesion first presents small areas of round-cell infiltration in the deeper layers of the skin or mucous membrane, and as a rule in the neighborhood of the blood-vessels. The connective tissue at the same time undergoes proliferative change, and spindle-shaped cells or irregular embryonal connective tissue cells are found mingled with the round lymphoid cells, or surrounding the foci of the latter. Thickening of the blood-vessels may be observed in the later stages or from the very first. The tissue elements of the skin and of the subcutaneous tissue are usually separated by infiltrating liquid, and the latter may loosen the tissues of the surface and cause exfoliation of the superficial epidermis, and thus lead to the development of the primary vesicle or the erosion so commonly seen. The induration of the chancre is probably the result of the sclerosis of the vessels and the general connective tissue hyperplasia, as well as in part due to the tense infiltration of serous liquid."—(Stengel's *Pathology.*)

4. In *lymphatic leukemia* the blood shows: An enormous

increase in the number of white cells, chiefly in the lymphocytes, which may be 90 per cent. of the whole number; the polynuclears are greatly diminished; there are no myelocytes; the red cells are not much affected, but may show a slight diminution in number and in hemoglobin. In *Hodgkin's disease* the blood may be normal or there may be a slight or severe anemia, with diminution of red cells; sometimes leucocytosis occurs. In *Trichinosis* there is a leucocytosis, with a pronounced increase in the eosinophites.

5. *Three varieties of thrombus:* (1) *Red thrombus,* which originates from blood at rest, such as after ligature of the femoral artery for popliteal aneurysm. It is soft, not laminated, consists of a loose network of fibrin which entangles very many red corpuscles and a few leucocytes; it adheres to the vessel wall and later contracts. (2) *White thrombus,* which originates from circulating blood, such as is found in an aortic aneurysm; it is firmer than the above, it is laminated, it is dense; it is composed chiefly of leucocytes, but red cells are also present, as well as fibrin network and some granular material, probably derived from broken down blood platelets. (3) *Parietal thrombus* is one which adheres to the vessel wall, but only partially occludes the blood-vessel, in opposition to an *obstructive or obliterating thrombus,* which absolutely obstructs the blood channel.

6. See Osler's "Practice of Medicine" (1909), page 968.

7. See French's "Practice of Medicine" (1907), page 1030; or Osler's "Practice of Medicine" (1909), page 902.

8. In *acute metritis* "the uterus is enlarged, congested, soft, plastic, and infiltrated with the inflammatory exudate. Microscopically, the chief changes are observed along the bloodvessels and lymphatics, where a round-cell infiltration, more or less marked, can be observed. Here and there small abscesses may be seen. The muscle cells may show signs of degeneration. In exaggerated cases of puerperal metritis, gangrene of the tissues may occur. Thrombosis of the uterine sinuses and veins is common, and suppurative lymphangitis is frequent in and about the organ."—(McFarland's *Pathology.*)

9. *Metastasis* is the transfer of some pathological condition from one part of the body to another, not immediately connected with it. The most frequent channels of metastasis are the blood and lymphatics.

BACTERIOLOGY.

10. A *spirillum* is a rod-shaped bacterium spirally twisted, and somewhat resembling a corkscrew. *Example:* The spirillum of Asiatic cholera, which is motile, flagellated, liquefying, non-sporogenous, non-chromogenic, aërobic, parasitic, and saprophytic, stains with the ordinary dyes, but is Gram negative, and causes Asiatic cholera.

11. The *Streptococcus pyogenes* is a micrococcus, of spherical shape, and arranged in chains of about thirty or forty cocci (in liquid media), but the chains are much shorter in solid media. Each coccus is about one-half to two mikrons in diameter. It is not motile, does not form spores, does not liquefy gelatin, and stains readily with the ordinary anilin dyes, and by Gram's method. It has been found in meningitis and erysipelas.

12. The microorganism of influenza is Pfeiffer's bacillus. This is a small, non-motile, non-flagellated, non-sporogenous, nonliquefying, non-chromogenic, aërobic bacillus, staining by ordinary stains, but Gram negative; its cultivation requires the presence of hemoglobin.

13. The *characteristics of the bacillus of diphtheria:* The bacilli are from 2 to 6 mikrons in length and from 0.2 to 1.0 mikron in breadth; are slightly curved, and often have clubbed and rounded ends; occur either singly or in pairs, or in irregular groups, but do not form chains; they have no flagella, are nonmotile, and aërobic; they are noted for their pleomorphism; they do not stain uniformly, but stain well by Gram's method and very beautifully with Loeffler's alkaline-methylene blue. *Two associated organisms:* Streptococcus pyogenes and micrococcus lanceolatus.

14. Lobar pneumonia is usually caused by the *Micrococcus lanceolatus,* better known as the *Diplococcus lanceolatus,* or the pneumococcus of Fraenkel and Weichselbaum. *Process of staining:* Spread a cover glass with a smear containing the bacteria, dry it, then fix it in a flame. It can then be stained for from five to ten minutes in Ehrlich's solution; it is then to be washed in water and afterwards immersed in Gram's solution for two or three minutes. It is then washed in 95 per cent. alcohol. While in the Gram's solution the specimen is very dark brown, but it becomes violet or blue again on application of the alcohol.

15. *Four sources of infection:* (1) The air; (2) food or water; (3) wounds; (4) unclean implements of all kinds. *Their comparative importance* cannot be estimated, because certain microorganisms have *their special* avenues of infection, thus the typhoid bacillus enters by the digestive tract

SURGERY.

1. See Rose and Carless' "Surgery" (1908), page 1318; or Da Costa's "Surgery" (1908), page 1046.

2. See Rose and Carless' "Surgery" (1908), page 261; or Da Costa's "Surgery" (1908), page 124.

3. See Rose and Carless' "Surgery" (1908), page 1132; or Da Costa's "Surgery" (1908), pages 138 and 142.

4. Tetanus is to be feared. See Rose and Carless' "Surgery" (1908), page 235; or Da Costa's "Surgery" (1908), page 251.

5. See Rose and Carless' "Surgery" (1908), page 195; or Da Costa's "Surgery" (1908), page 302.

6. See Rose and Carless' "Surgery" (1908), page 1311; or Da Costa's "Surgery" (1908), page 1218.

7. *Indications for osteotomy:* Deformities of bones and joints (such as result from congenital conditions); diseases of bones and joints, followed by curvature or angularity; ankylosis; and malunion following fracture.

See Rose and Carless' "Surgery" (1908), page 448; or Da Costa's "Surgery" (1908), page 612.

8. See Rose and Carless' "Surgery" (1908), pages 621 and 622; or Da Costa's "Surgery" (1908), pages 587 and 590.

9. See Rose and Carless' "Surgery" (1908), page 759; or Da Costa's "Surgery" (1908), page 763.

10. See Rose and Carless' "Surgery" (1908), pages 989 and 991; or Da Costa's "Surgery" (1908), pages 826 and 829.

11. See Rose and Carless' "Surgery" (1908), page 311; or Da Costa's "Surgery" (1908), page 361.

12. See Rose and Carless' "Surgery" (1908), page 446; or Da Costa's "Surgery" (1908), page 611.

13. See Rose and Carless' "Surgery" (1908), pages 1226 and 1227; or Da Costa's "Surgery" (1908), page 1187.

14. TRACHOMA. *Subjective symptoms:* "More or less photophobia, lachrymation, itching and burning sensations, feeling of foreign body, pain, and visual disturbance. In a good many cases there are no subjective symptoms."

Objective symptoms: "Swelling of the lids, narrowing of the palpebral aperture, and drooping of the upper lid (from weight and swelling). There is a variable amount of mucopurulent discharge, marked in recent cases, scanty in chronic forms. The conjunctiva of the tarsus and fornix is reddened, thickened, and uneven, on account of hypertrophy and the occurrence of granules. The ocular conjunctiva is often somewhat injected."

Treatment "consists in an attempt to reduce the inflammatory symptoms and secretion, and to check and remove hypertrophy of the conjunctiva, thus shortening the duration and diminishing the liability to conjunctival cicatrization and to sequelæ. This is accomplished either by the use of certain irritating applications, or by mechanical (surgical) means. *"Irritating applications:* Sulphate of copper in the form of a crystal or pencil is the favorite local application. Nitrate of silver (1 or 2 per cent. solution), glycerole of tannin (5 to 25 per cent.), and the alum stick are also employed. *Mechanical (surgical) treatment* includes expression, grattage, excision, curetting, electrolysis, *x*-rays, and galvano cautery."—(May's *Diseases of the Eye.*)

15. See Rose and Carless' "Surgery" (1908), page 869.

OBSTETRICS AND GYNECOLOGY.

1. See Williams' "Obstetrics" (1909), page 611; or Hirst's "Obstetrics" (1909), page 267.

2. See Williams' "Obstetrics" (1909), pages 167 and 185; or Hirst's "Obstetrics" (1909), page 180.

3. See Williams' "Obstetrics" (1909), page 199; or Hirst's "Obstetrics" (1909), page 188.

4. See Williams' "Obstetrics" (1909), pages 201, 343, and 355; or Hirst's "Obstetrics" (1909), page 371.

5. See Williams' "Obstetrics" (1909), page 190; or Hirst's "Obstetrics" (1909), page 204.

6. See Williams' "Obstetrics" (1909), page 414; or Hirst's "Obstetrics" (1909), page 811.

7. See index to Williams' "Obstetrics" or Hirst's "Obstetrics," under heading "Dystocia."

8. See Williams' "Obstetrics" (1909), page 915; or Hirst's "Obstetrics" (1909), page 256.

9. See Williams' "Obstetrics" (1909), page 298; or Hirst's "Obstetrics" (1909), page 343.

10. The *indications for version* are: (1) In transverse presentations; (2) in placenta prævia; (3) in malpresentations of the head; (4) in simple flattened pelvis, and in minor degrees of pelvic contraction; (5) in prolapsed

funis; (6) in sudden death of the mother, and (7) in any case where speedy delivery is imperative.

See Williams' "Obstetrics" (1909), pages 434, 437, and 439; or Hirst's "Obstetrics" (1909), page 829.

11. See Hirst's "Obstetrics" (1909), pages 807 to 873.

12. See Williams' "Obstetrics" (1909), pages 535, 525, and 541; or Hirst's "Obstetrics" (1909), pages 628, 630, and 635.

13. See Williams' "Obstetrics" (1900), page 289; or Hirst's "Obstetrics" (1909), page 419.

14. *Vaginitis* is a condition of inflammation of the vagina. It is characterized by redness, swelling, pain, heat, irritation, and increased secretion. There may be frequent and painful urination. *Treatment* consists in rest, cleanliness, douches, the application of soothing lotions, and removal of any cause; salines and anodynes are also indicated. *Vaginismus* is a condition of painful and spasmodic contraction of the vaginal orifice, which renders coitus either painful or altogether impossible. The slightest touch causes painful spasms, and examination may be impossible without an anesthetic. The *treatment* consists in removing the cause when possible, tonics and general constitutional treatment, dilatation of the vaginal orifice; local application of a 5 per cent. solution of cocaine will relieve the hyperesthesia and allow coitus. The condition is sometimes incurable.

15. CHRONIC ENDOMETRITIS. *Causes:* Debility, repeated pregnancies, lacerations, and subinvolution of uterus, fibroids, gonorrhea, or sepsis. *Pathology:* The mucous membrane is swollen, red, and soft; blood extravasations may be found in some places; the cervical glands may become occluded and form cysts; mucous polypi or other excrescences may be present; the os may be eroded or granular. Microscopical examination shows a great development of the utricular glands, round-cell infiltration, and dilated blood-vessels. Later the mucous membrane becomes atrophic, and the glands are replaced by connective tissue fibers. *Symptoms:* Neuralgic, bearing-down pains; cramps; dysmenorrhea; irritable bladder; menorrhagia or metrorrhagia; leucorrhea, which may be blood-stained or purulent; profuse hydrorrhea; loss of appetite, constipation, dyspnea, palpitation, sterility. The uterus as a whole is abnormally tender; the uterine cavity is enlarged; the external os is patulous, and shows a tendency to bleed on being touched. *Diagnosis:* "In *lumboabdominal* neuralgia the uterus may be sensitive, especially in the region of the internal os, but there is no leucorrhea or hemorrhage. A *myoma* is often accompanied by these symptoms, but then the tumor can be felt. A *fibroid polypus* can be diagnosticated with the sound. The differentiation from beginning *carcinoma* may be difficult. In this the neoplasm is so friable that a small portion of it may be detached by the mere examination. Around the new growth is an indurated ring as hard as a board. Sometimes pieces of the neoplasm may be expelled spontaneously from the interior of the uterus. Bleeding occurring after the menopause is very suspicious. Pain need not be present. If there is any doubt, a small piece should be cut out of the cervix, or scrapings gained by curettage of the cavity of the uterus. These should be hardened and sections examined with the microscope, when the different histological composition will settle the question. A bloody, purulent, offensive discharge may be found in endometritis, and is not sufficient for the diagnosis of malignant disease."—(Garrigues' *Gynecology.*)

HYGIENE AND SANITATION.

1. *Functions of vegetable acids:* They are converted into carbonates, which aid in maintaining the alkalinity of the blood and other fluids; they also tend to prevent scurvy, and furnish a small amount of heat and energy.

2. In *collecting and storing rain water for drinking:* The first flow should be allowed to run to waste; this is to ensure cleanliness. The cisterns for storage should allow of easy inspection and cleansing; they should be kept covered so as to exclude dirt, dust, insects, animals, and light; overflow pipes should discharge into the open air and not into the sewer, and the opening should be covered to keep out small animals and foreign matter; the cisterns should be well ventilated, and regularly and thoroughly inspected.

3. *General rules for bathing:* One should not bathe within two hours after a meal, or when tired or heated; avoid chilling; do not bathe in the open air if the body feels chilly or the hands and feet become numbed; those subject to giddiness, fainting, or cardiac discomfort should not bathe out of doors. *Cold baths* have a tonic and stimulating effect, the pulse is increased in force and frequency, the respirations are deeper. Cold baths should not be taken by those suffering from organic heart disease or who become chilled thereby, or by women in the later months of pregnancy.

4. The desks should be so placed that the light comes from the *left* of the pupils. If it comes from the *right*, shadows are cast across the writing; if it comes from *both sides*, double shadows are cast; if it comes from *behind*, shadows of the body are cast on the writing or work; light from the *front* is very trying to the eyes.

5. Water can be freed from bacteria by the use of a Pasteur-Chamberland filter, or a Berkefeld filter; also by sterilization by heat—boiling.

6. The sewer should be circular or egg-shaped in section; it should be laid in as straight a line as possible, and with a regular fall; the junctions should be oblique, so that the sewage may enter in the direction of the flow; if it curves, it should do so with a very wide sweep; it should be made of well cemented brickwork, with the interior smoothly finished; there should be ample arrangements for ventilation, flushing, and inspection; the fall should not be too great or too rapid, or the water will run away rapidly and the solid matter will be left behind.

7. Unripe fruit is unwholesome because: (1) It causes malfermentation in the stomach and intestines; (2) it causes colic, cramps, pain, diarrhea, and vomiting; (3) it may cause gastritis, or choleraic diarrhea; (4) the tannin and vegetable acids which it contains are very astringent and acid. Fruits are valuable as food because they furnish nutriment, convey water to the system, relieve thirst, stimulate the appetite, improve digestion, give variety to the diet, introduce various salts and organic acids which improve the quality of the blood and react favorably upon the secretions.—(From Thompson's *Dietetics.*)

8. A milk epidemic is characterized by the suddenness with which it makes its appearance, the sufferers being for the most part attacked at about the same time. The infected houses will be found to have been supplied, almost without exception, by the particular milk vendor whose supply is at fault; but it will occasionally happen that infected houses are discovered to which milk has been supplied by a different vendor, this circumstance being often due to the fact that the vendors on their rounds very commonly buy small quantities of milk from each other. Sometimes valuable corroborative testimony implicating the milk is forthcoming in the circumstance that some of those in the infected households, who have consumed no unboiled milk, have escaped; and that households supplied from the implicated dairy, but in which no unboiled milk is consumed at all, have entirely escaped.—(Parkes' *Hygiene.*)

9. *Koumyss* is an effervescing fermented liquor, originally made from mare's milk; but it is now made from cow's milk, with sugar of milk, and allowed to ferment in open tanks, the casein and butter are skimmed off, and the koumyss is bottled during fermentation.

Kefir is a fermented drink made from milk by the addition of a special mushroom-like ferment. It contains about four times as much albuminoids (casein, etc.) as koumyss.

10. *How* antitoxin produces immunity and effects cure is not known, but *theories* deduced from observed facts are as follows: "As the various pathogenic bacteria produce the causative toxins of their respective diseases, so the organic cells of the body, reacting under the stimulus of the poisons thus introduced, immediately proceed to elaborate defensive bodies, which if produced in sufficient quantity will neutralize the effects of the toxins. Residual antibodies remaining in the blood after recovery render the animal immune for a time against the disease. The immunizing and curative effects obtained by the injection of the blood serum of an immunized animal into the circulation of another animal are due either to direct chemical neutralization of the toxins themselves by the antibodies so introduced (Behring, Kitasato), or to a particular influence exerted by the antibodies upon the living cells of the organism which, being affected in two opposite directions, remain neutral to the disease (Buchner). Some authorities hold that these results are due to the conjoint action of leucytic and chemical forces. Ehrlich's side-chain theory assumes that every toxin contains toxophore molecules having direct toxic action, and haptophore molecules which combine the toxophores with a similar combining group of molecules in the tissue cell of the attacked organism. The tissue cell molecules being destroyed by the toxophores, a rapid and profuse regeneration of similar molecules occurs in side chains, and these molecules overgrowing are carried into the circulation, becoming the antitoxin, which acts by combining with the haptophores of newly arrived toxin, using up their combining power before they can reach the tissue cells."—(Potter's *Materia Medica*, etc.)

11. *For disinfecting ships and cargoes*, there are used:

Formaldehyde; sulphur dioxide, or sulphurous acid; live steam; acid bichloride of mercury. For method of disinfecting by formaldehyde, see above, *Chemistry*, 14

12. *The principal means of preventing the spread of contagious diseases in schools*, are: Regular and efficient inspection by physicians; prompt exclusion and isolation of anyone suffering from a contagious disease, or coming from a house where such disease is; compulsory vaccination; compulsory notification of all infections and contagious disease; individual towels, drinking vessels, and other implements; children who have had a contagious or infectious disease, or who have come from a house where such disease prevailed, should not be readmitted to school until sufficient time has elapsed since the occurrence of the last case to insure safety.

13. Tuberculosis, trichinosis, tape-worm, ptomaine poisoning, echinococcus disease, and anthrax.

14. *Malaria:* "It has ever been held that the most intimate relation exists between the soil and malaria, especially prominent in districts abounding in marsh lands. It has been noticed repeatedly that in malarious countries the upturning and excavation of wet or damp soil are commonly followed by the occurrence of the disease among the laborers so engaged; that infection is more common among those who go about at night, and especially among those who sleep out of doors; and that the draining of marsh lands is often followed by the disappearance of the disease. All of these facts are compatible with the theory of transmission by mosquitoes, and it is now accepted generally that malaria is connected with soil conditions only in so far as the latter permit the breeding of the specific mosquitoes."

Yellow Fever: "There is no evidence of connection between the soil and outbreaks of yellow fever, although for many years such a relation was assumed to exist. The disease is mosquito-borne."—Harrington's *Practical Hygiene*.

15. (*a*) In *beef*, protein; (*b*) in *wheat*, carbohydrates; (*c*) in *eggs*, protein and fats, predominate.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION	
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan. ..
Arizona*	Ancil Martin, Phoenix	Phoenix	Oct. 3
Arkansas	F. T. Murphy, Brinkley	Little Rock	Nov. 8
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco	..
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	Oct. 4
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov. 14
Delaware	J. H. Wilson, Dover	Dover	Dec 13
Dist. of Col'bia.	Geo. C. Ober, Washington	Washington	Oct. 11
Florida*	I. D. Fernandez, Jacksonville	Palatka	Nov. 9
Georgia	T. H. Goss, Athens	Atlanta	Oct. 11
Idaho*	W. F. Howard, Pocatello		Oct. 4
Illinois	J. A. Egan, Springfield	Chicago	Oct. ..
Indiana	W. T. Gott, Crawfordsville	Indianapolis	Jan. 10
Iowa	Louis A. Thomas, Des Moines	Des Moines	..
Kansas	H. A. Dykes, Lebanon	Topeka	Oct. 11
Kentucky	J. N. McCormack, Bowling Green	Louisville	..
Louisiana	E. L. McGehee, New Orleans	New Orleans	Oct. 18
Maine	F. W. Searle, Portland	Portland	Nov. 8
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec. 13
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Sept. 13
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Lansing	Oct. 11
Minnesota	W. S. Fullerton, St. Paul	St. Paul	Oct. 4
Mississippi	S. H. McLean, Jackson	Jackson	Oct. 11
Missouri	Frank B. Hiller, Jefferson City	Jefferson City	Sept. ..
Montana*	Wm. C. Riddell, Helena	Helena	Oct. 4
Nebraska	C. A. Carr, Lincoln	Lincoln	..
Nevada	S. L. Lee, Carson City	Carson City	Nov. 2
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	Jan. 3
New Jersey	H. G. Norton, Trenton	Trenton	Oct. 18
New Mexico	J. A. Massie, Santa Fe	Santa Fe	Oct. 10
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York, Albany, Syracuse, Buffalo	Sept. 27
N. Carolina	B. K. Hays, Oxford	Charlotte	June 14
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	Oct. 4
Ohio	Geo. H. Matson, Columbus	Columbus	Dec. 13
Oklahoma*	F. P. Davis, Enid	Guthrie	Oct. 11
Oregon	B. E. Miller, Portland	Portland	Jan. 3
Pennsylvania*	N. C. Shaeffer, Harrisburg	Philadelphia, Pittsburg	Dec. ..
Rhode Island*	G. T. Swarts, Providence	Providence	Oct. 6
S. Carolina	H. H. Wyman, Aiken	Columbus	June 13
S. Dakota	H. E. McNutt, Aberdeen	Watertown	Jan. 11
Tennessee	C. A. Abernathy, Pulaski	Memphis, Nashville, Knoxville	May 28
Texas	R. H. McLeod, Palestine	Palestine	Nov. 22
Utah	R. W. Fisher, Salt Lake City	Salt Lake City	Oct. 3
Vermont	W. Scott Nay, Underhill	Montpelier	Jan. 10
Virginia	R. S. Martin, Stuart	Lynchburg	Dec. 20
Washington*	T. C. McFadden, Seattle	Spokane	Jan. 3
W. Virginia	H. A. Barbee, Point Pleasant	Charleston	..
Wisconsin	J. M. Beffel, Milwaukee	Milwaukee	Jan. 10
Wyoming	S. B. Miller, Laramie	Laramie	Oct. 12

* No reciprocicity recognized by these States.

† Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of August 6, 1910.

	Cases	Deaths
Tuberculosis Pulmonalis	674	137
Diphtheria	214	17
Measles	179	11
Scarlet Fever	85	2
Smallpox	1	—
Varicella	9	—
Typhoid Fever	96	9
Whooping Cough	55	9
Cerebrospinal Meningitis	6	5
Malarial Fever	—	—
Totals	1,319	190

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, during the week ended August 5, 1910.

		CASES.	DEATHS.
CHOLERA.			
India, Calcutta	June 5–11	..	31
Madras	June 18–24	..	1
Java, Batavia	June 5–18	40	31
Present in extreme eastern part.			
Samarang	June 18	..	Still pres't.
Russia, Baku, government	June 19–25	7	5
Present in districts of Igoumen, Mazir, Pinsk, Retchitsk, and Sloutsk.			
Don, territory	June 19–25	461	166
Rostov-on-the-Don	June 19–25	1,110	350
Kharkov, government	June 19–25	84	45
Kherson, government	June 19–25	207	80
	June 25–July 1	19	8
Kief, government	June 19–25	143	59
Kuban, government	June 19–25	471	245
Minsk, government	June 19–25	49	13
Poltava, government	June 19–25	147	66
St. Petersburg, government			
St. Petersburg	June 19–25	4	2
Samara, government	June 19–25	2	2
Saratov, government	June 19–25	1	..
Simbirsk, government	June 19–25	1	..
Tambov, government	June 19–25	5	3
Taurida, government	June 19–25	32	24
Sebastopal	June 19–25	5	1
Theodosia	June 19–25	..	Present.
Terek, territory	June 19–25	6	2
Tiflis, government—			
Tiflis	June 19–25	2	..
Tschernigov, government	June 19–25	120	39
Vitebsk, government	June 19–25	3	..
Voronesch, government	June 19–25	17	8
Yekaterinislav, government	June 19–25	665	303
Transcaucasia—			
Tschernomorsk district—			
Novorossysk	June 19–25	3	2
Straits Settlements, Singapore	June 5–11	7	7
YELLOW FEVER.			
Brazil, Bahia	April 30–June 3	2	2
Manaos	June 20–July 2	2	2
Para	July 3–9	5	3
PLAGUE.			
Brazil, Bahia	April 30–June 3	3	3
Chile, Iquique	June 4–12	12	4
Taltal	April 1–27	12	..
China, Hongkong	June 12–18	2	2
India, Bombay	June 22–28	..	44
Calcutta	June 5–11	..	27
Kurrachee	July 19–25	17	17
Japan, Formosa	June 5–18	6	5
Peru, Arequipa, Department	Mar. 1–31	18	9
Including 2 cases and 1 death previously reported.			
Mollendo	May 28–June 10	1	1
Callao	Mar. 1–31	2	..
Lambayeque	Mar. 1–31	25	10
Libertad	Mar. 1–31	32	20
Lima	Mar. 1–31	15	9
Piura	Mar. 1–31	6	3
SMALLPOX.			
Abyssinia, Adis Ababa	June 5–28	..	Present
Argentina, Buenos Aires	April 1–30	..	83
Austria, Galicia	July 3–9	1	..
Brazil, Bahia	April 30–June 10	141	110
Para	July 3–9	2	1
Santos	May 30–June 5	..	1
Canada, Pictou	July 17–23	2	..
Vancouver	May 1–31	2	..
Chile, Valparaiso	May 19	4	..
China, Chefoo	July 2	1	From a vessel.
Egypt, Cairo	June 18–24	1	..
France, Paris	June 20–26	2	..
Germany, general	June 3–9	1	..
India, Bombay	June 22–28	..	4
Kurrachee	June 19–25	2	..
Madras	June 18–24	..	2
Italy, general	July 4–10	1	..
Naples	July 4–10	5	1

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Original Articles.

THE INFLUENCE OF THE USE OF THE AUTOMOBILE UPON THE UPPER AIR PASSAGES.*

By D. BRYSON DELAVAN, M.D.,

NEW YORK.

The almost universal adaptation of the motor vehicle for pleasure as well as for business purposes implies the fact that countless numbers of people come within its influence, some as actual users of it, and some as mere spectators of its use. It becomes, therefore, a matter of great human interest, of actual importance to the State, to know the effects of the new means of locomotion upon the physical welfare of the public. To that end this subject is presented, in the hope that discussion of it may bring definite and useful results.

The influence of the automobile upon the mind, the morals, and the physical being of those who use it presents questions of interest well worthy of study. Already more or less has been written concerning these topics. Its effects, however, upon the upper air passages do not not seem to have attracted serious attention, and yet offer opportunity for considerable investigation and comment.

The automobile may effect both him who uses it and him who does not. The exposure to one who rides in an open vehicle may bring about effects which would not endanger the one riding in a limousine. The chauffeur may also be exposed to dangers peculiar to his position. As to the man who walks, it is his part to inhale the fumes which poison the atmosphere of our best avenues and to either be driven from his home by the noise of the autos or choked by the dust which is raised by them and blown in his direction.

If the experience of other occupations which are known to be injurious to the air passages is any criterion, it is time that we had undertaken to consider the influence of the automobile.

The factors which may work injury may be divided into two groups, namely, first, conditions relating to the air itself, and, second, impurities carried by or suspended in the air. The first includes temperature, air currents, and air pressure; the second, dust and smoke. Sudden and violent changes of temperature are often encountered by the motorist. Exposure to strong draughts is also a common experience, the draughts being due to natural air currents or to the rapid motion of the car. Where the car is speeding in the face of a breeze the resulting increase of air pressure must be considerable.

Sudden change of temperature or rapid radiation of body heat due to exposure to air currents may cause chill, and, indirectly, the latter's well-known results upon the breathing apparatus. Increased atmospheric pressure, especially when combined with cold, must of necessity exert important influences upon the respiratory region, from the nasal cavities and their communicating passages to the ultimate vesicles of the lungs. Examples of this are common. Thus, during the height of the great blizzard of 1888, many persons attempted to walk from their places of business to their homes, facing the storm. The number of those whose air passages suffered injury was incredible, while the variety of affections included a fair proportion of the inflammatory conditions possible to the ears, nasal region, pharynx, larynx, trachea, bronchi, and lungs. Deaths were numerous, while there are many patients suffering from chronic disorders today who date the origin of their troubles from that or some similar experience. A rate of thirty miles an hour constitutes a stiff breeze, while sixty miles represents a gale. These facts we know, and yet easily forget in the exhilaration of the ride.

Studies made with regard to the actual resistance of the air in speeding give interesting results. It is stated that at speeds below 20 miles an hour the effect of wind resistance is too slight to be measurable. Considering surfaces at right angles to the normal plane of travel of the automobile, resistance begins to show at about 15 miles an hour. It increases slowly, reaching about 2½ pounds a square foot at 30 miles an hour. Higher speed results in rapidly increasing rate of resistance until at 60 miles an hour the pressure is about 13 pounds. At 90 miles it has increased to about 29 pounds.

If these observations are correct, air pressure in connection with the use of the automobile is not a negligible factor, especially when related to its influence upon the air passages. Of course, it must be remembered that the rate of pressure may be greatly increased by adding the force of a head-wind to the speed of the machine. Thus, a speed of 30 miles against a 20-mile breeze would create a 50-mile pressure. While there may be some conditions of the lungs in which exposure to a moderate increase of air pressure for a limited amount of time would be beneficial, there must be many cases in which great increase of pressure, or pressure long continued, would result in injury, even to a healthy lung. In certain pathological conditions, such, for example, as emphysema, the risk is obvious.

The second injurious factor is the impurities which may be inhaled with the inspired air. These consist of dust, of smoke, and of other matters, among which may be mentioned plant products and small insects. The deleterious effects of dust upon the air passages are obvious. Those engaged in dusty occupations such as emery grinding, certain

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kinds of stone cutting, the handling of furs, and the manufacture of certain powders and fabrics, almost invariably suffer. Smoke also irritates them, and the smoke of the auto is especially irritating.

Another source of irritation is one not generally thought of, but, in the experience of the writer, of sufficient importance to warrant attention. I refer to the presence in the air at certain times and places of large numbers of small winged insects, and, also, to the products of plants, shrubs, and trees, which, at certain seasons of the year, fill the air, especially in the neighborhood of their production. Mosquitoes and gnats in great variety are frequently encountered after sundown in passing over country roads, especially if the latter run through growths of trees or near swamp lands. Insects of larger type may endanger the eyes. The smaller ones not only offer the same possibility, but may readily be inhaled, either into the nasal cavities or into the larynx or trachea. Any one who has experienced such an accident will remember its irritating effects, which may not only be severe for the present, but may leave behind the possibilities of serious trouble.

Dust may be irritating from its mechanical properties. Thus fine sand, as has often been demonstrated in its effect upon stone workers, has injurious properties which depend upon the sharp cutting qualities of the particles of silicate of which the dust is composed. Other kinds of dust may be harmful, not only by reason of the peculiar shape of the particles, but, also, because of the irritating nature of the substance itself, as, for instance, in the case of the horse droppings and the many other accompaniments of ordinary street dust.

With regard to the equipment of the motorist, every conceivable appliance and convenience is provided for him. This is especially true of protections for the eye, which are supplied by the shops in great variety. In considering this, however, it at once appeals to one as strange that protection of the breathing apparatus against dust and severe winds seems to be neglected. I have searched many shops, but have never yet found a satisfactory respirator, nor do I know anything in recent scientific literature bearing upon the subject. Almost the single exception to this statement is the face guard used in racing, for protection against the wind. This is of simple pattern and construction, and for its purpose is said to be effective. It can hardly be entirely successful, however, in excluding dust. For the latter purpose none of the old-fashioned respirators, such as have been worn in London for many years for protection against fog, nor those of the Morrell Mackenzie type, for preventing the inhalation of dust by emery grinders, stone workers, and the like, are satisfactory. The majority of those who attempt any protection at all are ladies, who use chiffon veils in which they envelop the entire head. This method, of course, offers a certain amount of relief to the air passages, but it can not be considered ideal.

The lack of attention which has been given to the subject of respirators would imply that dust is an unimportant factor. In regions where the roads are well cared for and properly oiled this is to some extent true. Any one who has seen automobile parties coming in after long runs in dry weather, through an open country, will remember the extent to which everything pertaining to the motor and its occupants has been covered with dust. This is especially true of many districts in Europe, where oiling of the roads is unknown, and where limestone or other comparatively soft material used in making the roads has furnished a fine powdery grit, which rises in dense clouds and penetrates everywhere.

The introduction of the "wind shield" has resulted in modifying the effect of wind currents with considerable success. Roe states that since it has been more generally used diseases of the nasal sinuses among autoists have been distinctly less common. Shurly calls attention to the fact that habitual speeding develops the so-called "automobile face," a characteristic of which is the open mouth. Such persons, he believes, are particularly liable to infections.

In dealing with the question of automobile smoke several factors are to be considered. The irritating particles may, perhaps, be too small in size to exert much mechanical influence upon the mucous membranes, but their quality may be such as to cause decided irritation. Added to this is the pungent odor which in itself may be excessively irritating.

While some may doubt the harmfulness of the emanations from the exhaust of the automobile, it is hardly possible to suppose that they can be entirely without effect. Even to healthy membranes their presence in the air is consciously annoying. Where the mucous linings of the air passages are already, for any reason, in a sensitive condition, there is no question, if we may rely upon persons of intelligence and experience, who have considered the matter, that the automobile fumes have caused them painful annoyance at the time and in some cases long continued and severe after irritation. This is often observed in cases of ear trouble, due to Eustachian catarrh, while patients suffering from asthma, bronchitis, tuberculosis, and the like are undoubtedly affected by it.

Without question mucous membranes already irritated are more especially liable to infections of a general nature; even supposing the smoke and gases from the auto to be sterile, their ultimate contributory effects may easily become important, particularly when combined with the notoriously microbe-laden dust of city streets.

Theoretically considered, the use of the automobile should be productive of a decided increase in the average of respiratory ills. Whether or not it has actually so resulted is a question. Taking up the causes of injury, we will first refer to chill. This may be acquired through unsuitable or insufficient clothing, or through clothing improperly applied. Not only should the body be protected, but the limbs should be carefully covered, especially in open motors. A coat, otherwise warm, may be cut too low in the collar. The idea that undue exposure of the neck and throat tends to strengthen the parts is a popular fallacy. No such custom prevails with the Eskimos and others of exposed life dwelling in cold latitudes. No part of the body would seem to demand more careful protection than that adjacent to the top of the sternum, where center the most important blood vessels of the body, many of them within short distances of the outer world. A coat which does not properly protect the throat is like a roofless house. Any one who has skated, or has sailed an ice-boat in very cold weather, or who has had experience in mountain climbing at high altitudes, will readily understand this. In motoring, neither extreme cold nor great altitudes are necessary to bring about conditions which rapidly lower the body temperature. As with the neck so with

the feet. Low shoes, unprotected ankles, and want of rugs may quickly work disaster. Some of the head coverings used are admirable. Others are exceedingly bad, comfort and safety being sacrificed to appearance, with no attempt to protect and shield the face and neck. The subject of proper underclothing must also be considered. The wearing of an abdominal band is considered by many experts a great protection against chill. It is easy to become chilled in an automobile when one enters it after leaving a warm room, even when well protected with clothing. Still worse to ride in an open machine in the country, fresh from an overheated train and with thin clothes. This latter situation sometimes confronts the city consultant when he is called out of town.

Apparently the worst case is that of the chauffeur who, in the effort to replace a tire or repair some injury, works himself into profuse perspiration and then upon the driver's seat makes up lost time against a cold breeze. Such exposure should be prolific of throat and lung trouble. As a matter of fact, it does not seem to be. This may be accounted for by the youthful vigor and personal power of resistance of those who engage in the work of motor driving, as well as by the health-giving effects of a life of abstinence and of activity in the open air.

Having considered the above-mentioned factors, the next step would be to study their effects upon the upper air passages in healthy individuals.

To that end we have endeavorer to make a collective investigation of the subject, and have taken the chauffeur as the basis of study, selecting him because, as a professional, he devotes a maximum amount of time to his work; because his position is more exposed than that of others; and because he may be supposed to represent a fair type of the average healthy individual. In order to gain the most reliable information possible we have interviewed the medical departments of four leading life insurance companies. All agree that the subject should be, and is being, investigated, but state that it has only lately come up, that nothing less than a large collection of statistics will be of value, and that the length of time which has elapsed since the matter was taken in hand is too short to admit of reliable deductions and final scientific results. As far as their observations have gone, up to the present time, none of them have been able to notice any special effect of the use of the automobile upon the upper air passages. One of the companies states that while the mortality rate is greater in these cases than with ordinary drivers of vehicles, this is owing to accident and not to disease, and has nothing to do with the real object of our investigation. It makes no extra rate for risk of illness to chauffeurs. It aims to accept only chauffeurs of good standing and of temperate lives, and it believes that any special risks of illness to which they may be subjected are counterbalanced by the non-use of alcoholics and by the life in the open air. Another company regards the chauffeur as not inferior as a risk, and accepts him on equal terms with others of his general grade. A third agrees substantially with the above. In the case of the fourth company an excess rate of one-half of one per cent. was formerly charged chauffeurs. Lately, this excess has been removed and they are taken at the usual rates.

In short, the medical departments of these companies, the largest and most important in the country, have not found that chauffeurs are apparently more liable to the serious respiratory diseases which threaten life than are coachmen. Both, of course, are apt to suffer from pneumonia due to exposure, one of the few conditions likely to come to the notice of life insurance authorities. Diseases not directly fatal, such as sinusitis, would probably not be reported to them. It is desirable that a systematic investigation be made to determine the influence of the automobile upon all respiratory conditions. Finally, if it should appear that they are actually productive of irritation in cases where the condition of the air passages is normal, it would be easy to appreciate their influence upon special conditions of the respiratory tract likely to be aggravated by them.

We will now consider what some of these conditions are. A good illustration would be offered by a case of acute coryza. In this affection it is prerequisite to the successful treatment of the case that the patient be kept in an even temperature, and that he be allowed to breathe pure air. The treatment also demands that the surface of the body be protected from chill. We secure quietude and warmth by sending the patient to bed. It will readily be seen how exposure in an automobile apparently violates all of the first principles of treatment.

That this criticism is not theoretical may be amply proved by common experience. In cases where there is any tendency to involvement of the nasal sinuses in such acute attacks, automobile riding offers every possible element of danger, including the special risk from increased air pressure of forcing elements of infection into the sinuses or into the Eustachian tubes.

The prevalence of sinus disease and of acute infections of the ear in recent years has been attributed to the influence of grippe. In the treatment of these cases, however, experience demonstrates that a patient taken in hand at the early part of the attack, placed under proper conditions and given suitable treatment will generally escape serious trouble. Even if the sinuses have been invaded, a few days will generally suffice to check the inflammation and cure the case. Lack of treatment and of protection, however, and, above all things, exposure to inclement weather, will not only remove the possibility of spontaneous cure which is often present, but in countless instances has aggravated the trouble to the extent of causing infection of other sinuses, intensifying the symptoms and thereby prolonging the subsidence of the attack, or creating complications of the gravest nature. It is just such cases which lapse into chronic conditions, often presenting the greatest difficulties and the most serious dangers. In chronic disease of the sinuses, incautious motoring may expose the patient to especial risk. The same is true in cases of old suppurative conditions of the ear, for reasons too evident to need explanation.

The effect of automobile riding upon the symptom of tinnitus is an interesting and important study. In a patient subject to this phenomenon it may be laid down as a general axiom that the better the condition of the body in general and of the neighborhood of the ears in particular, the less the tinnitus will be in evidence. Naturally, any increase in the tinnitus would imply some additional irritation in the ears or in those parts irritation of which will produce reflexes resulting in tinnitus. It is a common experience of the victims of tinnitus to find that the ringing in the ears is increased by riding

in an automobile. This is especially the case if the ears are unprotected. Such increase may be due either to the irritation of the air currents upon the tympanum, to the results of air pressure in those whose Eustachian tubes are clogged, or to hyperemia of the nasopharyngeal membranes with extension into the Eustachian tubes. Patients susceptible to increased tinnitus, therefore, should be warned of the effect of the automobile, and if they ride should be urged to so protect themselves that the ears will not be endangered. At the very least, the wearing of a cotton plug in the external auditory canal should be enjoined.

In acute catarrhal conditions in general of the air passages motoring would seem to be contraindicated. In many subacute and chronic catarrhal conditions, however, it appears to be distinctly advantageous. In my own experience many such cases have been benefited, and more than one patient of long standing has been cured.

In bronchitis, asthma, and emphysema the rules which would obtain with regard to the avoidance of sudden changes of temperature and exposure to strong winds would be applicable to the use of the automobile.

The same may be said with regard to pulmonary tuberculosis. Several cases have been reported to me in which bronchial asthma, vasomotor coryza, and hay fever have been markedly relieved by it.

The question, however, of the influence of the automobile upon those inclined to throat and pulmonary tuberculosis is another interesting topic. An abundance of fresh, invigorating air should be beneficial. Draughts, sudden changes of temperature, dust, smoke, and irritating gases must, of course, be avoided. A case has been reported to me of a lady who made a motor trip from New York to Chicago and back again in very dry weather. She left apparently in good health and returned with well-marked pulmonary tuberculosis. The investigations of David Twichell have shown that the tubercle bacillus quickly succumbs to sunlight. It is unlikely that the patient above mentioned contracted tuberculosis from the dust of the roadways. Possibly the disease may have been latent or unsuspected when she started and was developed by the excitement and fatigue of the journey, coupled with the mechanical irritation to the respiratory membranes of the dust.

Again, the membranes having been irritated by dust, the germ may have been acquired in some lodging place upon the way.

Possibly this isolated case represents a rare accident in which the influence of the automobile is not entirely evident. In any event it would seem worthy of notice.

Good authorities, of course, interdict motoring in tuberculous subjects whose temperature is above normal. In certain cases, particularly of the nervous, restless type, the mild stimulation of the circulation, deep-breathing, and lively mental diversion have been distinctly beneficial.

The advantages of the open car, also, are not to be ignored. The entire freedom of the circulation of the air, even in cold weather, is stimulating and tonic to those vigorous enough to profit by it. Indeed, there are some who claim that they never take cold unless they ride in a closed car. Here, of course, the personal equation must settle the question.

In this connection attention should be called to the use of the "wind-shield." It is said that much greater immunity from respiratory troubles has been observed among professional drivers than was formerly the case. Before the introduction of the wind-shield affections of the ear, the nasal sinuses, and the air passages in general seem to have been much more common than they are now.

The typical expression of countenance of the racing motorist is highly suggestive of mouth-breathing, a habit likely to add much to the risks under discussion.

In estimating its effect upon the air passages, therefore, the fact that the automobile may be either open, protected, or enclosed must be considered. No vehicle is more luxurious or, indeed, more safe for those who are feeble and susceptible to the effect of cold, than a high-grade, well-appointed, modern car. With the windows properly arranged draughts can be prevented, and even the temperature can, to some degree, be controlled. Under such conditions an invalid might travel proper distances without injury and with highly beneficial results. To the same person a long ride in an open or a partly protected car might be attended with discomfort and followed by disaster. In advising a patient, therefore, it is necessary to specify the variety of car he should use and then instruct him as to the precautions necessary in his particular case.

Here, again, the personal equation becomes important. The same currents of air which would invigorate and strengthen a person in robust health might be harmful in conditions of disease of the air passages, as they are recognized to be in disorders of other parts.

In a paper recently presented in Philadelphia by Professor James Tyson on the effect of the use of the automobile upon the heart, Dr. Tyson maintains that many cases of cardiac disease are markedly benefited, the fresh air, moderate exercise, gentle stimulation of the circulation, and mental diversion having an excellent influence.

So, in properly selected cases of respiratory trouble the patients thrive under it, owing to improved oxygenation and nutrition.

To sum up the matter, it would appear that under certain conditions and in certain cases the motorist may expose himself to positive risks. These risks may sometimes be modified or even removed by the use of proper precaution in the selection of a machine and by the exercise of wisdom in using it. Properly used in suitable cases, the automobile may be a valuable therapeutic agent.

These things being true, it is time that knowledge upon the subject had been obtained sufficient to enable us to warn the public of the possibilities of danger and to instruct it as to the best means of protection.

In addition to those precautions of a personal nature which each one using the automobile should observe, the safety and comfort of all would be greatly enhanced:

1. By good country roads, kept in good order.

2. By well-paved city streets, kept free from dirt and from the fine dust which is now allowed to remain after the coarser matters have been removed.

3. By the enforcement of the laws against automobile smoke in our cities as the same laws are enforced in the principal cities of Europe.

Thus would much just criticism of the motor be silenced and many friends be gained to a worthy cause.

All things considered, the final verdict seems decidedly in its favor. The authority of life insur-

ance thus far has not been able to discriminate against it, high medical authority commends it in kindred directions, and common sense, together with experience, seem to sustain it.

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FIRST AID TO THE INSANE AND PSYCHOPATHIC WARDS.*

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Midway between the home and the State hospital there must exist some agency for the care of the mentally disturbed, pending their proper disposition. Some haven must be open for their immediate reception. It should not be the poorhouse and it should never be the jail. It is a blot upon our civilization that the mentally afflicted should be so often treated as if they were paupers or criminals. Hippocrates taught that insanity is due to disease; but sight of this fact was lost in the superstition of the Middle Ages.

Non-restraint of the insane was advocated by Franklin in 1750, and later by Rusk. Yet on the statute books of the State of New York, as late as 1788, was placed "An act for apprehending and punishing disorderly persons," which provided partly as follows: "Persons who by lunacy or otherwise are furiously mad, or are so far disordered in their senses that they may be dangerous to be permitted to go abroad; therefore, be it enacted that it shall be lawful for any two or more justices of the peace to cause such person to be apprehended and kept safely locked up in some secure place and, if such justices shall find it necessary, to be there chained." In 1806 an Act was passed by the State Legislature providing for the erection of additions to the New York Hospital, a general medical hospital, "particularly to provide suitable apartments for maniacs, adapted to the various forms and degrees of insanity." Yet to-day, a hundred years later, we read in the newspapers of "persons charged with insanity," "insane offenders" and "insane prisoners," not sent to hospitals, but locked in jails as if guilty of crime—a distinct retrogression in the conception of the most unfortunate of illnesses

Shall we speak of a man in the delirium of typhoid as a "typhoid offender," or a "prisoner suspected of typhoid"? Since what date has insanity, or other evidence of illness, been considered a crime? By what moral right is an insane person who is charged with no crime considered as or treated as a "prisoner"?

It is a curious survival of barbarism that the evidence of a disordered mind should be considered as "disorderly conduct," and afford opportunity or excuse for arrest by the constable or the policeman. If a policeman encounters a citizen who is shouting in the street, and ascertains that he is suffering severe pain, the officer conducts him to a hospital for treatment. But if he ascertains that the citizen is suffering from mental disorder, the officer takes him to a jail or a lock-up, and later, "charged with insanity," he is taken before a magistrate after being held in "the pen" with criminals of all kinds. Timidity, custom, and indifference are responsible for this inhuman treatment of the sick.

*Read at the Conference of Mayors of Cities of the State of New York, called to discuss Municipal Health Problems, at Schenectady, June 23 and 24, 1910.

The absurd fear of the insane, which has been inculcated by example for generations, occasionally leads the peace officer to use an unwarrantable restraint and a brutal manner toward the poor sufferer, generally weak and confused, often in abject fear.

Violence of the patient is generally in direct proportion to the violence of the captor or keeper. *The California State Journal of Medicine* reports an interesting instance of cowardice in the treatment of an insane person. "A perfectly harmless patient was first tied about with a rope, then rolled in a mattress, and this in turn was carefully roped, something over one hundred feet of rope being used, to tie a harmless sick person," in order to transport him to a hospital.

Magistrates in certain cities in New York State follow the path of least trouble to themselves by sending an insane person to jail to be returned in five days. In some probably recoverable cases death has occurred under these circumstances and following this mistreatment. In an instance that came to my knowledge, an insane man was taken into a magistrate's court by a policeman who had arrested him, and was remanded to jail by the magistrate, to be brought back to court in five days. People who were present say that the man appeared to be insane to everyone but his honor, the magistrate. Nevertheless, he was bundled into a patrol wagon with several criminals, and lodged in jail. At the expiration of five days he was returned to the court, upon the order of the magistrate, and while waiting his turn in "the pen" with several criminals, he died of starvation. In all jail cases positive damage is done to the patient. The early impressions of the mental sufferer are deep and lasting. To be arrested and confined in jail suggests accusation of crime of which the patient knows he is innocent. Hence arise delusions of conspiracy and persecution which the very difficult, if not impossible of eradication. Borderland and undetermined cases, including psychastheniacs with their doubts, dread, fear, inexplicable terror, anguish, or agitation; and also those who suffer from delirium of fever are much damaged by incarceration in cells prepared for criminals in the ordinary jail.

It is not the worthless, useless, idle, or vicious members of society that furnish us with the larger number of insane people. The insane are largely recruited from among the valuable part of the community. In New York over 77 per cent. of the patients received into the State hospitals were engaged in work above the grade of day labor, or were the wives or minor children of men so occupied. In aiding these people the State has given aid to those who most deserve it; to those who in the past were wage-earners and tax-payers.

In 1890 the population of New York State reached 6,171,586 people, of whom 16,006 were insane. In 1890 the estimated population of the State is 8,865,772, of which number 32,650 are known to be insane.

The duration of sane interval in male cases readmitted was: Less than three years in, 64; less than one year in, 35; less than six months in, 24 per cent. Female cases show a slightly longer sane interval because the attacks of those women who suffer from maniac depressive insanity recur at longer intervals than those of male patients.

The length of hospital residence of cases that recover is: Over one year in, 17 per cent.; between

one month and twelve months in, 83 per cent. About 44 per cent. of the cases that recover have suffered less htan one month from their psychoses previously to admission, and nearly 90 per cent. of the recovering cases have suffered from their psychoses less than one year previously to admission.

The length of hospital residence of male cases that die is: Under one month for 14, under three months for 25, under six months for 35, under one year for 48 per cent.

Female patients who die survive somewhat longer than male cases, because of the decreased prevalence of general paresis among women

The patients are not received early enough, or are subjected to devitalizing influences prior to admission. The earliest treatment is often the most important. All disturbing and distressing influences, all confusion and fatiguing agencies should be prohibited. The tenderest nursing is essential from the start, if the full number of possible recoveries is to be reached. Yet in New York State over 500 patients have been brought annually to the State hospitals from jails and lockups. In many cases their condition in the jail has been deplorable and heartrending.

The reports received "showed that in some instances the patient was cared for by a nurse in the jail or elsewhere, or was taken to a hotel for meals, or was found at a boarding house in charge of the authorities, or at the house of an official, some effort being apparently made to provide for his needs and keep him apart from a criminal environment. In regard to one place, the statement is made that the Superintendent of the Poor always hires reliable attendants to care for the patients pending commitment. More frequently, however, the reports showed that the patients were given no special consideration, and were found in unsanitary, uncomfortable, sometimes filthy and vermin-infested cells, not infrequently in company with persons accused of crime, notwithstanding that this is specifically forbidden by law. In one instance the patient was found in the same room with a person accused of being implicated in a murder and developed a delusion that she herself was accused of the crime. In another a patient received a scalp wound by being struck with a pitcher by a prisoner. In still another the report stated that a woman patient was found in a basement cell, without windows, dark and damp, with no toilet facilities and separated only by a slat door from the quarters of a drunken man. Other reports showed that the patients were cared for by prisoners, or were in a common room with drunkards and tramps. Under such circumstances no attempt at medical care and nursing could be expected, and sometimes the most ordinary needs of the patients were neglected. At a jail in one of the larger cities, a woman was found by the nurse in a cell in which she could scarcely sit up, it was so small. 'Three walls were padded with some coarse material, and the fourth, the front, was a grated door. There was no water section or available toilet facilities. The patient was entirely naked and was extremely filthy and dirty.' The village lockups in which the patients were found were sometimes apart from other buildings and little used. The patients in them were sometimes left alone for long periods, and a suicidal attempt and a fire started were among the occurrences reported. Reports of insufficient food, clothing and bedding, og cold, and of inattention to medical treatment and nursing are among those received. In one instance it was stated that the food was bread and water. One man was far advanced in tuberculosis and delirious. Another was very sick, without fire or sufficient clothing, and died two days after reaching the hospital. An epileptic was drenched with a bucket of water whenever he had a fit.

"The worst feature of all in the case of the insane women confined in jails and lockups is the lack of provision for attendance by persons of their own sex. In a large number of instances, the reports indicated that they were left entirely to the care of men. The impropriety and danger of this to both the patients and their cutsodians can scarcely be exaggerated, and accusations of sexual assaults by police officers or jail keepers have been made by some of the women. In this way innocent persons may be exposed to false accusations from which they might have no opportunity to defend themselves. In one instance the nurse found an insane woman entirely nude in her cell, and the only person to attend her was a man who handed her food in at each meal. The detention of women without attendance by persons of their own sex is, to say the least indecent, and one wonders why it is permitted even in the case of those accused of crime."

The remedy is, (1) to take measures that will insure that the responsibility for the earliest care of the mentally affected should be laid upon health officers and not upon poor-law officers, and (2) to provide psychopathic wards or pavilions in connection with general medical hospitals in all cities and large towns.

Superintendents or overseers of the poor should not be in charge of alleged insane persons. Insanity is a form of illness, and these patients should be cared for by health officers in the first instance. When no suitable place has been provided, a health officer will secure room in a boarding house, or with a family, in which the patient may be placed in the care of a nurse till admission to a State hospital can be arranged. No physician will lodge an insane person in jail; but he will provide a safe and comfortable place for temporary accommodation, and proceed with haste to secure medical examination and apply early for commitment to a State hospital. Thus without alarm or brutality, without the demoralization following arrest and jail life, without undue restraint but under the care and quieting influence of a nurse, the patient will be tided over the confusing and distressing period of transfer to a strange place without resulting mental damage. Emphasis will have been placed on illness, and no suggestion of crime will have been made. A bill providing that a health officer and not poor-law officers shall take charge of the alleged insane pending commitment has passed the Legislature, and has been signed by the Governor, becoming Chapter 608 of the Laws of 1910.

The entire avoidance of undermining influences will be secured if psychopathic wards or pavilions, attached to general hospitals, are available. A psychopathic ward is not a room for the detention of vagrants or drunkards. A cage with a bed in it and a keeper outside does not constitute a psychopathic ward or a proper place of detention for the sick.

A psychopathic ward consists of a number of single bedrooms opening upon a corridor or short hall, with abundance of light and ventilation, with ordinary furniture, bedding and equipment, with convenient water sections providing bathing facilities; with nurses (women, with few exceptions) in

uniforms; with plants and flowers supplied with discretion.

The patient should have, if possible, better quarters and more comfort than he has at home. The ministration should be noticeably personal, kind, and encouraging; the food should be appetizing and attractive; medical care and nursing should be as complete as in the case of any other grave form of illness, with a view to saving every ounce of the patient's strength, physical and mental. Separate provision for possible noisy cases should be made in small detached annexes, reached by means of corridors. In all hospitals furnished with psychopathic wards or pavilions there should be a resident physician on call at all times.

The function of the psychopathic ward or pavilion is to provide a proper place for reception and temporary detention of the alleged insane, pending their proper disposition; to receive borderland or undetermined cases for observation and decision; to care for cases of symptomatic delirium and the like. In all instances in which any uncertainty exists the benefit of the doubt should be given to the alcoholic case. A grave psychosis may be masked by alcoholism.

It is an important fact that medical care of the insane should begin before the time when sufficient mental change has occurred to make a commitment possible. The initial care and treatment in the psychopathic ward is therefore of prime importance. But such care is purely initial, not protracted. Without full equipment for the treatment of the insane and without the constant attendance of a resident psychiatrist, protracted care should not be undertaken.

Dangerous statements have been reported to the effect that the insane are of two classes, one class comprising acute and recoverable cases that may be treated in an ordinary general medical hospital and the other class comprising the irrecoverable cases who should be placed under custody in State hospitals. It is very difficult to predict regarding recovery of a patient. Very frequently cases that appear recoverable never emerge; while a few others, after six or even nine unbroken years of mental derangement, make a recovery. The possibility of rapid recovery should not be jeopardized by prolonging general hospital treatment beyond the stage of first aid.

The treatment of the special State hospital, with its exhaustive search of personal or family history, its consultations in meetings of resident medical officers over each case personally and repeatedly presented, its psychoanalysis, its prolonged baths, its therapeutic occupations, its many industries, its classes in calisthenics and folk-dances and its varied entertainments—this should be the treatment afforded the patient at the earliest day possible.

Moreover, in certain States, as in New York, prolonged treatment in the psychopathic ward of a general hospital is unlawful. But all the agencies mentioned are less effectual and less rapidly successful, if neglect or harshness at home, or if arrest and lodgment in jail have preceded the admission of the patient into the special State hospital. The psychopathic ward is a most important link in the chain; a most essential agency for the early protection and conservation of the recently developed or of the recently discovered case of mental impairment.

IS MERCURY A SPECIFIC IN PULMONARY TUBERCULOSIS?*

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In propounding this question, it is fitting to inquire at the beginning, "What have we a right to expect or require of a specific?" In replying to this, it may be said very properly that any remedy or method of treatment, to be a specific in any disease, is one which, when applied *secundum artem*, uniformly results in the recovery of the individuals subject to that disease. By this it is not meant that there may not be any failures of recovery, but these must be comparatively so exceptional as not to vitiate the rule.

From this definition certain other conditions may be deduced as corollaries, of which I shall discuss four. The first of these is that, in an affection characterized by distinct clinical types, the remedy or method of treatment must be applicable with successful results in each of the several clinical types. While we may thus allow for some variation in the success of the employment of the treatment, the variation depending upon the clinical type of the affection, nevertheless, in none of the clinical forms is any considerable lack of success justifiable if the treatment is to be regarded as worthy of the name of "specific."

As applied to tuberculosis, this would mean that when we venture to call any remedy "specific" it must result in cure, when properly employed, not only in tuberculosis of the most varied tissues and organs, but also in the several clinical varieties of tuberculosis in these tissues and organs, if there be such. That is, it is not sufficient that the remedy or method of treatment may be employed successfully in tuberculosis of the skin, bones, joints, lungs, etc., but it must be employed successfully in all the forms of tuberculosis of these organs. It is not possible to lay too much stress upon this feature. Thus, in pulmonary tuberculosis, for example, it is not sufficient that some, or even a large proportion, of the cases of chronic ulcerative (Osler) pulmonary tuberculosis shall improve, perhaps ultimately recover. It is necessary that the same result shall occur in cases of chronic fibroid or chronic parenchymatous pulmonary tuberculosis (in which latter type I have never seen a case of recovery under any method of treatment), although the recovery need not necessarily occur with the same percentage of frequency as in the first named form. Indeed, I will go further, and assert that we have no right to speak of a specific in tuberculosis until the acute forms (the pneumonic, the disseminate, and the miliary) are amenable, as a rule, to treatment.

A second corollary is that such specific treatment shall be successfully applicable in all stages of the affection short of what may be called an essentially "terminal" stage. It must not be restricted in its usefulness to the incipiency of the disease. We do not hesitate to attack a neglected syphilis, for example, although much time may have elapsed since the primary lesion was contracted and the subsequent manifestations have been numerous and varied—I say we do not hesitate to institute treat-

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ment in such cases, with the reasonable expectation that recovery will ensue if the treatment be carried out faithfully and conducted intelligently. Of course, we need not expect that the damage which has been done will be done away with and tissues which have been destroyed will be restored, but the disease itself will be arrested and the patient will recover so far as the defects in the tissues will permit. It is the same way with malaria. To a lesser degree it is true of diphtheria. Here time is a specially important element, on account of the rapid and great destructive degenerative lesions produced by the diphtheritic toxin, which themselves may produce the death of the patient.

In tuberculosis, it is true, there finally comes to be a stage, which we may properly designate as a terminal stage, in which it is probable that the death of the patient would certainly follow at no great length of time as a result of the secondary lesions produced by the specific disease, although themselves not specific, even were it possible for the tuberculous process itself to be absolutely and at once eliminated. This result, as in diphtheria, would occur because of the destructive or degenerative conditions produced by the tuberculotoxins in organs essential to the prolongation of life. However, we should guard ourselves against the error of locating the appearance of this terminal stage too early in the history of the case. To assert a year, or six, or even three months (these periods are used simply for illustration) before the death of a consumptive, that his case is hopeless, is simply to give expression to the meagerness of our present-day therapy and not to the possibilities in his case. The fact that three, or six, or twelve months have been required for a not only tuberculous, but a mixed infection of constantly increasing amount acting upon an individual of constantly diminishing vitality and power of resistance to produce death is evidence that were it possible at such time to eliminate the tuberculous process, the individual might survive indefinitely, the degree in which he is crippled depending upon the extent of the destruction which his tissues and organs have already suffered. Not until such cases can be treated successfully as a rule can we speak properly of having a "specific" against tuberculosis.

A third corollary is that the dosage of such specific may be capable of adaptation according to the degree of severity or rapidity of development of the lesions produced by the disease. It must be possible to adjust the dosage of the remedy to the different relations existing between the varying degrees of virulence and quantity of the infective agency and the variations in the resisting powers of different individuals, or of the same subject at diverse times. In other words, it must be possible to push the remedy in the more virulent cases. This we readily do in syphilis, malaria, and diphtheria. This we must also be able to do as a routine matter in tuberculosis.

The fourth corollary is that there must be no "personal equation" on the part of the physician requisite in the successful use of the remedy or method of treatment. It must be alike successful in the hands of all competent clinicians in that field of therapy. This does not mean that in tuberculosis the method would necessarily be available for use in the hands of the general practitioner, no matter how desirable that would be. To-day the difficulties in the successful management of a case of tuberculosis are vastly greater than exist in a case of syphilis, for example, and it is fitting that the conduct of such cases be carried on by those who have devoted special attention to such subject. With a specific, however, we might expect, even in the hands of those not specially skilled, if the general principles for its administration be once established, better results than may be obtained without a specific by even our ablest phthisiologists.

This corollary also does not preclude entirely the element of personal factor in that always the greater the skill of the physician and the greater his ability to inspire confidence on the part of the patient, the greater will be his success in a given case. In no organic disease more than in tuberculosis, perhaps, does suggestion play a greater rôle in the outcome of the case.

The use of mercury in tuberculosis is no new thing. There is probably no remedy in the whole materia medica which has been applied in as many diverse affections and as carefully proved out in each of them as mercury. Therefore, mercury and tuberculosis have not escaped association in the past, and have not escaped the most careful and exhaustive proving in the past.

I shall make no attempt at a critical study of the literature concerning the use of mercury in tuberculosis, but shall simply make a very few interesting quotations. Good, on page 286, Vol. III, of the fourth American edition of his work on "The Study of Medicine," in five volumes, published in Boston in 1826, speaks as follows: "Consumption, according to Brouillet[1] and many other writers, is identic with scrophula and is only to be cured by tonics, alkalies, corrosive sublimate, or other mercurial alterants employed for the cure of scrophulous affections. According to Cullen, though it has an apparent connection with scrophula, the analogy affords us no assistance in the treatment, and the remedies for the one are of no avail in the other.

"Dr. Rush[2] contemplated it for the most part as an entonic or inflammatory disease, and particularly in its first stage, though it is sometimes accompanied with a hectic, or even a typhous fever. And hence his principal remedies were salivation, or bleeding, which he sometimes prescribed fifteen times in six weeks; emitics, nitre in large doses, a milk and vegetable diet, walking in cold air even during an hæmoptysis, and afterwards severe exercise. . . . This bold practice excited many followers, and was tried with variable success upon a large scale. But a practice of an opposite kind, equally bold, and which soon became equally popular, was proposed at the same time by M. Salvadori, of Trent.[3] Consumption, in the view of this pathologist, is an atonic instead of an entonic disorder from the beginning, a disease of direct debility and not of inflammation; and hence it is only to be cured by an active plan of stimulants and roborants from the first. The patient's diet is to consist of copious meals of meat and wine, and his chief regimen to be that of climbing hills, or precipitous steeps in the morning as quickly as he is able, till he is out of breath and bathed in sweat, and then augmenting the perspiration by placing himself near a large fire. Mr. May,[4] who adopted the same general principle, seems to have postponed the gymnastic part of the process till the symptoms were alleviated." I have made this quotation because of a number of points particularly interesting in connection with several of our most recent and most prominent phthisiological propaganda, as well as because of its relation with the question in hand.

Dr. Rush[5] himself says: "A salivation has lately been prescribed in this disease with success. An accident first suggested its advantages, in the Pennsylvania Hospital, in the year 1800.[6] Since that time it has performed many cures in different parts of the United States. It is to be lamented that in a majority of the cases in which the mercury has been given it has failed of exciting a salivation. Where it affects the mouth it generally succeeds in recent cases, which is more than can be said of any or of all other remedies in this disease. In its hectic state a salivation frequently cures, and even in its typhus and last stage I have more than once prescribed it with success."

It can hardly be urged that Rush has confused pulmonary tuberculosis with pulmonary syphilis when we consider what he has said of the uselessness of mercury in those cases in which salivation cannot be produced, and the success of its employment when salivation occurs. Besides, as Osler[7] says, in speaking of syphilis of the lung: "This is a very rare disease." As a matter of fact, it occurs most frequently in the syphilitic pneumonia of the still-born. He goes further, and says: "Is there a syphilitic phthisis, an ulcerative and destructive disease, due to lues? Personally I have no knowledge of such an affection, either clinically or anatomically, and the cases which I have seen demonstrated do not seem to me to have the characters distinctive enough to separate them from the ordinary tuberculous phthisis."

It may be maintained, however, that while the pulmonary lesion is not syphilitic the individual himself is the subject of an old, hidden syphilitic taint, and that the beneficial effects of the mercury, when such are observed, are due to the eradication of the lues. This would not, indeed, be any more compatible with the peculiar action of mercury as noted by Rush than the indicated possible confusion of the two diseases. In the cases reported by Wright[8] and others at the present day there can be no question but that tuberculosis did exist in the patients, whether with or without an accompanying syphilitic taint. In this connection it is also well to bear in mind the fact that it is generally held that the occurrence of syphilis in a tuberculous patient renders the prognosis as to his tuberculosis much more grave.

In contrast with these views of a hundred and more years ago, Cullen[9] held, at about the same time, that "In scrophula the remedies that are seemingly of most power are seawater and certain mineral waters, but these have generally proved hurtful in the masses of tubercles of the lungs. I have known," he adds, "several instances of mercury very fully employed for certain diseases in persons who were supposed at the time to have tubercles formed, or forming, in their lungs; but though the mercury proved a cure for those other diseases, it was of no service in preventing phthisis, and in some cases seemed to hurry it on."

The conviction of the uselessness and even harmfulness of mercury in tuberculosis gradually prevailed, and for many years has been generally accepted by the medical profession. Indeed, a very noteworthy fact is the unanimity with which it has been ignored in the modern publications on the subject. In recent works on general practice, on materia medica and therapeutics, on diseases of the lungs, or monographs on pulmonary tuberculosis, it is very seldom that we find even mention made of mercury in the treatment of tuberculosis. This is an exceedingly pertinent fact, for it is not to be assumed that during all these years there have been none who have observed experiences such as are mentioned and have not, therefore, given mercury careful and repeated trials.

Only sporadically has an occasionl favorable report been made. Thus in Sajous' Annual for 1889 three papers were mentioned, in 1890, four by three authors, two of them authors of papers mentioned the previous year, and in 1895 one, a total of eight papers by five authors of sufficient importance to be mentioned in the Annual in a period of eight years. None of these had any appreciable effect upon the general opinion and practice of the profession. It was not until the publications of Wright of the remarkable results claimed to have been obtained at the U. S. Naval Hospital at New Fort Lyons that there seemed to be any indication of any inclination to reconsider "the experience of a thousand years summed up by Cullen with the statement, 'Mercury is pernicious in consumption.'"[10]

In the fall of 1906 I was consulted by a couple of patients who had contracted syphilis. One, with the primary lesion, had an incipient pulmonary tuberculosis. The other, in the early secondaries, had two years earlier developed an incipient pulmonary tuberculosis which had been arrested. The pulmonary lesions being only slight, I pushed the mercurial treatment for the lues in both cases, using by preference the protoiodide. Both patients, after the prompt disappearance of the specific lesions for which they consulted me, faithfully continued the treatment, had no further luetic symptoms, and had no trouble with their tuberculosis. Fortified by this experience, I was prepared, when Wright's reports were called to my attention, to give mercury a further trial in what seemed to me to be justifiable cases. I use the word justifiable advisedly. It did not seem to me proper, in view of the overwhelming preponderance of professional opinion that mercury is contraindicated in tuberculosis, to apply it to patients who were already doing well under the recognized methods of treatment, or whose conditions were such that the usual methods of treatment offered hopes of recovery. Many of the cases were dispensary patients, for whom it was not feasible to keep satisfactory records. Many others could not be induced to take the treatment for a time justifying consideration. Of the few which I present, some took the treatment for a very short time only, but their records presented features worthy of mention. In all cases other treatment was given, either coincidently or *ad interim*.

I have made use of several preparations of mercury, *e.g.* blue mass (usually five grains every other night), the protoiodide (gr. $\frac{1}{8}$-$\frac{1}{4}$ after each meal), both by mouth, the succinnimide according to Wright, and the corrosive chloride (gr. 1/32 intravenously). Acting on the principle that whatever effect would be obtained would be due to the mercury rather than the particular salt employed, the use has been varied according to the exigencies of the case. In many cases the succinnimide could not be employed on account of the pain accompanying the injection. Injections have been made without any reference to the appearance of blood after the insertion or withdrawal of the needle—that is, without any reference to the possibility of injection into a vein—and in no case have I noticed evil effect from such injection. Also in no case has there been any abscess formation, although induration is usual.

The following cases were observed in the Evangelical Lutheran Sanitarium:

Case I.—H. C., male, age 30, with negative family history as to tuberculosis and no personal history of venereal disease, came under observation October 6, 1908, having been ill 6 months. Diagnosis: chronic catarrhal pulmonary tuberculosis III,* involving the right lung to the 6th rib anteriorly and posteriorly and to the 8th rib laterally and the left lung to the 6th rib anteriorly, the 8th rib posteriorly, and the 8th rib laterally. Prognosis: unqualifiedly bad. Patient had been failing before taking treatment. The mercurial part of the treatment consisted of blue mass in five-grain doses every other night for six doses (11/7 to 11/20) and the succinnimide, gr. 1/5, six injections in twenty-eight days (12/1 to 12/29) followed by gr. 2/5, one injection (1/2/1909) when salivation appeared. He was again given gr. 1/5 for three injections (1/11/09 to 1/17/09) when salivation again appeared and the treatment was discontinued. He left for home February 4, very much worse.

Case II.—E. B., female, age 21, whose mother, three brothers, and one sister had died of tuberculosis, was admitted August 31, 1908, with negative history as to venereal disease. Diagnosis: chronic catarrhal pulmonary tuberculosis III of three years' standing, complicated with recent hemorrhages. Involvement: right lung to 6th rib anteriorly, laterally, and posteriorly; left lung to 6th rib anteriorly and laterally, 5th rib posteriorly. Prognosis: doubtful. Patient was improving before any mercurial was administered. She was given six doses of blue mass, gr. v (10/27 to 11/6) when she had vague grippal symptoms. Was again given two doses (11/10 and 11/18) when she had headache and digestive disturbances, and the treatment was temporarily stopped. Again she was given twenty doses (1/2 to 2/9) when chilly feelings and coryza ensued (not necessarily referable to the mercury). The mercurial had no perceptible effect on the tuberculosis either during or after treatment.

Case III.—B. G., female, age 18, with family history negative as to tuberculosis and personal history negative as to venereal disease, was admitted October 31, having been ill two years. Diagnosis: chronic catarrhal pulmonary tuberculosis III. Involvement: right lung to 3rd rib anteriorly; left lung to 6th rib anteriorly, 8th rib laterally, and 9th rib posteriorly. She had been improving before administration of mercury. She was given twenty doses of blue mass, gr. v, every other night 1/2 to 2/9) without any apparent influence on the course of the disease.

Case IV.—R. H., female, age 37, whose father died of tuberculosis, and who had had no venereal disease, was admitted July 22, having been ill fourteen years. (She had had a cough more or less regularly for that length of time, but the physical signs were not such as to justify a belief in a tubercular process of any activity of that duration.) Diagnosis: chronic catarrhal pulmonary tuberculosis I. Involvement: right lung to 2nd rib anteriorly and 3rd rib posteriorly. There had been no improvement prior to administration of mercury. For fourteen days she was given protoiodide, gr. 1/8, after each meal, when treatment was interrupted by some slight intercurrent affection. No improvement resulted.

Case V.—A. L., female, age 23, with no tuberculosis in family history and no personal history of any venereal trouble, was admitted August 26, having been ill nine months. Diagnosis: chronic catarrhal pulmonary tuberculosis II. Involvement: left lung to the 6th rib anteriorly, laterally, and posteriorly, progressive. Prognosis: doubtful. Patient began to improve from the beginning. She was given protoiodide, gr. 1/8 after each meal for eleven days (9/20 to 9/30) and again for four days (10/5 to 10/8) when it was stopped. She continued to improve and was discharged much improved and with a much more favorable prognosis. The mercury did not seem to have influenced the course of the disease in any way. Her greatest improvement was under the bacillus emulsion.

Case VI.—H. S., male, age 35, with no history of venereal disease, was admitted July 7, 1907. When I first saw him, August 24, 1908, the diagnosis was chronic interstitial pulmonary tuberculosis III, involving, as shown by physical signs, the right lung to the 6th rib anteriorly, the 10th rib laterally, and the 11th rib posteriorly, and the left lung to the 4th rib anteriorly and laterally and the 6th rib posteriorly. The condition had been practically unchanged, as far as I was capable of judging, until placed on mercury. He was given blue mass, gr. v, every other day for fifteen doses (1/8 to 2/5) and the protoiodide gr. 1/8 after each meal for nine days (3/9 to 3/17) with apparently no change. Recently he seems to have improved somewhat under tuberculinum purum (endotin).

Case VII.—S. B., male, age 36, whose father died of tuberculosis and whose personal history as to venereal disease was negative, was admitted January 5, having been ill about six years. Diagnosis: chronic catarrhal pulmonary tuberculosis III, involving the right lung to the 6th rib anteriorly, the 7th rib laterally, and the 4th rib posteriorly, and the left lung from the 6th to the 11th ribs posteriorly and from the 5th to the 9th ribs laterally. Prognosis: poor. He was placed on blue mass, gr. v, every other night for eighteen doses (1/8 to 2/11) when his gums were touched. There seemed to be slight improvement in his case, but he left the sanitarium and the case could not be followed up.

Case VIII.—G. A., female, age 21, with history negative both as to personal venereal disorders and tuberculosis in the family, entered May 5, 1908, and came under my observation August 24. Diagnosis: chronic catarrhal pulmonary tuberculosis III, of about one year's standing. Involvement: right lung to the 5th rib anteriorly, the 7th rib laterally, and the 8th rib posteriorly, with cavities; left lung to the 4th rib anteriorly and the 3rd rib posteriorly. Prognosis: bad. She had been growing worse more or less continuously. She was given blue mass, gr. v, every other evening for five doses (10/27 to 11/5), again for twelve doses (1/11 to 2/3), again for eight doses (3/4 to 3/18), and finally for seven doses (4/9 to 4/26), and later the protoiodide, gr. 1/8, three times daily, for five days (7/17 to 7/21), digestive disturbances being the cause for the interruptions. She has grown progressively worse, the mercury having seemingly no influence on the course of the disease.

Case IX.—M. K., female, age 39, whose sister died of tuberculosis and whose personal history was negative as to venereal disease, entered November 4, having been ill about four years. Diagnosis: chronic catarrhal pulmonary tuberculosis III, involving the right lung to the 2nd rib anteriorly and to the 4th rib posteriorly, and the left lung to the

*In all of my own cases the classification according to Turban is used to indicate the degree of severity.

6th rib anteriorly and the 10th rib laterally and posteriorly. She had been failing and the prognosis was bad. She was given the protoiodide, gr. ⅛, three times daily for fourteen days (11/7 to 11/20) and blue mass, gr. V, every other night for four doses. Patient grew continuously much worse and left the sanitarium April 12.

Case X.—M. M., female, age 25, with negative history as to family tuberculosis or personal venereal disorder, first came under observation July 14, 1908, and entered the sanitarium January 28, 1909, at that time having been ill about a year. Diagnosis: chronic parenchymatous pulmonary tuberculosis II, involving the right lung to the 3rd rib anteriorly and the 4th rib laterally and posteriorly, the left supraclavicular region also presenting some signs of involvement. Before entering the sanitarium she had evinced signs of slowly progressing disease, during which time she had several times been given short courses of protoiodide. After entering the sanitarium she was given a mild "hepatic" pill containing a small dose of blue mass every other day for seven doses (2/11 to 2/23) and for eight days (2/24 to 3/3) ⅛ grain of the protoiodide three times daily, at the expiration of which time salivation in a mild degree appeared. It seemed to have no effect on the course of the affection.

Case XI.—G. S., male, age 29, with history of no tuberculosis in his family and of having had a chancroid nine years prior, was admitted September 21. According to him he had been ill only two months. Diagnosis: laryngeal tuberculosis and phthisis florida involving the right lung to the 6th rib anteriorly and the 4th rib posteriorly, and the left lung to the 6th rib anteriorly, the 4th rib posteriorly, and the 7th rib laterally. Prognosis: bad. He improved from the beginning and on December 17 the diagnosis of phthisis florida was changed to chronic catarrhal pulmonary tuberculosis II. He had gained seventeen pounds before being placed on mercury. He was given the protoiodide, gr. ⅛, three times daily for thirty-seven days (2/24 to 4/1). His improvement continued, apparently not being affected either way by the mercury.

Case XII.—C. F., male, age 20, whose brother has tuberculosis and who presented no personal history of venereal disease, entered February 23. His illness had begun four years ago. He had practically recovered in Colorado and returned to his former home, where he had a relapse. Diagnosis: chronic catarrhal pulmonary tuberculosis III, involving the entire left lung and the right lung from the 3rd to the 6th ribs anteriorly, from the 8th to the 11th ribs posteriorly, and from the 5th to 9th ribs laterally. Prognosis: essentially bad. He was given the protoiodide, gr. ⅛, three times daily for twenty-five days (2/24 to 3/20). He had been given a dose of the succinnimide, gr. 1/5, on March 10 and had refused to have it again. This was repeated, however, on the 18th and again followed by refusal. From March 22 to April 9 he was given nine doses of the succinnimide, when salivation appeared. He died June 3.

Case XIII.—T. S., male, age 34, with negative family history as to tuberculosis, but a personal history of four attacks of gonorrhea, was admitted January 30, having been ill about four years. Diagnosis: tubercular laryngitis and chronic interstitial pulmonary tuberculosis III, involving the right lung to the 4th rib anteriorly and the 8th rib posteriorly and the left lung to the 3rd rib anteriorly and posteriorly. Prognosis: poor. He continued to lose ground after admittance. He was given sixteen doses of the succinnimide, gr. 1/5, every other day (3/16 to 4/18), when he left the sanitarium slightly improved.

Case XIV.—M. K., female, age 39, whose sister had died of tuberculosis and whose venereal history was negative, was admitted February 28, having been ill two years. Diagnosis: chronic tubuculous pleurisy and chronic catarrhal pulmonary tuberculosis III, involving the right lung to the 5th rib anteriorly and laterally and the 9th rib posteriorly, and the left lung to the 4th rib anteriorly, the 8th rib laterally, and the 11th rib posteriorly, with cavitation. Prognosis: essentially bad. She was failing rapidly. From March 8 to May 10 she was given the succinnimide on alternate days, gr. 1/5 for twenty doses, gr. 3/10 for seven doses, and gr. 2/5 for six doses, when intestinal symptoms appeared. She continued to fail rapidly and left for home June 19.

Case XV.—M. N., male, age 19, with doubtful history of his father having died of tuberculosis and negative personal history as to venereal disease, was admitted February 5, having been ill three years. Diagnosis: chronic catarrhal pulmonary tuberculosis III, involving the left lung to the 4th rib anteriorly and laterally and the 11th rib posteriorly with cavitation, with doubtful involvement of the right lung above the 1st rib anteriorly, and with a tubercular anal fistula. Prognosis: essentially bad. He had been failing rapidly and this continued. He was given the succinnimide, gr. 1/5, on alternate days for twelve doses (3/8 to 4/5) when he returned home, his rapid failure continuing. He was said to have died April 29 of an attack of acute pneumonia.

Case XVI.—A. R., male, age 36, whose father had died of tuberculosis, was admitted March 3, having been ill one year. Diagnosis: chronic interstitial pulmonary tuberculosis III, involving the right lung to the 5th rib anteriorly and laterally and from the 4th to the 11th rib posteriorly and the left lung to the 5th rib anteriorly, the 4th rib laterally, and the 8th rib posteriorly. Prognosis essentially bad. He had been failing rapidly. He was given the succinnimide on alternate days as follows: gr. 1/5 for nineteen doses (3/8 to 4/23), gr. 3/10 for 5 doses (4/30 to 5/8), and gr. 2/5 for two doses (5/10 to 5/14). He died June 5.

Case XVII.—M. D., female, age 18, with negative family history as to tuberculosis and negative personal history as to venereal disease, was admitted February 6, having been ill one year. Diagnosis: chronic catarrhal pulmonary tuberculosis III, involving the right lung to the 6th rib anteriorly, the 5th rib laterally, and the 7th rib posteriorly with cavitation, and the left lung to the 6th rib anteriorly and the 5th rib posteriorly. Prognosis: poor. She was apparently just about holding her own. She was given blue mass, gr. V, every other day for twenty-one doses (3/17 to 4/21) and again for five doses (5/10 to 5/25) without any apparent influence upon the course of the affection.

Case XVIII.—S. H., female, age 25, who has one tuberculous sister and whose venereal history is negative, was admitted February 23, having been ill four years. Diagnosis: tuberculous laryngitis and chronic catarrhal pulmonary tuberculosis III, involving the right lung to the 3rd rib anteriorly and the 5th rib posteriorly, and the left lung to the 6th rib anteriorly, the 9th rib laterally, and the 11th rib posteriorly. She had been failing rapidly.

Prognosis: essentially bad. She was given the succinnimide, gr. 1/5, on alternate days as follows: six doses (3/18 to 3/29) when salivation appeared; three doses (4/17 to 4/22) with an intermission of four days, then one dose (4/27), when salivation again appeared. After an interval she was given a capsule containing one grain of blue mass three times daily for eighten days (7/11 to 7/28), when salivation again appeared. After another interval she was given 1/10 grain of the protoiodide three times daily for twenty doses. The rapidly progressive character of the affection was not affected. She is still under observation.

Case XIX.—M. S., male, age 24, with negative family history as to tuberculosis and negative personal history as to venereal affections, was admitted March 22, having been ill one year. Diagnosis: chronic tuberculous appendicitis, chronic tuberculous pleurisy, and chronic parenchymatous pulmonary tuberculosis involving the right lung to the 2nd rib anteriorly and the 3rd rib posteriorly. Prognosis: poor. He was given blue mass, gr. v, every other day for eighteen days (4/4 to 5/13) without any apparent influence upon his disease.

Case XX.—C. T., male, age 41, family history negative as to tuberculosis, had had gonorrhea in 1895. He was admitted April 20, his illness having, according to his own history, lasted only a year or so, but, according to his brother, having commenced some eleven years ago. Diagnosis: tuberculous laryngitis and chronic interstitial pulmonary tuberculosis III, involving the right lung to the 4th rib anteriorly, the 8th rib laterally, and the 11th rib posteriorly, and the left lung to the 4th rib anteriorly and posteriorly, with marked vicarious emphysema and great displacement of the heart to the right. He had been failing, was very weak, and the prognosis was essentially bad. He was given the succinnimide, gr. 1/5, every other day for eight doses, when he died.

Case XXI.—H. H., female, age 31, with negative family history as to tuberculosis and with personal history of syphilis at about 20, was admitted April 18, having been ill a year. Diagnosis: chronic catarrhal pulmonary tuberculosis III, affecting the left lung to the 6th rib anteriorly, the 8th rib laterally, and the 11th rib posteriorly, and the right lung from the 3rd to the 11th ribs posteriorly. She had been failing rather rapidly and the prognosis was bad. She was given the succinnimide as follows: gr. 1/5 for four doses (4/22 to 4/28), gr. 3/10 for six doses (4/30 to 5/10), gr. 2/5 for six doses (5/14 to 5/28), and gr. 3/5 once (6/1), when salivation appeared. She has been continued on gr. 1/5 for twenty-four doses (6/4 to 9/12) and has shown slight and slow improvement.

Case XXII.—M. M., female, age 45, whose two brothers died of tuberculosis and whose personal history as to venereal disease was negative, was admitted July 10, having been ill fourteen months. Diagnosis: chronic interstitial pulmonary tuberculosis III, involving the right lung to the 3rd rib anteriorly, the 6th rib laterally, and the 5th rib posteriorly, with probable cavitation, and the left lung to the 5th rib anteriorly and posteriorly and the 7th rib laterally, with probable cavitation; laryngeal tuberculosis. Patient had been failing markedly. She was given the protoiodide, gr. 1/8, three times daily for twenty-one days (7/18 to 8/7) and the dose was increased by an extra gr. 1/8 at noon for sixteen days (8/8 to 8/23) when she left the sanitarium. (She has since died.)

Case XXIII.—E. W., male, age 19, having had gonorrhea at 14 and at 15, with negative tuberculous family history, was admitted July 15, having been ill about twenty months. Diagnosis: chronic catarrhal pulmonary tuberculosis III, involving the right lung to the 3rd rib anteriorly and posteriorly, and the left lung to the 6th rib anteriorly, the 9th rib laterally, and the 11th rib posteriorly. Prognosis, poor. He was given the protoiodide, gr. 1/8, three times a day for seven days (7/19 to 7/26) and an added gr. 1/8 at noon for nine days (7/26 to 8/3). Apparently there was no change in the course of the disease.

The following cases have been observed by me at the National Jewish Hospital for Consumptives:

Case XXIV.—D. M., male, age 35, with a history of tuberculosis in his father, one brother, and three sisters, and no personal history of venereal disease, was admitted October 10, 1908, having been ill six years. Diagnosis: tuberculous epididymitis and chronic interstitial pulmonary tuberculosis III, involving the right lung to the 4th rib anteriorly, the 6th rib posteriorly and from the 3rd to 5th ribs laterally, and the left lung from the 4th to the 6th ribs anteriorly. He had been slowly growing worse and the prognosis was poor. He was given the succinnimide, gr. 1/10 every other day for seven doses (3/7 to 3/19) and gr. 3/20 for four doses (3/21 to 3/27), when salivation appeared. Patient has continued to grow worse.

Case XXV.—A. H. E., male, age 29, with a history of tuberculosis in his wife, father, father's sister, and no history of venereal disease, was admitted April 5, 1909, having been ill from two to three years. Diagnosis: chronic catarrhal pulmonary tuberculosis III, involving the right lung to the 3rd rib anteriorly and the 6th rib posteriorly and the left lung to the 5th rib anteriorly and the 2nd rib posteriorly, and an ulcer of the nasal septum (luetic or tubercular). Patient had been doing badly and the prognosis was poor. He was given the succinnimide every other day, gr. 1/5 for eight doses (4/16 to 4/30), gr. 3/10 for eight doses (5/2 to 5/16), and gr. 2/5 for ten doses (5/17 to 6/5) without any influence on the progress of the disease. He died since leaving the hospital.

Case XXVI.—L. K., male, age 21, with negative tuberculous family history and negative venereal personal history, was admitted December 14, having been ill eight to nine months. Diagnosis: otitis media tuberculosa and chronic catarrhal pulmonary tuberculosis III, involving the right lung to the 4th rib anteriorly, the 5th rib posteriorly, and the 7th rib laterally, and the left lung to the 8th rib posteriorly. Prognosis: poor. He was given the succinnimide, gr. 1/5 every other day for nineteen doses (3/19 to 4/24) with apparently slight improvement, but he refused further injections. He was, after a short interval, given the bichloride, gr. 1/32, intravenously, every other day for three doses (5/20 to 5/28) when he again refused. One more dose was given (6/8) and mercurial treatment discontinued because of further refusal. His condition remained about the same.

Case XXVII.—J. S., male, age 26, with negative personal history as to venereal disease and doubtful family history as to tuberculosis, was admitted November 11, having been ill about 2½ years. Diagnosis: chronic catarrhal pulmonary tuberculosis III, involving the right lung to the 2nd rib anteriorly and the 5th rib posteriorly, and the left lung to the 2nd rib anteriorly and the 3rd rib posteriorly, with

cavitation. Prognosis: doubtful. He was given the succinnimide every other day as follows: gr. 1/5 for ten doses (4/2 to 4/20) and gr. 3/10 once (4/22) when he refused to take it. He was given the bichloride gr. 1/32, intravenously, every other day for twenty-seven doses (5/15 to 9/7). The improvement has been very marked.

Case XVIII.—J. G., male, age 30, with negative family history as to tuberculosis and negative personal history as to venereal disease, was admitted March 12. Diagnosis: chronic catarrhal pulmonary tuberculosis I, involving the right lung to the clavicle anteriorly and to the 3rd rib posteriorly, and the left lung to the 3rd rib anteriorly and the 2nd rib posteriorly. He also had a perforated nasal septum which gave rise to the suspicion of lues. Prognosis: fair. He was given the succinnimide, gr. 1/5, every other day for ten doses (3/29 to 4/18) when he refused it. The course of the disease was apparently unaffected.

Case XXIX.—M. B., male, age 22, with negative family history as to tuberculosis and negative personal history as to venereal disease*, was admitted February 19, having been ill six months. Diagnosis: acute disseminate pulmonary tuberculosis III, involving the right lung to the 2nd rib anteriorly and the 6th rib posteriorly, and the left lung to the 5th rib anteriorly and posteriorly. Prognosis: essentially bad. His depression was such that he was kept for a month (2/24 to 3/22) on strychnine sulphate, gr. 1/15, three times daily, and was expected to die during that time. He was given the succinnimide every other day as follows: gr. 1/5 for eighteen doses (3/17 to 4/20), gr. 3/10 for nine doses (4/22 to 5/8), and gr. 2/5 for three doses (5/10 to 5/14), when salivation set in. Patient improved during and after treatment so that a revision of the diagnosis was probably proper. He is now up and about.

Case XXX.—F. S., female, age 25, with negative history as to venereal disease, whose father probably died of tuberculosis, was admitted July 3. Diagnosis: chronic interstitial pulmonary tuberculosis III, involving the right lung to the 2nd rib anteriorly and the 3rd rib posteriorly, with compensatory emphysema, and the left lung to the 4th rib anteriorly and the 11th rib posteriorly with cavitation. The affection was not distinctly advancing prior to being given mercury. She was given the succinnimide, gr. 1/5, every other day for ten doses (4/12 to 4/30) when it was discontinued. Treatment was recommenced after she left the hospital and she was given twenty more injections without any change in her condition.

Through the courtesy of Dr. M. Collins, Superintendent of the National Jewish Hospital for Consumptives, I am enabled to present the following brief data as to other cases treated by other members of the staff of that institution:

Case XXXI.—M. S., male, admitted November 16, having been ill six months. Diagnosis: pulmonary tuberculosis in moderate degree of advancement. Given 30 injections beginning March 19. Condition stationary.

Case XXXII.—R. R., admitted January 7, having been ill 4 years. Diagnosis: advanced pulmonary tuberculosis. Given 24 injections beginning March 3. Died.

*He has very markedly improved. Subsequent closer interrogation revealed a history of an eruption on face and abdomen "like measles," not painful but occasionally itching, for about a year when he was 11 years of age. No other symptoms were remembered.

Case XXXIII.—H. E., admitted June 21, having been ill 3 years. Diagnosis: laryngeal tuberculosis and moderately advanced pulmonary tuberculosis. Given 30 injections beginning March 15. Improved. Was under tuberculin 3 months.

Case XXXIV.—S. L., admitted March 1, having been ill 2 years. Diagnosis: moderately advanced pulmonary tuberculosis. Given 17 injections beginning March 18. Unimproved. Discontinued.

Case XXXV.—F. S., admitted February 12, having been ill 2 years. Diagnosis: moderately advanced pulmonary tuberculosis. Given 30 injections beginning March 3. Slight improvement.

Case XXXVI.—L. G., admitted September 26, having been ill 1 year. Diagnosis: moderately advanced pulmonary tuberculosis. Given 17 injections beginning March 17. Condition stationary.

Case XXXVII.—D. W., admitted December 22, having been ill 1 year. Diagnosis: second stage pulmonary tuberculosis. Given 30 injections beginning March 19. Improved decidedly.

Case XXXVIII.—B. S., admitted January 18, having been ill 1 year. Diagnosis: chronic catarrhal pulmonary tuberculosis, early I. Given 16 injections beginning March 17. Unimproved. Treatment discontinued.

Case XXXIX.—M. S., admitted August 28, having been ill 1 year. Diagnosis: incipient pulmonary tuberculosis. Given 30 injections beginning February 15. Slight improvement.

Case XL.—O. L., admitted August 1, having been ill 5 years. Diagnosis: moderately advanced pulmonary tuberculosis. Given 30 injections beginning February 15. Unimproved.

Case XLI.—E. B., admitted December 30, having been ill 5 months. Diagnosis: incipient pulmonary tuberculosis. Given 45 injections beginning February 11. Unimproved. "Examination of urine after treatment showed heavy traces of albumin. Urine normal before treatment."

Case XLII.—G. C., admitted September 17, having been ill 9 years. Diagnosis: chronic catarrhal pulmonary tuberculosis, second stage. Given 30 injections beginning March 19. Improved. Patient took tuberculin treatment for 2 months.

Case XLIII.—R. S., admitted February 17, having been ill 1 year. Diagnosis: chronic catarrhal pulmonary tuberculosis, second stage. Given 30 injections. Improved.

Case XLIV.—E. J., admitted March 4, having been ill 2 years. Diagnosis: chronic catarrhal pulmonary tuberculosis, third stage. Given 60 injections beginning March 9. Unimproved.

The foregoing fourteen cases were all given the succinnimide intramuscularly. In my own cases salivation was observed in one patient after the ninth injection, in one after the seventh and again after the third, in one after the sixth and again after the fourth, and in one after the seventh and again after the fourth injection.

It may be claimed that these cases are not sufficient to determine the value of any method of treatment in tuberculosis, and that it is not fair to judge of the value of any method by the results in the classes of cases here presented. In reply, I will state that I am not here attempting to establish the value of mercury in tuberculosis. That is a different question from the one heading this paper. These cases, herein reported, have, however, a decided bearing on the question as to whether or not mercury is a specific in tuberculosis, and I would again refer to the corollaries I formulated in the

earlier part of this paper. If mercury is a specific in tuberculosis generally it is a specific in pulmonary tuberculosis, and, conversely, if it is not a specific in pulmonary tuberculosis it certainly is not a specific in any other form of tuberculosis.

Furthermore, I will say that it is certainly not fair to judge of the value of any method of treatment in tuberculosis from the results in incipient cases. This assertion is more than fortified by the favorable results attained in even advanced cases under competent sanitarium management.

The limits of this article would not justify any detailed reference to the opinions of others as shown in recent reports. Suffice it to say that, in this as in most methods of treatment, the personal equation is evidently a very prominent one. A majority of clinicians do not meet with the same results as the originator.

My conclusions may be formulated as follows:

1. Mercury is in no sense of the word a specific in pulmonary tuberculosis. It does not fulfil a single one of the requisite conditions (discussed in the early part of this paper).

2. Mercury is of value in certain cases of pulmonary tuberculosis.

3. With the exception of those cases definitely complicated with syphilis, I have not yet been able to determine in what cases or classes of cases it can be expected to be beneficial. My impression is that it is in those cases in which a luetic taint cannot be excluded with reasonable degree of certainty. It may be of value also in those cases more readily responding to suggestive influence.

4. In a majority of cases the improvement is principally subjective, and there is little or but very slow improvement in the physical signs. In no case have I observed any such specially remarkable clearing up of the physical signs as have been reported by Wright.

5. In those cases in which a luetic taint cannot be definitely or with reasonable probability determined, the improvement is due probably to a simple tonic effect of the mercury, or to its beneficial action on the digestive functions, or to the psychic effect on the patient.

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Gangrene of the Lung.—Tomás Hernandez describes two cases of this affection that closely resembled pulmonary tuberculosis during several days. The second case was undoubtedly due to embolism or thrombosis of one of the smaller pulmonary vessels, with subsequent gangrene. Both cases were cured, the cure being almost spontaneous.—*Crónica Médico-Quirúrgica de la Habana.*

HYPERCHLORHYDRIA AND ABDOMINAL AND PELVIC SURGERY.*

By J. H. CARSTENS, M.D.,

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If we ask ourselves, What is hyperchlorhydria? we will find it a difficult question to answer, because it varies so much in different individuals. One person will complain and be distressed by an excess of acids, while another with 50 per cent. more will have no trouble whatever. Now, it is stated that people differ by nationalities; for instance, the Americans are troubled more, while the Germans, with a far higher percentage of acidity, will complain comparatively little. This might make us believe that perhaps the mode of living, the diet, or climatic conditions have something to do with it. I have often wondered myself if the excessive taking of salt, from which, undoubtedly, hydrochloric acid is derived, would not be a cause of hyperchlorhydria, and still, so far, I have not been able to show it to my own satisfaction. Naturally, I do not see so many cases as the specialists of the diseases of the digestive tract.

Having in the course of years seen many cases disappear, and apparently be cured after an operation, there has gradually been fixed in my mind the idea that many—in fact, I should say most—cases of hyperchlorhydria are due to reflex action, and that especially pathological conditions in the abdominal and pelvic cavity are the exciting cause of this condition. A short report of a few cases might impress this better.

Case I. *Pus Tube and Hyperchlorhydria.*—Mrs. S. A. C., age 25, mother of three children. With the last child she had puerperal sepsis involving the left tube. This continued to trouble her for more than a year. Adhesions would be torn and leakage would take place. She would have a mild attack of pelvic peritonitis, laying her up for a few days, and sometimes two or three weeks. I was called in consultation and advised removal of the tube. Went to Harper Hospital and I operated on her March 25th, 1908. She made a complete recovery, and all her stomach troubles disappeared. This woman was evidently suffering from a mild form of sepsis; it was a mixed infection, streptococcus and colon bacillus. (The former were evidently not virulent, otherwise she would have had more severe attacks.) Although the septic condition may have been the cause of her trouble, I believe it was the adhesion and irritation resulting therefrom that caused her distress.

Case II. *Floating Kidney and Hyperchlorhydria.*—A. J., age 35, mother of four children; suffering from hyperchlorhydria and flatulency. On examination I found the right kidney was loose, coming down as far as the appendicular region. I considered that at the bottom of her troubles. I fixed the kidney as near to its normal position as possible March 28, 1908, and had the pleasure of seeing all her symptoms disappear. It is hardly necessary to say that this loose kidney was caused by a fall, and that she was not suffering from general abdominal ptosis. In the latter case I do not operate on the kidney as a rule, because it does no good; it is only one factor in the general relaxed condition of the abdominal viscera.

Case III. *Appendicitis and Hyperchlorhydria.*—

*Read at the meeting of the American Gastro-Enterological Association, June 6, 1910.

Mrs. G. L., aged 31, widow. Has to struggle along taking care of her children. For several years had several slight attacks of appendicular colic. As they were becoming more severe, I was consulted and advised removal of the appendix. She seemed to worry more about her stomach trouble than the appendix, but I thought both might be relieved by an operation. Went to Harper Hospital May 27, 1909, and I removed the appendix, which was adherent and club-shaped. Before she left the hospital she was already much improved, and when I heard from her, six months afterwards, she was in good health. I have seen a good many cases of so-called appendicular catarrh causing various kinds of digestive disturbances and emaciation, that have been promptly relieved by the removal of the appendix.

Case IV. *Gallstones and Hyperchlorhydria.*—Mrs. W. P., age 53. Menopause, no pelvic trouble, but suffering from attacks of biliary colic every little while; and the most excessive acidity of the stomach. I operated on her August 27, 1908, removing eight large stones. All her symptoms disappeared and she is now the picture of health. In my experience, gallstones are frequently—I might say, are the most frequent—causes of hyperacidity, and I most carefully examine such cases and try to make a diagnosis of gallstones.

Case V. *Vaginal Hysterectomy and Hyperchlorhydria.*—Mrs. A. G., age 38, mother of one child 17 years old. Has had chronic pelvic inflammation and retroversion for years with procedentia —the latter was increasing rapidly. With everything adherent and bound down, I decided the removal of the uterus, tubes, and ovaries per vagina would be the least dangerous operation, and at the same time offer the best chance for a complete cure. This was performed December 1, 1909. It is wonderful how rapidly she improved in health. The stomach troubles disappeared, and she says she feels better than she has for fifteen years.

Case VI. *Dysmenorrhea and Hyperchlorhydria.* —Miss C. B., age 20, has been a terrible sufferer from painful menstruation ever since it started, five years ago. She would be laid up one and two days every month. The lady for whom she worked brought her to me. I found the uterus anteflexed, cervix small and stenosed. I inserted a stem pessary January 20, 1910, left it in four months. Absolutely complete relief of the dysmenorrhea. She called on me the other day, as she was going to leave the city, to thank me, and called my attention to the wonderful change in her stomach. All the hyperchlorhydria had disappeared, she could eat all kinds of food, and had gained in weight. This was a new experience to me, and I therefore put this case in the list, although the operation was not an abdominal one.

Case VII. *Gallstones, Appendicitis, and Hyperchlorhydria.*—Mrs. J. R. P., age 57, has suffered from hyperchlorhydria for many years. Had consulted many specialists, been to Carlsbad and various other resorts of this kind, without much benefit. For about six years symptoms of gallstones developed; she would have slight attacks of colic, and it is only a year or two that a correct diagnosis was made. During this time also pain developed in the region of the appendix, and it was a question whether the appendix or the gallstones caused her trouble. I suggested that an operation be made and the appendix removed, as well as the gallstones. She was operated upon April 28, 1910. Six large stones half an inch in diameter, faceted, were removed, and the gall bladder drained. The appendix was found thick and hypertrophied, and back of the cecum, firmly adherent, and was removed with great difficulty. However, she made an uninterrupted recovery and returned home in three weeks. She says she feels like a new woman. All her stomach and other symptoms have disappeared and she looks 20 years younger.

Cases of this kind I could multiply many fold, but have just selected typical cases of each variety of trouble. What do they show? Adhesions in the peritoneum which interfere with peristalsis, or with movements in certain positions of the body they pull and tug on certain organs, and thus irritate, and as all these are intimately associated with the solar plexus, it seems to me that irritation of the solar plexus, no matter how produced, will cause many cases of hyperchlorhydria. In other words, I believe that hyperchlorhydria, in the vast majority of cases, is due to reflex action and irritation of the sympathetic nervous system.

You will notice I say nothing about gastric or duodenal ulcers. I have had little experience in those, but believe that they also, in some cases, cause hyperchlorhydria by producing inflammatory and congested conditions of the mucous membrane directly, hence hypersecretions of all kinds. Many a time I have given my friends who are specialists in gastroenterology a jocose dig, saying that they treated cases for us without knowing what was at the bottom of the trouble. Of course, I do the same thing, and so does every physician. It is absolutely impossible always to find out the origin of the trouble.

What I have stated, and here want to repeat, is that cases of hyperchlorhydria that are not relieved by the ordinary treatment in the course of a reasonable time, should be subjected to an exploratory abdominal section, so that an exact diagnosis can be made. Sometimes the operation may fail to reveal the trouble, but I think in the vast majority of cases it will be found that there are adhesions of gall bladder, stomach, intestines, appendix, and pelvic organs that by reflex action produce that peculiar condition that we call hyperchlorhydria. Operations indiscriminately made use of I discourage as much as any of you, but I think that the stomach specialist should make more frequent use of abdominal surgery, which is now so free from danger, in obscure troubles of the digestive tract.

In conclusion I would say:

1. Hyperchlorhydria varies in different individuals.
2. Hyperchlorhydria is a symptom, not a disease.
3. Hyperchlorhydria is most frequently caused by reflex action.
4. Hyperchlorhydria is probably due to irritation of the sympathetic nervous system.
5. Persistent hyperchlorhydria should be cleared up by an exploratory abdominal section.

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IS KOCH'S BACILLUS THE CAUSE OF CANCER?

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In a previous paper (*New York Medical Journal*, Dec. 19, 1908) I presented evidence sufficiently conclusive, I believed, to condemn the tubercle bacillus as the cause of malignant growths. This evidence was derived from a study of tuberculosis and can-

cer in their clinical and pathological aspects. There is such an embarassment of riches in the way of evidence pointing like finger boards to the truth of this theory of cancer, that the necessity for brevity made the article little more than an outline. Whether my selection from the wealth of evidence was not the most judicious or whether the presentation of this evidence was at fault or whether for some other reason, the paper with a few exceptions has apparently attracted no attention. Feeling sure that a hypothesis that furnishes an explanation of more of the unsolved problems of cancer than any yet suggested and against which I, at least, cannot find a single contradictory fact after more than two years of investigation, only lacks verification experimentally in order to be accepted, I am constrained to present additional reasons for my belief and also offer some suggestions which will, I hope, hasten this verification.

The fundamental conception in this hypothesis is that the tubercle bacillus, by reason of its well-known effect of causing normal tissue cells to take on the habit of proliferation, supplies the missing factor in the etiology of cancer. In the young or robust this cell proliferation is normally checked by a defensive reaction on the part of the body, and a "tubercle" is formed by the encapsulation of the minute colony of proliferating cells. But if this cell proliferation is set up in one in whom the defensive reaction is delayed or inadequate, the encapsulation does not take place and the proliferation continues with the result of its becoming a malignant growth.

Bashford says "what is understood by the malignancy of a tumor is but a manifestation of the power of growth: a conclusion to which Apolant and Ehrlich have recently given confirmation." Adami says "as the consequence of the primary stimulus there develops a colony of cells, all tending to proliferate. Thus is acquired the 'habit of growth,' the factor common to all tumors. It is believed that whatever the origin of the tumor proper, however it is started, what makes the tumor is the assumption by the primary cells of that tumor of the habit of growth in place of the habit of work." There we have the cancer problem concisely stated by the best authorities of to-day. Is not the tubercle bacillus as a "primary stimulus" the agency above all others capable of developing "a colony of cells all tending to proliferate"? Permit me to recall some text-book facts in the histogenesis of the tubercle. Baumgarten found that the fixed cells of the tissue took a much more prominent part in the formation of tubercles than had generally been supposed. He found that the first changes in the tissue were coincident with the appearance of the bacilli. Under the influence of these the fixed cells, whether gland cells, endothelial cells of blood-vessels or lymphatics, or connective tissue cells, became enlarged, pale, and finely granular with a tendency to proliferate. McCallum (Modern Medicine) speaking of this tendency to proliferate says it is "a proliferation analagous to the healing process, but in this instance quite disproportionately intense when compared to the injury done to the tissues. Apparently there is a continuous injury or irritation which maintains the proliferation." I wish to emphasize the fact that the nucleus of the tubercle is made up of a "colony of cells, all tending to proliferate." The nucleus of every tubercle possesses in potentiality the requirements for a malignant growth. But this colony of growing cells is checked in its further growth by encapsulation. The elements going to the formation of the capsule are apparently derived from the lymph rather than the blood, for they consist of a fibrillar network of coagulated lymph in which are enmeshed lymph cells. McCallum, in order to explain the continued tendency to proliferate, assumes a hypothetical "continuous injury or irritation." This is unnecessary; the cells, in continuing to multiply as long as nourishment is furnished them, are simply obeying the tendency to proliferate inherited from the mother cell. Inasmuch as the nucleus controls the cell in the matter of reproducing itself as well as functioning, the tendency to reproduction resulting from the presence of the bacillus must lie in its effect upon the nucleus. The facts that the bacilli are found "lying near the nucleus" and that nuclein containing nitrogen and phosphorus in assimilable form is the natural pabulum of the bacilli point to the same conclusion. But, whatever the *modus operandi*, it is an accepted fact that the tubercle bacillus has the property of causing normal fixed tissue cells to give origin to a colony of cells with the tendency to proliferate. Place this fact in juxtaposition with Adami's concise statement of the cancer problem given above and note how completely the tubercle bacillus fulfills the requirements of his "primary stimulus." If evidence of the presence or previous presence of the tubercle bacillus is found in such a large percentage of bodies at autopsy, regardless of the cause of death (98 per cent, according to Nageli), and we have a chronic disease like cancer with no known cause, it is certainly wise to suspect the tubercle bacillus as this cause. This should especially be true if clinically the two present numerous analogies and contrasts which are not accounted for by any other theory, but which analogies and contrasts are not only consistent with this theory, but satisfactorily explained by it. For example, take the contrast in the matter of age incidence in tuberculosis and cancer and note how it accounts for the fact that one is essentially a disease of the first half of life, while the other is essentially a disease of the last half of life. Or take another contrast: mortality from cancer is increasing while mortality from tuberculosis is decreasing. This theory predicates just this state of affairs. In the State of New York the number of deaths from pulmonary tuberculosis for 1909 was 13,948 as against 14,316 for the year 1908, while the cancer mortality was 7,034 for 1909 against 6,534 for 1908. In other words the decrease from phthisis was 368, but the increase from cancer was 500. Numerous theories have been suggested to account for the increase of cancer, but none of them stand the test. If this theory of the etiology of cancer had nothing else to recommend it than that it does explain satisfactorily the increase in the disease, this alone should compel respect for it.

It is evident that the larger the colony of proliferating cells becomes the more difficult it will be to encapsulate it and convert it into a quiescent tubercle. If this cell proliferation is set up in one in whom the defensive reaction is delayed or inadequate, encapsulation is lacking and the proliferation continues, and a malignant growth results. The effort to encapsulate these infiltrating cells is still kept up, but is abortive and only serves to furnish nutrition to these proliferating cells, which are devoid of any altruistic property, but are endowed with the power of reproduction. It happens that lymph is the normal food of cells, and the laudable

but futile effort to encapsulate them brings this food to the colony, especially to the outer concentric layers. The amount of this food supply would depend upon the efficiency of the lymphatic system. Herein lies the explanation of the well-known fact that the growth of cancer in the young is more rapid than in the old. Bashford says "the influence of age is active in relation to the origin of cancer, but not in relation to its continuation: for cancer can be propagated almost better in young than in old animals." Speaking of transmitted cancer, Bashford says "the tissues of the new hosts do not acquire any cancerous properties: they merely react to the cancer cells and supply them with nourishment." The animal body has learned to protect itself against the growing colony of cells by encapsulating it and converting it into a harmless tubercle, harmless for the time as contrasted with an infiltrating malignant growth, which it would otherwise become without such encapsulation. That this encapsulation is accomplished by the lymph is proved by the experiment of producing tubercles in the cornea, a tissue devoid of blood vessels. We know that, in later adult life and in advanced life, the lymphatic glands are usually somewhat atrophied. This corresponds to the age incidence of malignant growths. Is it only a coincidence?

In proportion as we study infection by Koch's bacillus from the point of view of the biologist will a clear comprehension be had, not only of the phase called "tuberculosis" and "scrofula," but the third phase which manifests itself as "cancer." While there may be difference of opinion regarding the mode of entrance of the bacillus into the body, there is unanimity regarding its mode of exit. Its continuance as a species clearly depends upon the fact that it is expelled from the lungs in enormous numbers with the prodigality nature commonly employs in order to insure the continuance of the species. The normal habitat in the body of the tubercle bacillus is the lungs, in which it finds suitable conditions for its multiplication and its natural exit. When found in other organs or tissues than the lungs or lymph glands, it is accidental or aberrant, for tuberculosis of such vital tissues as the meninges of the brain, for example, has no survival value for the parasite; indeed in encompassing the death of its host, it thwarts the interests of the parasite, for the longer the host lives and disseminates the germinating matter of the parasite, the better it is for the parasite as a species. We must get away from the idea that the parasite is always trying to kill its host. In a condition of perfect parasitism the host is not even discommoded by the parasite. The very existence of parasitism means that through the operation of the laws of heredity and adaptation there has evolved a *modus vivendi* that permits both host and parasite to live in this relation. Tubercle formation is neither the product of the tubercle bacillus alone, nor of the host alone. It is the resultant of the interaction of both these organisms, and it contributes, we may be sure, to the continuation of both as species. Let us try to understand how this specific formation, the tubercle, subserves the interest of both host and parasite. Koch, in his original paper, announcing his discovery characterized tuberculosis as "exquisitely infectious." Like every other highly infectious disease we should expect it to be a disease of childhood so far as "catching it" is concerned. Theobald Smith says "tubercle bacilli do not differ materially from other infectious agents who find their easiest prey among the young."

In *Progressive Medicine* for March, 1908, one may read: "In older children and in adults, a reaction is obtained in a very high percentage of the cases, as would be expected from the great frequency of tuberculosis at this period (97 per cent, according to Burckhardt)." Hamburger of Germany maintains that tuberculosis is a children's disease in the ordinary acceptation of the term. Just as nearly every man has had measles once during his life and usually during childhood, so almost every man has acquired tuberculosis once during his life and in most cases during childhood. In researches carried on with Dr. Monti, he has found a frequency of tuberculosis of over 90 per cent at the age of puberty. Startling as these findings are we have no reason to doubt them, for they have been confirmed by autopsy statistics. It is evident that not over ten per cent of those infected are destined to die of tuberculosis of the lungs, and these deaths will occur mainly between the age of fifteen and forty-five. If these 90 per cent and more of infected children succumbed to pulmonary tuberculosis there would soon be no human race. Fortunately for the human race, and also for the bacillus as a species, the bacilli are usually delayed in the lymph glands, or, if reaching the lungs, are tied up there in tubercles. The bacilli are thus rendered latent until the child has reached the age for having children of its own. "The general rule in cases of children is that the lymph nodes are primarily attacked and that the lungs are infected from them" (Harbitz, quoted by Theobald Smith). Tubercle formation, therefore, has survival value for the parasite by bringing about a latent condition, and thus favoring its transmission to the next generation. The period from 15 to 45 years of age is the period of greatest morbidity as well as mortality from tuberculosis of the lungs, and this coincides exactly with the period when children are being born to parents and are in most intimate contact with them.

Scrofula was considered a separate disease entity until proved to be a phase of tuberculous infection. The body is abundantly supplied with lymphatic glands, which nature selects as least vital and best adapted to detain the bacilli whose ultimate destination is the lungs, until the infected child itself has reached the age for children of its own. Speaking generally, scrofula is the usual manifestation of infection with Koch's bacillus up to the age of puberty: pulmonary tuberculosis from puberty to the forty-fifth year; and cancer after the forty-fifth year. In youth and early adult life the lymph glands are pink due to functional activity and freedom from foreign matter, while in later adult life they are "somewhat atrophied and darker in color." This would imply a decreased efficiency so that the prompt and vigorous reaction causing the formation of the tubercle does not take place, and the colony of proliferating cells continues to grow. An effort to surround these multiplying cells and encapsulate them does occur, but this is now futile and the lymph and lymph cells, sent by the body for this purpose as a protective reaction, unfortunately become the food for the continued growth of these infiltrating cells. Councilman says "the characteristic of cancerous growths is that they are capable of attracting to themselves a supply of nourishment at the expense of the surrounding tissue." This seeming power to "attract" nourishment is nothing but the protective reaction against these invading and infiltrating cells with the purpose of hedging them in. Beaston says "Whatever the

origin of the first cell or cells that start a carcinoma, the relation of their numerous offspring to the tissues invaded is that of a parasite in the sense that they get their nourishment from them."

There is no mystery about cancer if we will only open our eyes and see. What is needed is not so much new facts as the correct interpretation of well-known facts. The experimental production of malignant growths by means of the tubercle bacillus is certain to be accomplished soon, and in order to hasten this event I am going to offer some suggestions to the laboratory workers. I am not a laboratory worker myself but a clinician and student of laboratory findings. Theobald Smith, to whom I am much indebted for first directing my attention to the importance of the study of "tuberculosis" from the standpoint of the biologist, has said: "Experimental medicine and clinical medicine must work hand in hand, with the closest cooperation, if one does not wish to disappear in pitfalls unknown to the other."

The experimental verification of this theory will be accomplished by imitating the natural conditions as closely as possible. A species of animal which is not very susceptible to tuberculosis of the lungs should be selected. This would rule out at once guinea-pigs and rabbits, and would point to the canine species. Furthermore spontaneous cancers have been found in dogs but not in rabbits. I cannot speak regarding guinea-pigs, but I should scarcely expect that they would differ from rabbits in this respect. The individual dog should be preferably an old dog and emaciated rather than fat. A very few bacilli should be injected into the general circulation through a vein of the ear. The aim now should be to cause one or more of these bacilli to find lodgement in a fixed cell or cells of tissue which is poorly supplied with lymph. Organs undergoing atrophy from cessation of function, as the mammary gland and the uterus, furnish such tissue with diminished lymph supply. In the absence or inaccessibility of such organs, particular spots should be selected in which the lymph current is known to be away from rather than toward, such as the tip or edge of the tongue or ear, rather than the body or center, or the cervix, rather than the fundus of the uterus. This would also suggest the nipple, rather than the mammary gland. It has been shown experimentally that resected or sected lymphatic trunks can never be traced across scar tissue and their walls are found in a thickened and obliterated condition. This fact could be taken advantage of by making a cut around the selected area and permitting it to heal, the scare effectually obstructing the flow of lymph to the enclosed area. Very slight pressure serves to stop the slow lymph current without stopping the blood current. It is this pressure rather than "irritation" that explains the predisposing effect of gallstones to cancer, or the pipe in epithelioma of the lower lip, likewise the cud in the mouth of the betel nut chewer. The practical application of these suggestions can be trusted to the laboratories. I will only add that an old mother dog with pendant mammary glands and nipples, upon which a gentle pressure can be applied by an elastic bandage or harness, appears to me an especially promising animal.

The natural question occurs: How does a malignant growth as a manifestation of tuberculous infection subserve either the interest of host or parasite? I do not think that it has any survival value for either and in this is like tuberculous meningitis, which is purely accidental or aberrant. The tubercle bacilli would presumably retain their property of setting up cell proliferation indefinitely, but the other factor in the formation of the tubercle, the reaction of the host, is lacking. An ineffectual reaction does occur, but this only furnishes the needed nourishment to the growing colony. When this theory is verified it will appear incomprehensible that it remained so long undiscovered. Speaking of Harvey's teacher, Dr. Osler said: "How Fabricius, a man who did such work—how a teacher of such wide learning and such remarkable powers of observation, could have been so blinded as to overlook the truth which was tumbling out, so to speak, at his feet, is to us incomprehensible. But his eyes were sealed, and to him, as to his great predecessors in the chair (at Padua) clear vision was denied." We of to-day are, of course, just as blind to obvious truth as were Harvey's predecessors and contemporaries, but we pride ourselves on being more receptive to new truth.

1156 Sutter Street.

OBSERVATIONS ON THE PATHOLOGY OF MULTIPLE ADENOMATA OF THE RECTUM.*

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In presenting the results of my recorded observations on two interesting cases of rectal, multiple adenomata, it is my hope that others may be sufficiently interested to record and report their own cases; and that our admittedly scanty information on the pathology of this unusual and serious diseased condition may be materially added to.

It is my impression that approximately 46 per cent. of recorded cases of these adenomata terminate in cancer and that the ultimate results are usually fatal; yet the scientific investigation of these tumors has been so comparatively rare and isolated that our actual knowledge of the causes and conditions is lamentably meagre. It may be said that its pathology is not at all established.

Location.—According to Lichtenstein the relative number of instances of these tumors in the different parts of the intestinal tract is indicated in the following arrangement (the most frequent site of occurrence being in the rectum): Rectum, ileum, colon, ileocecal valve and duodenum.

Malignant degeneration naturally affects the parts named in about the same comparative order of distribution, with the exception of the ileum; this latter being less exposed to insult by reason of the fluid condition of the feces in this region.

It may be noted that these tumors usually manifest themselves in patients of between 25 and 35 years of age, and the malignant degeneration consequently occurs much earlier than cancer usually occurs.

About 50 per cent. of the cases collected from the literature were under 35 years of age. A brief summary of the current theories on the origin of these tumors and their transition into carcinoma may be of interest. Hauser, the chief representative of one view, believes that the polypoid excrescences originate through a primary proliferation of the mucous glands leading to a degeneration of the glandular epithelia, expressed by a loss of physio-

*Read before the American Proctologic Society, at St. Louis, Mo., June 7, 1910.

logic function and increased affinity for the stain, differing in no way from cancerous degeneration of the epithelium. The growth is not unlimited, however, and the degeneration is assumedly likely to occur at a time when the form of the glands is not yet modified in any way and no changes of any kind are present in the connective tissue. Meyer believes that the early stage of the process should be sought in the connective tissue. He regards the entire process of epithelial change as secondary, and holds that the phenomenon of multiple polypoid formation can be explained only by a congenital tissue malformation of the bowel wall. This is the primary factor and involves the mucosa and submucosa, and the visible epithelial change should be interpreted as the result of inflammatory stimulus rather than in the sense of a loss or cessation of the physiologic function.

Lebert and Schwab likewise regard the connective tissue proliferation as primary, but they believe that this is determined by chronic irritation. In the cases examined by them the glandular tissue was found to participate in no way in the polypoid formation, the process starting directly from a new formation of vessels, for which an inflammatory process causing a permanent irritation of the mucosa is held responsible.

Pathological Findings.—Several tumors were removed from each case from the smallest size to the largest. The smaller tumors (that is those that had recently sprung up) were shown to be composed mostly of granulation-tissue which showed numerous small blood vessels and interstitial fibroblasts. The entire structure is infiltrated by an acute exudate of leucocytes and serum, showing an acute inflammatory process. At the base of the polyp are a few slightly hypertrophied but rather typical glands. The surface epithelium over the polyp shows complete desquamation. The tumor appears to be composed almost entirely of an inflammatory granulation tissue.

Diagnosis.—The section through the large polyps taken from the same individual as the above but at an advanced stage shows a growth composed of adenomatous glandular proliferation. There is a narrow peripheral margin in some places about the growth which shows granulation tissue. The greater part of the growth about the periphery is composed of simple adenomatous glandular proliferation. Throughout the polyp there is an exudate of serum and leucocytes, the latter showing a predominating number of eosinophiles. There is complete desquamation of the superficial epithelium. Some of the glands in the adenoma appear typical but the greater number are very much larger than those of the rectal mucosa and are in a condition of marked hypersecretion.

These two reports are selected as being typical of what was found in the small and in the well developed tumors, and I believe go to show an inflammatory starting point, with a later proliferation of glandular tissue, which corresponds, to a great extent, with the findings of Lebert and Schwab. Much more might have been learned had we been fortunate enough to have secured a postmortem on the patient who died, as I am confident some of the tumors in the upper part of the sigmoid would have shown carcinomatous degeneration. Then, again, a section through a growth down into the bowel might have thrown some further light on the subject. However, I hope to continue this investigation when another opportunity offers. Granting, then, that these tumors are of inflammatory origin, the next question that interests us is, Why do those tumors undergo carcinomatous degeneration? Adami's explanation seems plausible. Adami says in substance:

We now recognize definitely among the blastomas some change in the biological properties of particular cells as an essential for neoplasm proper. We recognize that there must be an inherent and permanent alteration in the properties of the cells that are to constitute the neoplasm. Biologists, however, are coming to see that *mutations in animals and plants are not chance occurrences.*

It must be recognized that alterations in environment favor frequency of mutation.

All recognize change in cell properties, but, so far, no one has laid down a rule or principle as to the underlying influence or stimulus which brings about the change.

From study of the life history of tumors of differing type this principle seems to be that change is consequent upon long continuance in any state in which, through cell displacement, vegetable activity is possible, while functional activity is inhibited. It may be now a grade of chronic inflammation with accompanying arrests of function without arrest of nutrition, a state which may be of either mechanical or microbic origin.

At another time it may be a senescent exhaustion of the functional capacities of the cell that favors the assumption by that cell of vegetation to the exclusion of functional activities, an assumption accompanied by alteration in the histological character of the cell. The more we study the life histories of the different orders of tumors, the more we investigate the circumstances associated with the development of different examples of one particular order of tumor (such as the cancerous), the more it is impressed upon us that there is no specific causative agent, and that a multiplicity of agents induces a particular grade of cell reaction. All these causes may lead to a modification in the cell properties, a modification that is not transient but permanent and conveyed to subsequent cell generations.

Case I. Mrs. L. R., 39 years, married and the mother of several children.

She was perfectly well up to four years ago, when she had an attack of diarrhea, which was ushered in by bearing-down pain in the rectum with an intense desire to move the bowels—so much so that she would sit in the toilet for long periods, straining, without getting much relief. At times the desire to move the bowels became so imperative that she would not have time to reach the toilet and would soil her clothes. At first she had fairly good movements, mixed with blood and mucus. Later, she passed large quantities of blood mixed with mucus. This condition lasted for about a month and gradually abated. Ever since that time her bowels have been irregular. At times she would be comfortable, but from time to time would suffer acute exacerbation.

She went along in this way for two years before seeking medical aid, and was then treated by different physicians, who did not examine her but used drugs, with indifferent success.

One year ago she was examined at one of the hospitals in New York and was told she had tumors and an operation was advised and consented to. In November, 1909, several tumors were removed by cautery, but she suffered such intense pain after the

operation that she did not return for further treatment, considering herself benefited by the operation, but dreading repetition of the pain. In February, 1910, she drifted into my clinic at St. Bartholomew's. She had then lost considerable weight, was very anemic and poorly nourished.

The rectum and lower sigmoid were found studded with polypoid sessile growths varying in size from that of grape seed to that of a cherry. The examination also disclosed numerous ulcers of the mucous membrane, their size varying from that of a pin head to one-half an inch in diameter. The remainder of the membrane was granular, bled easily, and was covered with mucus, blood, and pus. The upper portion of the sigmoid was fairly healthy.

The treatment advised consisted of an enema of cold, normal salt solution morning and evening, with an occasional additional injection of 25 per cent. solution of aqueous fl. ext. of krameria.

She was kept under observation, and still visits the clinic twice each week, the improvement being marked after the first treatment, which occasioned the patient so little inconvenience that she has gladly followed the prescribed course and is regular in reporting. The improvement has been steady until, at the present time, all ulcerations have disappeared, and the growths have been gradually absorbed until but one remains.

Several polypi were removed for pathological examination, the results of which have been given in the condensed pathological report of these cases.

Case II. Miss S., age 35, dressmaker. Father died of some bowel trouble. Elder sister suffers from diarrhea, with passages of blood and mucus, and was examined at one of the hospitals and told that she had polypoid growth of the rectum. The patient related a history of chronic constipation from childhood, but had been fairly healthy up to about five months before I saw her. At that time she began to suffer from severe attacks of diarrhoea with passages of blood and mucus, these attacks continuing up to the time that I was consulted. Up to a month prior to that time she absolutely refused to be treated by a physician, until her family finally persuaded her to seek medical aid, and she consulted their family physician, Dr. White, who advised immediate removal to the hospital, which she absolutely refused. Four weeks later she consented to enter the Polyclinic, and my services were asked by Dr. White. When I first saw her she was so emaciated that it seemed to me improbable that she could live more than a few days.

Proctoscopic examination showed that the rectum and sigmoid were studded with growths of all sizes and the mucous membrane ulcerated and covered with bloody pus.

I at first ordered astringent injections, but found that they could be given only with difficulty and that they were retained but a short time. The leaky condition of the bowels was such that partial operations constantly occurred at intervals as short as five or ten minutes and the patient was necessarily upon a bed-pan all of the time. I sugested operation for an artificial anus above the growth as the only hope of saving her life. At the same time I told her people that her survival of the operation was doubtful; but it was nevertheless agreed to by relatives and patient as her only possible chance.

An incision was made to left of rectus muscle above the umbilicus and the bowel explored rapidly. Palpation established the fact that the sigmoid and a portion of the descending colon were filled with growths. As we had to twice suspend operation to revive the patient, further exploration was not deemed wise. We therefore brought out a portion of the transverse colon and rapidly closed the wound—the entire operation lasting only ten minutes, including the time required for resuscitation.

The bowel was opened in forty-eight hours after the operation and from that time on the patient was artificially fed by passing tube through transverse colon, as she refused to take nourishment per orem. She seemed to improve for a week or ten days, but gradually sank and died in about three weeks.

It is interesting to note that the wound healed by primary union and no complications followed operation.

The patient died of inanition. An autopsy was earnestly sought, but her relatives refused. I am confident that this is one of those cases where tumors high up in the sigmoid had undergone carcinomatous degeneration. It is unfortunate that autopsy was refused.

The history of both cases points to an acute infection, and later the formation of these adenomatous tumors. I have previously reported two cases that underwent carcinomatous degeneration.

58 West Fifty-eighth Street.

The Stimulatory Action of the Oosperm in the Uterus.—J. Oliver presents an elaborate paper on this subject. He believes that no woman who has never menstruated ever becomes pregnant; this in spite of cases reported to the contrary. He says among other things that as long as the uterus is occupied by a product of conception menstruation is held in abeyance, and in the ordinary course of events parturition may be expected at any time between the 260th and 285th day after the date of the cessation of the last menstrual discharge, but without any apparent reason the pregnancy may be more or less abruptly terminated at any time. When, however, it becomes expedient to endeavor to cause the uterus to expel a product of conception which is still actively progressing, the greatest difficulty may be experienced in bringing about this result. The most reliable method is to introduce and leave for a greater or less length of time a solid bougie between the fetal sac and the uterine wall. By this means we so overexcite the uterus that this organ becomes intolerant of and expels its occupants. Here the operating agent imparts nothing to the uterus. An ecbolic is a substance which is supposed to exert such a direct chemical influence upon the pregnant uterus that the latter is thereby induced to expel its contents. There is, however, no known drug which acts thus. All the reputed ecbolics are toxic agents for which the uterus has no peculiar avidity, and when any of these chance to exert what appears to be an ecbolic action, it only influences the uterus indirectly and in virtue of some constitutional derangement which it causes. Ergot is probably, of all chemical agents, the drug which is credited with ecbolic power, but even this drug, when advisedly administered, is powerless to hasten the advent of labor or provoke abortion. It is, moreover, well known that reputed ecbolics sometimes kill the mother without abortion resulting. The anabolic activity of the pregnant uterus cannot be arrested by the administration of any known chemical substance. In conclusion, he ventures the opinion that while the germ mass at all stages of its existence abstracts from the mother all the materials which it requires for its development and growth, yet under normal circumstances the only waste product of the embryo or fetus which the mother is called upon to eliminate is carbon dioxide, because the product of conception until the fetus is mature is endowed with such resynthetizing powers that it is enabled to reassimilate over and over again its own by-products. If this is so—and there is evidence that it is so in the case of the chick in the egg—then no material passes from the embryo or fetus under ordinary circumstances except carbon dioxide, and for this reason the urine of the pregnant woman differs in no essential from that of any adult virgin.—*New York Medical Journal.*

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

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CARDIAC SURGERY.

TEN years ago if a surgeon had stated that he had hopes of operating in the near future for aortic insufficiency or mitral stenosis, or if he had suggested a method of excising the arch of the aorta, his remarks would have been accepted as the exaggerations of a humorist. That a man should calmly and seriously consider such operations not only as possibilities but as probabilities of the near future would have seemed to the surgeon of a decade ago as an utter impossibility. Nevertheless during these first few years of the twentieth century such tremendous advances have been made both experimentally and practically in the spheres of thoracic and vascular surgery that in the July number of the *Annals of Surgery* Alexis Carrel of the Rockefeller Institute for Medical Research not only suggests the probability of intracardiac surgery being an accomplished fact in the near future, but even points out the technique of the various procedures which he believes will be developed in its performance.

A few months ago, when Meltzer and Auer devised their method of intratracheal insufflation as reported in the MEDICAL RECORD, by means of which animals, and more recently human beings, have been kept alive for hours without either active or passive respiratory movements, Carrel took immediate advantage of the work and began a series of experiments upon animals which has convinced him that cardiac surgery is a possibility of the future. After emphasizing the especial need of perfect asepsis required in thoracic surgery, owing to the low resistance offered by the pleura and pericardium to infection, Carrel describes the experiments which he has performed in the realm of cardiac surgery. In considering the surgery of aneurysm of the aorta two factors come into play, the treatment of the aneurysm and the integrity of the circulation during the operation. In the first of these much has already been done, the experiments of Matas and others pointing distinctly to possible methods of removing or curing the aneurysm. The real difficulty lies in the maintenance of the circulation, especially of the blood supply of the brain during the slow and delicate operations. To overcome this Carrel has devised two methods which he has called central and lateral diversion. As described by him "the central diversion consists of tubing the segment of the aorta which is to be resected. The vessel is laid open by a longitudinal incision and a paraffined tube is inserted into its lumen and temporarily fastened. This small operation involves only a short interruption of the circulation. Then the wall of the aorta can be extirpated and replaced while the circulation goes on through the tube. When the operation is completed the tube is removed through a small incision in the wall of the aorta. . . . It is a safe and convenient method for the descending aorta. It can be probably used also for the ascending aorta." The method of lateral diversion is even more daring and proportionally more dangerous. This consists, by means of a paraffined rubber tube or segment of jugular vein preserved in cold storage, in anastomosing the apex of the left ventricle to the descending aorta. This procedure by allowing the blood to reach the brain by a recurrent course upward through the descending aorta, the supply of course being shut off above, permits the complete obliteration of the arch for an indefinite period and the carrying out of any operation desired in this region.

In taking up the subject of intracardiac surgery, Carrel divides the possible operations into three classes: those which do not require hemostasis of the heart, those requiring hemostasis for a very short time, and those which require hemostasis for a longer time and stopping of the heart. In the first class come digital exploration of the auricle or ventricle, dilatation of the mitral valve, or incomplete ventriculectomy. Under the second class are suggested the insertion of tubes into the ventricles or auricles, the cutting of a stenosed mitral or tricuspid valve, or the curettage of endocarditic vegetation. Under the third class the author suggests plastic operations on the cardiac wall, and operations on the coronary arteries such as anastomoses and implantations for the cure of angina pectoris.

The mistake should not be made of inferring that Carrel is now prepared to perform all of these marvelous operations upon suffering humanity. He emphatically states that none of the procedures has as yet attained the technical perfection which warrants its application to the human being, and long and careful investigation will be required before aortic aneurysm and chronic endocarditis will be classed as surgical diseases. What he has done, however, is to place animals in such conditions that if they had suffered from intracardiac or aortic diseases, curative operations could have been performed, and he has shown that the accomplishment of this is not incompatible with life.

EHRLICH'S PREPARATION, NO. 606.

IT is very natural that the announcement of the discovery of an absolute and practically instantaneous cure of syphilis, as claimed by Ehrlich, should have aroused widespread interest among the general public as well as in the medical profession. Indeed, next to that of a specific for cancer, perhaps no discovery would be more welcomed by the laity than that of a cure for lues in any stage or

form and an immediate cure—a cure of syphilis while you wait, as it were. As told by our Berlin correspondent last week, this alleged specific is an arsenical preparation—dioxydiaminoarsenobenzol, to be exact, or dimethyldioxyarsenobenzoldichlorhydrate, to be perhaps more exact. It was obtained, not by accident, but after a long series of experiments and chemical operations, 605 indeed, the final successful product being therefore called 606; it is also called in honor of Ehrlich's assistant, Hata-preparation.

We need not review here the results of the early experiments with this remedy, for they are of a monotonous sameness, the preparation having already been employed in over 2,000 cases with apparent improvement, if not cure, in all. Whether, when the opening chorus of approval has subsided, some unsuccessful experimenters will be found who could not make themselves heard at first, the future will show. It was stated in all the early reports that the remedy had absolutely no bad effect on the human organism. It is, of course, possible—all things are possible, even a safe aeroplane—that a substance may be so poisonous to the protozoan parasite of syphilis, a bit of protoplasm, that it will destroy every one in the human body, yet will spare every cell and tissue of the host, but it is not probable. Atoxyl was thought at first to be innocuous to man while destructive to the trypanosome, but suddenly it was found to cause irremediable blindness, not to mention paralysis and other troubles. Two thousand men in central Europe may have as yet shown no ill effects from the remedy, but experience has taught us that the dangers of a new remedy are not always apparent at first. The dead from tuberculin bear mute witness to this fact.

Already Bohač and Sobotka, two Prague clinicians, raise a warning voice against a too complacent sense of security with regard to this remedy. They report in the *Wiener klinische Wochenschrift*, of July 28, three cases out of fourteen in which "606" was used, in which more or less alarming symptoms arose. In all these there was retention of urine from vesical paralysis, lasting from twelve hours in one case to over nine days in another, and in two of these there was a trace of albumin in the urine; in all three cases there was loss of the patellar and the other usually tested reflexes; in the three there was also complete obstipation; moreover in two rectal tenesmus was most troublesome. The authors note that these symptoms are very like those caused by atoxyl (not referring now to the blindness), a substance also containing, like the Hata-preparation, amidobenzol and arsenic groups. To this report Ehrlich telegraphed an answer published in the same journal for August 4. He does not deny the facts, but says that those to whom samples of the same make as that used by the Prague reporters were sent were unanimous in saying that they observed no such symptoms which proves or disproves nothing.

We cannot use the remedy in this country, for the reason that the Council on Pharmacy and Chemistry has not yet stamped it with its *sumatur*, and also incidentally because few if any samples have been sent out here. That is just as well. Our luetic patients can struggle on with mercury and the iodides for a while longer, and then, if their German fellow sufferers are not paralyzed or blinded and are found not to relapse, the manufacturers of this already patented remedy will see to it that the American wants are fully supplied at a fixed rate per phial.

Infant Mortality.

One of the most significant of the many phases of the world-wide movement of preventive medicine is the recent organization of the American Association for Study and Prevention of Infant Mortality. Founded as the result of a conference held last year at New Haven, this association will have its first meeting next November in Baltimore. The preparation for this meeting and the efforts that are to be made to interest the public and to secure its cooperation bid fair to make this organization a powerful factor in the modern struggle against early mortality. So far as the general public is concerned, interest in this subject is usually awakened during the summer months, when the death rate among infants reaches its highest point. Two factors are usually blamed for this increase: the prolonged hot weather and an impure milk supply. There can be no doubt that these are important exciting causes, but they are not the main and fundamental causes upon which the appalling slaughter of the innocents depends. The important factors which are either overlooked or entirely ignored are the evils of inherited and acquired disease, failure of maternal nursing, ignorance in the proper care of infants and in the management of their diet, frequent childbearing, and the host of evils that are included in the term poverty, chiefly overcrowding and wretched housing conditions. The efforts of municipal health authorities have properly been directed toward safeguarding the milk supply, and these efforts should be continued with renewed vigor. But attention to the milk should not divert one from the needs of the child. Similarly too great an emphasis is placed upon the hot weather as a cause of increased infant mortality. By lowering resistance in infants already debilitated by inherited or acquired disease or by insufficient or inappropriate diet, it operates somewhat in the same manner as the rigors of winter increase the death rate among the aged. But it cannot be too strongly affirmed that the problem of lowering the infant mortality is one not for the summer alone, but for the entire year. Its solution presents to practical sociologists an opportunity for planning and carrying on a comprehensive campaign for improving the condition of the poor. Not until this campaign has effected its object will the efforts of physicians succeed in markedly reducing the infantile death rate, unless they themselves are heartily enlisted in the sociological work. The key to the problem lies in education and enlightened philanthropy.

Fate of the Ehrlich-Hata Arsenical Preparation in the Body.

The fate of any substance possessing physiological and therapeutic activity, after it has exerted its activity, is of paramount importance. An inert soluble substance should be eliminated unchanged in

quantity. The physiological action of some substances like strychnine must be accomplished by an almost imponderable fraction of the ingested dose, as nearly the entire amount given may be recovered unchanged from the secretions, with nothing left behind in storage. Certain alien mineral substances ingested in excess are stored in minute quantities, chiefly in the liver; whence the occasional discovery of traces of arsenic, copper, etc., in residents of countries in which these elements are present in the soil and drinking water. In discussing the mode of action of the spirochete-annihilating arsenical preparation of Ehrlich and Hata, inquiry will naturally be made as to what becomes of the arsenic. The preparation is employed only in small quantities and it has been asserted that these quantities are promptly and satisfactorily eliminated. This statement is evidently, however, premature and based on insufficient observation. Alt (*Münchener medizinische Wochenschrift*, July 19) has already had two opportunities for autopsy on subjects treated with the new preparation and has learned from them as well as from clinical observation that the Ehrlich-Hata compound is eliminated much more slowly than its predecessors (atoxyl and others) when injected into the muscles. Atoxyl is eliminated promptly and almost completely by the urine, and this is also true of some of its congeners. On the contrary both the Ehrlich-Hata preparation and arsenophenylglycerin, which is used in combination with it, are not so promptly excreted by the kidneys, and may also be shown to persist for a number of days in the feces. The chief revelation of Alt's autopsies was that "606" remains unchanged for a long time at the site of injection, for he found that a considerable fraction of the medicament injected into the muscles had never been absorbed. There was, however, no evidence of any storage of the substance in the tissues which would seem to support Ehrlich's assertion that it is not organotropic.

Treatment of Typhoid Carrier Cases.

The fact that typhoid fever is frequently spread by means of individuals who carry the infection in their systems for considerable periods of time, sometimes for many years, is now definitely established. It is therefore considered that typhoid carriers are a definite menace to a community. It is obvious that it is a matter of great difficulty to discover typhoid carriers, and when these are discovered it is by no means easy to treat them successfully. In the *Journal of the Royal Army Medical Corps* for April, 1910, Cummins summarizes the results of treatment as follows: 1. Lactic acid bacilli have failed to diminish the excretion of typhoid bacilli. 2. Attempts to cure typhoid bacilluria by acidifying the urine have not been successful. 3. The administration of antiseptics has invariably brought about a decided diminution in the number of bacilli excreted, both by fecal and urinary carriers. 4. The use of *x*-rays, especially in cases with gall-bladder symptoms, seems to have a definite beneficial result, but as the author's experience with this form of treatment was limited to one case, his conclusions would appear to be of little value. 5. Lastly, it appears possible that treatment by a vaccine, though unsuccessful when tried alone in the cases now under discussion, would have a better chance if combined, in the case of urinary carriers, with diuretics, and in gall-bladder cases with *x*-ray treatment.

News of the Week.

Sanitation of the Canal Zone.—The report of the Department of Sanitation, Canal Zone, for the month of May, 1910, made by Dr. John L. Phillips, Acting Chief Sanitary Officer, shows that the annual death rate per thousand from all causes among the white employees for the month of May, 1910, was 9.94. For May, 1907, the rate was 18.34, and since that time there has been a steady decrease. The same rapid decrease is noted among the black employees, the death rate among this class being 34.48 in May, 1907, and 6.98 in May, 1910. Throughout the Canal Zone and the cities of Panama and Colon the rate during the months of May has been as follows: 1907, 31.57; 1908, 20.87; 1909, 15.77; 1910, 18.69. The number of employees in May, 1907, was 39,003, with 98 deaths; in May, 1908, 44,816, with 39 deaths; in May, 1909, 46,974, with 37 deaths; and in May, 1910, 52,863, with 34 deaths. Of these last, 6 were from tuberculosis, 2 from dysentery, and 1 each from black water fever, malarial fever, typhoid fever, and pneumonia. The total number of white Americans connected with the commission and the Panama Railroad during the month, including employees and their families, was 10,285; among these there were 6 deaths, 4 from disease and 2 from external causes, an annual death rate of 7 per thousand. Of malarial cases among employees discharged and died from hospital during the month there were 2 deaths and 618 discharges. No plague, smallpox, or yellow fever originated on or was brought to the isthmus during the month. The general sanitary conditions were reported as favorable, although the weather had been such as to further the development of mosquitoes and malaria; and the malarial sick rate for June may show the effects of this. During the month of May 1,807 rats were destroyed, and 6 houses were fumigated.

Deaths from Cholera.—During the week from July 31 to August 6 there were reported throughout Russia 20,668 cases of cholera with 8,679 deaths. One of the most serious features of the situation is the spread of the infection through the rural districts where the ignorance of the people makes them exceedingly hostile to modern methods of sanitation, and greatly hinders the efforts to check the disease. Both the Austrian and the German governments are taking precautions against the spread of the infection into those countries from the provinces of southern Russia where the epidemic is at its height.

An Investigation of Infantile Paralysis.—At the recent meeting of the Congress of American Physicians and Surgeons, held in Washington in May, 1910, a joint session of the American Orthopedic and American Pediatric Societies was held and the subject of epidemic poliomyelitis was discussed. The following resolution was adopted: "It having been shown by recent epidemics and investigations connected with the same that epidemic infantile spinal paralysis is an infectious communicable disease that has a mortality of from 5 to 20 per cent., and that 75 per cent. or more of the patients surviving are permanently crippled, State boards of health and other health authorities are urged to adopt the same or similar measures as are already adopted and enforced in Massachusetts for ascertaining the modes of origin and manner of distribution of the disease with a view of controling and limiting the spread of so serious an affec-

tion." A committee with Dr. Robert W. Lovett, *President*, Boston, Mass., Dr. Irving M. Snow, *Secretary*, Buffalo, N. Y., was appointed to urge the various State and municipal health authorities to take up the work of investigation of the various foci of epidemic poliomyelitis, to study its epidemiology, and to instruct the public that the disease is at least mildly communicable.

Moving Pictures as Health Aids.—Moving pictures are being used in the general campaign of educating the public to combat disease. In New Jersey a series of films are being prepared to show the working of a model dairy. The New York State Department of Health is preparing lantern slides for use in its lectures, which are procurable from local health officers. The same method has been pursued for some years in lectures on tuberculosis, and lectures on diphtheria, rabies, typhoid fever, and other diseases will now be illustrated in the same way. In Buffalo the acting Health Commissioner has prepared slides which are flashed on the screen at moving picture shows, giving warning that whooping cough is dangerous, and that adults as well as children may be affected.

Immigration Slackens.—Statistics for the month of July, the first month of the fiscal year, show a decided slackening in immigration. At Ellis Island 52,727 immigrants arrived, the Italians outnumbering all the others, with the Jews, chiefly from Russia, second.

Food Purity Guarantee.—The Government of Venezuela has been requested by the State Department to suspend the operation of its new regulations requiring certificates guaranteeing the purity of food products sent to Venezuela from this country. It is hoped that an agreement between the two countries may be reached by which the present strict regulations of the Department of Agriculture will be sufficient guarantee.

King Visits Hospital.—The first public appearance of King George and Queen Mary of England since their accession was the occasion of a recent visit to the London Hospital in Whitechapel, the London east end.

Mayor Gaynor.—The last official act of Mayor Gaynor before the murderous attack upon him was the signing of himself as one of the incorporators of a new hospital at St. James, Long Island.

To Close Children's Home.—It is reported that lack of funds may make necessary the closing of the Watts De Peyster Home for Invalid Children, at Verbank, near Poughkeepsie, N. Y. The home has been in existence for twenty-five years, and cares for nearly a hundred children frow two to twelve years old for the entire year.

University of Pennsylvania.—With the opening of the coming fall session an elective course in tropical medicine will be offered under the immediate charge of Dr. Allen J. Smith, in conjunction with Dr. A. C. Abbott, Dr. G. E. de Schweinitz, Dr. William Pepper, Dr. W. H. Hartzell, and Dr. H. H. Jacobs. The course will comprise instruction in medical climatology and geography, the hygiene of ships and of the tropics, protozoology, anthropology, helminthology, general medical pathology, diseases of the eye and of the skin, surgical diseases common to the tropics, pathology of tropical diseases, and systematic and clinical tropical medicine.

Dr. Willis F. Manges has been appointed director of the Röntgen Ray Laboratory of the Philadelphia General Hospital in succession to the late Dr. Mihran K. Kassabian.

Gifts to Charities.—The will of Mrs. Elizabeth Waddington of New York, who died recently, provides for the gift of $5,000 to St. Vincent's Hospital to endow a bed in memory of Euphemia Van Rensselaer.

The contest over the will of the late John Masterton Burke of New York was dismissed by Surrogate Thomas on August 9. By the terms of the will $4,000,000 was left to the Winifred Masterton Burke Relief Foundation to found a home for convalescents. The contest was brought by certain heirs on the basis that the statute of 1904, authorizing the corporation, was invalid on technical grounds. The Surrogate holds that the statute is constitutional and that the gifts to the foundation are valid. The home is to be a memorial to Mr. Burke's mother.

The Harvey Society.—The following program of Harvey Society lectures for the season of 1910-1911 is announced: 1910—October 15, "Die Bedeutung der pathologischen Autopsie und sonstiger pathologisch-anatomischen Untersuchungen," by Prof. Dr. H. Chiari of Strassburg, Germany; November 12, "Unit Characters in Heredity," by Prof. W. E. Castle of Harvard University; December 10, "Certain Clinical Aspects of Dyspituitarism," by Prof. Harvey Cushing of Johns Hopkins University, Baltimore. 1911—January 14, a lecture on some subject to be announced later, by Prof. Arthur R. Cushny of the University of London; February 4, "The Chemistry of the Proteins," by Dr. Thomas B. Osborne of the Connecticut Agricultural Experiment Station, New Haven; February 25, a lecture on a subject to be announced later, by Prof. Jacques Loeb of the Rockefeller Institute for Medical Research; March 18, a lecture on a subject to be announced later, by Prof. H. Gideon Wells of the University of Chicago. These lectures are open to the public and a cordial invitation is extended to all to attend. They are given in the New York Academy of Medicine, 17 West Forty-third street, on Saturday evenings. The officers of the society are: *President*, Dr. Simon Flexner; *Vice-President*, Dr. John Howland; *Treasurer*, Dr. E. K. Dunham; *Secretary*, Dr. Haven Emerson; *Council*, Dr. Graham Lusk, Dr. S. J. Meltzer, and Dr. James Ewing.

The Washington State Medical Association closed its annual session, on July 29, with the election of the following officers for the ensuing year: *President*, Dr. Wilson Johnson, Spokane; *Vice-President*, Dr. L. L. Love, Tacoma; *Secretary*, Dr. C. H. Thomson, Seattle; *Treasurer*, Dr. Park Weed Willis, Seattle.

The Washington State Eclectic Medical Society held its annual meeting, on August 2, at Seattle. The following officers were elected: *President*, Dr. Thomas J. Piersol, Tacoma; *Vice-President*, Dr. Frank Brooks, Seattle; *Secretary*, Dr. N. M. Cook, Seattle; *Treasurer*, Dr. L. V. Cole, Seattle.

Medical Society of the Missouri Valley.—The twenty-third annual meeting of this society will be held in Council Bluffs, Iowa, on Thursday and Friday, September 1 and 2, under the presidency of Dr. A. B. Somers of Omaha. Dr. George Gellhorn of St. Louis will deliver the oration in surgery, which will be illustrated with lantern slides. The oration in medicine will be delivered by Dr. George Howard Hoxie, Dean of the Medical De-

partment of the University of Kansas, the subject being "Arthritis." The secretary of the society is Dr. Charles Wood Fassett of St. Joseph, Mo. At the close of the scientific program on Thursday evening, the members will be entertained at a smoker at the Grand Hotel.

Association des Médecins de Langue Française de l'Amerique du Nord.—The Fifth Congress of this society will be held at Sherbrooke, Quebec, on August 23, 24, and 25, 1910, under the presidency of the Hon. P. Pelletier. Dr. L. Picqué of Paris, the official representative of the French Society of Surgery, will attend the congress and deliver an address. Dr. F.-A. Gadbois of Sherbrooke is the secretary-general of the society.

Obituary Notes.—Dr. Seymour J. Holly of Brooklyn, N. Y., a graduate of the College of Physicians and Surgeons of New York in the year 1857, a veteran of the Civil War, and formerly an inspector in the Brooklyn Department of Health, died at his home in Brooklyn, on August 7, after a long illness.

Dr. James I. Wright of Philadelphia, Pa., a graduate of the Jefferson Medical College of Philadelphia, died at his home on July 27, aged 58 years.

Dr. J. Warren Boyer of Trappe, Pa., a graduate of the Jefferson Medical College of Philadelphia in 1845, died at his home on July 24, at the advanced age of 90 years.

Rear-Admiral Walter Keeler Scofield, U. S. N., retired, died recently at his home in Stamford, Conn., aged 71 years. Dr. Scofield was graduated from the College of Physicians and Surgeons of New York in 1868. He entered the United States Navy as an assistant surgeon and passing through the successive grades was made a Medical Director in 1890. In 1901 he retired from the service with the rank of Rear-Admiral.

Dr. Charles R. Strong of Detroit, Mich., a graduate of the Detroit College of Medicine in 1903, died in the Red Cross Hospital in that city on August 1.

Dr. Irving O. Cummings of Brewster, Mass., a graduate of Dartmouth College and of the Harvard University Medical School in 1890, died of Bright's disease at his home on August 2, aged 42 years.

Dr. Alexander J. Stone of St. Paul, Minn., a graduate of the Berkshire Medical College, the medical department of Williams College, in 1867, died at his home recently.

Dr. William F. Ridgway of Atlantic City, N. J., died at his home, on August 5, aged 38 years. Dr. Ridgway was graduated from the Jefferson Medical College, Philadelphia, in 1904, and after post-graduate courses at the West London Hospital and the Rotunda Hospital of Dublin, took up his practice in Atlantic City, becoming pathologist to the Atlantic City Hospital and city physician. He was a member of the Atlantic County and New Jersey State Medical Societies, the American Medical Association, and the Atlantic City Academy of Medicine.

Dr. D. W. Rees of Needles, Cal., a graduate of the California Medical College (Eclectic), San Francisco, died in a hospital at Los Angeles, from poisoning resulting from an ulcerated tooth, on July 31, aged 41 years.

Dr. Henry F. Koester of New York, a graduate of the Bellevue Hospital Medical College in 1891, and a member of the New York County and State Medical Societies, died at his home, on July 28, aged 47 years.

Obituary.

FLORENCE NIGHTINGALE.

Florence Nightingale, who died last Sunday afternoon at her home in London, was born in Florence, Italy, from which city she took her name, on May 12, 1810, her father being a wealthy Englishman, a member of the numerous English colony in that beautiful Italian city. The family returned soon to England where the girl received an unusual education. She was from childhood devoted to charitable work among the cottagers on her father's estate, and was also interested in hospital work, spending a considerable portion of her annual vacation in visiting the hospitals in Germany. In 1851 she entered the training school for Lutheran Sisters at Kaiserwerth and later studied the nursing methods of the Sisters of Charity in Paris.

In 1854, when the English soldiers were perishing of disease in the Crimea with none but rough men to nurse them, the people of England cried out in rage, and the Government was forced to send them succor. The head of the War Department turned at once to Miss Nightingale, whose activities were well known, and curiously his letter asking her help crossed one from her offering her services. Soon after, she set sail at the head of thirty-four nurses, reaching the Crimea just after the battle of Inkerman. There, in spite of opposition from the officers and surgeons as well, she put the hospitals in order and cleaned them, established invalid kitchens, laundries, and libraries, transforming the entire camp indeed, finally winning to her side every man, sick or well, from the Commander-in-Chief to the last drummer-boy, who one and all called her the "Angel of the Crimea."

When Florence Nightingale returned to England she was suffering from the debility following an attack of cholera at Sebastopol, and slipped into the country incognita in order to escape the reception that was planned for her. Balked of their desire so to honor her, the people gave her a purse of a quarter of a million dollars raised by popular subscription. She accepted it and with it established a training school for nursing in London. She was at the head of this school for nearly twenty-five years, when delicate health forced her retirement. From that time her life became one of great quiet and she passed from the public gaze, but not from the memory of those who love the lovers of their kind, and there was a constant pilgrimage to her home of admirers and followers from two continents. Her Government did not forget her. In 1907, on the birthday of the Queen, King Edward conferred on her the English Order of Merit, she being the only woman who had ever received it, and the following year the freedom of the City of London was bestowed on her. She was also made a member of the Order of Our Lady of Grace of St. John of Jerusalem. Florence Nightingale's personality was most lovable. "Of her kindness," said the *Lancet* in a recent notice, "her gentleness, her marvellous influence over her patients, of her firmness, her energy, her untiring devotion, we need not speak. Are they not written in the book of the chronicles of the British nation?" Fate was kind to her in that she lived to see the seed she had sown in the Crimea and in the London training school grow into a mighty tree with branches spreading over the civilized world.

Correspondence.

TREATMENT OF RHUS POISONING.

To the Editor of the Medical Record:

Sir: Apropos of Dr. Ellis's letter on Poison Ivy Rash that appeared in a recent issue of your publication, I would call the attention of the profession to the one remedy in my opinion (used in conjunction with some minor ones) and that is the good old-fashioned lead and opium wash, improved. The improvement is a solution of boracic acid 10 grs. to the ounce of distilled water as a base, grs. 5, acetate of lead, and in place of powdered opium, the U. S. P. liquor morphinæ sulphatis. This improvement does away with the unpleasant odor and staining properties of the ordinary lead and opium wash. The substitution of the liquor morphine sulphatis, U. S. P., for the powdered opium and water is not original with me, but the credit as far as I know belongs to Prof. Wm. H. Thomson of New York.

The directions are as follows: After the initial cleansing of the affected parts with a 1-40 solution of carbolic acid and any good laundry soap, water is not again to be used during the treatment. If for any reason the affected parts have to be cleansed, carbolized oil is to be used, applied on absorbent cotton. Apply the improved lead and morphine lotion on antiseptic gauze and on parts not convenient to bandage apply the lotion and dust with camphorated sterate of zinc. This dusting powder is not only soothing, but helps to control the oozing, thereby preventing the spreading of the rash. At bedtime advise patient to wear loose cotton gloves, if for any reason the hands cannot be bandaged. This last measure will often prevent the spreading of the rash to the eyes and genital organs.

Internally I use small doses of aconite and gelsemium, for the fever and nervous disturbance, and calomel, ipecac, and bicarbonate of sodium, following the latter with a heaping teaspoonful of sulphate of magnesia in one-half a glass of water before breakfast. I sometimes add to the same quantity of Epsom salts an equal amount of cream of tartar. Of course if these quantities cause the bowels to move too freely, reduce the amount so that the patient will have two or three good movements a day.

In conclusion I will say that in a practice of over 25 years in a part of the United States where poison ivy rash is very common I have met with few cases that the treatment as outlined has not speedily and almost painlessly cured; and this too, after most of my patients have used the ordinary home remedies, such as salt water, white lead, spirit of nitre, aqua ammoniæ, etc. In my opinion the failures that have been charged to acetate of lead have been due to the fact that the solutions have been applied entirely too strong, thereby causing a great deal of pain and an increase of the inflammation of the skin.

C. H. Gardner, Ph.G., M.D.

Spruce Creek, Pa.

DESIRABILITY OF EXCLUDING CONTAGIOUS DISEASES FROM DISPENSARY CLINICS.

To the Editor of the Medical Record.

Sir:—From a sanitary point of view patients, especially children, suffering from contagious diseases, should be excluded from dispensary clinics. As anybody who has worked in a dispensary knows, patients sit close together while waiting for treatment and often have to wait from one to three hours before they are treated. Mothers who bring sick children often bring healthy children along, thus unknowingly exposing the latter to infection from their own or other people's sick babies. Examining tables and chairs are used continuously so that infection lingers on them and is transmitted to succeeding children. Furthermore, children brought to dispensaries are below par and unusually susceptible to contagion.

These conditions have been recognized in Mt. Sinai Hospital Dispensary, and physicians have been appointed to give all children who apply for treatment a preliminary examination to find if any suffer from contagious diseases. If such are found they are sent home and their condition is reported to the Board of Health. The following figures illustrate the need of exclusion. During the six weeks from May 16 to June 30, inclusive, in the afternoon classes there were excluded 96 cases of contagious diseases. The total number of children who were brought for treatment was 1661, of whom 1083 came for the first time. The number of exclusions would have been larger but for the fact that many pertussis cases were not recognized, since I did not hear the cough. The contagious cases were distributed as follows: Scarlet fever, 19; measles, 12; diphtheria, 12; varicella, 18; rubella, 11; parotitis, 6; pertussis, 17; erysipelas, 1.

An interesting feature of these figures is the fact that eight of the twelve diphtheria cases were cases of nasal diphtheria. The condition of the nose in these cases varied from that in which there was only a thin serous discharge to that with profuse bloody, purulent discharge and severe excoriations of the upper lip. The former were the more numerous. This teaches that all nasal discharges should be looked on with suspicion.

Max Unger, M. D.

53 East Seventh Street, New York.

EXPERT TESTIMONY.

To the Editor of the Medical Record:

Sir:—While reading the very excellent article in your issue of July 23 by Dr. Carlos F. MacDonald on "The Ethical Aspects of Expert Testimony in Relation to the Pleas of Insanity as a Defense to an Indictment for Crime" an idea came to me which it seems to me would be a help in solving the problem. Not that it would do away with the desirability of acting on Dr. MacDonald's suggestions of working up a set of rules governing expert testimony and putting them in the Code of Ethics, refusing to allow the medical assistant to the attorneys to testify, and getting a new legal definition of what constitutes mental irresponsibility; but that it would be another help in getting true justice for the prisoner and the State and putting medical expert testimony on the high level on which it belongs.

My suggestion is that while the medical experts are to be selected by the rival attorneys, as at present, they are to be engaged either by the judge or a clerk of the court and not allowed to know which side is engaging them. There would thus be no limit to the number and no restriction to the personnel of the experts except in the case of those helping the attorney; the compensation would have to be the same, regardless of the testimony and the side suggesting each expert could pay him, but through the court, and there would not even be the unavoidable bias of judgment of the present method of looking at everything from the one side, but each expert would look from all sides, and we would get as near a perfectly just view as is often given to poor, weak humanity.

C. H. Church, M. D.

Newark, N. J.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

THE BRITISH MEDICAL ANNUAL MEETING—PRESIDENT'S ADDRESS — MEDICAL ADDRESS — SECTIONS — PHARMACEUTICAL CONFERENCE—ITEMS—OBITUARY.

London, July 29, 1910.

The proceedings of the British Medical Association have followed the course of the program described in my letter last week. The representative meeting has considered the proposals of the leaders and endorsed them, giving occasion to the non-contents to sneer at the ruling clique and decry the trade-unionism which they say is the chief feature of the association, and which to some degree must be admitted to exist. But this is largely the fault of the mass of members who seem to be indifferent to matters of medical politics either within or without the association. The written constitution of the association is democratic enough to prevent the development of an oligarchy so long as the majority of the members do not contribute to such a result by their indifference.

Mr. Butlin delivered the presidential address on Tuesday evening, taking for his text the evolution of the association and its work. He gave a series of word pictures beginning with Lister and coming down to the present day of prosperity. He extolled the efforts made to attain medical reform, including the last act, which gave direct representation, but he did not point out how useless that had been so far, and he did not seem aware that the final movement of the council of the association in obtaining it was stained with political trickery which was everywhere felt to be a scandal. In his conclusion he spoke of the vast amount of gratuitous work which has been so freely given by the profession in all times, until the more ignorant populace have come to think that there is some legal or conventional obligation on a doctor to be ready at all times to hasten to the afflicted poor without any

fee or reward. He saw the danger of multiplying doctors for whom there is little prospect of their earning a living.

On Wednesday the chief attraction was the "Address in Medicine," which was delivered by Dr. Mitchell Bruce. The traditional mode of treating this address is to review the advances since the last meeting, but Dr. Bruce preferred to look at the progress made since the last meeting in London, 15 years ago. This he did to show the dominant position achieved by etiology, a theme which he elaborated at great length, to emphasize the fact that the outstanding feature of the medicine of to-day is the study and practical application of etiology, with respect not only to the nature and incidence of the specific causes of disease, but to the nature of immunity and the circumstances under which it fails. He pointed out, too, how the knowledge acquired by the family practitioner contributes his share of the materials on which etiology is based as much as the few who are able to devote all their work to the higher pathogeny.

The numerous sections afford opportunities for clinical and scientific discussions which appear on paper abundant, but which in practice are limited by the mass of material. As an illustration of this, take the new section on anesthetics. You will remember that arising out of former meetings a special committee on chloroform, consisting of eminent experts, has for years been at work and has made interim reports. Well, the final report of this committee has now been agreed upon. It fills above 20 pages of a supplement to the journal and was issued in advance as obviously if read in the ordinary course it would occupy all the time to the exclusion of discussion. In this way other experts have been able to digest the document, compare with their own experience and so submit their several conclusions. Accordingly the report was taken as read and the discussion, if so we may call it, began on Wednesday with two papers read by Dr. D. Buxton and Prof. Waller, both members of the committee.

These two lengthy communications set forth the respective authors well-known views—the percentage system and the plenum apparatus being their principal points. The second day's discussion likewise was begun by two set papers on shock during anesthesia, one by Dr. Crile, whose work on this subject must be well known to your readers.

Sympathy with Dr. Dawson Williams was expressed and in reply a letter of thanks showed that he was progressing favorably.

The Pharmaceutical Conference has been held during the week at Cambridge and received with no little attention by the university and the corporation.

While we are shivering in an extraordinarily inclement summer we read of your oppression under a heat-wave. When a telegram gave your temperature as 100 F. my thermometer hardly touched 60. Yesterday a change set in and we are hoping for the deficiency of sunlight to be made up to us.

The London Hospital is to be honored to-morrow by a visit from the King and Queen. As this is the first public drive taken together by their majesties much interest is felt in the event, especially as it is to the great East End hospital.

Liverpool University benefits, among many other institutions, under the will of Mr. T. S. Timmis to the extent of £10,000 to endow a cancer research department of its laboratories.

Surgeon Moyle Breton, R. N., who had been invalided from the Service on account of illness has died at a nursing home, aged 41. He was a St. George's student, took the M. R. C. S. in 1895, and two years later entered the naval medical service. He was appointed surgeon to the "Victory" at Portsmouth in 1904.

Dr. J. Bart Rous who died on the 12th from morphia, was a London graduate with honors, who took to journalism and was for some time on the staff of the "Lancet." He had suffered from nervous disease, was a very active man and a great favorite among his fellow students and colleagues.

Infant Feeding.—Steinhardt calls attention to the problems related to infant feeding. A large number of medical men think infant feeding too simple to give it their attention, and this often results in the unnecessary sacrificing of infants. Infant feeding is really a very important branch of medicine, and all medical men should know how to feed a child normally. The stools should be very carefully examined because they tell us what component is to be changed.—*Crónica Médico-Quirúrgica de la Habana.*

Progress of Medical Science.

Boston Medical and Surgical Journal, August 4, 1910.

The Incidence of Heart Disease in Acute Psychoses.—Albert A. Horner summarizes his investigations by the following statements: (1) The percentage of hearts probably normal functionally is higher in manic-depressive insanity than in dementia precox. (2) Dilatation of heart occurs more frequently in manic-depressive insanity than in dementia precox. (3) Leaving out dilatation of the heart, the incidence of every cardiac lesion in dementia precox is greater than the incidence of the corresponding lesion in manic-depressive insanity. (4) The incidence of individual heart lesions is relatively greater in the acute psychoses than in all psychoses combined, except that the relative frequency of hypertrophied hearts in manic-depressive insanity is below the average. (5) This study suggests the desirability of a close clinical study of hearts, pulse and blood tension in the group of acute psychoses.

Mannite and Nonmannite Fermenting Organisms in a Case of Dysentery, Complicated by Hemorrhagic Endometritis Probably Due to a Third Organism.—Myrtelle M. Canavan reports the case of a woman 61 years of age, who was supposed to have had cerebral hemorrhage before coming to the hospital. Immediately after her admission she passed uninfected through an epidemic of dysentery, but nearly a year after her admission she died after an illness of twelve days preceded by simple diarrhea, during which time her serum did not agglutinate the stock cultures of *B. shiga* and *B. flexner*. A careful autopsy showed that the most striking lesions accompanying the dysentery were abscesses of the lungs, infarct of the spleen, thrombus of the iliac artery and acute hemorrhagic endometritis. From the fundus and cervix the third organism was present in abundance of colonies and is identical with the "organism to be specially studied," isolated from the blood and mesenteric lymph nodes in the case of "ulcerative vaginitis complicating a case of dysentery in the epidemic of 1908," *i.e.* a Gram negative bacillus, which does not produce gas, peptonizes milk, produces indol, is motile, liquefies gelatin and has a bleaching and coagulating action on the litmus sugar-serum-water of Hiss; is not agglutinated by antidysenteric serum. The relation of this bacillus to hemorrhages, small and great, seems more than a coincidence, since it has been recovered from hemorrhagic cystitis, submucous hemorrhages in gastric and vaginal walls, in bloody mucus in the intestinal tract, etc.

Some Effects of Overfeeding with Fats in Certain Cases of Insanity.—Herman M. Adler says that the organism has provision normally for converting the fatty acid products of digestion into neutral fats. This power may be diminished under certain circumstances. In those cases in which fatty acid is not entirely converted into neutral fats, the toxic effects of the fatty acids are neutralized in other ways. One method by which free fatty acid is neutralized is by conversion into insoluble soap and when this occurs the body suffers a depletion in its calcium and magnesium content.

New York Medical Journal, August 6, 1910.

A Study of the Leucocytes in Pulmonary Tuberculosis.—Myer Solis-Cohen and Albert Strickler undertook an investigation to determine whether the leucocytes in cases of pulmonary tuberculosis in a sanitarium a little above sea level present a constant picture in the various stages of the disease and in accordance with the improvement or retrogression of the patient. The following conclusions are suggestive: 1. The percentage of polymorphonuclear neutrophiles was diminished in incipient and moderately advanced cases, being less in the former. It was also diminished in cases that were improving. 2. The percentages of the different forms of polymorphonuclear neutrophiles, classified according to the number of nuclei they contained, bore no constant relation to any stage or to the progress of the disease. 3. The percentage of lymphocytes was increased in incipient and moderately advanced and in improving cases. 4. The percentage of large mononuclear and transitional cells, grouped together, while within normal limits, was greater in incipient and in improving cases. 5. The percentage of eosinophiles was greatest, though normal, in incipient cases. 6. In moderately advanced cases was found the lowest percentage of large mononuclear and transitional cells, grouped together, and of eosinophiles, and the highest percentage of large mononuclear cells. 7. In patients whose condition was stationary occurred the highest percentage of polymorphonuclear neutrophiles, and the lowest percentage of lymphocytes, of large mononuclear cells, and of large mononu-

clear and transitional cells grouped together. 8. Whenever one extreme was exhibited by moderately advanced cases (as in 6) or by stationary cases (as in 7) the other extreme was furnished respectively by incipient cases or by improving cases. Far advanced and retrograding cases respectively held a middle position, which approached the condition found in incipient and in improving cases respectively, rather than the other extreme. 9. In addition to the mononuclear basophilic cells, the blood occasionally contains polynuclear basophilic cells, easily distinguishable from other leucocytes.

Lane's Conception of Chronic Constipation and Its Management.—A. B. Cook says that the two chief pathological factors concerned in the production and maintenance of chronic constipation are enteroptosis and acquired mesenteries or adhesions. These adhesions do not result from inflammation, but are developed to oppose the displacement of viscera, the tendency to which exists whenever the erect posture of the trunk is assumed. This is the basic feature of Lane's theory. The gross changes produced in the several portions of the large intestine are described. The symptoms are those produced mechanically by the changes in the gut, and those due to absorption of toxic elements from the retained matter. According to Lane's teaching a proper conception of diseases of the appendix, gall bladder, stomach, duodenum, pancreas, kidneys, ovaries, etc., in many cases requires that they be regarded as sequelæ of chronic constipation. In no circumstances should operative interference be contemplated till the surgeon has satisfied himself that every means of treatment has failed, whether medical or mechanical. In the milder type of cases in which non-operative means have failed to afford relief, the division of all the constricting bands and adhesions, together with careful attention to the bowel function, may prove effective. In the severer cases more radical surgery will be required and this consists in dividing the ileum three to five inches from its junction with the cecum and anastomosing the proximal end with the sigmoid or upper rectum, thus short-circuiting the fecal current and eliminating the possibility of further toxic absorption. When pain is a prominent factor it is often necessary to remove the colon in part or in whole, preferably the latter. Cook believes that Lane's conception of chronic constipation and its management will be found to be the most nearly correct in principle and practice of all the numberless "new views" with which the literature of the subject is burdened.

Journal of the American Medical Association, August 6, 1910.

The Rôle of Otology and Rhinology in Preventive Medicine.—John J. Kyle treats of the ear, nose and throat in etiology and claims that the prevention of many of the diseases enumerated depends on the application of the rules of hygiene, frequent cleansing of the nose with mild antiseptic and alkaline solutions, free nasal drainage, and good general hygienic surroundings. The size of the tonsils has nothing to do with cervical adenitis and general infection. Jonathan Wright states that "tuberculous cervical glands at the angle of the jaw are almost always secondary to primary tuberculosis of the tonsil." Marked benefit often follows the removal of the tonsils in cases of pulmonary tuberculosis in the early stages, in which tubercle bacilli are easily demonstrated in the sputum. The direct connection of the cervical glands with the apices of the lungs makes it comparatively easy for the tubercle bacilli to seek the point of least resistance, which is the apex of the lung in many cases. It seems reasonable that in all suspected cases of pulmonary tuberculosis the tonsils should be inspected, and if possessing the slightest evidence of possible irritation, should be removed in their capsules. Many laryngologists recognize a close relationship between acute tonsillitis and rheumatism. Many conditions such as endocarditis, meningitis, nephritis and appendicitis are reported as probably originating from a disease of the tonsils in certain specific cases. Since the tonsils are a possible menace to the general economy, it would be better to remove at the earliest possible moment those tonsils which are hypertrophied whenever observed in young children to produce mouth breathing, and if the cervical glands are enlarged even small tonsils should be removed. Inflammation and hypertrophy of the tissue in the vault of the pharynx predispose to recurrent attacks of postnasal infection, deformities of the face, mouth breathing, deafness, Balnes' cough or nocturnal cough, infectious diseases, and Sydenham's chorea. A progressive deafness with or without tirnitus is especially important as an etiological factor in general nervous exhaustion and many functional nervous disorders.

The Uselessness of Local Treatment in Puerperal Sepsis.—The following summary is offered by J. H. Carstens: 1. In puerperal sepsis local treatment is of no benefit. 2. Douches and intrauterine irrigation often do harm. 3. Local abscesses should be opened and allowed to drain without irrigation. 4. Constitutional treatment, on general principles, should be instituted, quinine and opium being the sheet anchor. 5. Elimination in every direction should be assisted. 6. The infecting organism should be identified and the opsonic index increased by antitoxins. 7. And, after all, prevention should be our constant endeavor, a clean patient and clean doctors and midwives; this is most often secured by wearing rubber gloves.

Chronic Influenzal Bronchitis.—J. D. Madison reports cases to illustrate the different phases of chronic influenzal bronchitis. All the cases reported show other organisms than the influenza bacillus in the sputum. The symptomatology of influenzal bronchitis does not differ materially from that of chronic bronchitis produced by other organisms. The not infrequent occurrence of hemoptysis is worthy of note. The prognosis in cases of bronchitis of years' standing, usually with bronchiectasis, is, as a rule, bad. Usually a few weeks of outdoor life in a warm, genial climate, if possible, is sufficient to remove the condition.

The Teeth as an Important Factor in Pathogenesis.—H. A. Potts says that the immediate pathological conditions caused by unerupted temporary teeth are very few. The diseases the cause of which has been attributed to the eruption of the temporary teeth are legion. Difficult dentition gives rise to reflex symptoms. The fully erupted temporary teeth are subject to the same conditions as those which affect the permanent teeth, and give rise to a long chain of pathological conditions. Many a child has spent a sleepless night on account of an irritated tooth-pulp. Cervical and lymphadenopathy are undoubtedly due to absorption of toxins. Arthritis may be caused by infection harbored by the teeth or caused by pathological diseases of the teeth. There are many complications and sequelæ following the death of a tooth-pulp, and foremost is the formation of an alveolar abscess, which is essentially an osteomyelitis. The extraction of a tooth which gives rise to an alveolar abscess is at times contraindicated: extraction only intensifies the result of the infection. After the crowns of the temporary teeth have been destroyed by caries the roots form receptacles for the retention of putrefactive substances. Much that has been said in regard to the temporary teeth applies as well to the permanent teeth. Before eruption the teeth give rise to cysts and tumors. The most frequently occurring cysts of the jaws are the root cysts which develop from the granulomata at the ends of the roots, whose pulps have been destroyed through caries and exposures. Multilocular cysts and the benign solid epitheliomata belong to the same class, the former springing from the enamel organ, the others being a development of one or all of the individual elements of the tooth follicle. Non-erupted teeth cause reflex disturbances referable to almost any of the cranial nerves, also taking in a much wider scope, namely, that of impaired mental condition. Of the myriads of bacteria found in the mouth, only a few can be said to be indigenous: this points to the importance of cleanliness of the mouth and teeth. Malocclusion gives rise to many deplorable conditions which could have been avoided had the mouth been in the care of a competent dentist, especially at the time of eruption of the sixth-year molars. The dentists should be able to cope with any pathological condition in the mouth, thereby attacking disease many times in its inception, when it is easy of eradication.

The Lancet, July 30, 1910.

The Pathology of Prostatic Enlargement.—F. T. Paul discusses the various theories offered in explanation of the pathology of prostatic enlargement and traces the analogy between the involutional changes met with in the female breast at the climacteric period and those changes occurring in prostatic enlargement and summarizes as follows: (1) The accepted theories as to the cause of prostatic hypertrophy all fail because each can apply only to a limited number of cases. (2) The prostate and the breast are both controlled by their respective dominant sexual glands and respond to their influence in a similar way in health and disease. (3) Both organs are subject to a disturbing influence at the climateric period, which may, and frequently does, result in a hypertrophic change. (4) In such change the microscopical appearances in the two organs show a remarkable resemblance in all the essential details. (5) Prostatic hypertrophy, like the mammary involution hypertrophy, occurs only at the climacteric period, whereas there is no known neoplasm which is so strictly limited

to any age period. For these reasons the author believes that prostatic hypertrophy is not due to a chronic inflammation of septic or specific type nor to a neoplasm, but that it is an involution change similar in character to that with which we are familiar in the mammary gland.

Helminthic Infection and Its Relation to Eosinophilia.—G. Duncan Whyte describes the work which he undertook in order to ascertain whether the *Clonorchis sinensis* is or is not responsible for any degree of eosinophilia. He finds it difficult to secure an adequate number of cases of unmixed infection with this parasite, and in cases of mixed infection it is impossible to determine exactly what proportion of the eosinophilia is to be attributed to each of the parasites present. The study is based upon the examination of the feces of 562 cases and of the blood of 102 cases in South China. In only 2.1 per cent. of 512 cases examined did the feces fail to show the ova of one parasite or another. Ascaris lumbricoides was present in 76 per cent. of the cases; trichocephalus trichiuris in 72.6 per cent.; ankylostoma duodenale and uncinaria americana, one or the other, in 60.4 per cent. A large proportion of those infected by the latter parasites were farmers. *Clonorchis sinensis* was found in 16 per cent. of 267 cases examined at Chao-chow-fu and only 2 out of 295 cases at the hospital at Suabue were found infected, and these came from the Chao-chow-fu district. From a study of the results of these examinations it seems that the more varieties of parasite that infest a man, and the more numerous the individuals of each variety, the greater degree of eosinophilia he is likely to show. This will be especially marked if he is between 20 and 40 years of age and will be less noticeable if he is older or is suffering from some form of tuberculosis.

The Successful Treatment by Colon Lavation of Some Cases of Eczema, Psoriasis, Urticaria, Acne and Pruritus.—Alfred Mantle shows that these affections may be due to autointoxication, the results of changes in metabolism of gastric or more frequently of intestinal origin. The benefit derived from colon lavation in certain cases suggests that the skin disturbance is more frequently associated with toxic absorption from the bowel than from the stomach, though doubtless the two absorptions are frequently associated. Gastroenteric toxins seem to have a special affinity for the vasomotor centers and consequently circulatory disturbances are common with disorders of the alimentary canal. The writer cites a number of cases of these affections which he treated successfully, especially where there was an associated colitis, by intestinal lavation with alkaline sulphur water, using 20 to 40 ounces of the sulphur water at a temperature of 105° F. with a pressure of two feet. A warm immersion bath of sulphur follows the douche and the patient is given sulphur water to drink each morning. The patients are advised to continue the treatment at intervals even after an apparent cure has been obtained.

British Medical Journal, July 30, 1910.

Acute Edema of the Lungs Treated with Belladonna.— L. Gwillim Davies reports the case of a man 47 years of age whom repeated attacks of gout had left with a quickened heart, but with no obvious dilatation or bruit. In response to a sudden call he found the patient *in extremis*, suffering from severe dyspnea, with uncountable pulse, heart beat of 125, rapid respiration, the accessory muscles of respiration being in action and moist râles being present everywhere over the chest, back and front. The man coughed up a peculiar froth of pinkish color which, in connection with the other symptoms, led to a diagnosis of pulmonary edema.

Injections of strychnine and fomentations were without any apparent effect and belladonna was resorted to. A hypodermic injection of 20 minims of a glycerinated tincture was injected, and, no toxic effects having developed at the end of half an hour, a second injection of 15 minims was given. In a half hour the breathing became more quiet and the froth lessened. This improvement was steadily maintained and the man recovered, though the heart is not free from suspicion of dilatation.

The Value of Celluloid in Certain Surgical Procedures.—G. S. Thompson thinks the suitability of celluloid for certain surgical procedures has been overlooked. He employs the celluloid in sheet form as used by photographers for glazing prints. He relates an instance where, after removing the appendix, he inserted between the internal and external oblique muscles a perforated celluloid plate to cure a commencing ventral hernia. Examination six months later showed that the plate had undergone little if any absorption. In a case of inguinal hernia he used two plates one over the other placed in the inguinal canal the cord being passed down a linear cut in the plates to a central ring for its reception so that it passed from the internal ring straight through these barriers and lay on the anterior surface for the rest of its course. In a third case celluloid was successfully used for bridging the gap of a trephine hole. The piece of material was cut to fit the hole firmly and had a small aperture for drainage. Celluloid could be used to replace bone after trephining operations with great advantage in many ways in suitable cases, and perhaps it might be used in plastic operations on the nose to form a rigid basis for the formation of a new nose.

Berliner klinische Wochenschrift, July 18, 1910.

Demonstration of Tubercle Bacilli in Lesions of Lupus Erythematosus.—Arndt, of Prof. Lesser's clinic, refers to the conflict of earlier years on this subject, and incidentally to the failure of bacteriologists to show the presence of Koch's parasite in lesions of this type. Such evidence as exists has been chiefly clinical in character—and refers to the occasional association of erythematous lupus with other so-called tuberculous and paratuberculous lesions and to occasional specific reactions. A case may be made out for the tuberculous nature of certain lesions, based wholly on clinical and experimental findings. The author has devoted the past five years of his activity to this association, apparently because of the numerical frequency of clinical cases of lupus erythematosus in his department. He has made the best of his opportunities in regard to trial sections; and after certain familiar tests had given negative results investigation by the antiformin method gave a positive finding. That is to say, smears stained by the Ziehl-Neelsen method show individual or parallel, slender, slightly curved rods, agreeing morphologically as well as tinctorially with tubercle bacilli. One case is specially described as free from all other lesions and all antecedents of tuberculosis. Aside from the bacilli present, a very marked cutaneous reaction to tuberculin was in evidence. Attempts to find the bacilli in sections had always proved unsuccessful. The use of the antiformin method may be summed up as follows: An excised piece of tissue was comminuted by rubbing up in a sterile mortar, and dissolved in a 20 per cent. solution of antiformin. This solution was centrifugalized and the sediment smeared on 16 new microscopic slides which had been kept in ether and alcohol. The smears were then fixed in the flame. It does not appear that the author has thus far tested many patients by the antiformin method. But two seem to be mentioned, while no less than 175 were tested by the section-staining process. Nevertheless two positive results on a background of previous constant failure enabled him to predict with considerable confidence that the antiformin method must come into general use in all cases where there is suspicion that a very few bacilli may lurk in the tissues.

Treatment of Hysterical Aphonia.—Max Senator refers to the well-worn condition of the status of this subject, of which there is apparently so little chance to make any statements that are new or worth while; but he writes in the interest of Seifert's claim that merely by bending the head strongly backward the patient's voice is restored. When the head is replaced to its normal position the patient again becomes aphonic. The effect is improved if the upper part of the trunk is also bent backward. Investigations upon himself and other healthy subjects showed the difficulty or impossibility of speaking in a faint whisper while in this position. Apparently all the muscles made tense by this attitude cooperate in phonation, so that the latter is, so to say, magnified. The author, however, was unable to corroborate this finding in some of his own patients. In two cases the method of Seifert failed entirely. It is true that one of these was unusually refractory to treatment and was complicated with chronic laryngitis and irregular thickening of the vocal cords. But the other was of a mild type and yielded readily to mild measures after Seifert's maneuver had completely failed. The author also combats Seifert's explanation of the alleged specific procedure, and even the claim that phonation is strengthened by the forced position. Finally he alleges that the patients cannot be thus treated in a laryngological chair, but only in an ordinary low backed chair. As the operator must aid the patient by tilting the chair backward, there is no little danger of an accident.

The Quartz Lamp in Trachoma.—Hegner and Baumm first refer to the use of radiography and radium in trachoma, and the occasional favorable results obtained thereby. The employment of the quartz lamp, borrowed from the dermatologists, on a case of recent trachoma is perhaps the first yet undertaken (at least no prior at-

tempts are mentioned). But two cases are reported. The authors evidently wish merely to place on record the action of the lamp from various points of view. An exposure of from 4 to 10 minutes causes the formation of a false membrane, and a considerably longer one tends to cause general swelling of the eyelids. Mere momentary exposure causes hyperemia. The proper dosage, to be both safe and efficacious, should be that sufficient to produce a thick, false membrane. This should come away in a few days, bringing the follicles with it. From one to three treatments may be required. No cicatrization was produced. If the lids swell they should yield readily to hydrotherapeutics. The authors evidently did not obtain all their information from the two cases cited, for they appear to have tested the lamp quite extensively. The exposure is not very painful and as a rule local anesthesia is not required. The first case was treated 18 months before the report was made, and patient has remained well. The second case is still under treatment. The lamp may be used in combination with other measures.

Münchener medizinische Wochenschrift, July 12 and 19, 1910.

Treatment of Non-Perforating Duodenal Ulcer.—Zum Busch, of the German Hospital in London, would always use gastroenterostomy as the operation of choice. He does not excise the ulcer as a routine measure; in other words, he would use simple suture unless there was a special indication for excision. It is a question whether or not the duodenum, or pylorus respectively, should be closed by suture. This procedure should render the ulcer more prompt to heal and lessen the chances of secondary hemorrhage; but the author apparently dislikes to commit himself to advocating it as a routine measure. He is quite indifferent as to whether an anterior or posterior anastomosis should be made. As a German surgeon practising in England, he notes the frequency of operations for this affection in the latter country in contrast with the policy of nonintervention in Germany, where nonperforating ulcer is perhaps still looked on as a physician's disease. That it has now become a surgical affection is due largely to Moynihan and the Mayo brothers.

The Hypophysis.—Kohn, in a long article on this organ, cautions against the conclusion, so often made in the case of adrenalin, that because some active pharmacodynamic principle may be extracted from an organ, that principle exerts a necessary function in the economy. If we obtain an active principle out of the posterior lobe, and none out of the anterior, are we justified in assuming that the latter has no function; while the former is physiologically important? This claim would be flatly contradicted by evidence otherwise obtainable. We have not obtained our knowledge of the thyroid, adrenals, or other bodies of their kind by the action of their extractive bodies on the economy, but by the methods in use in determining the functions of organs in general. The author concludes that the anterior lobe of the hypophysis is more significant. It contains cells which agree in their characters with certain other active elements in closed glands. The posterior lobe is histologially much less significant.

Spinal Analgesia.—Von Arlt offers considerable evidence to show that untoward results of intraspinal injections are of a character best attributable to mild infection. In other words, we do not take sufficient pains to render the operation aseptic. His argument is based in part on the fact that whatever analgetic is used, the unpleasant collateral effects and sequelæ are invariably of the same character, despite the chemico-pharmacological differences in these substances. Hospital statistics show a steady diminution in percentages of failures and unpleasant results since 1904 (from 11.5 per cent. to less than 1 per cent.) This is due to constantly increasing care in selection of subjects according to a number of standards, together with unremitting efforts to improve the technique with especial regard to asepsis. Five or six hundred operations are done annually under spinal analgesia (at the Brothers of Mercy Hospital, Graz).

Mandelbaum's Reaction in Typhoid Fever.—Kessler has had the following experience with this new diagnostic resource. The method is naturally simple but the bacilli by adhering to the blood corpuscles may simulate clumping. Again if the serum is under-diluted (10 to 15 times) there results inhibition of the clumping and threading. The author would therefore free the serum from red corpuscles and dilute it in the ratio of 1:20 to 1:40. When Eberth's bacillus appears after four hours in the medium, either in clumps or threads, present or past typhoid is indicated; but there is no means of distinguishing between the two from the bacillary arrangement alone. Typhoid may be distinguished from paratyphoid, but not with such certainty as by the Widal reaction. Mandelbaum's method cannot therefore displace the latter, but is worth employing for corroboration. In the text of the article the author also states his belief that the new method adds nothing to our resources for the detection of typhoid carriers.

Köhler's Bone Disease.—Schäffer, of Copenhagen, gives an extremely brief but concise notice of this affection accompanied by a case-history and two radiographs. Köhler's first case was described as recently as 1908, and but few observations are upon record. Patient, a healthy boy of sound stock, was five years old when the affection began. He became listless and depressed, and slept poorly. There was a mild temperature rise. He soon began to limp and complain of lancinating pains in the right foot, the dorsum of which was swollen. The pain was present only on walking. The local symptoms were referred to a slight traumatism—the fall of a brick on the foot. Improvement soon followed, but a radiograph showed a lesion of the scaphoid, which was smaller than normal as if sclerotic. No other lesion was present. The boy, although he had ceased to complain, favored his foot in walking; and in the course of several months the calf of the affected side had become somewhat atrophied. There was some swelling over the scaphoid, but no sensitiveness. Perfect rest for the foot was ordered, the patient being either recumbent or supported by crutches. Under rest, Bier's hyperemia, and massage the condition was arrested; and at a later period (two years), the scaphoid had resumed its natural growth, and the functional result was also perfect. Von Pirquet's cutaneous reaction had given a negative result. The diagnosis was Köhler's disease (although Köhler failed to record atrophy of the calf). The mechanism lay between trauma pure and simple and a developmental defect conditioned by traumatism. Köhler attempted to introduce gonorrhea as a causal factor, but in cases since reported this element could be excluded. The few cases thus far recorded are quite insufficient to permit the drawing of any conclusions as to the nature of the affection.

Gonorrheal Central Corneal Ulcer.—Adam (Prof. V. Michel's clinic) states that the so-called "central corneal ulcer" is in most cases not an ulcer at all, but a necrotic process resulting from thrombosis of the nutrient vessels He reaches this conclusion from having improved his opportunities for histological study of a case of ophthalmoblennorrhea in an adult. Naturally the underlying gonorrhea has to be vigorously combated by the usual means. If a central ulcer develops there is no special indication. This of course does not exhaust the subject, for true gonorrheal ulcers of the maceration type may sometimes occur centrally, although as a rule they are marginal. They are due to purulent stagnation and should be treated with chemical caustics or the electric loop cautery. In general the treatment of corneal ulcer is first preventive—and the preventive technique has been carried to unusual lengths, such as packing the upper conjunctival sac with ointments by the aid of a glass rod. If ulcers form, of either kind or in any portion of the cornea, the principles of treatment are those applicable to corneal ulcer in general.

The Decidual Reaction and Some Peculiarities of the Cervical Mucosa in Pregnancy.—Giorgio Bellerini says that it has become evident that the cervical mucous membrane may often undergo abnormal modifications of a decidual nature. The author instituted systematic examinations of a number of uteri with reference to the possibility of such transformation. The number of patients examined was 32, at various periods of pregnancy. A portion of the mucous membrane was removed from the cervical canal for examination. The histories of the cases are given. He concludes that a decidual reaction is much more frequent than is ordinarily believed. One group of cases showed a diffuse decidual change, an expression of the stimulation of pregnancy without any other clinical or histological element. A second group showed besides the decidual modification slight inflammatory reaction of the mucosa which should be considered as a normal reaction of pregnancy. It can have no diagnostic importance in placenta previa. The stimulation of pregnancy influences the cervical mucosa and induces characteristic modifications, proliferation of the glandular structures, hyperproducion of epithelium, inter and intracellular vacuolar formations of the superficial epithelium, etc.—*Folia Ginecologica.*

Society Reports

BRITISH MEDICAL ASSOCIATION.

Seventy-Eighth Annual Meeting, Held in London, July 26-29, 1910.

(Special Report to the MEDICAL RECORD.)

(*Continued from page 297.*)

SECTION OF MEDICINE.

Thursday, July 28—Third Day.

Treatment of Chronic Constipation.—Dr. J. F. GOODHART in opening this discussion defined constipation as an unnatural delay in the passage of the intestinal contents along the colon. From bismuth observations the average period of the passage of the intestinal contents along the colon only would appear to be some twenty hours from taking the meal; to this must be added for delay in the collecting chamber a variable time, probably in most people three to four hours, more or less, until the call for expulsion came. Constipation thus fell into two groups—constipation of the colon, and constipation of the collecting chamber or rectum. The one was an automatic reflex outside the control of the will; the other was largely aided by voluntary effort, and the trouble came into being when voluntary muscular effort failed. The latter was mostly present in old people, or in women of lax habit who had borne children, and in such as had habitually neglected to form good habits. Constipation of the main tract of the colon is a much more intricate subject; it was in the main a physiological one. Its causes concerned themselves with the neuromuscular apparatus of the intestinal wall and the intestinal contents. The nervous element in the circuit was a dominant one in constipation; nervous vigor and its oscillations; habit; the temperament of the subject; the mental condition, and related thereto all the disturbances of secretion, absorption, excretion, associated as they were with flatulence, pain, and muscular cramp, were also of the utmost importance. The physiology of muscular propulsion of the colon contents was discussed. In regard to peristalsis an attitude of trust should be dominant. When peristalsis was unduly excited it might evince tremendous force. The function of peristalsis was to get round corners, hence the fear of kinks, in the absence of tumor in the abdomen, was largely ungrounded. The quantity or bulk of intestinal contents was of great importance in relation to constipation; to ensure regularity of action the colon must be full or moderately distended. There was absorption of food material from the colon and even from the rectum. The muscle in the wall of the colon was adapted for the slow propulsion of its contents, and in this relation there was risk in many instances of not eating enough. The colon was also an organ of excretion. Treatment was not in every case needed. There were many who should accept a several days interval as normal for them and discard aperients. The doctrine of intestinal autointoxication, as developed of late years, was extreme and physiologically unsound. He deprecated the use of intestinal antiseptics and the surgical treatment of chronic constipation. When treatment was necessary, much was to be gained by common-sense physiology. The obsession of the urgency of a daily stool should be attacked; so also that other, that blocks readily occurred; so also a third, that the colon was a poison bag. Bad habits; irregularity of meals; too little food; the dietetic fad; the curse of pill-hunger, were matters to be met. Instil the need of patience and perseverance; leave the bowels alone by thought and deed to work out their own salvation. Massage, electricity, and enemata were of special value of the sluggish bowel of decadence.

Professor BAÜMLER of Freiburg alluded to the Röntgen screen appearance of the colon after bismuth meals. He also looked upon it as normal that the colon should be full. It was desirable that the sympathetic nervous system should be kept in proper tone, having regard to the motor supply of the intestine and to this end a sufficiency of sleep was necessary. Summing up his experience, he would say to a patient, take sufficient food, a sufficiency of vegetables and exercise enough; sleep enough; take a cold bath in the morning, and do not trouble too much about the bowels.

Sir JAMES SAWYER of Birmingham emphasized the point that the intestinal dejecta contained the substance of excretion of glands as well as food residue. Three canons of treatment were not to leave medicinal treatment to patients, not to prescribe drugs unless it could be cured without drugs, and that drugs when used should be combined with suitable adjuvants. The main causes of constipation were enumerated, each of which he maintained was avoidable. The importance of the formation of habit in defecation was insisted on. Physical uprightness in posture should come before drugs and if they were used along with them. Exercises promoting biliary flow were of value. The best diet in the cure of constipation was a mixed diet. Otherwise a diet full of cellulose was of special service. Among drugs he advocated aloes.

DR. H. D. ROLLESTON thought it was important not to minimize the harmful effects of constipation. The personal equation was no doubt a very important one, yet the significance of autointoxication was great. Harmful absorption from the intestine was a real thing. And the ill-effects of liver disease really depended on autointoxication, as also did much of the arterial degeneration existent in the community. He referred to three causes of constipation, want of tone in the muscular wall of intestine, as in hypothyroidism, in which case he would advocate irrigation; excess of tone, as in spastic constipation, often associated with mucous colitis, in which case belladonna or even opium might be effective; and diminished quantity of fluid or secretion.

DR. NEWTON PITT emphasized the point that the rectum was normally empty and the collection of feces was in the sigmoid, and that in defecation the whole of the descending colon emptied itself. Feces were not so much the remains of food as a formation of the intestinal secretions, epithelium, and mucus, while at least a third consisted of bacteria, and the more constipated a patient was, the fewer the bacteria. The effect of constipation varied much in different individuals. He mentioned one case in his own experience in which the normal was once in six weeks, and that with the maintenance of good health. The person with regular habits were those who suffered most from occasional constipation. He also thought fullness of the colon was of extreme importance and mentioned vaselin or agar agar as efficient purgatives.

MR. ARBUTHNOT LANE said that constipation was the result of intestinal stasis, allowing of a large absorption of toxic substances into the blood. Some concomitants or results of intestinal stasis were kinking of the pylorus, dilatation of the stomach as a result of the former, ulcer of the duodenum and stomach, kinking of the ileum and dilatation of the small intestine, kinking of the splenic and hepatic flexures, ptosis of the transverse colon, and fixation of the sigmoid. Reference was made to bacillary infection of the bile and pancreatic passages. The deleterious organisms of the intestine readily migrated into the urogenital pad, the results of which were very intractable. The aging influence of autointoxication and its influence in lowering general body resistance were alluded to. Among other forms of surgical treatment for the more serious effects of intestinal stasis, division of the ileum and removal of the large intestine were specially mentioned.

DR. A. MANTLE of Harrogate referred to the effect of

chronic constipation in producing mucous colitis and enterospasm. He also thought the question of autointoxication had been unduly minimized. Its influence in producing neurasthenia and vasomotor disorders was dwelt upon. He advocated irrigation of the bowel in mucous colitis, 10 or 12 lavation with sulphur water, followed by massage and an arranged diet.

Dr. A. F. Hertz described his observations on the passage of intestinal contents by bismuth meals and *x*-rays and his views on the types of constipation. Referring to the dietetic treatment of constipation, treatment with massage applied to the part of the colon especially weak, as revealed by the *x*-rays. The smallest amount of aperient necessary to produce a daily evacuation should be employed; if it be desired to produce a soft motion a saline aperient was indicated, as it influenced the large bowel alone. In the presence of severe autointoxication the question of operation might be considered, whether lateral anastomosis or other.

Dr. Wm. Ewart discussed the possible importance of distension of the colon with gas and alluded to the training of the function of strain as bearing on the prevention of constipation.

Dr. G. Herschell mentioned the use of a dose of carmine with a test meal as a means of ascertaining the seat of the constipation, following the dose with an enema if necessary. The rôle of colitis in relation to constipation was discussed. Allusion was made to the use of injection of warm olive oil at night in the treatment of spastic constipation. The sigmoidoscope was of much value in the diagnosis of the causes of constipation.

Dr. Guelpa of Paris sent a communication upholding the importance of autointoxication as a concomitant of constipation.

Dr. Stuart Tidey of Montreux had found that the more gregarious a people were the more was chronic constipation prevalent. He favored the treatment by lavage and operation of different kinds for the severer type of the malady.

Dr. Eason of Edinburgh discussed the treatment of constipation with hormones as regulators of peristaltic movements.

Dr. John Haddon discussed points in the physiology of defecation.

Dr. W. Ewart gave a demonstration on the value of percussion of the vertebræ in diagnosis.

Friday, July 29—Third Day.

The third day of the Section's meeting was occupied with the discussion of original papers. Dr. Wilfred Harris of London read a paper on the treatment of neuralgia and sciatica with injections of strong alcohol or solutions of eucaine in normal saline solution, respectively, into the nerve trunks, in which good results were recorded by the method. The paper was discussed by Dr. D. A. O'Sullivan.

Dr. Laurence Humphry of Cambridge read a paper on a case of aneurysm of the aorta communicating with the superior vena cava, which was discussed by Dr. Morley Fletcher. Dr. Humphry and Dr. W. E. Dixon described a case of acromegaly with hypertrophied heart and other organs, in which new pressor substances were found in the urine. It was discussed by Professor Gosall. A communication on the prophylaxis and treatment of diabetes and other diseases by starvation was made by Dr. G. Guelpa of Paris. It was discussed by Dr. R. W. Philip, the president of the section.

One on the effects of electrical currents on blood pressure was made by Dr. Ettie Sayer, which was discussed by Dr. S. Sloan of Glasgow and Dr. J. Haddon.

Dr. A. C. Jordan read a paper on the Röntgen-ray appearances of thoracic aneurysm, illustrated by lantern slides, which was discussed by Dr. Herbert French.

Dr. Souttar demonstrated an improved and simplified gastroscope with a working model upon which its passage could be practised.

Dr. J. S. Mackintosh read a paper on the evolution of racial types of Europe and its bearing on the racial factor in disease. Dr. W. Carmac Wilkinson read a paper on the tuberculin treatment of pulmonary tuberculosis, which was discussed by Professor Sahli of Berne, Dr. G. A. Heron, Dr. Odell of Torquay, Dr. French, Dr. Garson, Dr. Hamilton, Dr. J. F. H. Dally, and the President.

SECTION OF SURGERY.

Thursday, July 28—Second Day.

Previous to the formal proceedings, an interesting demonstration was given by Dr. Depage of "Instruments for Screwing Bones."

Surgical Treatment of Exophthalmic Goitre.—Professor Theodore Kocher of Berne opened the discussion on this subject. He referred to the latest progress in the surgical treatment of the disease. For one thing, it was now possible to make an earlier diagnosis. He strongly advised that a systematic examination of the blood should be made in every case, and more especially when there was any doubt whether the symptoms were those of an ordinary goitre of a nervous source, or of Graves' disease. As a result of recent investigations certain changes had now been found in the blood, which made a positive diagnosis possible. The leucocytes diminished from 7,000 to 3,000 or less, and this diminution was due to a decrease in the polymorphonuclear cells, the lymphocytes being often increased. These changes in the composition of the blood had now been confirmed by independent researchers, and had great value in the diagnosis, and also in the prognosis of the disease. For instance, when one part of the thyroid had been ligatured and the blood was found to return to normal, then it was known positively that the cure was perfect. It had been asserted that analogous changes were found in the blood in some other diseases, but he had always found certain differences, and he was of opinion that in doubtful cases the blood was really the best guide for accurate diagnosis. Recently all cases of hyperthyrosis had been confused with Graves' disease, but there were physiological cases of hyperthyrosis. If in doubt, it was only necessary to consider the coagulability of the blood. In Graves' disease it was found that the coagulability of the blood was slower than in normal blood, and that the intensity was also less. In myxedema one had just the opposite, so that these points were sufficient to decide. It must not be thought that Graves' disease was the beginning of myxedema. These changes in the blood had now been produced artificially. It was well known that if ordinary goitre was treated with iodine preparations, symptoms of Graves' disease often supervened. The supposed influence of the nervous system on exophthalmic goitre was brought out by the fact that many patients referred their symptoms to a fright. Certainly if Graves' disease was due to an irritation of the sympathetic nervous system, it was good practice to remove such irritation by rest. If one did not like to operate in such cases, then one should tell his patient to do nothing, and should do nothing himself. A suitable diet should be given, and all iodine preparations excluded. Such patients might get much worse at the seaside from the effect of iodine. But in most cases such means of treatment were insufficient, and operation was called for. The influence of the nerves could be cut off by ligature of the vessels to one side of the gland, the ligatures probably including sympathetic nerve fibers, or a partial excision of the gland might be performed. In

all cases the patient should first be examined carefully for signs of organic changes in any organs. He had operated in 469 cases of Graves' disease, in several instances operating more than once on the same patient, with a total mortality of 3 4-10 per cent. At first his cases showed a mortality of 5 per cent., but this year it was only 1 3-10 per cent. To get good statistical results, it was necessary to select cases carefully for operation. He considered an irregular pulse was the worst contraindication to operation, and that nephritis also was of grave import. Many observers were now agreed that operation was invariably followed by improvement, and when physicians realized the great danger of long-standing cases of Graves' disease, they would no longer resist early operation.

Dr. Hector Mackenzie of London said he must congratulate Professor Kocher on the wonderful results of his operations. The symptoms which indicated exophthalmic goitre were closely simulated by those of over-activity of the thyroid gland, but the severity of the symptoms was not always proportional to the size of the gland. In some cases as the patient got worse the gland might get smaller. The relation of the thymus to exophthalmic goitre must not be lost sight of. In many fatal cases the thymus was found to be enlarged—although one exception to this had been noticed at St. Thomas' Hospital, where the gland was atrophied. Enlargement of the bronchial glands, and of lymphatic glands generally, had often been noticed. In fact there was no doubt that the status lymphaticus (generally unsuspected) really underlay many cases of exophthalmic goitre, and that this condition contributed to the great risk of the operation. Although he admitted that hypertrophy and overactivity of the thyroid might produce the disease, he did not expect the removal of the gland, or a part of it, to effect a cure; and he had seen no case to support such a view. He would like to know how many cases Professor Kocher rejected as unsuitable for operation, for the results at St. Thomas' were not encouraging, and inclined him to persevere with medical treatment. He thought that many of the cases operated upon abroad must be very mild ones, and possibly quite suitable for medical treatment. He firmly believed that exophthalmic goitre was a disease for which a medical cure would eventually be found, and even in the serious type of case he considered the risk to life of operation to be too great to make it justifiable.

Dr. Bruce of Toronto paid a tribute of admiration to the pioneer work of Professor Kocher. He considered the question of the choice of anesthetic was very important. Professor Kocher used local anesthesia, but in Canada they did not find it suitable. They preferred not to tell the patient when the operation would be done, and to administer a general anesthetic under the guise of an aromatic inhalation, so as to get rid of psychical excitation. He had operated on 20 cases of exophthalmic goitre without a death, but the next two cases had been fatal; one from pneumonia, and the other was found to have an enlarged thymus gland.

Mr. George Heaton of Birmingham said it was still an open question whether the symptoms of exophthalmic goitre were due solely to a hyperthyroidism, or poisoning of the system by an excess of thyroid internal secretion, or whether they are not rather caused by a perverted action of the gland—an "aberrant" thyroidism. For if the first view were correct, removal of the source of excessive secretion must almost necessarily be followed by a cure of the symptoms; but if they were due to a perverted secretion, cure might not so certainly follow if any portion of the gland were left behind. We must bear in mind in considering the operative risks of Graves' disease that many cases of ordinary parenchymatous and cystic bronchoceles exhibit some symptoms of hyperthyroidism. There were pronounced tachycardia and palpitation in many such cases, and occasionally the nervous symptoms were also present, and some slight degree of exophthalmos. They are often mistaken for cases of true Graves' disease, and in fact were regarded as such by some surgeons. Cases of this nature were very numerous. They did excellently when operated upon. The operative risk was infinitesimal, and a complete cure might be assured. It was the inclusion of these cases by surgeons in their statistical list of operations that has given rise to such divergent views as to the risks and dangers of the operation. At any rate, one cannot help thinking when reading some of the series of operations for Graves' disease by American and Continental surgeons, that a good many of the cases so reported would scarcely be regarded here as cases of true Graves' disease, but rather as cases of ordinary goitre, with some symptoms of hyperthyroidism. Putting aside these cases there remained the large class of cases which all recognized under the name of Graves' or Basedow's disease, with the classical symptoms of goitre, tachycardia, and exophthalmos. That purely medical measures failed in a large number of such cases to arrest the progress of the disease few would gainsay; and we had therefore only to discuss here the surgical question. The whole danger of the operation lay in delay. In the quite early stages of the disease the risk of excision, though greater than in simple goitres, was a comparatively small one, but rapidly became greater as the patient's symptoms increase in severity. When the symptoms had been in existence for a considerably longer period and were slowly progressive, or when, as so frequently happened, the patient relapsed as soon as a strict regimen was relaxed, operation might still be advised. But the risks of the operation, which were now much greater, must be fairly put before the patient, and we were no longer in a position to promise a cure, though we might expect great improvement from it. The third class was the advanced or extremely acute case. These were the ones that the surgeon was most frequently called upon to see. All else had failed, the patient was rapidly going down hill, the tachycardia, restlessness, and nervous symptoms were intense, and diarrhea and vomiting with pyrexia were often present. Here surgery fails miserably. With regard to the operation itself, a general anesthetic was to be preferred, and it did not add to the risk, but rather minimized it. Rapidity of operation, gentle handling of the tumor during extirpation, and free drainage afterwards would lessen the risk of thyroid absorption, and for the first 24 or 48 hours afterwards continuous rectal enemata of a weak solution of sodium phosphate should be administered. This was one of the best means at our command for guarding against the restlessness and cardiac collapse which were apt to follow any operation or traumatism in patients with Graves' disease.

Mr. Robert Campbell of Belfast said that in his experience physicians were more inclined to operative treatment than the surgeons. He considered there were two forms of exophthalmic goitre. The primary acute form, in which there was sudden onset and the disease progressed rapidly; and another form in which the patient had an enlarged thyroid for years and then later develops tachycardia. He preferred ether preceded by morphia as an anesthetic. He had had one case in which a patient improved after a partial thyroidectomy, but relapsed after a visit to the seaside. He thought we required more evidence of the mortality of exophthalmic goitre when not operated on.

Mr. R. Kennedy of Glasgow wished to draw attention to a point he had noticed, viz., that the protrusion of eyeball was less noticeable after excision of half the gland, and on the same side. He had noticed the same effect of excision of cervical sympathetic. He considered a general anesthetic very dangerous in such operations and preferred local anesthesia, obtained by ½ gr. of cocaine in a ½ per cent. solution. The rise of temperature noticed after

such operations was not due to sepsis, but to the absorption of gland substances. In acute cases with heart symptoms, he preferred delay with rest in bed and hygienic treatment.

Mr. Gilbert Barling of Birmingham thought this condition must be considered both from a medical and from a surgical point of view. In regard to Professor Kocher's statement that there is a diminution in the coagulability of the blood in Graves' disease, he remembered a case of his own which died after ligature of the thyroid vessels, and in which there was complete thrombosis of the femoral vessels. In regard to the question of anesthetics, he would like to give his experience of three fatal cases he had met with. In the first, a woman, 35 years of age, with severe and prolonged Graves' disease, after a period of bed and rest, he had ligatured both thyroids under chloroform, and she died the same day. He blamed the chloroform. The second case was also a woman, aged 50. He ligatured both thyroids under eucaine, and she died in three days. Then he did not like local anesthesia. In the third case, a nurse, aged 23, he ligatured both thyroids under ether, preceded by morphine, and she died the same day. He came to the conclusion that the main thing was to operate early, and that the kind of anesthetic did not matter.

Mr. Donald Armour of London said he had abandoned ligaturing in most cases, and preferred excision of the gland. In regard to the anesthetic, he preferred chloroform given by the Vernon Harcourt method, and preceded by morphia and atrophine. He deprecated handling the gland during the operation.

Mr. Deansley of Wolverhampton considered all cases of exophthalmic goiter were one and the same, differing only in degree. He considered that the progress of the disease was arrested by operation, but he had not seen any case cured.

Mr. Walter Spencer of London preferred a very simple operation. He divided the isthmus and widely separated the two parts under gas. This was a useful procedure, if only as a preliminary to subsequent tying of the thyroids.

Observations on Some of the Factors That Determine the Results of Surgical Operations.—Dr. Crile of Cleveland read this paper.

Friday, July 29—Third Day.

Dr. Martel of Paris demonstrated a surgical instrument he had designed for the rapid and safe removal of bone from the vault of the skull.

Conditions Simulating Cancer of the Stomach.—Mr. F. D. Bird of Melbourne read this paper. Syphilis might be mistaken for malignant disease, and when not removed because deemed inoperable might eventually subside. A syphiloma seemed to invite gastrectomy because it was often well defined and situated on the lesser curvature; but the right course was to excise a piece in doubtful cases and examine it microscopically. Syphilitic tumors of the stomach were usually associated with such stigmata as white markings on the liver and scars in the membrane. He cited the case of a man at 35 with a tumor of this kind, which disappeared after four months' antisyphilitic treatment. Wassermann's test should be used before operation. Hydatids and myxedema also stimulated cancer, and exploration by sight and touch was often necessary before a confident diagnosis can be made.

Conditions Which Simulate Cancer of the Stomach.—Mr. Alexis Thomson of Edinburgh read this paper. In 49 resections of the stomach for cancer, microscopical examination, chiefly by the use of large sections, showed that in only 35 was the lesion of a cancerous nature. In 23 specimens from the University Museum catalogued as cancer, microscopical examination showed that only 17 were really cancer. In a total, therefore, of 72 stomachs believed to be cancerous, no less than 20 = 27.7 per cent. were found to be nonmalignant; of these one was tuberculous; the remainder, 19, were instances of diffuse fibromatosis of the submucous coat. The speaker then discussed the characters of fibromatosis, its external resemblance to cancer, and its tendency to be diffused widely throughout the stomach, and to invade adjacent organs—*e.g.* colon and pancreas. It might moreover be associated with chronic ulcer, and fibromatosis with "ulcer-cancer." Fibromatosis was probably of infective or toxic origin.

The Early Diagnosis and Treatment of Cancer of the Stomach.—Mr. Herbert J. Paterson of London held that a definite diagnosis of cancer was not necessary in every case; but only to establish the necessity for surgical treatment. The minimum operation should consist of removal of two-thirds of the stomach with the glands along the lesser curvature, and one inch of the duodenum. In late cases it was advisable to remove the transverse colon and great omentum as well. In most cases it was advisable to operate in two stages: First—Preliminary gastrojejunostomy; second—resection three weeks later. The greater safety of this method more than outweighed its disadvantages. The results of operation, both immediate and remote, were slowly but steadily improving.

Excision of Gastric Ulcers.—Mr. E. Deansley of Wolverhampton read this paper. The results of gastrojejunostomy in these cases were unsatisfactory in the long run, though symptoms were relieved for a time. He advocated removal of nonmalignant ulcers, whether nonperforating or perforating. In support of his views he related his personal experience of eight cases of excision, which convinced him that this should be the operation of choice in all centrally situated ulcers not involving the pylorus or duodenum.

Radical Abdominoperineal Operation for Cancer of the Rectum and of the Pelvic Colon.—Mr. W. Ernest Miles read this paper and submitted tables showing that the steps of progress in extent of operation for rectal cancer, and the period of immunity from recurrence, were steadily increasing. Table VI. set out 26 cases of radical operation in his own practice. He laid stress on preliminary preparation of the patient for one week by clearing out colon, lavage, and use of salol. If stenosis was present cacostomy should be done three weeks before excision. Careful light dieting and the giving of strychnine were advised. The paper was discussed by Mr. Drew, Mr. Bond, and Mr. Mummery, who all gave general support to the measures advocated by Mr. Miles.

The Clinical Manifestations, Diagnosis, and Treatment of Liver Hydatid.—Mr. C. MacLaurin of Sydney read this paper. Jaundice was present in 10 per cent. of the cases. Hydatid thrill was infrequent and of little or no value. Rupture was a serious complication and might follow light injury or muscular action. Most diagnostic tests were not reliable; radiography was one of the best. He recommended transcostal marsupialization at the level of the eighth and ninth ribs, if possible; opening of the sac to be preceded by the injection of formalin.

Suture of the Circumflex Nerve.—Mr. R. Kennedy of Glasgow read notes of a case of suture of the circumflex nerve, eight months after injury. Three defects were found, (1) abduction of arm only 30°; (2) atrophy of deltoid, with absence of response to faradism or galvanism; (3) backward displacement of lower angle of scapula. At operation two bulbous thickenings were found in the circumflex nerve connected by loose connective tissue. The bulbs were excised and the ends of the nerve joined. Good recovery followed after five months. He showed photographs of the patient taken before operation and eighteen months after.

The Operative Treatment of Chronic Mucous and Ulcerative Coitis.—Mr. Lockhart Mummery read this

paper. When medicine had failed, operation should not be unduly postponed. The disease had a high rate of mortality. Widal's test should be used to exclude typhoid; and sigmoidoscopy should not be omitted. Appendicostomy was the operation of choice, followed by regular irrigation.

The proceedings concluded with a vote of thanks to the readers of papers during the three days' session, moved by the President, Sir Victor Horsley, and replied to by Professor Kocher.

SECTION ON GYNECOLOGY AND OBSTETRICS.

Thursday, July 28—Second Day.

Treatment of Fibromyomata Complicating Pregnancy.—Dr. W. H. H. Tate of St. Thomas' Hospital, London, opened this discussion. He said that, in his opinion, there was a tendency to overestimate the dangers by some authorities and to underestimate them by others. He would direct attention to the following points: (1) Changes in the fibroids; (2) the tendency to abortion; (3) the risk in labor. Increase in size of the tumor might cause great distress, and in large fibroids there might be serious symptoms from pressure on the diaphragm. The most danger from pressure occurred when the fibroid was situated in the true pelvic. Torsion of the pedicle during pregnancy was exceedingly rare. The frequency of miscarriage in these cases had been estimated by Kelly at 25 per cent. and by Pinard at 21 per cent., which was not much above the percentage in normal pregnancies; the danger of miscarriage was that there might be great difficulty in removing the placenta and resulting hemorrhage or sepsis. In labor the greatest danger was rupture of the uterus and this was more likely to occur if the complication had not been recognized beforehand. There was also some danger of postpartum hemorrhage, and during the puerperium the fibroid might become extended and present through the os; sloughing then took place. Necrobiotic change in the tumor might follow delivery, and the symptoms then suggested pelvic peritonitis. True suppuration was extremely rare. Only a very small number of cases called for interference during pregnancy, and this was the experience of most authorities. As regarded the treatment of fibroids complicating pregnancy, he would divide the cases into three groups: (1) Fibroids in the pelvis, including cervical tumors; (2) fibroids in the lower uterine segment; (3) fibroids above the brim of the pelvis. In the first group he would push the tumor above the brim, and, if that was impossible, would do an abdominal myomectomy, postponing interference to as near full term as possible; he would not recommend vaginal enucleation in these cases. Fibroids of the second group might interfere with labor, but he advised expectant treatment during pregnancy, and he condemned induction of abortion. Where the fibroid was entirely abdominal most of the cases needed no treatment, but, where operation became necessary, he advised myomectomy. Prophylactic operations for interstitial fibroids had no place during pregnancy, and induction of abortion and of premature labor was universally condemned. The question arose whether myomectomy should be done when other fibroids were present. He thought it was advisable. He strongly advised conservative treatment during pregnancy, because that particular pregnancy might be the woman's only chance of having a child.

Dr. Amand Routh of Charing Cross Hospital, London, agreed in the main with Dr. Tate. He thought it was becoming more fully recognized that surgical treatment was not required during pregnancy. He drew attention to the improvement in results compared with 30 years ago, when women in labor complicated by fibroid almost all died. The softening change which took place during pregnancy favored nature's method of surmounting the difficulty by rendering the tumor more easy to displace. Induction of abortion and premature labor should be entirely given up. If myomectomy was required on account of degenerative changes and other fibroids were present, he would let the case go to as near term as possible and then do a cesarean hysterectomy.

Professor Spencer of University College Hospital, London, said that it had been estimated that of women of 40 years of age 25 per cent. had fibroids, so that pregnancy with fibroids was more common now than formerly, as women were marrying later in life. He had performed myomectomy during pregnancy on one occasion only. He had never removed the pregnant fibroid uterus in the earlier months. He had seen many cases even with large fibroids go through an easy labor. Dr. Tate had mentioned pain as a reason for operating, but he had never seen a case in which operation was required for this symptom, and he found that by putting the patient to bed on a milk diet the pain usually disappeared.

Some Cases of Pregnancy Complicated by Fibromyoma Uteri.—Dr. Cuthbert Lockyer of London read this paper. There had been five cases in which surgical interference was called for during pregnancy. In four of these he had performed abdominal hysterectomy and in one myomectomy. Three cases required operation in the puerperium; in one vaginal hysterectomy was performed, and in two total abdominal hysterectomy. See printed list appended.

Mr. Alban Doran of the Samaritan Hospital, London, advised leaving the cervix and ovaries in all cases in which hysterectomy was performed.

Mr. Christopher Martin of Birmingham had seen two cases of uncontrollable vomiting with interstitial fibroid which had required induction of abortion. In these cases he attributed the vomiting to the presence of the fibroid. He considered myomectomy the operation of choice.

Dr. A. J. Wallace of Liverpool showed a large fibroid tumor which had been attached by an area 4 inches in diameter to the pregnant uterus and which he had removed by myomectomy, without disturbing the pregnancy.

Dr. Nigel Stark of Glasgow had found that large interstitial fibroids were most difficult to deal with, and, in some of these cases, had performed induction of labor, followed later by myomectomy.

Dr. Hubert Roberts of London said that tumors of the upper uterine segment were of no importance in connection with pregnancy. Cervical fibroids were the most dangerous. He did not believe that malpresentations or post partum hemorrhage were more common than in normal cases. He would not operate for pain alone. He would only do panhysterectomy when the uterus was septic.

Dr. Arnold Lea of Manchester had met with 8 cases altogether; 5 cases were operated on during pregnancy, 4 by hysterectomy, 1 by myomectomy. There was red degeneration in four of the cases.

Dr. A. E. Giles of Chelsea Hospital for Women, London, thought that some of the speakers had underestimated the danger and risk of these cases, and he pointed out that when the patients were in a lying-in hospital or under expert supervision the danger was much less than in general practice. He thought that complications occurred in 50 per cent. of the cases. He held that women with fibroids should be advised not to marry. He discountenanced induction of abortion or labor, but advised that patients should be kept under strict observation. When operating for this condition at term by cesarean section he would always do hysterectomy and not subject the woman to the risks of another pregnancy.

Dr. Lloyd Roberts of Manchester said that 50 per cent. of those women miscarried. He had in many cases seen fibroid tumors disappear in the puerperium.

Dr. Walter Swayne of Bristol had dealt with three

cases. In the first there was a large abdominal tumor and dyspnea; he did hysterectomy. In the second he did abdominal myomectomy for a tumor the size of a cocoanut and patient miscarried six weeks later; and in the third he enucleated through postfornix and patient went to term.

Professor Murdock Cameron of Glasgow has never seen fibroids disappear after labor. He sterilized in all cases of cesarean section unless the patient refused permission.

Mr. Furneaux Jordan of Birmingham advised myomectomy in preference to hysterectomy, and he had had two cases in which normal labor had followed myomectomy.

Dr. Tate, in reply, said that there were undoubtedly some cases in which operation was indicated for pain alone.

Two Cases of Occlusion of the Bowels by the Retroverted Uterus.—Professor Gottschalk of Berlin read this paper. The first case was one of acute incarceration of the bowel by the retroverted, fixated, nonpregnant uterus and was cured by a laparotomy. The second case was one of obturated ileus by the retroverted, puerperal uterus causing a pseudopuerperal peritonitis and was cured by the knee-elbow pelvic position.

Localized Necrosis in an Adenomyomatous Right Tube Associated with Left Tubal Mole.—Dr. Frances Ivens of Liverpool reported this case. There was a nodule one-half inch diameter in tube wall. She discussed the theories of formation of adenomyoma including Recklinghausen's and the question of the possibility of the necrosis in her case being due to tubercle.

The Causal Treatment of Dystocia in Cases of Pelvic Contraction.—Professor Von Herff of Basle, who was unable to be present, sent this paper, which was read by the secretary. He said causal treatment could only be effected in two ways: (1) By enlarging the opening of the pelvis; (2) by reducing the size of the fetal head. As regards (1), this could be attained to a slight extent by the hanging leg (Walcher's) position or to a greater degree by section of the pelvis. The maternal mortality of symphyseotomy was 8 per cent. and of pubiotomy 4 per cent. In addition to this, numerous injuries resulted. In some cases the locomotive powers were impaired, in others there was prolapse of the vagina, but the most serious result was permanent incontinence of urine, and he asked should not one case of the latter discredit the operation? The fetal mortality of these operations was 8-9 per cent. The second method of causal treatment by attacking the child could be carried out by: (1) Inducing premature labor. This should never be done more than four weeks before full term. (2) Reduction of size of craniotomy. This should be chosen in all cases when the child was dead. He had not perforated a living child, but he owned that it was not always unavoidable in general practice. He had found that 80-90 per cent. of his cases of induced labor were delivered spontaneously after induction; 20 per cent. of the children died before the end of the second week. This was a greater mortality than after pelvic section, but on the other hand the mother ran no danger, and the maternal mortality was nil. He recommended induction of labor in all cases in which the pelvic contraction was not too great, and he always performed the operation by puncturing the membranes.

Dr. Tate of London thought that there had been a tendency to put induction of labor on one side in favor of the more brilliant operation of cesarean section, and was of opinion that when there was a reasonable chance of getting a living child by induction this operation should be chosen.

Dr. Swayne of Bristol thought contracted pelvis was largely a matter of locality. It was rare in Bristol.

Dr. Buist of Dundee agreed that puncturing the membranes was the best way of inducing labor.

Dr. Mary Scharlieb, President, questioned the influence of diet, as she had often seen large, healthy children born of starved women in times of famine in India.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Thirty-Second Annual Congress held at Washington, D. C., May 3, 4 and 5, 1910.

(Special Report to the Medical Record.)

James E. Logan, M.D., of Kansas City, Mo., President.

First Day, Tuesday, May 3.

President's Address.—Dr. James E. Logan of Kansas City, Mo., in his address paid a tribute to the founders of the Association, reminding his hearers of the unfavorable conditions under which these men began their work. He called attention to the necessity of being careful in regard to the admission of new members. The meeting in Washington every three years was a most admirable feature, as it enabled the members to keep in touch with the progress in other specialties. It had come to be recognized that the two main functions of the nasal cavities and the nasopharyngeal space were respiration and drainage and that nothing must be allowed to interfere with the free and proper performance of these duties. It was, of course, plainly seen that congenital deformities and the traumatisms of childhood as well as accidental injuries in adult life produced conditions rendering respiration imperfect and prohibiting drainage. Hence the rhinologist had ceased merely to spray out nostrils and apply topical remedies and had become a surgeon. Reference was made to the sudden death from accident of Dr. Gordon King of New Orleans, an active Fellow of the Association, and a tribute was paid to his memory.

The Nasal Phenomena of Neurasthenia.—Dr. Charles P. Grayson of Philadelphia said that recent neurology drew a rather sharp line between inherited or essential neurasthenia and that which was acquired or more or less voluntarily assumed and which was indeed scarcely more than symptomatic of an autointoxication which exerted its pernicious effects upon the higher nerve centers. To the rhinologist there was practically little difference between the two. The nasal disorder of neurasthenia was to be differentiated from hay fever. The exciting causes of the former were different from those of the latter and bore no relation to season, animal or vegetable excitants and were relieved by outdoor life, which aggravated hay fever cases. Excitants of the former might be central while those of the latter were peripheral. But in the former the vasoparesis and the infiltrative tumefaction of the turbinates are at times even more accentuated and so complete had been the vascular stasis that the incision of the edematous turbinates had given escape to a quantity of mere bloodstained serum. Such a condition as this might well account for the headache, mental apathy, and even melancholia of neurasthenia. In such cases mere cauterization of the turbinates was insufficient. They should be first drained of their serum by multiple puncture or free scarification followed by the cautery, either chromic acid or galvanic. Internally such tonics as the glycerophosphates of lime and soda in combination with full doses of struchnine should be given.

Dr. B. R. Shurly of Detroit said that he had made during the last year observations on carrier pigeons after making long flights. He made sections of the spinal cord observing under the microscope the action of fatigue, and it was possible to note an absolute change in the finer granulations of the anterior portion of the larger nerve cells. Such a change in the human being would explain the various vasomotor neroses confronting us in neurasthenia. There was also an actual change in the natural secretions. The dryness in the air passages which these neurasthenics often complain of would promptly respond

to regulated doses of sheep's thyroids. Again the exhibition of iodine was often of great value.

Dr. J. Payson Clark of Boston said that no one would feel justified in making a diagnosis of neurasthenia from nasal conditions alone. The more we knew of the latter the more cases would we be able to remove from the category of neurasthenia. In some cases he had found in both antra of Highmore a glairy mass which would come out in one piece and the removal of which rid the patient entirely of local symptoms which were greatly affecting his general health.

Dr. R. C. Myles of New York City had seen such cases as Dr. Grayson described produced by sarcoma of the septum and by various sinus inflammations. In other cases there was an intumescence of the tissues relieved by surgical intervention which did not affect the sinuses. These patients did not stand operation well, and after them often became profoundly depressed. He had seen during the past winter cases of peculiar pains in the neck, thyroid enlargements, excited hearts, etc., in which the dried thyroid had aggravated rather than relieved them.

Dr. H. L. Swain of New Haven thought that there was in some of these neurasthenics some anatomical conditions or physical properties in the mucous membranes differing from those of normal individuals. They had thinner walled vessels, less fibrous connective tissue and fewer muscular elements. Given this lack of firmness in texture of the vessel wall and the hyperesthetic nerve endings and we had ample cause for the condition under consideration. There were many expressions of nerve-tire which was perhaps the real significance of the term neurasthenia.

Dr. Grayson, in closing, said that he would not make a diagnosis of neurasthenia from nasal conditions alone. A large proportion of patients, however, manifested the symptoms he had described. Many of the phenomena might be due to other conditions than neurasthenia. Various toxemias might cause temperature, engorgement, edematous turbinates, etc., but these conditions were transient. In the class of cases described in his paper the symptoms were continuous. They must have been due to something else than toxemia, for they had improved under general treatment while the local condition remained the same.

Some Points in the Comparative Anatomy of the Larynx in the Anthropoidea.—Dr. J. Gordon Wilson of Chicago presented this paper, which was based on studies of the larynges of a Chinaman, orang-outang, several macacus monkeys, and a marmoset. These were compared with the larynges of a Caucasian, adult and infant, a young lion, and some of the domestic animals such as the cat, dog, and horse. In the Chinaman the characteristic features were (1) a pouch behind the arytenoid, and (2) an anterior sinus, both of which are Simian characteristics. In the orang-outang the most distinguishing features of the laryngeal ventricle and its appendages were (1) their union across the middle line anteriorly, (2) the pouch-like cavity posteriorly behind the arytenoid, and (3) the extralaryngeal sacs. In the *Macacus rhesus* the floor of the ventricle was almost level with the edge of the true vocal cord, while the false cord was only slightly if at all excavated except where the appendix came off. Anteriorly the true and false cords approximated near the middle line. No canal or sulcus existed as in the orang-outang. On the other hand the cords of each side were separated by a vertical median furrow which passed up into the entrance of the median sac so that a probe passed up from below entered the sac. In the marmoset the aperture between the true and false cords was a mere slit. The ventricle came anteriorly to within 0.5 mm of middle line. No transverse sulcus connected them. In the Rhesus, however, they were separated by a median longitudinal furrow. At the upper part of the median gutter lay a marked depression suggesting the opening of a median sac, but no trace of one was found on careful dissection. A probe passed up from the ventricle into the appendix reached into a small cavity in the hyoid near the middle line. The body of the hyoid was expanded, being 1 cm broad in the middle line, and indicated the position where both the ventricles met together though they did not fuse. The second portion of the paper indicated the relation of the thyroarytenoid muscle to the vocal cord. In connection with this subject a series of microscopic drawings was presented and the variations traced throughout the series of animals studied. The various theories as to the functions of the laryngeal sacs were thus given; that they acted as resonators, that they poured secretion on the vocal cords and kept them moist (Fraenkel), that they lightened the upper part of the body and assisted them (apes) in climbing (Vrolick), and that they acted as a protection (extra laryngeal sacs in apes) for the vessels of the neck (Denker). The author stated his view that in emotional states these inert sacs could be called into play, could be distended and modified in form. Thus there could be given to vocal emission a tone of peculiar and significant intensity. It appeared to him that the characteristic cry of the howling monkeys was not intended to frighten the animals' enemies as is generally stated but was intended to modify the voice in order to express mental states and emotions. A monkey was capable of uttering some half dozen sounds of different pitch. The howling was most marked during the breeding season. Regarding the appendix, the author discussed its varying size in relation to laryngocele and the lateral extralaryngeal sacs in man. Laryngocele was an enlargement of the appendix which projected beyond the normal limits of this diverticulum, for example into the sinus pyriformis or above the hyoid into the glosso-epiglottic fossa. The extralaryngeal sac was an enlargement of the appendix which projected through the thyrohyoid membrane lateral, the thyrohyoid muscle and lies under the platysma hyoids. There appeared to be sufficient evidence that certain enlargements of the appendix were pathological, *e.g.* the presence of a tumor blocking the aditus laryngis causing a dilatation of the ventricle. But in a general way all were to be classed with hernia due to a congenital or acquired weakening of the thyrohyoid membrane, and as a consequence dilatation subject to respiration. In a comparative study of the musculature directly related to the vocal cord the outstanding facts appeared to the author to be a gradually increasing complexity of the thyroarytenoid muscle and a closer approximation of it to the ligamentum vocale. The facts suggested a function directly related to the true cords and their physiological activity. They showed the development of a mechanism by which a finer or more exact control of the vocal apparatus can be obtained. The incorporation of the muscle in the cord would bring the activities of the cord under the control of the nervous system. If the sacs could be used to vary the voice in states of emotion how much more exact, how much more capable of development, would such a muscular mechanism be?

Exhibition of Anatomical Preparations Demonstrating Communications Between the Blood-Vessels Supplying the Dura, the Orbit and the Nasal Chambers.—Dr. George E. Shambaugh of Chicago exhibited sections illustrating these vessels. He said that these vascular connections could be easily made out in gross dissection except that the vessels of the mucosa of the nasal sinuses and the dura and orbit required the preparation of microscopic sections. When it was shown, however, that the vessels of the dura and orbital periosteum, nasal mucosa and sinus mucosa sent branches to supply the bony plates separating these structures it could be assumed that connection between the two sets of vessels occurred within these plates. The author alluded to the teaching of Zukerkandl and Killian on this subject.

Dr. H. P. Mosher of Boston said that statements on this subject as given in the text books had been vague and indefinite and that it was eminently satisfactory to have the matter definitely settled by such a careful observer as the author.

The Manifestations of Recurrent Influenza of the Nose and Throat.—Dr. J. L. Goodale of Boston said that during the last few years his attention had been attracted to a group of cases exhibiting a well-defined symptom-complex. They had been characterized by a primary involvement in the lymphoid tissue in the pharynx or nasopharynx with an immediate extension of inflammatory phenomena to the mucosa of the sinuses, trachea and bronchi with simultaneous subsidence of the inflammation in the lymphoid tissue. There was a history of annual attacks of gradually lessening mildness. Examination at the onset revealed reddening and swelling of the lymphoid follicles in the pharynx. It was important to note that the involvement of the lymphoid structures preceded any disturbance of the nose or lower air passages. An important feature was the involvement of the ethmoidal sinuses and of a definite region of the bronchi on the affected side. It was also noted that if there was a septal deviation the middle turbinate on the concave side was more frequently involved than its fellow. The question arose what was the pathological link existing between such attacks in the regions which predisposed them to invasion? In the nose we might have chronic hypertrophy or actual polypoid degeneration of the mucosa. In the bronchi there was no direct lesion shown by post-mortem findings. We might have bronchiectasis or hypertrophy of the bronchial mucosa. It would seem, however, that we probably had a state of affairs in a definite area of the bronchi analogous to that of the involved turbinate. Out of a series of twenty cases the author had never been able to abort any of them. Applications of the silver salts to the inflamed pharyngeal granules doubtfully shortened the duration of symptoms while the sinus and bronchial stages were not influenced but came on regularly. It seemed to him that while the symptoms were increasing in intensity, transition to a colder, drier, and higher region did more harm than good. He had come to regard perfect rest at home as the best course in the first half of the affection. After the acute stage was passed and the fever had subsided it seemed as if removal in the winter months to a warmer and moister climate, as Charleston, or the whole coast from South Carolina to Palm Beach, gave little improvement. Patients were no better after their return than before. The interior regions in these same localities manifested a prompt and beneficial effect. A stay of at least two weeks was necessary. A return from these localities to the more stimulating Northern air was often followed by prompt and immediate benefit even though this was not manifest in the South. Local cauterization of perhaps a single follicle in the pharynx was more beneficial to the cough than were sedatives.

Dr. J. E. Newcomb of New York said he could verify from personal experience the statement of the reader of the paper with reference to Southern climates. He had found Deland, Fla., the best and driest climate for those with the sequelæ of grip.

Dr. W. E. Casselberry of Chicago desired to emphasize the good resulting from cauterizing some one follicle or group of follicles in the pharynx. Persistent tickling and irritation were greatly relieved by this procedure. Next in order he would place cleanliness of the secretions. As to climate he had had better results from the dry regions of the west than elsewhere.

Dr. J. E. Logan of Kansas City had been inclined to assign the pharyngeal recesses as the place of entrance of infection in these cases. The application of a thirty per cent. solution of silver nitrate had been successful.

Dr. Goodale had found in his experience with the disease in his own person that crude carbolic acid answered every necessity of a cauterant and preferred it to the silver salt. It was difficult to apply properly medicinal agents to the nasopharynx. The upright arm of the applicator needed to be much longer than was usually the case.

Quinine and Urea Hydrochlorate as a Local Anesthetic.—Dr. E. Fletcher Ingals of Chicago gave his experience with this remedy. For a long time he had been searching for an agent that would produce prolonged anesthesia of the mucosa for the relief of hay fever and hyperesthetic rhinitis. In the treatment of the latter condition he had used this anesthetic many times before making long, deep, linear cauterizations across the inferior turbinate. He combined 15 per cent. of the urea-quinine solution with a 5 per cent. suprarenalin solution of 1-2000. He had used the same solution in the larynx, trachea and bronchi in connection with ether anesthesia in six bronchoscopies in children for the removal of foreign bodies from the lungs without any unpleasant results. It gave excellent results in a painful operation on the ethmoid cells. Here it was injected submucously, diluted about 15 times with topical application in the nares in three or four cases. He had employed it also for turbinectomies, removal of polyps and spurs and for submucous operations. It seemed to him to act much better than did a 20 per cent. solution of cocaine in adrenalin 1-1000. In nasal neuralgia and in one case of hyperesthetic rhinitis it do not seem to do well as it smarted so badly. He had found that ordinarily the healthy nose would bear a 10 per cent. solution. Rubbed up with sugar of milk, a strength of 5 per cent. was as strong as could be borne in a nasal snuff. It was a very valuable anesthetic but the author's experience did not lead him to expect very much from it in either hay fever or hyperesthetic rhinitis, but in view of the claims made for it in producing prolonged anesthesia and in view of the old treatment of hay fever by nasal applications of a solution of quinine he thought it was well worthy of a trial in these affections. The solution turned to a brownish hue after a few hours but seemed to work as well as ever except that the activity of the adrenalin was somewhat diminshed. It was better to combine the solutions just as they were to be used.

Dr. J. Solis-Cohen of Philadelphia had for many years used this remedy in pernicious malarial fever. He had removed growths from the larynx with as much facility as with cocaine. He had also used it in operations in the nasopharynx.

Dr. W. E. Casselberry of Chicago inquired if he had had any experience with it in laryngeal tubercle.

Dr. B. R. Shurly of Detroit had used this remedy in tonsillectomies but its injection had been followed by considerable swelling. He had known of glottic edema following its use.

Dr. J. Gordon Wilson of Chicago said that it was necessary to distinguish between true anesthesia and lack of response on the part of the nerve to a stimulus owing to protoplasmic death.

Dr. J. E. Winslow of Baltimore had for some months done all tonsillectomies under this anesthetic. Injection should be made of a 3 to 5 per cent. solution some fifteen to twenty minutes before operation. He had had no bad results although there was sometimes considerable swelling. With regard to the prolongation of the anesthesia his experience did not bear out that of the statements of various writers.

Dr. H. L. Swain of New Haven said that the protoplasmic death mentioned by Dr. Wilson was a most desirable thing to accomplish in laryngeal tubercle, simply from a humanitarian point of view.

Dr. Solis-Cohen of Philadelphia had had under treatment a severe case of tuberculous ulcer of the larynx and

one application of a 20 per cent. solution of this anesthetic allowed the patient to swallow for two or three days. Anesthesia followed in two or three minutes.

Dr. Ingals, in closing, said he had had as much bleeding with this as with any other anesthetic. He had not injected the tonsils at all. Considerable swelling had followed injection in his own cases. Most of them had prolonged anesthesia. The first few times he had used it in the nose it did not even take down the swelling and the bleeding was so obstinate that he had had to use adrenalin.

Syndrome of Sphenopalatine Ganglion Neurosis.—Dr. Greenfield Sluder of St. Louis said that the anatomical connections of this ganglion gave disease evidence in the motor, sensory, sympathetic, and gustatory fields. In the sensory realm there was a wide and characteristic distribution of pain along definite lines. The neuralgia might appear at the root of the nose, in and about the eye, in the region of the ear, is emphasized at the mastoid, may run to the shoulder blade, and in severe attacks to the axilla, arms, and fingers. There was an accompanying anesthesia of the soft palate and of the pharynx as low down as the bottom of the tonsil, possibly in the lower and anterior part of the nose. Often in the motor field the soft palate was involved; the palatine arch might be lower on the affected side, the uvula was often deflected from the affected side. The palate raphe was deflected in the act of swallowing from the affected side. Gustatory changes were a diminished and delayed taste on the affected side for sweets, salt, and bitters, applied to the middle third of the tongue. Some patients showed a perverted sense of taste while others were accompanied by salivation. Three of the author's cases had great sneezing with profuse serous secretion resembling that seen in rhinitis nervosa. Treatment referred to the use of cocaine to the nasal mucosa which might give immediate relief to some cases and in recent cases of moderate severity the relief was permanent. Sometimes several applications of a strong solution were required. In moderate to severe cases of longer duration, that is up to nine months, injections of alcohol into the ganglion had proved curative. In most cases three injections had been necessary. The application should be made near the sphenopalatine foramen.

Dr. H. P. Mosher of Boston said that he had had during the past year some experience in cauterizing the ganglion in vasomotor cases and in cases of asthma. His experience was summarized as follows: One case of intractable vasomotor rhinitis of years' standing was given a year's relief, and of three cases of asthma one was stopped for a week, one for two weeks and one for two months.

Dr. J. Gordon Wilson of Chicago said that while the changes in vasomotor and secretory functions were suggestive the gustatory phenomena reported by Dr. Sluder were difficult to reconcile with our present accepted knowledge of the course of these fibers. The results of testing the anterior part of the tongue varied so much in healthy individuals that to obtain definite results the test should be made both before and after operation.

Instruments for Direct Intubation of the Larynx.—Dr. Harris P. Mosher of Boston presented the instruments and gave a description of their use.

Dr. J. R. Winslow of Baltimore had had experience with this method which he strongly commended.

Dr. W. K. Simpson of New York City did not think that the method was superior to the old indirect method which he thought enabled one to exert more pressure in cases of stenosis. He would like to know if any one had had experience with the direct method in children?

Dr. J. P. Clark of Boston had had experience with the direct method in a case of diphtheritic stenosis in a child. He had found Dr. Mosher's instrument very useful.

Dr. A. Coolidge, Jr., of Boston thought we were working much less in the dark by the direct method.

Dr. Simpson said that the moment we put the tube in by the direct method we were obscured in our field as much as if we used the mirror.

Exostoses of the Accessory Sinuses.—Dr. H. P. Mosher also exhibited several charts illustrating these lesions and read a short paper on the subject. He said it would seem that the growth of exostoses in this region was analogous as far as size was concerned to the growth of ovarian cysts. The exostoses arose from small structures, had small pedicles, and reached in the end a size much greater than that of the structure from which they sprang. The author's specimens showed them to be equally common in the frontal and sphenoidal sinuses. They might exist either as mamillated regions or a single knob-like projection. In the first form there was a generalized periostitis, in the second form there was a true exostosis. In the phenoidal sinus there were, for the most part, needle-like spines. The author had seen none springing from the floor of the frontal sinus, but from all its other walls. It would seem reasonable to believe that the large knob-like masses seen in the frontal were the result of repeated traumatism. The author had also seen several instances of hemorrhagic sinusitis. It was not hard to conceive of local areas of hemorrhage in the sinus mucosa, the bleeding resulting from rarefaction of the air in the sinus. Given a small hemorrhage in the mucosa its organization and calcification might start an exostosis. In the author's case of frontal sinus exostosis the mass was removed by morcellation, but he was inclined to prefer a burr driven by a dental engine.

Radical Operations on the Maxillary Antrum.—Dr. W. L. Ballenger of Chicago gave the following technical description of a new operation on the maxillary antrum: (1) Incision under cocaine infiltration anesthesia in the vestibule of the nares along the ridge formed by the nasoantral angle. (2) Elevation over the antral wall of the periosteum. (3) Removal of the nasoantral angle with rongeur forceps until the anterior angle of the antral space is opened on a level with the inferior meatus. (4) Removal of the entire nasoantral wall beneath the attachment of the inferior turbinate through the opening at the anterior angle with Wagner forceps; the still further removal of the heavy portion of the mass at the floor of the nose with a small mallet and chisel. An opening was thus made extending from the extreme anterior angle to the posterior extension of the antrum and from the floor of the nose to the attachment of the inferior turbinate. The claims made by the author for this operation were: (1) It was as radical as the Denker operation as it affords complete access to the antrum for curettage, treatment and inspection; and (2) it was a much more conservative operation as it did not injure or remove the inferior turbinal and might be done with much less loss of blood and under local anesthesia in a few minutes.

The Influence of the Automobile Upon the Upper Air Passages.—Dr. D. Bryson Delavan, New York City, read this paper (see page 305).

Dr. B. R. Shurly of Detroit called attention to the development of a new occupation, that of automobile tester. These men were accustomed to ride several hours daily subject to the ill effects of the exhaust pipes all that time. Many of them kept the mouth open during the high-speed periods—developed the so-called automobile face. He had seen a number of cases of wind paralysis occurring in these persons.

Dr. J. O. Roe of Rochester had noted the lessening of sinus diseases in motor car users since the invention of the wind shield.

Dr. W. B. Casselberry of Chicago said that motoring was now so common that it would be hard to find a case of sinus disease in any one who did not use the motor car.

(*To be continued.*)

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

LIFE AND HEALTH. By JAMES FREDERICK ROGERS, M.D. 12mo; cloth; 202 pages. J. B. Lippincott Co., Philadelphia, Pa.

DER KAMPF UM DIE RENTE UND DER SELBSTMORD IN DER RECHTSPRECHUNG DES REICHSVERSICHERUNGSAMTS. Von ERNST SCHULTZE. 8vo; paper; 73 pages; 1.80 Mks. Carl Marhold, Halle, Germany.

DISEASES OF THE EYE. By G. E. DE SCHWEINITZ, A.M., M.D. 8vo; 945 pages; illustrated; $5.00 net. W. B. Saunders Co., Philadelphia, Pa.

SURGICAL AFTER-TREATMENT. By L. R. G. CRANDON, A.M., M.D. 8vo; 803 pages; illustrated; $6.00 net. W. B. Saunders Co., Philadelphia, Pa.

PULMONARY TUBERCULOSIS AND ITS COMPLICATIONS. By SHERMAN G. BONNEY, M.D. 8vo; 955 pages; illustrated; $7.00 net. W. B. Saunders Co., Philadelphia, Pa.

INDEX OF SYMPTOMS. By RALPH WINNINGTON LEFTWICH, M.D. 16mo; cloth; 451 pages; $2.25 net. Wm. Wood & Co., New York.

MIND AND HEALTH. By EDWIN ASH, M.D. (Lond.). 12mo; cloth; 115 pages; $1.50 net. Wm. Wood & Co., New York.

PHYSIOLOGY AND PATHOLOGY OF THE SEMICIRCULAR CANALS. By IBERSHOFF and COPELAND. 12mo; cloth; 64 pages; illustrated; $1.00 net. Paul B. Hoeber, New York

PROCEEDINGS OF THE ROYAL SOCIETY OF MEDICINE. 8vo; paper; 116 pages; illustrated. Longmans, Green & Co., London, England.

DIE SPINALE KINDERLÄHMUNG. Von Prof. Dr. EDUARD MÜLLER. 8vo; cloth; 170 pages; illustrated; 6 marks. Julius Springer, Berlin, Germany.

MEDICAL ELECTRICITY AND RÖNTGEN RAYS. By SINCLAIR TOUSEY, A.M., M.D. 8vo; cloth; illustrated; $7.00 net. W. B. Saunders Co., Philadelphia, Pa.

THE PATHOLOGY OF THE LIVING AND OTHER ESSAYS. By B. G. A. MOYNIHAN, M.D. (Lond.), F.R.C.S. 12mo; cloth; 260 pages; $2.00 net. W. B. Saunders Co., Philadelphia, Pa.

EXCURSIONS OF A BOOK-LOVER. By FREDERIC ROWLAND MARVIN. 8vo; cloth; 331 pages; $1.50 net. Sherman, French & Co., Boston, Mass.

ZUR TRANSFORMATION DES KNOCHENKALLUS. Von Dr. M. ZONDEK. 8vo; paper; 41 pages; illustrated; marks, 1.20. August Hirschwald, Berlin, Germany.

ÜBER SOGENANNTE ANGEBORENE UND ÜBER FRÜHZEITIG ERWORBENE RACHITIS. Von Dr. E. WIRLAND. 8vo; paper; 211 pages; illustrated; marks, 7. S. Karger, Berlin, Germany.

LEITFADEN DER EXPERIMENTELLEN PSYCHOPATHOLOGIE. Von Dr. ADELBERT GREGOR. 8vo; paper; 222 pages; M. 5.60. S. Karger, Berlin, Germany.

THE FAMILY HEALTH. By H. SOLIS-COHEN, M.D. 12mo; cloth; illustrated. The Penn Publishing Co., Philadelphia, Pa.

ANWENDUNGSFORMEN UND WIRKUNGSWEISER DER HYDROTHERAPIE BEI DEN VERDAUUNGS UND STOFFWECHSELKRANKHEITEN. Von ERNST TOBIAS. 8vo; paper; 53 pages; marks, 1.40. Carl Marhold, Halle, Germany.

KURZGEFASSTES LEHRBUCH DER KINDERHEILKUNDE. Von Dr. CARL SEITZ. 8vo; paper; 558 pages; M. 14.60. S. Karger, Berlin, Germany.

THE CARE OF THE CHILD. By Mrs. BURTON CHANCE. 242 pages; 12mo; cloth; illustrated. The Penn Publishing Co., Philadelphia, Pa.

LIGHT THERAPEUTICS. By I. H. KELLOGG, M.D. 8vo; cloth; 213 pages; illustrated. Good Health Publishing Co., Battle Creek, Mich.

THE EVOLUTION OF MAN. By ERNST HAECKEL. Vol. I. Cloth; 353 pages. Vol. II. 774 pages. Illustrated. G. P. Putnam's Sons, New York.

DYSPEPSIA: ITS VARIETIES AND TREATMENT. By W. SOLTAU FENWICK, M.D. 8vo; 485 pages; illustrated; $3.00 net. W. B. Saunders Co., Philadelphia, Pa.

DISLOCATION AND JOINT-FRACTURES. By FREDERIC JAY COTTON, A.M., M.D. 8vo; cloth; 654 pages; $7.50 net. W. B. Saunders Co., Philadelphia, Pa.

DISEASES OF THE HEART AND AORTA. By ARTHUR D. HIRSCHFELDER, M.D. 632 pages; cloth; 8vo; illustrated. J. B. Lippincott Co., Philadelphia, Pa.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of August 13, 1910.

	Cases	Deaths
Tuberculosis Pulmonalis	498	146
Diphtheria	216	25
Measles	144	13
Scarlet Fever	83	5
Smallpox	1	—
Varicella	14	—
Typhoid Fever	105	12
Whooping Cough	36	10
Cerebrospinal Meningitis	4	5
Malarial Fever	—	—
Totals	1,101	215

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, during the week ended August 12, 1910.

		CASES.	DEATHS
CHOLERA.			
China, Amoy	Aug. 8	..	Present
India, Rangoon	June 19-25	..	3
Java, Batavia	June 19-25	48	42
Mainly among natives.			
Samarang	June 25	..	Disapp'r'g
Russia, general	June 26-July 9	6,693	3,025
Astrakhan, government	July 3-9	3	3
Astrakhan	June 26-July 2	1	1
Baku, government	June 26-July 9	89	45
Baku	July 3-9	3	4
Bessarabia	July 3-9	17	6
Black Sea, province	July 3-9	25	11
Don, territory	June 26-July 9	1,141	558
Rostov on Don	July 3-9	308	99
Kharkov, government	June 26-July 3	320	168
Khazan, government	June 26-July 9	9	3
Kherson, government	June 26-July 3	291	73
Odessa	July 3-9	44	20
Kief, government	June 26-July 9	178	103
Kuban, territory	June 26-July 9	1,355	675
Kursk, government	June 26-July 9	11	5
Moscow, government—			
Moscow	July 12-15	2	..
Nischnivogorod, government	July 3-9	4	3
Orlov	July 3-9	22	8
Padolien, government	July 3-9	3	1
Poltava, government	June 26-July 9	464	163
Rjasan, government	July 3-9	15	10
St. Petersburg, government	July 3-9	1	..
St. Petersburg	June 26-July 9	6	3
Samara, government—			
Samara	June 26-July 9	78	33
Saratov, government—			
Saratov	June 26-July 9	152	62
Simbirsk, government	July 3-9	4	2
Stavropol, government	June 26-July 9	78	31
Tambov, government	June 26-July 9	55	13
Taurida, government	June 26-July 9	432	218
Kertsch	July 2-9	68	31
Sebastopol	July 3-9	5	3
Terek, territory	June 26-July 9	70	26
Tiflis, government—			
Tiflis	June 26-July 9	9	5
Tchernigov, government	June 26-July 9	165	67
Vitebesk, government	June 26-July 9	3	..
Volhynien, government	July 3-9	1	..
Voronesch, government	June 26-July 2	1	1
Yekaterinislav, government	June 26-July 9	1,253	560
Transcaspian, territory	July 3-9	5	4
Transcaucasia—			
Tchernomorsk—			
Novorossysk	June 26-July 2	4	4
Siam, Bangkok	May 25-June 18	109	109
Straits Settlements, Singapore	June 12-18	1	..
YELLOW FEVER			
Brazil, Manaos	July 3-16	4	4
Para	July 10-16	2	1
PLAGUE			
Brazil, Bahia	July 11-17	1	1
Chile, Pisagua	April 1-May 31	a14	4
Egypt, Alexandria	June 14-July 8	9	5
Ismailia	June 19	1	1
Port Said	June 15-July 13	10	6
Provinces—			
Beni Souef	June 17-29	2	..
Fayoum	June 17-July 11	4	4
Galioobeeh	June 6-July 3	2	..
Garbieh	June 14-July 4	8	4
Kena	June 15-18	1	1
Minieh	May 31-July 2	3	2
Menouf	June 14-July 12	32	7
Hawaii, Honolulu	July 5-12	2	2
India, Kurrachee	June 26-July 2	12	13
Madras	June 25-July 1	..	1
Rangoon	June 19-25	..	28
Japan, Osaka	June 1-25	4	4

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Original Articles.

THE POST-OPERATIVE HISTORY OF EIGHTEEN CASES OF MAGNETIC FOREIGN BODIES REMOVED FROM THE EYE BY THE HAAB OR GIANT MAGNET.*

BY CHARLES STEDMAN BULL, A.M., M.D.,

NEW YORK.

THIS paper is intended to apply only to the comparatively small number of cases in which the patients could be followed and the ultimate results tabulated. The great majority of the cases from which the foreign bodies were removed by the Haab magnet disappeared after discharge from the hospital, and could not be traced. Only such cases were considered in which the foreign body was located either in the vitreous or in the fundus.

The particle of iron or steel was successfully located by the *x*-ray apparatus in every case, and a skiagram made.

The foreign body was successful extracted by the Haab magnet in every case but one.

The extraction occurred through the original wound in seven cases, and through another channel in ten cases.

The foreign body was located in the vitreous in eight cases, and in the fundus in ten cases. An iridectomy was done at the time of extraction in seven cases.

A cataract subsequently developed in eight cases. Phthisis Bulbi resulted in six cases, and sympathetic uveitis in eight cases, and an enucleation was necessitated in ten cases.

The vision was permanently lost at the time of the accident in five cases.

There was immediate useful vision after the removal of the foreign body in two cases. Permanent useful vision was not gained in any case.

From a careful examination of these eighteen cases, and of a large number of cases already published by various authors, it would seem that the following points are to be emphasized:

First.—The foreign body should be located and an attempt made for its extraction as soon as possible after the accident, in order to lessen the dangers of infection.

Second.—When the wound of entrance is in the anterior segment of the eye, and the foreign body has been located in the vitreous or fundus, no attempt should be made to draw it forward by the Haab magnet through the wound of entrance. It seems far wiser to make an incision through the sclera at the nearest point to the location of the foreign body, and extract it by means of the small magnet.

*Read before the American Ophthalmological Society at its meeting in Washington, May 3, 1910.

Third.—These eyes are all suffering from the shock of the original accident, and we have not properly appreciated the severity of the second shock of applying the giant magnet, and forcibly drawing the foreign body through delicate tissues already seriously injured.

Fourth.—These eyes are all in a dangerous condition, and the prognosis must always be unfavorable, with the great danger of the development of sympathetic uveitis.

Fifth.—If infection has already begun, the eye should be enucleated at once.

Sixth.—While the prognosis in these cases is always very grave, it is better when the foreign body is lodged in the vitreous than when it is lodged in the retina or ciliary body.

Seventh.—Great care should be exercised in the application of the giant magnet, for more injury may be done by the fragment of iron or steel being drawn through the tissues by the magnet than was caused by the original accident.

Eighth.—If the attempted extraction fail, it is better to enucleate the eye at once.

Ninth.—Even after a successful extraction, useful vision will be permanently lost in the majority of the cases, and enucleation will be necessary in order to save the fellow eye. The danger of sympathetic inflammation is ever present, and a general insidious uveitis may develop months and even years afterwards and extend to the fellow eye.

CASE I.—Male, machinist, aged 38. First seen October 10, 1905. Two days before right eye was struck by piece of steel flying from a lathe. Small wound in sclerocorneal margin, on temporal side; perforation of iris; partial opacity of lens. Skiagraph located the foreign body in fundus, on nasal side of optic disc, and 5.5 mm. below the horizontal plane. Fragment of steel drawn forward by Haab magnet and entangled in iris near wound of entrance. Small incision in limbus in superotemporal quadrant, and fragment removed by Hirschberg magnet. Small iridectomy with free pillars to incision. Atropine and bandage. Three days later signs of purulent panophthalmitis; enucleation on fourth day on account of sympathetic irritation in fellow eye. Size of steel fragment 1 x 2.5 mm.

CASE II.—Male, aged 50, machinist. First seen October 31, 1905. Left eye injured ten days ago by chip flying from hammer. Wound in corneal margin on temporal side, in horizontal meridian. Hole through periphery of iris. Lens cloudy on temporal side. Ophthalmoscope shows what may be the foreign body in the vitreous on the nasal side, and just below the horizontal meridian. Skiagraph locates the fragment in the vitreous about in same locality marked by ophthalmoscope. Steel fragment drawn forward by Haab magnet into anterior chamber, but entangled in the iris opposite wound of entrance. Small iridectomy outward, and fragment of steel removed with iris tissue. Atropine and bandage.

Size of fragment 2 x 3.5 mm. Vision equal to counting fingers. Three months later, phthisis bulbi and V = 0.

Case III.—Male, aged 30, carpenter. First seen November 6, 1905. Right eye injured this morning by a fragment of steel from a chisel. Small wound through center of cornea. Line of opacity through lens. Vitreous very cloudy, probably from intraocular hemorrhage. Fundus invisible. Skiagraph locates foreign body 25 mm. back from cornea and 12 mm. to temporal side. Haab magnet denotes presence of iron, but fails to draw it forward after three attempts. Patient refuses to have any operation done on the eye though told of danger. Probable size of steel fragment 1 x 2 mm. V = 5/200. Was seen once a week for three months. At the end of that time lens was entirely opaque, and there was decided siderosis of the iris. Vision was light perception. Since then the patient has not been seen.

Case IV.—Male, aged 28, machinist. First seen October 12, 1906. Left eye injured by piece of steel sixteen days before. Wound of entrance in ciliary region in superonasal quadrant. Vitreous cloudy and anterior chamber half full of blood. V = counting fingers. Skiagraph locates foreign body in fundus, 5 mm. on temporal side and 6mm. below. Apparent size 1.5 x 3.5 mm. Haab magnet draws fragment into wound of entrance from which it is extracted by forceps. Vitreous filled with blood. General uveitis develops, but not of suppurative type. Three weeks later signs of sympathetic iridocyclitis, and enucleation at once performed. Sympathetic trouble subsided in four weeks under proper treatment with V = 20/30.

Case V.—Male, aged 60, machinist. First seen November 19, 1906. Left eye injured six weeks before by fragment of steel watch spring. Wound in inferotemporal corneal margin. Lens opaque. Iritis with posterior synechiæ. V = light perception. Two skiagrams made and foreign body located in vitreous, 11.5 mm. back and 9.5 mm. above the horizontal. Haab magnet drew the foreign body, after three trials, into anterior chamber, but entangled in iris. Iridectomy in inferotemporal quadrant, and fragment removed by Hirschberg magnet. Clean coloboma made. No reaction. Hot applications, atropine, and bandage. Patient discharged at end of third week with V = light perception. One month later returned with sympathetic iritis in right eye. Immediate enucleation. Ultimate vision in right eye 10/200.

Case VI.—Male, aged 24, carpenter. First seen December 21, 1906. Left eye injured by piece of steel from chisel the day before. Wound near center of cornea and through center of lens. Iris not wounded. Vitreous hazy. Foreign body located by skiagraph in vitreous, 2.5 mm. to nasal side and 8 mm. below. Haab magnet drew fragment of steel into anterior chamber. Corneal incision below and extraction by small magnet. Very little reaction. Eye remained quiet for five days and then panophthalmitis developed. Enucleation two weeks later on account of sympathetic irritation in fellow eye.

Case VII.—Male, aged 20, plumber. First seen February 6, 1907. Right eye injured three days ago by piece of iron flying from a hammer. Wound in ciliary region in inferotemporal quadrant. Prolapse of ciliary processes. Vitreous full of blood. V = light perception. Skiagraph locates foreign body in vitreous, 4 mm. below horizontal and 9 mm. to nasal side. Haab magnet drew fragment or iron to external wound, and it was removed by forceps. Patient discharged on fourteenth day. Lens clear. V = 20/200. Seen at intervals of a week for two months, at which time V = 20/200, but eye still tender in ciliary region. Six months later patient appeared with advanced phthisis bulbi, due to cyclitis.

Case VIII.—Male, aged 30, carpenter. First seen March 18, 1907. Right eye wounded three days before by piece of steel from a wedge. Wound in ciliary region, on temporal side, just above horizontal meridian. Vitreous full of blood. Skiagraph located foreign body in vitreous 8.5 mm. on nasal side and 6 mm. below horizontal. Haab magnet drew fragment into iris but not through it. Incision made with keratome outwards and upwards in limbus, an iridectomy was done and the fragment of steel removed with the iris. Size of fragment 1 x 3 mm. Iridocyclitis began on eighth day, and the eye was enucleated on the twelfth day because of sympathetic irritation. V = light perception.

Case IX.—Male, aged 28, machinist. First seen September 23, 1907. Left eye injured that morning by piece of steel from lathe. Wound in temporal side of sclera, just posterior to sclerocorneal margin. Vitreous full of blood. Skiagraph locates foreign body in fundus, 18 mm. back, and 7.25 mm. above horizontal. Haab magnet fails to dislodge fragment. Wound of entrance enlarged and then small magnet introduced and draws fragment to wound and extracts it. General uveitis and gradual atrophy of eyeball. Enucleation eleven weeks later on account of severe pain. No suppuration or signs of sympathetic trouble. Size of fragment 2.5 x 4 mm.

Case X.—Male, aged 47, carpenter. First seen September 27, 1907. Left eye injured three days before by piece of steel from hammer. Wound in sclerocorneal margin on temporal side. V = counting fingers. Skiagraph locates foreign body in vitreous, 9 mm. back, 2.5 mm. on nasal side, and 2 mm. above. The Haab magnet drew piece of steel into the bottom of anterior chamber from which it was removed through a corneal incision. Size of fragment 5 x 2 mm. Patient discharged on twelfth day, with V = 10/200. Was seen four months later and V. was then same. Has not been seen since.

Case XI.—Male, aged 42, blacksmith. First seen November 18, 1907. Right eye injured by piece of iron from a horseshoe nine weeks before. Iridochorioditis with severe pain. Scar in cornea in inferior quadrant and iris adherent in scar. V-light perception. Skiagraph locates foreign body in fundus, 31 mm. back, 6 mm. above, and 5 mm. to temporal side. On third attempt Haab magnet drew the fragment of iron into anterior chamber. Corneal incision below and extraction by small magnet. Size of fragment 1.75 x 10 mm. Enucleation five days later on account of sympathetic trouble in other eye.

Case XII.—Male, aged 20, plumber. First seen November 20, 1907. Right eye injured two days before by piece of steel from hammer. Wound just above center of cornea. Iris not incarcerated. Skiagraph locates foreign body in the fundus 21 mm. back, 5 mm. on nasal side, and 3 mm. below horizontal. Foreign body drawn into anterior chamber and extracted through corneal incision. Severe iritis followed. Patient discharged at end of third week. Lens cloudy. V = 20/200. Three months later lens entirely opaque but light perception and projection good.

Case XIII.—Male, aged 32, blacksmith. First seen December 11, 1907. Right eye injured ten days ago by piece of steel from hammer. Wound of entrance in ciliary region in infero-temporal quadrant. Vitreous full of blood. Lens cloudy. V = light perception. Skiagraph locates foreign body in fundus, 15.75 mm. back, 2 mm. above and 15 mm. to nasal side. Haab fails to dislodge fragment after three trials. Incision made through sclera at point indicated by skiagraph and after some difficulty the piece of steel, 5 x 1.5 mm., was removed by Hirschberg magnet. General uveitis followed, ending in phthisis bulbi. There were no symptoms of sympathetic trouble.

Case XIV.—Male, aged 40, stevedore. First seen February 24, 1908. Left eye injured one week ago, while removing an iron band from a box. Wound through center of cornea. Lens opaque. Sphincter margin of iris lacerated. No reflex from fundus. Skiagraph locates foreign body in fundus, 20.5 mm. back, 3 mm. on temporal side, and 1.5 mm. above. Haab magnet at first trial drew particle of iron through the iris into the anterior chamber, and it was removed through corneal incision below, and measured 3 x 8 mm. Severe uveitis followed, with loss of light perception, and the eye was enucleated ten days later, on account of sympathetic irritation.

Case XV.—Male, aged 36, machinist. First seen October 2, 1908. Left eye injured two days ago by piece of steel from a hammer. Wound in limbus in infero-temporal quadrant. Iris lacerated at periphery. Blood in anterior chamber and vitreous, 7.5 mm. back, 3.5 mm. to the nasal side, and 1 mm. below horizontal. Haab magnet on second trial withdraws fragment of steel with considerable violence through wound of entrance. Severe pain and reaction. One week later, eye quiet and vitreous cloudy. V = fingers at one foot. This patient was not seen again until February 18, 1909. The left eye was then atrophied, the cornea hazy, the pupil was closed by exudation, there was subnormal tension and no light perception.

Case XVI.—Male, aged 15. First seen October 19, 1908. Left eye injured six weeks before by a fragment of nail. Iridocyclitis and traumatic cataract. Wound of entrance just above corneal center. The skiagraph located foreign body in vitreous, 8 mm. back and 1 mm. to nasal side. The Haab magnet drew it into anterior chamber, from which it was extracted through an incision in the limbus. The uveitis grew worse and on the fourteenth day the right eye showed ciliary injection. Atropine was instilled and the left eye immediately enucleated. The sympathetic irritation disappeared in a week.

Case XVII.—Male, aged 16. First seen February 22, 1909. Right eye injured two days before by piece of steel from a hammer. Wound in limbus in superotemporal quadrant and iris lacerated. Blood in the vitreous. Skiagraph located the foreign body in the fundus, 20.5 mm. back, 2.5 mm. to the temporal side, and 6.5 mm. above the horizontal. The fragment was drawn forward by the Haab magnet till it protruded through the iris at the wound of entrance, and was then removed. Small iridectomy removed the lacerated iris. On sixth day all blood absorbed; wound healed. V = 20/20 with glass correcting the refractive error. Patient insisted on leaving hospital against advice and was not seen again till March 30. There was then a severe iridochoroiditis in the injured and a well-marked uveitis in the other eye. Enucleation of the right eye was refused by the parents. The process of degeneration went on very rapidly and ended in marked phthisis bulbi in both eyes. V = 0.

Case XVIII.—Male, aged 54, machinist. First seen April 6, 1909. Left eye wounded by a piece of steel on March 1. Wound in sclero-corneal margin in the infero-temporal quadrant. V = light perception. Skiagraph located foreign body in the vitreous, which was full of exudation. Steel fragment removed by Haab magnet through wound of entrance. Iridectomy then done and lacerated portion of iris removed. Was discharged from hospital at end of three weeks with V = 10/200. Was last seen on October 4, 1909. The lens was entirely opaque and V = light perception with faulty projection and subnormal tension.

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THE IMPORTANCE OF EARLY RECOGNITION OF CANCER.*

By ISAAC LEVIN, M.D.,

NEW YORK.

According to the present state of our knowledge of the pathogenesis of cancer, the malignancy of carcinoma or sarcoma is not due to a specific infection or intoxication of the organism, but to the capacity of the tumor to infiltrate the adjoining healthy tissue, or to disseminate through the blood or lymph channels into distant organs. In either case the danger to the organism consists in the invasion of some vital organ by the tumor cell, and the subsequent interference with the function of the former. If a malignant growth recurs after the removal of the primary tumor, the recurrence always indicates that the removal was only apparently complete.

At the early stage of its growth, a malignant tumor disseminates only in its immediate vicinity, while metastasis in distant parts occurs at a much later period. In other words, a malignant growth is, in its early stages, a strictly local process.

There is ample evidence of this local character of cancer. In a great majority of cases cancer begins only in one place or organ and remains localized for a certain length of time. If a malignant tumor were simply one of the expressions of a general constitutional disease, its simultaneous occurrence in different localities of the same organism would be more frequent. Another clinical evidence of the local character of the early stage of the disease consists in the fact that cancer affects the general health of the patient only at a late period of its development.

The most interesting microscopical proof of this contention is found in the fact that the cells of the metastastic tumor are structurally idenical with the cells of the original growth, no matter where the metastasis occurs. This shows clearly that all the characteristics of malignancy are due to the power of limitless proliferation of the cancer cells developed in the primary focus of the disease.

The recent experimental investigations on the transplantation of carcinoma and sarcoma from one animal into another of the same species also clearly indicates that the disease in the new host begins with the proliferation of the implanted group of cells and that only subsequently these cells disseminate into distant organs and impair the general health of the animal.

*From the Department of Pathology of Columbia University, at the College of Physicians and Surgeons.

But the most convincing evidence of the local origin of cancer is the ever increasing success in the radical cure of the disease by early and complete surgical operation. By the older method, when only the tumor itself was removed, the number of permanent cures was extremely small, and in an overwhelming majority of cases the life of the patient was not perceptibly prolonged by the operation, but, as was stated above, recent pathological research has shown that in all such cases, groups of active cancer cells remained in adjacent tissue and the regional lymph glands. These investigations also indicate the paths through which this dissemination takes place. On the basis of these studies, modern surgery has developed new operative methods by which not only the tumor itself, but the involved neighboring tissue is removed. The results of this method of treatment are most encouraging. Nearly 20 per cent. of the cases of cancer of the stomach are permanently cured, almost as many of cancer of the tongue, over 40 per cent. of the cases of cancer of the breast, and over 50 per cent. of cancer of the uterus. Notwithstanding these great results, the condition of a patient with a malignant tumor is generally regarded as hopeless, even by physicians, who therefore feel justified in resorting to the so-called specific methods of treatment.

In fact, no true specific method for the treatment of cancer exists to-day, notwithstanding the great progress in the modern experimental research of the disease. But modern surgery is capable of effecting a cure in every case of carcinoma or sarcoma, provided the operation is performed in the early stages of the disease—before dissemination into more distant parts of the organism takes place. Our task does not consist so much in proper method of treatment, but in the early recognition of the disease.

The difficulty of diagnosing cancer in the early stages is due to the fact that cancer has practically no specific symptoms. The physicians must bear in mind the possibility of the formation of a malignant growth in every patient of middle age, and must be watchful for symptoms of the disease.

The symptom which is most generally met with in the early stages of cancer is *hemorrhage*. It may be the first symptom in cancer of the nose, mouth, and larynx. In the case of the stomach and intestines, whenever a suspicion of cancer arises, the patient must be watched for this symptom, which may frequently be revealed only on microscopical examination. Bleeding is also one of the very first symptoms in malignant tumors of the kidneys and the bladder. Metrorrhagia, occurring at irregular intervals ,or after an exertion or coitus, is usually the first indication of uterine cancer.

Another symptom by which the beginning of cancer may manifest itself is a *catarrh* of the organ. This symptom may occur in the early stages of cancer of the urethra, nose, larynx, esophagus, stomach, and gall-bladder.

Functional disturbances may indicate the beginning of the disease, as for instance aphony in cancer of the larynx, intestinal obstruction in cancer of the intestines, etc.

Occasionally severe *pain* may be an early indication of the formation of malignant growth. Thus, in cancer of the stomach and the tongue, the pain may be more severe than in any other disease of the same organs.

Whenever any of these symptoms occur in a patient past middle age, the possibility of cancer should be taken into consideration, even when there is no apparent tumor, and a careful investigation should be made by the aid of all the diagnositic methods at our command.

The following is a brief review of the methods most commonly used in making the differential diagnosis of cancer:

1. The microscopical and chemical examination of the secretions. This method is of great value in cancer of the stomach, kidney, bladder, etc.

2. Electric instrumental inspection. This method may be used in cancer of the nose, larynx, esophagus, rectum, and bladder.

3. Exploratory operation. This method is of greatest importance in cancer of the stomach. Whenever a patient past middle age complains somewhat suddenly of indefinite gastric uneasiness, pain, and vomiting, followed by progressive loss of weight and energy and associated with anemia the possibility of cancer of the stomach should be recognized, and in a suspected case, if no improvement takes place in a few weeks at most, an exploratory operation is more than justified. The danger of such an operation, with the present surgical technique, is minimal. The patient is out of bed in a very few days, and if cancer is found, it can be radically removed. The same is true of cancer of the gall bladder, intestines, appendix, etc.

4. Microscopical examination of tissue. The most important diagnostic method consists in the removal of a small piece of the growth and its microscopical examination. This method represents the means for an absolutely certain diagnosis in nearly every case where it may be employed. The method is available for the following conditions:

Cancer of the skin. Any ulcerations, warts, or other similar growths appearing suddenly on the scalp, the face, the lips, or on the surface of the skin generally, in a person past middle age, should be removed under local anesthesia and examined microscopically.

Carcinoma of the tongue. A pipillary outgrowth on the tongue, an indurated nodule, a fissure, or an ulcer of the same organ, calls for a speedy removal of the same tissue for examination. The growth may be radically removed at this early stage, but it very soon invades the adjacent tissue and the lymphatic glands of the neck and then becomes the most intractable of the malignant tumors. The same is true for similar formations occurring on the surface of the mucous membrane of the mouth, palate, pharynx, and tonsils.

Cancer of parotid or submaxillary glands cannot be differentiated in the early stages from syphilis, tuberculosis, or even a purulent infection of the organ. If an unaccountable swelling occurs in these glands, an exploratory incision and the removal of a small portion of the tumor for microscopical examination is very advisable, since these tumors may be radically removed when small, but they grow very rapidly and soon become inoperable. The same holds true for the cancer of the testicle.

Cancer of the larynx in its initial stage resembles so closely an ordinary papilloma that no correct diagnosis can be made on simple laryngoscopic inspection. If a person past middle age is suffering from gradually increasing hoarseness, with or without pain on swallowing, a laryngoscopic examination should be made immediately, and if any new growth is found, it should be removed for microscopical examination.

Cancer of the breast. It is very easy to recognize a fully developed case of carcinoma of the breast, but in its initial stage it may appear as a small tumor in the body of the breast without any retraction of the nipple, which is so characteristic of the disease, and may resemble in all respects a benign adenoma or an inflammatory condition of the gland. Any tumor appearing in the breast of a woman of 40 years of age or more, or a tumor which has remained small for years and then begins to grow rapidly, is very probably a malignant growth, though it may not show any of the characteristic features of the disease. In any of these cases, an exploratory incision and a removal of tissue for microscopical examination should be made.

Cancer of the uterus. This organ presents the most important class of malignant growths, where an early recognition and an early radical operation give excellent results, and where at the same time not only the laity but the profession fail to make an early diagnosis. Any woman who complains of uterine bleeding after climacterium, or even before climacterium, but at irregular intervals, or after exertion, or a woman past climacterium, who notices a sudden onset of leucorrhea with a thin, watery discharge streaked with blood and profuse from the start, should be examined with a speculum. If the cervix is found slightly enlarged and somewhat nodular in character, the tissue appears hard, the mucous membrane paler than normal, or an ulceration is noticed, then a small wedge-shaped piece of tissue should be removed from the cervix and examined microscopically. If no abnormality is found on the cervix, the uterus should be curetted and the tissue fragments examined microscopically. It may appear too emphatic advice to perform even a minor operation on such a slight indication, but one must not forget that the onset of cancer of the uterus is very insidious, that real charactertistic symptoms occur only at a late period, when radical cure is impossible, and that furthermore, the uterus is the most frequent seat of cancer with women. On the other hand, the early recognition of the disease means nearly an absolute chance for a radical cure.

Statistics show that in a great majority of cases cancer occurs in such localities where it is comparatively easy to obtain tissue for microscopical examination, make an early diagnosis, and consequently perform a radical operation with a fair chance of obtaining an absolute cure.

The fact that such an early microscopical examination is made at present in only a small percentage of cases, is not always due to the ignorance of the laity, but frequently also to the neglect of the profession to avail itself of this method of diagnosis.

The George Crocker Cancer Research Fund of Columbia University, as well as the majority of European institutions for cancer research, realize the importance of awakening the profession to the importance of early diagnosis of cancer. In conjunction with the study of clinical statistics of cancer conducted under the auspices of the Crocker Fund, the Department of Pathology of Columbia University at the College of Physicians and Surgeons makes examination of suspected tissue on condition that the attending physician furnish the information needed for the statistical investigation.

ON THE ADAPTATION OF THE HUMAN SALIVA TO DIET.*

By LAFAYETTE B. MENDEL,

with JESSAMINE CHAPMAN and ALICE F. BLOOD.

NEW HAVEN, CONN.

The question of the adaptation of the digestive secretions of the alimentary tract to the work which they are expected to perform has lately been brought into prominence, very largely through the suggestive publications of the Pawlow school. Teleologically such responses on the part of organisms seem most effective and desirable; and it is not difficult to understand how pronounced variations of this type might gradually develop in the course of a long period of evolution. More immediate or sudden adaptations are not so readily comprehensible to the biologist, who looks upon a uniform fixity of structure and chemical function as a fundamental feature or specific characteristic of any species. The assumption of an entirely new chemical rôle on the part of a gland, as the result of a few days of specific feeding, would scarcely be regarded as a biological probability by most physiologists. In accord with this the alleged secretion of starch-digesting saliva in dogs—animals generally recognized as producing non-amylolytic saliva—as the result of a few days' feeding with food rich in carbohydrates has not been substantiated by a number of investigators.[1] One recalls the words of Starling in this connection: "There are riddles enough in physiology without conjuring up a teleological adaptation for which the experimental evi-

*From the Sheffield Laboratory of Physiological Chemistry, Yale University, New Haven, Conn. A paper read at the annual meeting of the American Gastroenterological Association, June, 1910.

A.

Saliva (collected by chewing) c.c.	Normal Mixed Diet										Protein Period							Carbohydrate Period						Protein Period			
	2/25	2/26	2/28	3/1	3/2	3/3	3/4	3/5	3/7		3/8	3/9	3/10	3/11	3/12	3/13	3/14	3/15	3/16	3/17	3/18	3/19	3/20	3/21	3/22	3/23	3/24
0.0100	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
0.0064	+	–	–	–	+	–	+	+	–		–	+	+	+	+	+	+	–	+	–	–	–	+	+	+	+	+
0.0040	–	–	–	–	–	–	–	–	–		–	–	–	+	+	–	–	–	–	–	–	–	–	–	–	–	–
0.0025	–	–	–	–	–	–	–	–	–		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
$D^{40°}_{30'}$ =	781	500	500	500	781	500	781	781	500		500	781	781	1250	1250	781	781	500	781	500	500	500	781	781	781	781	781
														B.													
c.c.																											
0.0100	....	+	+	+	+	+	+	+	–		+	+	–	+	+	+	+	+	+	+	....	+	+	+	+	+	+
0.0064	....	+	+	+	+	+	+	+	–		+	–	–	+	+	+	+	+	–	+	....	+	+	–	+	+	+
0.0040	....	+	+	+	+	+	–	+	–		+	+	–	+	+	+	+	–	–	–	....	+	–	–	+	+	+
0.0025	....	–	–	–	–	–	–	–	–		–	–	–	–	–	–	–	–	–	–	....	–	–	–	–	–	–
0.0016	....	–	–	–	–	–	–	–	–		–	–	–	–	–	–	–	–	–	–	....	–	–	–	–	–	–
$D^{40°}_{30'}$ =	....	1250	1250	1250	1250	1250	781	1250	1250		1250	1250	1250	1250	1250	1250	1250	781	500	781	....	1250	781	500	1250	1250	1250

dence is inadequate, the conception of its mechanism impossible, and which is not necessary for the well-being of the animal."

Less unlikely than the development of an entirely new type of enzyme in a glandular secretion, where it is normally lacking, is the possibility—as the result of dietary conditions—of a modification in the concentration of a constituent already present. Such considerations are directly related to the practical problem of altering the alimentary functions by the appropriate selection of the food intake. An adaptation of this sort has lately been maintained for human saliva, the secretion most easily accessible for investigation in man. Neilson and Lewis[2] have reported a marked effect of diet on the amylolytic power of saliva. According to them, dietaries rich in protein (meat and eggs) diminish the carbohydrate-digesting power and a carbohydrate-rich diet speedily increases it. In their own words: "Whether this change in the amylolytic power of the saliva due to diet should really be called an adaptation to diet is immaterial. At least there is a change either in the amount of ptyalin or in its activity, or in the concentration of the saliva, which enables more or less starch to be digested with a given quantity of saliva according to the diet. What better name can be given than adaptation?"

C

Saliva (collected by chewing)	Normal Diet				Protein Period			Carbohydrate Period			
c.c.	3/7	3/8	3/9	3/10	3/11	3/12	3/15	3/16	3/18	3/19	3/22
0.0160	+	+	+	+	+	+	+	+	+	+	+
0.0100	+	+	+	+	+	+	+	+	+	+	+
0.0064	−	−	−	−	−	−	−	−	−	−	−
0.0040	−	−	−	−	−	−	−	−	−	−	−
$D^{40°}_{30'}$ =	500	500	500	500	500	500	500	500	500	500	500

The somewhat meager data presented by Neilson and Lewis are not entirely convincing; nevertheless we have repeated the general plan of the experiments because of the broader physiological import of the question at issue. Their report need not be reviewed or subjected to criticism here. We desire, however, to emphasize the large number of variable factors which may affect the activity of the saliva independent of the composition of the diet. It is known, for example, that the amylolytic power varies through a considerable range during the day. The composition of the saliva is influenced by the rate and duration of secretion, and by the nature of the stimulus. Saliva collected by dripping from the mouth is not at all comparable in enzyme content with that obtained at nearly the same time by chewing a chemically inert substance. It is, therefore, extremely difficult and absolutely essential to avoid divergencies due to these independent factors, so that the results obtained can be ascribed to broader features of diet per se.

Methods.—Various methods have been employed to measure the comparative amylolytic activity of different specimens of saliva. Nearly all of them involve inherent errors or difficulties. For example, the comparison by estimation of the sugar formed from starch by the same amounts of saliva in a given time necessitates the selection of a suitable period of digestion. It must not be so long that even a small content of enzyme can digest the maximum quantity of starch; nor must it be too short to allow small differences in enzyme concentration to manifest themselves. After numerous trials we have selected the very satisfactory method of Wohlgemuth[3] which measures primarily the concentration of amylase (ptyalin) in the fluid examined. One determines the quantities of (diluted) saliva which are required to convert 5 c.c. of one per cent. soluble starch solution to the point where it just fails to give a blue color when tested with iodine solution. The amylolytic power of the saliva ($D\,40°/30'$) may be expressed by the quantity of such starch solution which 1 c.c. of the secretion is calculated thus to convert at 40° in 30 minutes. The extremes found by Wohlgemuth were $D\,40°/60' = 125$ and $D\,40°/60' = 780$

D.

Saliva (collected by chewing)	Protein Period			Carbohydrate Period							Normal Diet					
c.c.	3/3	3/4	3/5	3/6	3/8	3/9	3/10	3/11	3/12	3/13	3/15	3/16	3/17	3/18	3/19	3/23
0.100	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
0.064	+	+	+	+	+	+	+	−	+	+	+	−	−	−	+	−
0.040	−	−	−	−	+	−	−	−	−	−	−	−	−	−	−	−
0.025	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−
$D^{40°}_{30'}$ =	78	78	78	78	125	78	78	50	78	78	78	50	50	50	78	50

Collection of Saliva.—The saliva was collected by two methods: (*a*) by chewing soft paraffin; (*b*) by allowing it to drip from the mouth without any oral stimulation. The amylase content is not necessarily alike in the two "types" of saliva. Wherever comparisons are made, therefore, it is highly important to employ the same mode of collecting the secretion. Furthermore, since it is well known that the enzyme content varies widely in the individual throughout the day—a fact which we can confirm—we have collected the samples to be compared at the same hour, and approximately the same time, after a light breakfast, at 9 A. M.

E.

Saliva (collected by chewing)	Normal Diet						Protein Period			Carbohydrate Period				Normal Period				After Three Days' Fast		
c.c.	1/13	1/14	1/15	1/16	1/19	1/20	1/25	1/26	1/27	1/28	1/29	1/30	2/1	2/3	2/4	2/10	2/19	2/28	3/1	3/2
0.0400	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	.....	.....	+
0.0250	+	+	−	−	−	+	+	−	−	−	+	+	+	+	+	+	+	.....	.....	+
0.0160	−	−	−	−	−	−	−	−	−	−	+	+	+	+	+	+	+	.....	.....	+
0.0100	−	−	−	−	−	−	−	−	−	−	+	−	−	−	−	−	+	.....	.....	+
0.0064	−	−	−	−	−	−	−	−	−	−	+	−	−	−	−	−	−	.....	.....	−
0.0040	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	.....	.....	−
$D^{40°}_{30'}$ =	200	200	125	125	125	200	200	125?	125	125	781	312	312	312	312	312	500	.....	.....	500

Dietary Routine.—Individuals were thus tested in the same way daily for a period of seven to ten days on their usual (mixed) diet in order to learn the extent of individual and daily variations. In a subsequent period (protein period) no starchy foods were eaten, the dietary being restricted to meat, eggs, cheese, and milk. In the carbohydrate period the diet consisted of bread, rice, vegetables, and fruit. The longest special period included seven days—a time within which Neilson's adaptations were observed to occur.

Protocols.—In summarizing the observations made, we have employed the scheme of Wohlgemuth. In accordance with this the successive quantities of saliva tested stand in a geometrical series, each volume differing from the next by the constant factor 1.6. Owing to the differences in the subjects, the preliminary dilution of the saliva was not alike in all; but the absolute amounts of undiluted secretion used are given in the tables. The designation + represents digestion beyond the beginning erythrodextrin stage as already explained. Concordant duplicate analyses of each sample were made in every case.

F.

Saliva (collected by drip)	Carbohydrate Period						Protein Period			
c.c.	3/15	3/16	3/17	3/18	3/19	3/20	3/21	3 22	3, 23	3/24
0.100	+	+	+	+	−	+	+	+	+	+
0.064	−	−	−	+	−	+	+	+	−	+
0.040	−	−	−	+	−	−	−	+	−	+
0.025	−	−	−	−	−	−	−	−	−	−
Volume (c.c.) in 15 minutes	....	....	....	14.0	12.8	13.0	8.5	13.0	7.0	12.5
$D^{40°}_{30'}$ =	50	50	50	125	....	78	78	125	50	125

G.

c.c.										
0.040	+	+	+	+	+	+	+	+	+	+
0.025	−	+	+	+	−	+	−	+	−	+
0.016	−	+	−	+	−	−	−	−	−	−
0.010	−	−	−	−	−	−	−	−	−	−
Volume (c.c.) in 15 minutes	....	....	....	18 2	17.5	18.0	9.0	11 1	12.0	11.5
$D^{40°}_{30'}$ =	125	312	200	312	125	200	125	200	125	200

We cannot interpret these protocols as evidence of a specific amylolytic adaptation of the saliva to the diet under the conditions selected and made comparable (as far as could be determined) with those reported by the adherents of the adaptation theory. Subject D, with a comparatively weak saliva ($D\,40°/30' = 78$), might especially be expected to have shown an adaptation improvement if any arose. In the nearest approach to an apparent adaptative response by which an increased amylolytic power followed carbohydrate feeding (Subject E), it will be noted that the enzyme content was as marked after three days of fasting as during the diet periods. In the same individual (Subject B) at a subsequent period the amylolytic power was lower during the abundant carbohydrate feeding. The saliva of a well-known vegetarian (H.F.) collected by both methods was examined and, strangely enough, found to be no more active than that of most individuals examined by us. This was true of another vegetarian (C.S.)

Carlson and Crittenden[4] have asserted that the saliva which is secreted fastest exhibits the greatest digestive power. For comparison we have recorded a few data on the volume of saliva collected by the drip method in 15 minutes, together with determinations of its amylolytic power, in protocols F and G.

In the course of his studies on salivary amylase Wohlgemuth[5] has published this statement: "In so far as I can judge at present, the nature of the dietary is without influence on the quantity of ferment. In most cases just as much diastase was secreted in the saliva after meat feeding, as after a bread diet." (p. 12.) Carlson and Crittenden[5], who have anticipated us in similar experiments and far more extensive tests on animals, conclude that "there is no evidence that the ptyalin concentration in the parotid or the mixed saliva is appreciably increased in man, even after years in which meats are excluded and carbohydrates greatly increased." Our own experience leads to a similar conclusion.

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THE CHEMISTRY OF THE URINE IN PULMONARY TUBERCULOSIS.

WITH OBSERVATIONS ON THE BLOOD.

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In view of the prodigious amount of work that has been done, and is being done, to facilitate accurate and early diagnosis in pulmonary tuberculosis it seems more than passing strange that the chemistry of the urine in this disease should have been so quietly, so constantly, and so uniformly neglected.

The extreme paucity of literature on the subject, together with its elementary, unsatisfactory, and contradictory character renders a review at once unnecessary and unprofitable. None of the authors whom I have been able to consult so much as mention the chemical examination of the urine as a possible aid either in the diagnosis or prognosis of pulmonary tuberculosis; and by more than one we are silently left to infer, if not told with hasty assurance, that in uncomplicated cases the urine presents no evidence of being other than normal.

From purely theoretical considerations it occurred to me that the urine—of advanced cases at least—should reveal two prominent features of the disease, *i.e.* (1) wasting, and (2) an imperfect interchange of gases due to diseased lung tissue. Naturally it was expected that the former feature would be shown by the urea excretion, and the latter by the elimination of the purin bodies. Having convinced myself that significant changes of this character were constantly present and easily discernible in the urine of practically all cases in which the disease had made marked progress it was not unreasonable to assume that similar, if less extensive, manifestations should be detectable during the earlier and less obvious stages of the disease. For evident reasons only cases, with two or three exceptions, were selected which show the presence of tubercle bacilli in the sputum. Out of the 52 cases tabulated below only 9, or 17.3 per cent., are bed patients.

The remaining 43 represent varying stages of the disease. In the majority of instances the examination of the urine was made within a few days after the arrival of the patient in the hospital.

Volume, Specific Gravity, and Color.—The volume of urine excreted in 24 hours is perhaps diminished in the majority of cases of tuberculosis, but this feature is so variable and inconstant as to be of no practical value. Polyuria seems to be met with much less frequently among the tuberculous than apparently normal individuals. It is not at all unusual to find men seemingly in perfect health who excrete more than 3000 c.c. of urine during the twenty-four hours. Victims of active tuberculosis seldom do this. Diminution in the volume of urine, if actually present, may be, and probably is, due to causes entirely apart from the disease.

The specific gravity[1] apparently undergoes no appreciable changes. It is, however, unusual to find tuberculous patients whose urine shows a urinometer reading above 28.0. This is very well shown as follows:

	Total Number	Urinometer Reading		Percentage	
		27 or Over	28 or Over	27 or Over	28 or Over
Patients...	52	3	1	5.8	1.9
Controls...	25	5	5	20.0	20.0

These changes are, of course, due to accompanying conditions and not to the disease. It is well enough, however, to know that 24-hour specimens of urine from tuberculous patients seldom show urinometer readings above 27 or 28, for it is not at all uncommon to find urinometer readings of this kind among normal individuals.

The color of urine is best observed by looking down through a column formed by filling to the mark a 100 c.c. tall form Nessler's jar. Under normal conditions—urinometer reading less than 27—the color should be perfectly yellow. In practically all cases of advanced, and advancing, tuberculosis the color will vary from a slight to a decided reddish tint; and, as a rule, the more emphatic the tint the more serious is the condition of the patient. This red color is no doubt due to the presence of unoxidized pigment resulting from the rapid destruction of red blood cells. These red tinted urines are usually associated with a positive A, or B factor (see below), due, in all probability, to the excessive and pathological disintegration of the leucocytes. Under these conditions the prognosis is unfavorable in the majority of instances. If the volume of urine is less than 2000 c.c. and the color is a bright yellow the indications are that the patient is not in a serious condition. These remarks are applicable to the greater number, but not necessarily all, of the cases of uncomplicated pulmonary tuberculosis.

This table is introduced as showing that the changes which occur in the urine in tuberculosis are not of a qualitative, quantitative, or obvious character. The data included under the heading "Per cent." certainly presents no startling departures from the normal. And it was, perhaps, from information of this kind that certain well known authors were led to state that a chemical examination of the urine in tuberculosis revealed nothing abnormal. The slight diminution in the percent. of chlorin might, in nearly every case, be attributed to the character of the diet as well as to the general condition of the patient, provided, of course, that the character of the diet was an unknown factor.

TABLE I?

No	Per Cent				Per Day			
	Urea	Cl	P_2O_5	Purin Bodies	Urea	Cl	P_2O_5	Purin Bodies
1	1.88	.728	.130	.0756	22.6	8.74	1.56	.907
2	1.43	.608	.086	.0578	16.9	7.11	1.00	.676
3	2.35	.690	.236	.083	25.4	7.45	2.55	.896
4	1.30	.310	.153	.040	40.5	9.66	4.77	1.250
5	2.34	.461	.190	.052	44.5	8.76	3.61	.990
6	2.52	.543	.242	.086	30.2	6.52	2.90	1.000
7	1.98	.475	.195	.052	25.7	6.17	2.53	.676
8	2.27	.781	.222	.0598	36.1	12.43	3.53	.950
9	2.76	.305	.210	.096	22.0	2.44	1.68	.768
10	2.40	.483	.185	.058	23.0	4.64	1.77	.557
11	2.00	.291	.196	.042	36.5	5.31	3.57	.766
12	2.16	.1065	.102	.077	14.3	0.70	0.67	.510
13	2.22	.483	.204	.042	36.6	7.97	3.36	.690
14	1.26	.546	.082	.052	14.4	6.22	0.94	.590
15	2.25	.490	.161	.062	47.2	10.30	3.38	1.300
16	2.99	.532	.214	.756	35.8	6.38	2.57	.910
17	2.34	.625	.167	.10	21.0	5.62	1.50	.990
18	3.00	.596	.275	.06	45.0	8.94	4.12	.900
19	2.56	.437	.189	.067	27.6	4.71	2.04	.720
20	2.37	.163	.233	.07	15.0	1.02	1.47	.440
21	2.12	.266	.132	.065	21.6	2.71	1.34	.670
22	1.94	.600	.103	.039	19.8	6.12	1.05	.400
23	2.75	.575	.140	.059	44.0	9.20	2.44	.940
24	2.30	.572	.180	.047	44.0	11.00	3.46	.900
25	2.62	.494	.250	.052	28.3	5.34	2.70	.560
26	2.50	.227	.122	.07	15.0	1.36	0.73	.420
27	2.27	.533	.132	.049	38.6	9.06	2.21	.830
28	2.75	.579	.246	.059	28.0	5.94	2.53	.610
29	1.66	.557	.183	.059	19.4	6.52	2.16	.690
30	1.28	.327	.128	.031	24.6	6.28	2.46	.600
31	1.41	.596	.242	.07	20.0	8.40	2.41	.990
32	2.20	.674	.169	.062	33.0	10.10	2.54	.980
33	1.63	.312	.188	.0286	39.1	7.49	4.51	.690
34	2.00	.362	.220	.0554	28.8	5.21	3.16	.780
35	2.75	.355	.235	.0554	16.0	1.15	1.50	.400
36	2.00	.370	.161	.037	36.0	6.66	2.93	.660
37	2.44	.483	.157	.0665	29.3	4.80	1 88	.800
38	1.07	.536	.080	.0386	18.8	9.38	1.42	.680
39	2.05	.674	.132	.059	22.14	7.28	1.43	.640
40	2.25	.451	.141	.049	36.5	7.30	2.25	.790
41	2.06	.405	.143	.0924	18.5	2.84	1.28	.830
42	1.14	.177	.051	.0154	22.8	3.54	1.02	.910
43	3.00	.127	.163	.0825	18.6	0.762	0.97	.495
44	2.68	.632	.239	.067	36.6	8.63	3.26	.915
45	1.61	.671	.132	.054	22.5	9.40	1.85	.75
46	1.97	.412	.160	.067	18.9	3.85	1.54	.64
47	2.75	.511	.150	.059	33.0	6.13	1.80	.71
48	1.87	.497	.102	.057	23.4	6.21	1.27	.71
49	2.92	.589	.232	.076	38.6	7.77	3.06	1.00
50	2.30	.860	.173	.069	28.3	10.60	2.13	.85
51	2.50	.532	.224	.050	42.5	9.04	3.81	.85
52	1.90	.248	.130	.035	36.5	4.76	2.50	.67
53	3 38	.731	.255	.067	38.5	8.33	2.90	.76
1	2.86	.700	.163	.064	35.6	8.70	2.02	.797
2	2.06	.445	.192	.056	34.0	7.34	3.17	.924
3	1.64	.415	.160	.044	31.0	7.88	3.04	.840
4	1.79	.231	.203	.0386	33.1	4.16	3.65	.696
5	2.39	.639	.275	.0537	33.46	8.95	3.85	.752
6	2.50	.426	.222	.0554	46.5	7.92	4.13	1.030
7	2.50	.412	.175	.064	58.7	9.68	4.10	1.500
8	1.86	.710	.150	.0537	29.8	11.36	2.40	.860
9	1.87	.603	.148	.067	24.0	7.78	1.90	.790
10	2.20	.852	.130	.039	43.0	17.30	2.64	.860
11	1.94	.692	.134	.050	29.0	10.40	2.01	.750
12	2.37	.504	.158	.059	36.0	7.71	2.42	.900
13	1.90	.590	.145	.052	24.5	7.60	1.87	.670
14	2.42	.454	.156	.062	36.3	6.81	2.34	.930
15	1.62	.614	.122	.045	31.1	11.80	2 31	.86
16	1.90	.390	.147	.050	54.8	11.30	4.23	1.44
17	2.05	.734	.082	.042	34.4	12.30	1.38	.70
18	2.40	.590	.235	.045	30.3	7.43	2.96	.57
19	3.06	.625	.265	.084	27.5	5.63	2.38	.76
20	2.12	.426	.157	.059	33.0	6.64	2.45	.92
21	3.37	.638	.163	.076	33.7	6.39	1.63	.76
22	3.12	.674	.235	.087	37.4	8.09	2.80	1.04

It has been repeatedly stated, in a vague sort of way, that an absolute increase in the uric acid (purin bodies) occurred in tuberculosis, but such, seemingly, is not the case. The changes which apparently indicate an altered and pathological nitrogenous metabolism are relative rather than absolute. These relative changes are shown in Table III.

The numbers in the column on the left correspond to those in a similar position in Tables I and III. These factors are called diet factors because they reveal, to the experienced eye, the character of diet most largely used by the patient during the time the urine was collected.

It could hardly be intelligently expected that the urine of all cases of tuberculosis would give a positive, or that of all normal people would give a negative, reaction based on relative changes in the normal constituents of the urine unless there was some restriction as to the character of the diet. To

TABLE II[2]

No.	V-G Factor	Diet Factors						
		UR P_2O_5	UR Cl	U P_2O_5	U Cl	Cl P_2O_5	P_2O_5 PB	Cl PB
1	288	184	33	14.4	2.58	5.60	1.72	9.63
2	146	145	20.5	16.6	2.35	7.10	1.48	10.50
3	289	113	39	10.0	3.40	2.91	2.81	8.31
4	359	95	47	8.60	4.00	2.02	3.82	7.75
5	394	109	45	12.3	5.07	2.42	3.65	8.86
6	306	105	47	10.4	4.64	2.24	2.80	6.31
7	263	103	43	10.1	4.17	2.43	3.75	9.10
8	421	119	34	10.2	2.90	3.51	3.70	13.00
9	176	104	72	13.14	9.04	1.45	2.18	3.17
10	211	119	46	12 9	4.96	2 61	3.19	8 32
11	315	88	59	10.2	6.87	1.48	4.66	6.92
12	110	164	157	21.2	20.20	1.04	1 32	1 37
13	350	104	44	10.8	4.57	2.35	4.85	11 50
14	228	243	36	15.3	2 30	6.65	1 57	10 50
15	420	124	40	14.0	4.60	3.04	2.60	8.00
16	308	120	48	13.9	5.60	2.44	2.83	7.00
17	229	152	41	14.0	3 74	3 74	1.67	6.25
18	390	95	44	11.0	5.10	2.53	4 58	10.00
19	259	121	56	13.5	5.85	2 31	2.82	6.52
20	132	169	135	10.1	14.54	0.70	3.33	2.33
21	214	157	79	16.0	7.97	2 01	2.03	4.09
22	194	184	31	18.8	3.23	5.82	2.64	15.30
23	388	171	42	19.6	4.78	3.10	2.38	9.76
24	441	128	40	16.4	4.02	3.17	3.83	12.10
25	270	100	50	10.4	5.30	1.97	4.80	11.00
26	132	180	97	22 3	11.00	1.86	1.74	3.24
27	374	166	11	17.2	4 25	4.03	3.33	2.33
28	277	109	47	11.1	4.75	2.31	4.16	9.80
29	257	119	39	9.0	3.00	3.00	3.10	9 60
30	288	117	46	10.0	3.90	2.56	4.00	10 20
31	352	103	42	5.8	2.40	2.45	3.45	8.52
32	375	147	37	13.0	3.26	3.98	2.72	10.80
33	356	75	45	8.66	5.20	1.66	6.50	10.70
34	252	164	48	10.5	5.50	1.64	4.00	11.00
35	158	94	62	11 7	7.80	1.51	4.25	6.60
36	297	101	45	12 1	5.40	2.26	4.40	10.10
37	282	150	49	15.1	5 00	3.07	2 40	7.38
38	297	210	32	13.2	2.00	6.61	2.05	13.70
39	286	200	39	15.5	3.04	4.90	2.23	11.40
40	324	141	44	16.0	5.00	3.20	2.87	9.20
41	209	163	57.4	12.2	5.00	2.83	1.54	4.38
42	220	215	62	14.4	6.40	3.46	1.12	3.90
43	135	138	177	19 0	24.40	0.77	1.97	1.53
44	349	107	40	11.2	4.00	2.64	3.56	9.43
45	390	174	35	12.2	2.40	5.08	2.44	12 40
46	177	115	44	12.3	4.70	2.57	2.38	6 10
47	280	153	46	18.3	5.30	3.40	2.54	8.60
48	219	171	35	18.3	3.70	4.87	1.80	8.70
49	350	113	45	12.5	4.90	2.53	3.06	7.70
50	342	160	32	13.3	2.60	5.00	2.50	12.40
51	385	101	42	10.7	4.70	2.37	4.44	10.50
52	264	100	55	14.6	7.60	1.90	3.68	7.00
53	324	115	40.3	13.2	4.62	2.86	3.79	10.80
1	373	184	43	17.40	4.08	4.27	2.54	10.90
2	349	108	47	10.7	4.62	2.32	3.42	8.00
3	347	114	44	10.2	3.95	2.61	3.63	9.56
4	333	90	80	8.76	7.40	1.13	5.20	6.00
5	350	91	44	8.7	3.74	2.32	5.10	11.90
6	400	97	43	14.2	5.90	1.92	2.73	7.74
7	528	128	54	14.3	6.10	2.35	2.73	9.44
8	336	140	30	12.4	2.62	4.73	2.80	13.20
9	342	172	44	12.6	3.10	4.07	2.20	9.00
10	530	203	31	16.3	2.46	6.55	3.33	21.80
11	345	175	35	14.4	2.80	5.16	2.68	11.50
12	336	139	44	15.0	4.70	3.19	2.67	8.54
13	.....	134	33	13.1	3.22	4.07	2.78	11.30
14	375	167	55	15.5	5.12	2.91	2.51	7.33
15	326	144	27	13.2	2.60	5.03	2.71	13.60
16	504	119	45	12.9	4.80	2.65	2 91	7.73
17	365	265	29	25.0	2.70	9.00	1.95	17.40
18	312	105	42	10.2	4.20	2.50	5.22	13.10
19	( )	112	47	11.5	4.90	2 36	3.15	7.40
20	289	111	41	13.5	5.00	2.71	2 66	7 20
21	280	120	42	13.2	4.60	2.86	2.70	7.70
22	338	171	43	20.7	5.20	3.92	2.15	8.45

say that all my cases were on mixed diet means little or nothing. Some of them apparently eat a great deal of meat and practically no bread at all. Others are inclined to be vegetarians. Some drink considerable milk. Others, it seems, drink none. The mere fact that they all have access to the same diet does not mean that they all eat the same, or even approximately the same, character of food. It undoubtedly would have increased the value of my work if a uniform diet had been adopted and adhered to. In this way a normal could easily have been ascertained and departures more readily, more uniformly, and perhaps more reliably detected. The fact, however, that alterations are observable in the majority of tuberculous patients with practically unlimited diet variation renders it all the more probable that were the conditions more scientifically regulated the results would have been more pronounced, and of much greater significance.

In taking up the subject of the chemistry of the urine in tuberculosis with patients living on an unregulated mixed diet I hardly expected to meet with the results shown in Table III. My intention was merely to determine whether it would likely be worth while to adopt a certain uniform diet and place the patient on it for forty-eight hours. The urine collected during the last twenty-four hours would have been more suitable for scientific research.

It will probably be suspected, and is possibly true, that some of my positive reactions among the patients, as well as some of the negative reactions among the controls, are due to the character of the diet rather than to the presence or absence of tuberculosis. Still, if it were a demonstrable fact that tuberculous people usually, and normal people seldom, ate shredded wheat biscuits for breakfast, then the eating of shredded wheat biscuits for breakfast would be a valuable, even if it were not a scientific, symptom of tuberculosis. Then, too, the fact that all advanced cases give a very decided reaction would indicate, quite unmistakably, that tuberculosis is capable of producing a relative increase in the principal products of nitrogenous metabolism, and the assumption is well founded that practically all the positive urine, and U-blood reactions among the patients, if not among the controls, is due to this disease.

This table of diet factors was compiled chiefly with the expectation that it would be possible, and necessary or desirable to make some alterations in the essential factors (Table III) under certain dietetic conditions. It seems more than probable that with a much greater number of urinalyses these alterations could be scientifically determined. With the limited data available I have ventured to make only such slight changes as would suggest themselves to the casual observer at all familiar with the influence of different diets on the chemistry of the urine. These changes are embodied in the rules given in connection with Table III.

It is, of course, obvious that some of the factors shown in the table could never occur except under pathological conditions. This is seen especially pronounced in Nos. 12, 20, 26, and 43. Aside from these, and a few similar changes, the information conveyed by the diet factors is of no importance other than to indicate the character of the diet, and in this way to add to or detract from the value of a positive or negative reaction as shown by the essential factors A, B, and C (Table III).

The V-G factor shown in the column on the left is obtained by multiplying the volume of urine expressed in hundred c.c. by the urinometer reading. This factor, like the total solids of urine, gives information of considerable value. Normally it should not be less than 300. Usually it exceeds 325. The influence of tuberculosis on this factor is shown as follows:

	Total Number	V-G less than 300	Per Cent.
Patients	53	32	60.3
Controls	24	2	8.8

Low values of the V-G factor merely indicate that the patient is not taking sufficient nourishment to sustain the body in a state of health.

Reaction A.[4]—This is a purin body reaction obtained by multiplying the per cent. of the purin bodies by 34 and dividing the urinometer reading

TABLE III[3]

No.	Reactions A	B	C	1	2	Factors		Results		
	UR X—Pb / 34	UR Y—Pb / 34	Z—G U	Total U	Blood U	L U F	G N F	U	B U	S
1	0.68	1.96	.....	2.64	10.00	B	PX	X	X	...
2	3.65	2.74	1.30	7.69	10.80	A	PX	X	X	X
3	0.53	1.68	.....	2.21	7.57	B	.....	X	X	X
4	.....	0.44	.....	0.44	7.94	B	.....	X	X	...
5	.....	.....	1.20	1.20	8.87	C	.....	X	X	X
6	1.30	1.39	.....	2.69	9.07	B	.....	X	X	X
7	.....	.....	.....	.....	6.76	C	CX	...	X	X
8	Discard	ed by ru	le 2	.....	6.68	B	.....	...	X	X
9	3.27	1.57	1.30	6.14	11.30	A	PCX	X	X	X
10	.....	.....	0.84	0.84	8.86	C	PCX	X	X	X
11	.....	.....	1.38	1.38	6.72	C	CX	X	X	X
12	3.62	1.77	2.25	7.64	12.22	A	PCX	X	X	X
13	.....	.....	0.43	0.43	5.00	C	.....	X	X	X
14	.....	2.89	.....	2.89	10.68	B	PCX	X	X	X
15	0.53	.....	1.12	1.65	7.00	C	.....	X	X	X
16	.....	0.06	1.42	1.48	7.10	C	CX	X	X	X
17	2.50	3.00	.....	5.50	12.14	B	PCX	X	X	X
18	.....	.....	1.48	1.48	7.62	C	.....	X	X	X
19	.....	.....	0.44	0.44	7.32	C	PCX	X	X	X
20	0.77	0.05	0.74	1.56	8.34	A	PCX	X	X	X
21	0.50	0.40	0.07	0.97	6.21	A	PCX	X	X	X
22	Discard	ed by ru	le 3a	.....	6.02	C	.....	...	X	X
23	.....	.....	1.27	1.27	8.70	C	.....	X	X	X
24	Discard	ed by ru	le 2	.....	6.60	C	.....	...	X	X
25	.....	.....	0.56	0.56	6.50	C	CX	X	X	X
26	0.77	.....	1.20	1.97	10.10	C	PCX	X	X	X
27	.....	.....	0.32	0.32	5.37	C	.....	X	X	X
28	.....	.....	0.19	0.19	6.01	C	CX	X	X	X
29	.....	1.77	.....	1.77	7.53	B	.....	X	X	X
30	.....	.....	.....	.....	7.00	B,C	CX	...	X	X
31	.....	1.12	.....	1.12	8.80	B	.....	X	X	X
32	Discard	ed by ru	le 2	.....	7.96	B	.....	...	X	X
33	.....	.....	1.30	1.30	7.24	C	.....	X	X	X
34	0.83	.....	1.25	2.08	7.31	C	CX	X	X	X
35	.....	.....	2.00	2.00	8.75	C	PCX	X	X	X
36	.....	.....	1.90	1.90	9.13	C	.....	X	X	X
37	.....	.....	0.37	0.37	7.88	C	PCX	X	X	X
38	.....	0.92	.....	0.92	6.60	B	.....	X	X	X
39	.....	0.80	.....	0.80	7.40	B	PX	X	X	X
40	.....	.....	1.12	1.12	6.47	C	.....	X	X	X
41	2.62	3.44	.....	6.06	11.28	B	PCX	X	X	X
42	2.24	2.60	0.36	5.36	11.08	B	PCX	X	X	X
43	2.06	.....	2.75	4.81	12.00	B	PCX	X	X	X
44	Control	placed by	mista ke	with	patie nts	in	tables	I &	II.	
45	.....	1.24	.....	1.24	6.62	B	PX	X	X	...
46	1.92	1.36	0.70	3.98	9.28	A	PCX	X	X	X
47	.....	.....	1.46	1.46	7.96	C	PCX	X	X	X
48	0.98	0.36	0.70	2.04	8.64	A	PCX	X	X	X
49	.....	.....	1.00	1.00	8.37	C	.....	X	X	X
50	.....	0.20	.....	0.20	7.75	B	.....	X	X	X
51	.....	.....	0.90	0.90	8.02	C	.....	X	X	X
52	.....	.....	2.77	2.77	9.40	C	CX	X	X	X
1	.....	.....	.....	.....	.....	...	.....	...	...	...
2	.....	.....	.....	.....	5.00	...	.....	...	...	...
3	.....	.....	.....	.....	.....	...	.....	...	...	...
4	.....	.....	.....	.....	5.77	...	CX	...	...	...
5	.....	.....	.....	.....	5.16	...	.....	...	...	...
6	.....	.....	1.20	1.20	4.50	C	.....	X	...	...
7	Second	examin	ation of	No. 6.	No. 6	bein g	avera ge.			
8	.....	.....	.....	.....	4.85	...	.....	...	...	...
9	.....	.....	.....	.....	.....	...	PX	...	...	...
10	Discard	ed by ru	le 2	.....	.....	...	.....	...	...	...
11	.....	.....	.....	.....	3.90	...	.....	...	...	...
12	.....	.....	.....	.....	.....	...	.....	...	...	...
13	.....	.....	.....	.....	.....	...	.....	...	...	...
14	.....	.....	.....	.....	4.44	...	.....	...	...	...
15	.....	.....	.....	.....	.....	...	.....	...	...	...
16	.....	.....	.....	.....	.....	...	.....	...	...	...
17	.....	.....	.....	.....	.....	...	PX	...	...	...
18	.....	.....	.....	.....	.....	...	.....	...	...	...
19	.....	.....	.....	.....	.....	...	.....	...	...	...
20	0.80	.....	1.30	2.10	.....	...	.....	X	...	...
21	Discard	ed by ru	le 3b	.....	.....	...	PCX	...	...	...
22	Discard	ed by ru	le 3b	.....	.....	...	.....	...	...	...
23	.....	.....	.....	.....	.....	...	.....	...	...	...
24	.....	.....	.....	.....	5.90	...	.....	...	...	...

by the product. If the quotient is less than X factor A is said to be positive, and the reaction is expressed by deducting the positive value of the factor from X. X = 10 except when the volume of urine is greater than 2,500 c.c., in which case X = 9. There is no room for controversy regarding the value and significance of this reaction. As a rule it is never absent in far advanced cases of tuberculosis; and its presence is due, in all probability, to (1) pathological hematolysis, or (2) diminished oxidation due to diseased lung tissue. It is, of course, probable that both causes operate to produce the reaction. My own experience coincides with that of all available authorities in that normal urine will probably never show a relative increase in the per cent. of the purin bodies sufficiently marked to produce a positive A-reaction. The positive reaction shown among the controls (No. 20) was obtained from the urine of a man who has been employed at this hospital for over two years.

Reaction B.—This is also a purin body reaction. It is obtained by dividing the per cent. of urea by 34 times the per cent. of the purin bodies. The factor has a positive value when less than Y. The reaction is obtained by deducting the value of the positive factor from Y. Y = 10, except when the urinometer reading is greater than the total urea plus the total P_2O_5 eliminated in twenty-four hours —the urea and P_2O_5 being expressed in grams. In these cases Y = 11.[5]

A positive B-reaction accompanied by a positive C-reaction is said to be real. Otherwise it is apparent. An apparent B-reaction is made real as follows: Assuming the C-factor (see below) to be expressed by the first three figures on the left, *i.e.* 156 instead of 15.65, etc., then the last two figures will show the per cent. by which the positive-apparent B-reaction must be reduced in order to obtain the real reaction. Thus suppose a specimen of urine shows a urinometer reading of 20; contains 1.56 per cent. of urea, and gives a positive-apparent B-reaction of 3.00. We divide the urinometer reading by the per cent. of urea until three figures are contained in the quotient. We discard the first figure (always a 1) and use the remaining two, or 28 in the present case, as showing the per cent. the apparent reaction must be reduced. In the case under consideration we should have 3.00 — 0.84 = 2.16—the apparent reaction being 3.00 and the real reaction 2.16. It is unnecessary to make this correction unless the positive-apparent B-reaction exceeds 1.00. A positive B-reaction has about the same significance as a positive A-reaction. They are, in reality, the same reaction under altered dietetic—and other—conditions.

It should be observed that in cases of tuberculosis with a low V-G factor and a marked C-reaction (see No. 43) the B-reaction is apt to be absent owing to the increased value of the C-factor. In such cases, as shown in No. 43, we have a negative B-reaction due to the rapid decline of the patient. In this instance the patient lived less than a week. By considerable alterations in diet even a far advanced case of tuberculosis might be made to give a negative A, or a negative B, reaction, but from my limited experience I think it very improbable that any far advanced case will be found which will give both A and B negative. A positive B-reaction will seldom, or never, be obtained from normal urine.

Reaction C.—This is the urea reaction, and, under reasonable dietetic conditions, indicates the existence of excessive and pathological nitrogenous metabolism. When positive it points to the probable fact that the patient is excreting more urea than can be accounted for in the food consumed. This excess of urea can have only one source, *i.e.* the tissues of the body. These are being more rapidly destroyed than repaired, and if this condition continues the termination must inevitably be disastrous. The value of this factor is found by dividing the urinometer reading by the per cent. of urea. If less than Z the value is positive and the reaction is expressed by deducting the value of the positive factor from Z. This factor can be more readily altered by an unnormal diet than either A or B, and for this reason more caution should be exercised in arriving at conclusions.

Only two of the controls in Table III give a

positive C-reaction. In both cases the men have been on duty in this hospital for more than two years. Z = 9 except in the following instances in which it has a value of 10: (a) The P_2O_5 divided by the purin bodies exceeds 4.00. (b) The urinometer reading divided by the per cent. of P_2O_5 exceeds 150. (c) The total chlorin plus the total P_2O_5 is less than 7.5 grams and the chlorin divided by the P_2O_5 is greater than 2.00. My own experience—coinciding with that of all available authorities—is that the urine of a normal person on a normal mixed diet will rarely show a per cent. of urea much greater than the urinometer reading, and will not, of course, give a positive C-reaction. Only the entire twenty-four-hour specimen of urine should be used for this test, and unless it is known that the specimen is of this kind judgment should be suspended regarding the C-reaction until a known twenty-four-hour specimen of urine is obtained.[9]

Total U-reaction.—This column as well as that showing the least urine factor (L U F) requires no explanation. It should be remarked, however, that when the total reaction exceeds 4.00 the prognosis is probably hopelessly unfavorable. If the total U-reaction exceeds 4.00 and the V-G factor is less than 250 the probabilities are even that the patient will not live thirty days. If, however, the general nutrition factor (G N F) is not PCX (see below) the patient will probably live two or three months, or even longer. It should also be regarded as a less unfavorable indication if the volume of urine (in c.c.) divided by the urinometer reading is greater than 60.

TABLE IV[10]

Showing Relative Increase in the Polymorphonuclear Leucocytes in Tuberculosis

Group.....	F	E	D	C	B	A	N
Per cent of all cases.	14.5	32.8	28.7	7.60	8.80	4.70	2 90
Per cent X in group.	86.0	81.4	58.6	69.3	46 6	68.7	0 0
Per cent — in group.	14.0	19.6	41.4	30.7	53.4	31.3	100
Polymorphonuclears							
Average X cases.	71.0	70.1	68.5	68.1	72.1	67.8	.....
Average — cases.	64 4	64.7	58.4	59.4	57.3	61.2	46.6
X cases over 65%	70.0	75.0	70.7	61.1	100	63.6	.....
— cases over 65%	42 8	42.8	26.8	37.5	18.7	60 0	.....
X cases under 65%	30.0	25.0	29.3	38.9	.....	37.4	.....
— cases under 65%	57 2	57.2	73.2	62 5	81.3	40 0	100
Limits of group.....	(1)	(2)	(3)	(4)	(5)	(6)	(7)

(1) W.c. over 15,000 and not over 18,000.
(2) W.c. over 12,000 and not over 15,000.
(3) W.c. over 10,000 and not over 12,000.
(4) W.c. over 9,000 and not over 10,000.
(5) W.c. over 8,000 and not over 9,000.
(6) White count under 8,000.
(7) Under 4,000 polys per c.cm.

X cases are those showing tubercle bacilli in sputum.
— cases are those not showing tubercle bacilli in sputum.

Average per cent of polys in over 300 X cases 69.76
Average per cent of polys in over 125 — cases. 60.10

B-U-reaction.—The blood-urine reaction is obtained by dividing the per cent. of polymorphonuclears revealed by a differential blood count by the least urine factor. Normally it will rarely exceed 6, while in tuberculosis it will seldom be less than 6.

TABLE III[9]

Table Showing the Normal Value of the Different Urine Reactions as Computed from the Data given by Various Authors

Authority	A Reaction	B Reaction	C Reaction	Total U Reaction
Parkes.....	Negative —6.0	Negative —7.6	Negative —0.55	Negative 14 10
Yvon and Berlioz..	Negative —3.23	Negative —2.60	Negative —1.46	Negative 7.29
Thudichum.....	Negative —6.0	Negative —7.6	Negative —1.00	Negative —14 6
King.....	Negative —1.8	Negative —1.25	Negative —1.00	Negative —4.05
Heitzmann.....	Negative	Negative —3 23	Negative —1.00	Negative about —7.00
Purdy.....	Negative	Negative —3.23	Negative —1.00	Negative about —7.00

The average normal value is about 5.25. The average in tuberculosis will exceed 7. Hence, if the value of this factor is greater than 6 the B-U-reaction is said to be positive. The following table is of interest in this connection:

The presence of tubercle bacilli in the genuine sputum is, of course, infallible evidence of the existence of tuberculosis. The meaning attaching to the absence of these organisms will vary according to the character of the sputum, and the number of the negative examinations. If the microscopic appearance of the sputum reveals the characteristics of a mouth specimen—*i.e.* large bucal epithelial cells, and many blue staining cocci and bacilli[6], the absence of tubercle bacilli means simply nothing. On the other hand, if the specimens are macroscopically and microscopically satisfactory and tubercle bacilli are not found after five or ten careful examinations the probabilities are great that the organisms are (*a*) absent or (*b*) present in such small numbers as to elude the microscope. The (*a*) probability very likely predominates.[8]

It is, of course, easily understandable how a patient may give ten negative sputum examinations in June, 1910, and then give positive results in January, 1911. There is a time in the history of every case of tuberculosis when the examination of the sputum will fail to show tubercle bacilli. There are reasons to believe that a well determined absence of tubercle bacilli in the sputum affords some evidence of the absence of a moderately advanced, active, and progressing stage of pulmonary tuberculosis, and Table IV is interesting as showing that in all suspected cases of tuberculosis the average per cent. of polymorphonuclears is considerably increased by the conditions accompanying the presence of tubercle bacilli in the sputum.

The table also imparts the following information:

Group.—Under this heading is grouped the 425 cases comprising the table. The arrangement of the groups has been adopted as a matter of convenience.

Group N.—The white count multiplied by the per cent. of polymorphonuclears is less than 4,000. As shown by the first line from top, this group will contain about 3 per cent. of all the suspected cases of tuberculosis, and as shown by line two and three, tubercle bacilli will not be found in the sputum of any member of the group. Line six shows that the average per cent. of polymorhphonuclears for Group N is 46.6. It should be remembered that a far advanced case of tuberculosis might possibly be found in this group, but the per cent. of polymorphonuclears will almost certainly exceed 50, and the B-U-reaction will not likely be less than 8.0.

Group A.—This group includes all patients whose white count is under 8,000. The first line shows that 4.7 per cent. of all the suspected cases belong to this group, and of these the second and third lines show that tubercle bacilli will be found in the majority, or 68.7 per cent. of the cases. The fifth line shows that the average per cent. of polymorphonuclears is 67.8 for the positive cases, and the sixth line shows 61.2 per cent. for the negative cases. The seventh line shows that 63.6 per cent. of all the positive cases will show more than 65 per cent. of polymorphonuclears, while 60 per cent. (line 8) of the negative cases also show more than 65 per cent. of polymorphonuclears. The ninth and tenth lines show that 37.5 per cent of the positive, and 40 per cent. of the negative cases give less than 65 per cent. of polymorpho-

nuclears. In a similar way the data may be drawn from the different groups. Thus, line 7 shows that tubercle bacilli were never found in the sputum of any member of Group B whose blood contains less than 65 per cent. of polymorphonuclears.

In the above remarks I mean by a suspected case one who is about to be surveyed as with tuberculosis, regardless of the presence or absence of tubercle bacilli in the sputum. By a negative case is meant one in whose sputum tubercle bacilli will not be found. This table was compiled chiefly for my own edification and personal use. It is published as being of general interest.

The column in Table III headed G N F shows what may be called a general nutrition factor. It it marked negative when the total chlorin is more than 6.5 grams, and the total P_2O_5 is greater than 2.00 grams. If the chlorin is less than 6.5 and the P_2O_5 is greater than 2.00 we have CX. If the chlorin is greater than 6.5 and the P_2O_5 is less than 2.00 we have PX. If both are less than the assigned value we have PCX. CX or PX alone may occasionally, though not frequently, be due to abnormalities of diet. PCX is practically always an indication of diminished nutrition due to disease. A high total U-reaction accompanied by a PCX nutrition factor is a much more serious indication than the same reaction having only a PX or CX nutrition factor. No. 2, shown in the table, has already survived his urinalysis by about two months, while Nos. 9, 41 and 42 died within two months after the recorded urinalyses were made. The last three columns showing the results of the reactions require no explanation. The B-U-reaction was not determined for several of the controls, and in these cases the absence of record is indicated by three dots.

The essential facts brought out in Table III are, summarily, as follows:

	Per Cent. Showing Positive U-reaction	Per Cent. Showing Positive B-U-reaction	Per Cent. Showing T. B. in Sputum
Patients..	95.60	97.80	95.60
Controls.....	10.00	0	0

The two controls who gave positive U-reactions have been on duty in this hospital for more than two years, during which time they have been more or less intimately associated with the patients. In the absence of a physical examination or a series of sputum examinations it would hardly be reasonable to assume that they are free from tuberculosis. Nevertheless, they were selected as controls because their general physical appearance, etc., suggested that they were probably not tuberculous. The fact that a differential blood count gives No. 6 a B-U-reaction of less than 5.00 and also places him in Group N (Table IV) is almost conclusive evidence that tubercle bacilli would not have been found in his sputum. The B-U-reaction was, unfortunately, not determined on the other control who gave a positive U-reaction. Should his U-reaction have been accompanied by a positive B-U-reaction the indications would have strongly suggested, in his particular case at least, tuberculosis.

The determination of the purin bodies in urines No. 20 and 26 was made by one unfamiliar with chemical methods, and the discrepancy noticed in the total U-reactions, and in the case of No. 20 the B-U-reaction, is almost certainly due to an error. There is little doubt that the B-U-reaction would have been greater than 10.0 in the case of No. 20, had the purin bodies been accurately determined by one capable of doing such work. Of the patients included in this table all were confined to bed with uncomplicated tuberculosis and 60 per cent. of them died within two months after the urinalysis was made. Those dying within sixty days were Nos. 12, 20, 26, 41, and 42. Of the remaining 3 neither will probably live for six months.

The following are the U and U-B reactions given by the bed patients whose urines are recorded in Table III:

TABLE IIIa

Table III No.	Total U-reaction	B-U-reaction	Least U-factor
2	7.69	10.80	A
9	6.14	11.30	A
12	7.64	12.22	A
17	5.50	12.14	B
20	1.26	8.34	A
26	1.97	10.10	C
41	6.06	11.28	B
42	5.36	11.08	B
43	4.81	12.00	C

The writer is fully aware that the data upon which this paper is based is far too limited to warrant dogmatic conclusions, and the statements made concerning the value of the reactions shown above should be regarded as prophetic and probable rather than as scientific and certain. That the suggestions given will prove of value from a prognostic standpoint there is hardly room for intelligent doubt; but that a chemical examination of the urine may be found of unexpected value in the diagnosis of tuberculosis can neither be affirmed nor denied until my own work has been multiplied and confirmed by others.

In conclusion: the chemical examinations of the urine as shown in the above tables was made, with two or three partial exceptions, by the writer personally. Much care was used, and the results are accurately expressed. I have used original and as yet unpublished methods for determining the urea, chlorids, and purin bodies, and there is no reason to expect that my results will be uniformly confirmed unless the same methods are used by others. The use of a ureometer for estimating the urea is of course to be condemned. The methods in vogue for determining the purin bodies are either (*a*) totally unreliable or (*b*) annoyingly tedious.

If a chemical examination of the urine is to be of any value it is essential that an approximately representative 24-hour specimen should be obtained, and in order that such may be, as nearly as possible, the case with patients living on a great variety of mixed diets, the following rules should be adopted and adhered to: (1) Discard all positive A and C reactions as worthless when the urinometer reading exceeds 27. (2) Discard as worthless all negative A and C reactions when the urinometer reading exceeds 22 and the total chlorin exceeds 10 grams. (3) Discard the specimen of urine as spurious when the volume is less than 1000 c.c., or the V-G-factor less than 250 and the patient is not in an obviously bad physical condition. (*a*) Such specimens are certainly spurious when the urinometer reading plus 2 is greater than the total urea expressed in grams. This applies only to patients who are not in a decidedly bad physical condition. (*b*) A volume of urine of 1000 c.c. or less which shows a urinometer reading greater than 27.5 or 28 is discarded as being either spurious or showing an unnormal diet and metabolism not due to tuberculosis. Remember

that only far advanced and hopeless cases of tuberculosis will excrete less than 1000 c.c. of urine during the twenty-four hours, and that in these cases the urinometer reading will probably never exceed 25. This is a rule to which exceptions, if they exist, must be extremely rare.

The twenty-four-hour specimen of urine from tuberculous patients who are nearing a fatal termination will usually, if not always: (*a*) measure between 600 and 800 c.c.; (*b*) have a decided red color; (*c*) show a total U-reaction greater than 4.00; (*d*) show a decided A-reaction (probably greater than 1.00); (*e*) give a B-U-reaction not much less than 10; (*f*) show a urinometer reading between 20 and 25.

REFERENCES.

1. The specific gravity must be accurately determined. A Westphal balance is preferable, but sufficiently accurate results may be obtained by using two urinometers—the one being graduated from 1000 to 1020, and the other from 1020 to 1040. These instruments are usually intended for use at an inconvenient temperature, *i.e.* 15.5° C., and it will be necessary to either cool the urine to this temperature, or, what is preferable, correct for the higher temperature by adding 1 degree to the urinometer reading for every 4 degrees about 15° C. which the urine shows. The temperature of the urine should be taken with an accurate thermometer and the bulb of the instrument must not be allowed to come in contact with the sides of the vessel containing the urine. In the present article the expression urinometer reading (UR) is used instead of specific gravity. The urinometer reading is found by removing the 10 to the left from the figures expressing the specific gravity. Of the figures showing the urinometer reading the two to the left are regarded as whole numbers. Others as decimals.

2. In this table, and as elsewhere in the present article, P_2O_5 Cl, and PB. or Pb., are used for phosphoric anhydride, chlorin, and purin bodies. In the above table U is used as an abbreviation for the per cent. of urea. All the factors in the table are found from the per cent. of the different substances contained in the urine. Thus UR divided by P_2O_5 means the quotient obtained by dividing the urinometer reading by the per cent. of P_2O_5, etc. The per cent. is also used for the numerators in the fractions shown in columns 5, 6, 7, 8 and 9. In all instances the urine is that of an adult male between the age of 19 and 45.

3. The rules laid down at the end of this article should be adhered to in obtaining the different factors and reactions shown in this table. In the table X is used for + or positive. When not otherwise recorded the "Reaction," "Results," etc., are negative. Thus the absence of X in the column S means that tubercle bacilli were not found in the sputum.

4. The word reaction is improperly used, but it affords a convenient means of avoiding tautological or circumlocutory reiteration.

5. The value of Y is increased to 11 only when by so doing a negative reaction is made positive. If the B-reaction is positive when Y = 10, the value of Y remains constant.

6. The method I have most largely used for decolorizing and counterstaining preparations for tubercle bacilli during the last year or so does not, as a rule, show the presence of the uninteresting blue staining bacteria. The presence of the large epithelial cells, however, reveals the source of the specimen. The method is: Dissolve 2.5 grams of anilin blue (W) in one liter of alcohol containing 3.0 per cent. of hydrochloric acid. The specimens are stained with fuchsin in the usual way and decolorized and counterstained with the blue-acid-alcohol. The decolorizing and counterstaining being done by applying the blue alcohol in the same way as the usual acid alcohol. The only difference is that in one case we get a perfectly blue preparation, whereas in the other a colorless film is sought. This method saves time and is perfectly reliable. It is especially desirable for feces, as it eliminates the large number of confusing blue-staining bacteria.

7. In this table, and in Tables II and III, the first and greater series of numbers refer to patients. The second and smaller series to the controls who were selected as probably not being tuberculous. In addition to the data tabulated a qualitative examination was made for albumin, and a quantitative determination made of acetone, ammonia, amidoacids, and in some cases an approximate determination of the starch splitting enzymes. The tables give only such information as is regarded of value for the purpose of the present article.

8. The facts established by this table do much to refute the opinion, or presumption, that many cases of clinical tuberculosis are produced by an acid non-resisting form—or stage—of the tubercle bacillus. These acid non-resisting bacilli are usually accredited with being at least as virulent as the better known acid-fast variety, and it is difficult to understand why the presence of the acid-fast organisms in the sputum should be accompanied by a relative increase in the polymorphonuclears, which is decidedly greater, on an average, than is found in the cases whose sputa contain the equally virulent, but less acid-resisting, form of the bacilli. Take Group B, for instance, and notice that the polymorphonuclears were greater than 65 per cent. in every case, showing the presence of the acid-fast organism. On the other hand, in about 82 per cent. of all the cases which could have been attributed to the presence of acid non-resisting organisms the per cent. of polymorphonuclears was less than 65. In an emergency one might assume that these acid semi-resisting bacilli are also semi-virulent, but our knowledge of the virulence of cultured bacilli showing temporary acid non-fast tendencies does not warrant such an assumption. Again, if the growing organisms undergo the same changes in the lung tissue as they do on artificial media, it would be reasonable to expect that many acid-fast bacilli would always be encountered, since it is quite impossible to obtain and keep, for even a short time, cultures of tubercle bacilli which show no acid-fast organisms. In view of these facts it would seem that the solution of the mystery must lie in another direction.

10. It should be stated that the blood counts here tabulated were made, as a rule, immediately after the arrival of the patients in this hospital, and while the differential counts would, in all probability, be quite different with patients who have been in this altitude and climate for months, it is hardly thought that the comparative results shown in the table would be altered. There is no doubt that the climate and altitude in which this hospital is situated produces a marked increase in the number (per cent.) of lymphocytic cells, with, of course, a corresponding diminution of the polymorphonuclears. Furthermore, it seems very probable that an enzyme contained within the lymphocyte—lymphocytase—is detrimental to Koch's bacillus, and that any treatment, climatic or otherwise, which increases the percentage of lymphocytes will prove beneficial in tuberculosis. Possibly the benefits derived from tuberculin, lecithin, etc., may be partially, if not entirely, explained by the lymphocytosis which follows their administration. Our text-books are a unit in stating that the average per cent. of mononucleated cells (lymphocytes, large mononuclears, and transitionals) in the blood of healthy adults is about 35. I have recently examined a considerable number of specimens of normal blood and am forced to conclude that, in this locality, the average per cent. of the mononucleated cells will hardly fall below 45 or 50. As a matter of fact it is unusual to find less than 40 per cent. of mononuclears in the blood of the supposedly healthy adults connected with this institution. The writer is convinced that the hematology of tuberculosis is sadly in need of an overhauling but he also realizes that this is neither the time nor place to approach the subject. However, it seems advisable to suggest that laboratory workers in different parts of the country should determine for themselves what constitutes a normal differential blood count for their locality. Until this precaution is taken the hematology of tuberculosis and other diseases will remain in its present chaotic condition.

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THE SIMPLE EXTRACTION OF CATARACT.

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Cataract operation is always a new subject, because it is the most valuable agent that ophthalmic surgery has. In spite of the simplicity reached in its performance, since the time when Daviel lifted it from obscurity to the present date, it offers interesting points of study. The two principal stages of the operation, keratotomy and discission, could be reduced to one: keratotomy and discission with the knife; but that procedure leads us to serious reflections and provokes contradictory judgments.

While almost everybody is convinced that the incision in keratotomy should be superior, and that it ought to occupy slightly less than half of the cornea, many have thought it more convenient to terminate the incision before the periphery is reached. Some have, however, carried it to the periphery, but have neglected the conjunctival flap, a point on which we lay great importance. The keratotomy then made with the purpose of making the discission of the anterior capsule of the lens with the end of De Graefe's knife, is worthy of some study. It has been thought that this procedure had the only advantage of showing the operator's ability in that he could make the extraction at one time and with only one instrument, De Graefe's or some other knife. It is evident that those who practise this method are few. We have known only Cervera of Madrid, who has used it since 1850, before local anesthesia was known, with excellent results, and in more modern times Trousseau of Paris.

In order that the discission with the knife should offer no obstacles to the later steps of the operation, the first stage of keratotomy, that of introducing the knife, should be begun at the corneoconjunctival junction or limbus; but the knife should be so inclined to the transparent cornea as not to have it parallel to the iris or close to it. In this way, when the end of the knife reaches the pupil, it can be directed against the capsule without touching the inner border of the iris; then, after the discission is performed, the counter puncture is made in the same way as the first stage so as to complete the incision without touching the upper edge of the iris.

When the anterior capsule is hard, resists the point of the knife, and is raised with it, it is enough

to move the point of the knife towards the sharpened side, when the resistance ceases and the knife can go ahead to perform the counterpuncture, without any danger of touching the external border of the iris. After the puncture, the discission, and the counterpuncture with the knife, the conjunctival flap must be made, and after it comes the delivery of the lens. Sometimes after the latter, we have found an undue lowering of the internal tension which we have attributed to cocaine when more than 3 or 4 drops of a 3 to 4 per cent. solution was used. In some cases this phenomenon appears when no more than 3 or 4 drops have been used, in others even if very large doses of cocaine are instilled the phenomenon is not produced. This means that there must be some predisposition in the patient. This accident is contradictory to the power attributed to cocaine of provoking glaucoma. When it is observed for the first time it is alarming, especially when after pressing with the fingers or with the spoon the eyeball becomes sunken; but the lens is slowly delivered and the eye regains its normal appearance within a short time, all except the cornea which remains depressed for some minutes, although larger, in due course it recovers its proper shape.

When one thinks that vitreous prolapse is the most serious complication of a cataract extraction, and that the result if the accident occurs before the delivery of the lens, would necessarily be fatal to the eye, it occurs to us that the production of such a collapse of the sclera would be of value in bulging, myopic, almost exophthalmic eyes, in preventing the dreaded escape of the vitreous. We shall never forget a case we saw in Paris in 1891. A noted and distinguished master was operating before a large number of foreign physicians who admired his ability and dexterity. After he had made several simple extractions the next case was that of a priest, not over 45 years old, and of sane and robust aspect. He had protruding eyes. After the keratotomy was performed such a large vitreous proplapse occurred that the operator limited himself to bandaging the patient's eye.

We have not had cases of internal hemorrhage immediately after the delivery of the lens, accidents which are fatal to sight because due to an atheromatous condition of the eye vessels; but in one female patient operated upon for cataract who four months before had an iridectomy performed, in order to enable a successful extraction, there was a hemorrhage, two or three hours after the operation, which destroyed the eye. This was due to restlessness on the part of the patient who thought it would do no harm to go to the table for some soup. The patient ascribed her hemorrhage to the fact that the soup was very hot. The accident was really due to the fact that she did not think it necessary to be quiet, for she thought that the preventive or previous iridectomy which had been performed rendered her immune to any accident. After some time we operated on the other eye by simple extraction only. Under extra vigilance she regained vision without any untoward accident, in spite of a myopia of six diopters.

After the keratotomy and discission are performed and after the lens has been delivered with more or less rapidity it might be considered that all the dangers were past. This is not so, however. There still remains the hard problem of removing all cortical remains. Even operating upon a perfectly mature cataract, there may be some remains left. If the cataract is not mature there may remain inside some remains of the still transparent lens, which later on may become infiltrated and dangerous. This should be prevented by all means, for the secondary cataract may increase the internal tension of the eye and produce synechia or hernia of the iris, or even may cause iritis in diathetic patients, etc.

We always have considered the irrigation of the anterior chamber to be liable to cause serious disturbances. Recently Valude, at the Naples Congress, has associated with corneal suture, the irrigation of the anterior chamber, considering the suture of the cornea as a guarantee to the irrigation; we do not deny its benefits in avoiding the hernia of the iris, or at least opening of the lips of the incision and the anterior synechia. We trust, however, more in the conjunctival flap than in any other single aid.

In this respect practice has taught us that it is better to deliver any cortical remains by pressure through the lids or directly against the cornea by means of the spoon; but should any remnants be left and should we find the day after the operation that the pupil is occluded with them, we would not regret having omitted the irrigation of the anterior chamber, for the reason that if there be but little trauma the eye absorbs the contents very rapidly, as we have observed innumerable times. The important thing is to avoid the opening of the corneal incision by the remnants of the cataract, which act as a foreign body. To avoid this complication we do not have recourse to the corneal suture in all of the operations, because we do not know whether a secondary cataract will occur or not. It is enough for us to make the conjunctival flap as extensive as possible. By this precaution we have been able to observe that in some cases in which the pupil was clouded with cortical remnants, they later have disappeared within 40 days. One of these cases that left the clinic on the fifth day after the operation regained perfect vision. We are convinced that the conjuncival flap after it adheres is far superior to the corneal suture. We also must acknowledge the extreme absorbent power of an eye that has been subject to traumatisms, for more than once we have observed very striking examples of this. We remember a case which we have cited before on account of its originality. It was the case of an engineer whose cataracts were not mature, but on account of his business he could not afford to be completely blind. We were sure that in spite of all precautions there might have been some remnants left, and on that account we performed an iridectomy. At that time we had not beocme convinced of the advantages of the conjunctival flap and the iridectomy was made to prevent a hernia of the iris. In spite of the repugnance we have always felt toward iridectomy in the combined extraction, which we believe to be of greater danger than the simple extraction, we did not regret having done it in this case. On the third day after the operation the eye had a normal aspect, but the family was alarmed because the patient could not see. We noticed a large amount of a dry pulverulent substance deposited on the posterior capsule. It consisted of almost one-half of the remains of the cataract. The patient did not experience any uncomfortable sensation. We were afraid that such a large amount of cortical remains could not be absorbed. We also felt afraid that the posterior cristaloid might remain opaque. All our apprehensions were unfounded, for two months after all the remains had been absorbed and the eye had regained perfect vision.

We will not make this work unduly long by mentioning some other steps connected with the operation. We will refer now to the question of dressing and bandages used in ophthalmic surgery. Ever since our first steps in ophthalmology we have thought it unnecessary to have the dressings put on during forty or more days, and in 1884 we wrote* upon the subject, confirming some previous papers upon that subject. We have established the fact that the eye bandage is not absolutely necessary.

The eyelid is sufficient to guard the incision during the first twenty-four hours (or more) that are needed for the complete coadaptation of the edges of the wound; but this can only be done with very intelligent and obedient patients. We have only dared to follow this method with one patient. A general in the army, accustomed to rigid discipline, remained in a darkened chamber, sitting on a chair for twenty days without opening the eyes. It is necessary to have the lids closed during the first few hours in order to avoid the movements of the eye operated upon, which otherwise are unavoidable. But how is this obtained in the majority of cases, many of them, in spite of having had the bandage removed temporarily in order to ascertain if they could see, as they have confessed to us after they were cured.

In order to diminish the time that the dressing is kept on, the corneal suture is thought of. In the last few years we have become convinced that the same results could be obtained by the use of the conjunctival flap and the disadvantages of the corneal suture could then be avoided. If on the second day the conjunctival flap is already adherent, the dressing can be removed without any fear even if the anterior chamber is filled with cortical remains.

The opened eye is in a physiological condition, and the functions can better be carried out. The conjunctiva recovers its normal aspect.

If the adherence of the flap is synchronous with the disappearance of photophobia, the absence of the dressing is more justified still. Orange yellow glasses can then be used. It is unnecessary to state that the fact of taking off the dressing and bandages does not imply discontinuing of the general care, and the most exact vigilance as in the case of any other eye affection: rest, avoidance of very much light, of dust, and wind, and of any other cause of irritation which are avoided by healthy people.

In conclusion, the simple extraction of a cataract is a very easy operation, thanks to the progress of anesthesia and antisepsis, and the results, we believe, are always beneficial if all the precautions that we recommend after a long practice are taken.

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THE CAR BARN BANDITS.

A BRIEF STUDY IN DEGENERACY.

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In my book, "The Diseases of Society and Degeneracy," I have presented what I believe to be the most authentic study yet published of the three criminals known as the Car Barn Bandits, who were hanged in Chicago some years since for murder in connection with the robbery of the "pay" funds of the Chicago Street Railway Company at the south side car barns. The subsequent flight and capture of the murderers after a desperate rifle and revolver battle with officers of the law is a matter of history, the details of which are unnecessary here.

Since the execution of the men, whom I will designate as V., N. and M., I have had the opportunity of observing the remaining members of the various families, with interesting and pertinent results.

V., who was twenty-two years of age at the time of his execution, was of especial interest to me, as I had known his father quite well as a member of various insurance society organizations, and in the days of my general practice had professionally attended various members of the family. I recall at this writing having attended another of the three children, a sister, when quite young, in an attack of convulsions. The boy, V., I did not attend, but I recall that he was said at that time to be subject to epileptic fits—probably, I should infer, not true epilepsy, but epileptoid, as in later life he was not subject to such seizures. V.'s mother was and is a most admirable woman with a family history free of neuropathic taint. Since the execution of her son she has been doing reform work among juvenile criminals, and has become a fairly good practical sociologist.

The father's side of the house would appear to be the important feature of V.'s family history. V., Senior, was a "good fellow," physically well made, but of the unsteady, vacillating type. He was not vicious, though high tempered and easily led by evil influences. He was a pretty good sort of citizen until the age of about forty, when he fell under the spell of a woman of dissolute character, and defalcated for a considerable amount. He was arrested and placed under heavy bonds, which he promptly "jumped," fleeing to Mexico with the woman in the case. His wife has since seen him in Mexico, the woman being still with him.

V.'s paternal ancestry was distinctly neuropathic—traditionally for many generations. The paternal grandfather died of tuberculosis. The paternal grandmother died insane. One paternal uncle was violently insane and died in an asylum fire. Two of V.'s cousins on the father's side have each two epileptic and feeble-minded children. One paternal aunt is, or was, in an asylum for the feeble-minded. A younger brother is a cripple from tuberculosis of the hip. The sister, to whom I have already alluded, was at last accounts in an institution for the epileptic and feeble-minded.

V. favored the paternal side of the house. He was always hot tempered, and as a child had the reputation of a willingness to fight even grown men who chanced to incur his displeasure. Brick throwing at those who displeased him kept his family in hot water a large part of the time. Notwithstanding these defects, V. became an industrious lad, whose dominant idea after his father's downfall was to obtain money to buy comforts for his mother and sister. There is evidence to show that this idea was uppermost in his mind when N., the "plotter" of the trio of desperadoes, showed him the way to acquire money easily. He was of rather an emotional mentality and during his confinement to jail after the murder, professed religion and wrote a quantity of verse which, although crude, displayed considerable sentimental exaltation.

Young V. met his death with a fair degree of composure. As to how much religious exaltation had to do with his quality of gameness I would not venture an opinion.

N., the acknowledged leader of the trio of bandits, was of the "rat" type of criminal. His reputation as a bold and desperate man was entirely undeserved. He was a cunning leader, who was quite successful in swaying characters intrinsically braver and stronger than his own. His bluster and brag, however, deceived the police and press into the belief that he was the premier desperado of the group. I fancy that he nearly succeeded in convincing himself that he was a desperately courageous man, and that he tried to live up to his swaggering pretentions. He attempted suicide after his conviction, and died on the gallows like an arrant coward. It was necessary to carry him bodily to the scaffold and to hold him in a chair until the drop fell.

At the time my book was written, I had no evidence of degenerate heredity to submit in the case of N. Since that time, however, several interesting points have developed. N.'s father has since died insane, and his mother has been arrested twelve or more times for disorderly conduct due to mental derangement. Mrs. N.'s brother has also developed senile dementia.*

M., the remaining member of the trio of bandits, was, in my opinion, the strongest character of the three. He certainly was as game a man as I have ever seen die on the scaffold. In reporting M.'s case I recorded the death of his father while serving a twenty-year term in the penitentiary for rape. His sister has since died insane. His brother also became insane, and was sent to an asylum. He was afterwards discharged as cured, but soon thereafter shot himself.

I made a careful study of the crania of the bandits after their execution and found that their cranial development harmonized fairly well with their degenerate history. Briefly, frontal development was defective in all, especially in M. An odd feature of the men's skulls was the marked flattening of the occiput, asserted by Franz Joseph Gall so many years ago to be the typic feature of criminal crania.

In M. there were some special features of degeneracy. The jaws were markedly assymetric and the palatal arch badly developed and saddle-shaped.

A point which I endeavored to make in reporting these cases in my "Diseases of Society" was that the responsibility of such criminal acts as the car barn murders really lay at the door of society. A pertinent fact in this connection is that the authorities had an opportunity to save the criminals and the lives of those whom they murdered, and to protect society from their depredations, to say nothing of avoiding the expense of the legal machinery necessary to their apprehension, trial and execution. Some years before the car barn murders, the three boys broke into a schoolhouse and dismantled the stationary engine. V. was evidently inspired by the universal deviltry of strenuous boyhood. M. and N., however, took rather a practical view of the escapade. They appropriated and sold the brass fittings of the engine, were apprehended and arrested. V., it seems, was not known in the matter, but with loyalty to his boy companions uppermost in his mind, left his place of employment and went to the neighborhood of the police station in which his friends were confined, with the vague notion that he might be able to help them in some way. He was seen, arrested on suspicion, and found to be "wanted."

M. and N. were sent to the Bridewell to have their criminal education finished by a post graduate course under older and more hardened criminals, and served their terms. V. was sent to the John Worthy school and afterwards released by the Mayor.

Here was society's opportunity to study the young malefactors and their family histories, and to so supervise their subsequent lives as to give them an opportunity to develop into decent citizens. No further attention was paid to them, however, until they committed the crime for which they afterwards were hanged. It would have been cheaper to have prevented their crimes by making, if possible, decent citizens of them. It surely was well worth the trial.

In passing, it might be well to reflect on the bearing of such histories as the foregoing upon sterilization in social therapeutics. For many years I have been advocating operations upon the sexual organs as a preventive of crime and allied social phenomena.

In 1895, in my "Diseases of Society," I presented sterilization by resection of the vasa deferentia as a most effective remedy for "social diseases" of all kinds. Its role in the prevention of social disease seems obvious enough.

It has seemed to me peculiar that in the midst of the present furore regarding sterilization, some of my brethren have not been courteous enough to mention my pioneer work along this line, but I have consoled myself with the tardy endorsement which even plagiarism, discourtesy, or the writings of those who are ignorant of work which has gone before sometimes gives to the hobby-rider. It matters not who popularizes a principle or method so long as it is beneficent.

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*Mrs. N. died shortly after the above was written. Cause of death unknown to me at present writing.

REPORT OF A CASE OF SARCOMA OF THE ADRENAL GLAND.

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The following case is of interest on account of the location, the gross appearances, the exceedingly vascular nature, and the chemical reaction of the growths. The chemical reaction referred to is that described by Hall in the *Archives of Internal Medicine*, Vol. II, No. 4, p. 357. From his article we quote the following: "A considerable amount of work has been done on these tumors and some peculiar reactions have been described as specific. Croftan claims that a watery extract of these tumors injected into dogs and rabbits produces glycosuria, that it converts uncooked starch into dextrose and maltose, and that it decolorizes boiled starch stained with iodine. The writer has subjected all tumors reported in this paper to the last two tests and found the reaction described in every case. Control tests with other neoplasms have constantly failed. Thus it seems that the chemical properties are no less interesting than the microscopical and clinical features."

The secondary nodules in the lungs in this case were submitted to the following test. Pieces were triturated in a mortar with a small quantity of water. Strips of filter paper were placed in boiled starch, the starched filter paper was then touched

with iodine. These strips of filter paper, which held the starch acted upon by the iodine, were then placed into the watery solution of the tumor and were decolorized in from five to ten minutes.

Clinical History.—N. M. B., age 52 years, was admitted to the Central Indiana Hospital for the Insane, September 10, 1908. Her condition upon admission and prior thereto is unknown. Her family history is also unobtainable. Her mental condition upon admission is recorded as being irritable and quarrelsome, with a tendency to do violence. The course of her mental condition has been one of gradually increasing dementia. She has lost weight and energy. Physical examination made upon September 16, 1908, revealed the following: Rather emaciated senile colored woman. Eyes and face dull; mouth drooping. Skin harsh and dry. Voice rather scanning. Eyes dark, pupils unequal. The left is dilated and irregular. Does not react to light or accommodation. Mouth large, teeth fair, odor offensive. Mucous membrane pale, tongue thick and flabby. Thorax contracted in all diameters. Dullness upon left side upon percussion. Marked decrease in the vesicular murmur over the left lung. There is reduplication of first and second sound. Harsh bruit best heard at apex. On account of the mental condition of the patient the abdominal examination is rather obscure. There appears to be enlargement of the liver. The liver appears nodular. The border of the liver cannot be felt readily. Generative organs negative. Reflexes very active. Gait slow and measured. Station and coordination good. Muscular strength fair.

Present Illness.—The onset of the present illness is very indefinite. She gradually lost flesh. Complains of pain and tenderness over right hypochondrium. She complains of cough and pain in chest. She has marked cachexia. Physical examination does not vary from previous examination. A provisional diagnosis of pulmonary tuberculosis with malignant tumor of the liver was made. The patient died January 15, 1909.

Pathological Report.—Body that of an emaciated senile female. Rigor and livor mortis present. Teeth not well preserved. Pupils dilated and equal. No external signs of traumatism or disease. On the anterior surface of the right tibia, in its middle portion, there is an irregular bony elevation. The ankles are edematous.

Circulatory System.—Pericardium and sac negative. Heart shows chronic interstitial myocarditis. Aorta shows moderate arterio-capillary fibrosis.

Respiratory System.—Marked chronic bilateral pleural adhesions. Left lung is voluminous, and emphysematous blebs are seen along the anterior border. Crepitation is impaired in areas which are the seat of numerous small firm growths, some of which have a tendency to undergo softening and degeneration. The firmer growths are red in color, with yellowish centers of a cheesy nature. Otherwise the lung is normal in color and shows slight congestion and edema. Right lung shows nodules considerably larger than those in the left. One at the base upon the diaphragmatic surface is larger than a hen's egg. There are other nodules in the lower lobe, which are larger than those in the upper lobe and middle lobe. These nodules are darker in color and fragmentary, and are soft in consistency. The smaller ones are more firm—while some show a yellowish area in their centers.

Alimentary System.—The muscles are pale—430 c.c. of a dark serosanguinous fluid in the peritoneal cavity. A retroperitoneal growth upon the left side in the left renal region is seen. The peritoneum is adherent to the growth in the liver. The liver is large and is the seat of numerous large growths. It measures 27 x 22 x 9 cm. The growths vary in size from a hen's egg to an orange. The largest one is upon the inferior surface at the junction of the right and left lobe. Another is seen at the inferior border of the right lobe, to the outer side of the gall bladder. Smaller ones are scattered throughout the liver—they vary from firm areas to sloughing, fragmentation, and dissolution. Otherwise the liver cuts with increased resistance and its edges are rounded, and it shows slight congestion. The pancreas is free and evidently normal. Intestines—there are chronic adhesions in the right hypochondrium at the hepatic flexure of the colon. Otherwise intestines negative. The stomach is displaced to the right and lies in the longitudinal axis of the body between the growth and the liver.

Urogenerative System.—The left kidney is small and lies to the outer side of the growth. It is bound to the mass by rather easily torn adhesions. The renal veins and the ureter are surrounded by the growth. No evidence of the growth seen in the kidney. The kidney otherwise shows chronic interstitial nephritis. The right kidney is free from growths and shows interstitial changes. The bladder shows a small stone at the trigome. Ovaries are cystic and the uterus shows two small fibroid growths at the middle of the body.

Glandular System.—The spleen is not invaded by the growth, and is apparently normal. The right adrenal is negative. The left lies at the upper anterior surface of the growth. It is regularly enlarged and no distinct nodular areas are seen. It measures 9 x 4 x 4½ cm., cuts with moderate resistance and has a grayish appearance. The main body of the retroperitoneal growth is separated from it by a firm capsule.

The thyroid and lymphatic glands show no changes.

The Tumor.—The tumor lies to the inner side of the kidney. It is retroperitoneal—large, globular in shape. Large veins are seen coursing over its surface. It surrounds the renal vessels, and is misleading as to its consistency, having a tendency to fluctuate. The cut surface shows a distinct capsule—the surface is firm, except near the center, where there is a tendency to degeneration. It is a yellowish gray in color, having a lobulated appearance upon its cut surface. The growth weighs 2660 grams.

Microscopical Report.—Sections show the tumor enclosed in a fibrous capsule 1 mm. thick. At one point only do we see a prolongation of the fibrous elements of the capsule extending into the tumor structure and here it is very scanty. The connective tissue binding the component parts of the tumor is very scanty in comparison with the cellular elements. The blood-vessels are few and those seen are in the interstitial elements with some few capillary arrangements in the cellular elements. The coats of the vessel are indistinct and they appear as sluiceways. The elements beneath the capsule present an arrangement simulating the cortical portion of the adrenal but no distinct acini or tubular arrangements are present. The cells here are small and large, round, with a few spindle cells, and these are closely compact.

The cortical portion of the left adrenal, save for slight congestion, is fairly well preserved. The arrangement of the medullary portion is distorted. The interstitial elements can not be outlined, and are very scanty in amount. The medullary portion contains some adrenal cells, large cells showing mitosis of the nuclei; others are small, with single nucleus. These are loosely placed with clear spaces intervening. Vascularity is poor; few, if any, typical vessels are seen.

The liver is infiltrated with large, small, round cells, obliterating the normal liver elements. The connective tissue is scanty, the vessels are few, cells compacted, and there is no glandular arrangement. The lung shows a similar picture as that described in the liver except the sections show more healthy lung tissue and the infiltrating cells appear as more or less circumscribed area, with some diffuse infiltration. The other organs microscopically present pictures characteristic of the conditions given in the pathological diagnosis and are here omitted for the sake of space. The general enlargement and absence of secondary nodules in the adrenal point to the adrenal as the primary seat of the malignant growth, and even though it responds to the chemical test for hypernephroma, the anatomical and microscopical findings lead us to regard it as a sarcomatous condition.

We are indebted to Dr. E. D. Martin for his assistance in the pathological examinations.

ANCHORING THE KIDNEY FOR DISLOCATION OR DISPLACEMENT.*

By EDWARD N. LIELL, M.D.,

JACKSONVILLE, FLORIDA.

A MISPLACED or dislocated kidney, though frequently a congenital condition, is usually acquired. As to the terms "floating" and "movable," applied to the kidney, these are merely relative. The former may be defined as a kidney displaced from its normal position—not fixed, a peritoneal envelopment permitting of a rather free movement; the latter is mobile in the tissues by which it is surrounded. The tendency of the kidney to gravitate from its normal position is associated with several factors, chiefly, however, with that of absorption of the peritoneal fat and consequent relaxation of its folds.

A few words here as to the normal position and surgical relations of each kidney. Regarding the former, a line drawn through the umbilicus is below the lower border of the kidney; moreover, the axis of the kidney is obliquely downward and outward. As to the surgical relations, the right kidney is in contact in its upper three-fourths, separated by peritoneum, with the posterior and under surface of the liver, and below with the colon and duodenum; while the left kidney, in its upper portion, lies against the posterior surface of the stomach, the extremity of the pancreas, and the spleen, its lower portion being in contact with the colon and coils of small intestine.

In examining for displaced or dislocated kidney, the patient should be in a semi-reclining position, thus relaxing the abdominal muscles. Bimanual palpation will detect the presence of a tumor or solid mass in the hypochondriac region, its shape conforming to that of the kidney when readily felt. This is reducible in the direction of its normal position, or by gravitation when the pelvis is elevated. Not infrequently the mobile kidney has an extremely wide range, shifting to and fro in the loose perinephritic and peritoneal folds. Undue manipulation may cause the patient to have a sickening sensation or even to faint.

The advantage the lumber incision possesses in operation upon the kidney is that, not only is the latter readily reached, but it affords good drainage in addition to the non-opening of the peritoneum. As a prerequisite to operation, the patient should be placed in a lateroprone position the reverse of the side operated upon, the iliocostal space being increased by placing a sandbag or firm pillow under the opposite loin.

The incision most practical is an oblique one to the outer side of the quadratus lumborum muscle, from the last rib downward and outward towards the crest of the ilium, the length of the incision being not over three inches. The retroperitoneal space and fatty tissue of the kidney is readily reached after division of the firm lumbar and transversalis fascia. By the aid of the retractors, and an assistant making pressure anteriorly, the perirenal fat looms up in the wound and the kidney is brought to view and thus held in position. Right here I would add a warning as to three factors to be considered: be careful not to open the peritoneum, though if immediately sutured no harm will come of it; do not twist the kidney, obviously avoiding any injurious effect upon the ureter and vessels; third, there is no occasion, at any time, for exposing the kidney wholly by attempts to deliver it through the wound.

To continue with the operation: the fibrous capsule of the kidney is next gently incised along the convex border for about two inches, and reflected back for half an inch on each side by means of the handle of the scalpel. If the incision be inadvertently carried into the kidney substance, considerable bleeding will be met with, which, however, will yield to hot water sponging. Two sutures, number two chromicized catgut, are then passed through the aponeurotic tissue of the wound on one side, continuing it through the everted flap of the capsule on the same side, at the lower pole of the kidney, then lightly through the substance of the kidney and the everted capsule and aponeurotic tissue on the opposite side. Before tying the sutures the kidney should be pushed or drawn into its proper place; each suture should take a firm hold, care being taken, however, not to draw them so firm as to fix the kidney wholly or in part in the main wound.

In closing the latter, I use number two plain catgut as buried suture for the fascia and aponeurosis; the muscle and skin being brought together with several silkworm-gut sutures. The entrance and exit of these silkworm-gut sutures are merely on the edges of the skin, thus giving an improved cosmetic effect.

This method of anchoring the kidney and overcoming the distressing symptoms of displaced kidney is easy and efficient, having given me excellent results in my last five cases operated upon. A failure to give permanent relief may be attributed to two factors: either that operation has been performed in unsuitable cases, as in a coexisting general visceral ptosis, or to imperfect technique and suturing.

*Read at the Thirty-seventh Annual Meeting, Florida Medical Association, held at Jacksonville, Fla., April 6, 7 and 8, 1910.

TWO CASES OF ACTINOMYCOSIS.

By HOWARD JONES, A.M., M.D.,

CIRCLEVILLE, OHIO.

THE issue of the MEDICAL RECORD of June 4 containing two articles on actinomycosis by Dr. Wood and Dr. Stengel suggests this report of two cases.

On May 3, 1909, a young man consulted me in regard to a swelling on his gum just above the left upper bicuspid. The history was that of ulceration of the tooth following a too-long-delayed filling. The abscess was opened by me at once, and nothing more was heard of the patient until June 30, when he again called at my office on account of a swelling in his left cheek. It showed slightly on the outside and projected considerably within the mouth. It was about the size and shape of a large chestnut, and felt very hard and firm, much more so than an abscess.

Having in mind the tooth, now entirely well, I suggested he might expect to have pus in the tumor and that it had come from the previous infection. The growth increased in size rapidly. By August 1 it was as large as one inch and one-half in its greatest diameter and was more inclined to be spherical than before. There was neither redness on the outside nor anything that suggested pus. Actinomycosis then came to my mind and a tentative diagnosis was made. In about two weeks the skin was red over the growth and looked as if it would soon break down. August 18 the skin was cut and with a pair of dressing forceps a pinch was taken from the growth and mounted for the microscope. The specimen proved to be excellent, and the diagnosis of ray fungus was confirmed. The tumor was then removed and the cavity thoroughly washed with a solution of sulphate of copper strong enough to be decidedly blue. A piece of gauze saturated with a weaker solution was then packed in the cavity and left for ten minutes. On the withdrawal of this the wound was packed with moist carbolated gauze. No other treatment than redressing with the carbolated gauze was resorted to. The wound soon healed with but a slight scar.

Another case, in a young woman, also started in a carious tooth. When first seen by me there was a tumor in the right cheek and one just above the right clavicle. The one on the cheek had ulcerated through the skin and the characteristic yellow granules could be seen with a magnifying glass in the scanty discharge. The lump above the clavicle was red and looked as if it, too, would soon break down. Again the microscope showed the ray fungus as the cause.

The patient felt ill but had no fever. Potassium iodide was given in increasing doses for one week and the tumors then removed. The sulphate of copper treatment was used as above described and the wounds healed rapidly. About this time a swelling was noticed on the sternal end of the left clavicle. Instead of forming a spherical mass as in the lesions removed, it spread over the whole clavicular region and was without defined edge. This growth has persisted now for about four months, and reaches from about one inch above the clavicle to the breast line, is sore in spots on pressure, and has a board-like feel. The clavicle throughout its length is about twice its normal width and the growth seems to be underneath as well as on the outward surface. The ribs seem to be involved also. An exploratory incision to the bone of the clavicle, at the sorest and most swollen point, failed to give any evidence of actinomycosis. Potassium iodide has been increased to 180 grains per day without apparent benefit. Operation has been declined. The patient is gradually failing in health and it looks as if surgery is her only chance of relief.

The copper salts, especially the sulphate, are very active fungicides, and it has occurred to me that they might be used with good results against the numerous species of actinomyces by some method of depositing the copper by electricity in the invaded tissue.

Acute Thyroiditis and Its Cardiovascular Complications.—Jacques Parisot states that most infectious diseases may produce lesions of the thyroid gland by inflammation. He gives histories of cases in which thyroiditis with cardiovascular symptoms accompanied puerperal streptococcemia, typhoid fever, mumps, and pneumonia. There occurred tachycardia, dissociation between the pulse and temperature, localized pain, and palpitation. The vasomotor reactions may be exaggerated; the arterial pressure is markedly lowered, and the pulse becomes depressible. These symptoms are transitory, and disappear with the disappearance of thyroid congestion. They seem to be due to a hypersecretion by the thyroid which is passing, and causes temporary symptoms of poisoning. They are similar to the symptoms that appear after operations on the thyroid.—*La Presse Médicale.*

Morbid Associations and Immunization.—V. Hutinel gives interesting examples of the coincidence of various forms of infectious diseases in children and adults, and formulates his conclusion, that two such diseases when associated modify one another and interfere with the natural process of immunization, which is necessary for the cure of disease. Typhoid is increased in its duration, its severity is aggravated, and relapses are more frequent when any other infectious disease accompanies it. Syphilitic lesions sometimes disappear at the beginning of a typhoid, to reappear in a much more severe, sometimes a fatal, form after the fever has passed. Experiments in immunization in animals show that there is an interference when two diseases are inoculated at the same time. The author questions whether this is the result of interference with phagocytosis, since bacterial products lessen the activity of the leucocytes both directly and by their effect on the nervous system.—*La Bulletin Médical.*

Meningism: Its Relations with Lumbar Puncture.—Louis Bousquet wishes to establish a means of diagnosis between true meningitis and the so-called meningism, and has experimented as to the possibility of establishing a test by means of lumbar puncture. He describes, under the head of meningism, the clinical manifestations of meningitis, without pathological conditions corresponding to them which we see in hysteria and reflex meningism. Some of these conditions are toxic, others are due to intestinal poisoning. Lumbar puncture in most cases is of great value in establishing the differential diagnosis between these conditions and true meningitis. At the same time these results are not always implicitly to be relied on since some of the signs fail to be present in certain cases. Cytological changes in the cerebrospinal fluid and microbian invasion are not always evident to tests made of this fluid. In difficult cases we should make use of the triple tests, cytological, bacteriological, and chemical, and it should be considered whether there are any leucocyte alterations.—*Gazette des Hôpitaux.*

The Influence of the Cerebellum on the Coordination of Words.—G. Garbini considers it demonstrated that the cerebellum exercises a coordinating action on articulate language. The demonstrative cases are those of Sanloeffer and U. Rosso, the last of which was confirmed by autopsy at the *Instituto Umbro,* in May, 1906. The macroscopic and microscopic characteristics were shown of atrophy and total sclerosis of the cerebellum. The authors record that the subject in life had presented a pseudobasilar syndrome, and articulated language was changed by disturbances of speech, dysarthria, dysphasia, and bradyphasia. He thinks that the regulatory mechanism is in the cerebellum, and impulses pass out by the system of cerebello-rubro-thalamic neurons, and run through the *ansa nuclei lenticularis,* and the *putamen,* to produce their regulative action. This has a marked importance in its effect on the mechanism of words, the impulse for which passes through this nucleus by a certain number of fibers deputed to articulate language.—*La Riforma Medica.*

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CELLULAR TENACITY AND PATHOLOGY.

THE problems of disease are ultimately resolved into problems of cytology. The specific energies of the cells confront one at every step in the investigation of pathological phenomena, whether of metabolic or zymotic origin. The conception of specific energy as first applied by Johannes Müller in 1826 to the nerves has later expanded to include every form of vital unit, and coupled with Virchow's doctrine of cellular pathology, it forms the foundation of modern pathological physiology.

There is one phase of this subject that has not been sufficiently emphasized, namely, the inherent tendency of all cells to persist in a given form or direction of activity. The expression, "cellular tenacity," is applied to this phenomenon by W. von Leube, in a valuable contribution in the *Zeitschrift für klinische Medizin*, Vol. 70, Nos. 5 and 6. This observer notes that as the result of certain injurious influences a quantitative change in the normal cellular activity is usually the sole expression of the disease process. Qualitative changes in cellular activity are extremely rare, and are to be attributed to persistent and unusual stimuli causing intracellular atomic rearrangements. These are accompanied by qualitative transformations of the normal activity of the cells. Of eminent importance is the fact that when once these changes are established they have a tendency to persist by virtue of the inherent tenacity of the cells.

Illustrations of these facts are amply furnished by both clinical and experimental phenomena. The formation of antibodies in natural or artificial active immunization represents a specific reaction of the cells. This immunity may exist for a longer or a shorter time; in either case the disappearance of the antibodies is not necessarily associated with the loss of those intracellular atomic readjustments that were instrumental in yielding these antibodies. A new infection, as in typhoid, excites a prompt and vigorous elaboration of these protective substances. Thus it had been shown by Cole that a minimal inoculation with a typhoid culture will not evoke the production of agglutinins in a normal rabbit, but will do so in a rabbit that had already produced agglutinins upon inoculation, and from whose blood these substances had disappeared. Furthermore, this reawakening of a former intracellular rearrangement may be evoked by other than specific stimuli. Thus, small doses of pilocarpine increase by one-third the amount of antitoxin in the blood of a horse actively immunized against diphtheria. Prof. von Leube has investigated this phase of the subject in patients that had recovered from typhoid fever. He found that the production of Bier's passive hyperemia in the extremities, or the administration of an abundant diet, was instrumental in stimulating the elaboration of agglutinins when the tendency to produce these had already become latent. It is a fact established by both clinical and experimental evidence that the stronger the original infection the greater does this latent tendency become. It has been shown by numerous observers that when the temperature is artificially raised in animals that have been inoculated they are enabled to resist the infection more powerfully. Lüdke has found that the prolonged application of external heat may arouse the latent tendency to produce agglutinins in animals that had been inoculated with typhoid bacilli. The injection of deuteroalbumose had the same effect.

The diseases of metabolism, namely, obesity, gout, and diabetes, furnish striking illustration of the tenacity with which intracellular atomic rearrangements persist, after these have once been produced by abnormal external conditions. The pathological tendency to excessive fat formation, whether inherited, or acquired as the result of overabundant diet, indulgence in alcohol, deficient exercise, or residence in a warm climate, represents a disturbance in the normal activity of the cells, which disturbance is apt to persist for a long time, or even permanently, after the original causes have been removed. Similarly in gout, the disturbance in the endogenous metabolism of uric acid continues long after the removal of the inciting factors, chiefly dietetic and other hygienic errors; and even when the gouty manifestations have been removed the disposition remains latent, to be aroused by a return to former errors of living. The same tendency is observed in diabetes. This cellular inertia accounts for the obstinacy of these metabolic disorders, and necessitates that the treatment be continued for a long time, and the cells restored to their normal mode of functioning by easy stages.

DEATHS UNDER ANESTHETICS.

THE question of the best and safest anesthetic for general and special use, and of the administration of the same, has been widely debated in all civilized countries of late years. Of course, the chief arguments have been between the supporters of chloroform and ether, and although no definite agreement has been come to, it is somewhat significant to note that of the eighty inquests or so held by the coroner of the City of London during the past nine years nearly all have been on patients who have died in hospital while under the influence of chloroform or of mixtures containing chloroform administered for the purpose of operating. But it would be idle to enter here into the comparative merits of chloroform and ether as anesthetics, except to draw attention to the apparently large num-

ber of fatalities which follow the administration of chloroform in Great Britain.

The matter which is engaging the attention of the medical profession to a great extent is with regard to the administration of anesthetics. In England the contention is made that anesthetics are too frequently administered by unskilled persons or by individuals not sufficiently conversant with the safest methods of giving them. It is argued that whenever possible the anesthetic should be given by a thoroughly competent anesthetist. A pertinent object lesson on the danger attending the administration of anesthetics, in this case ether, has been afforded recently in London. A patient died in Guy's Hospital on July 2 under the influence of ether which had been given him by the house surgeon by the "open" method. Dr. Waldo, the coroner for the City of London, at the inquest held on the above case remarked that, with regard to Guy's Hospital, he had noticed that in nearly every one of the forty-four cases in which death occurred under anesthetics during the past nine years the anesthetic had been given by junior residents. In another large general hospital during the same period, at which it was the custom for the anesthetic in serious cases to be given by visiting and resident specialists, there had been fewer fatalities. The acting resident surgeon at Guy's Hospital said that in consequence of strictures passed by Dr. Waldo, at a former inquest, on the body of a woman who had died under chloroform given by a junior resident, certain reforms had been introduced, including the requirement that all candidates should, before appointment on the junior staff, produce evidence of special knowledge in the administration of anesthetics. Since the introduction of reforms in this respect at Guy's Hospital fatalities have greatly decreased. In 1907 there were eleven deaths from this cause in the institution, while since that year, and after reforms had been brought in, the deaths reported have been few and far between.

However, there is no necessity to labor the point that reforms are called for in the mode of administration of anesthetics in England, for experts there are practically unanimous in asserting that more skilful administration is demanded. Indeed, so strong is this belief that at the meeting of the British Medical Association, just held in London, in the section of anesthetics the resolution was passed that the British Medical Association recognize the need for the proposed legislation as to the administration of anesthetics in the interests of public safety.

In the MEDICAL RECORD of July 9 was a letter on the subject by Mr. Frederick S. Crum, in which he discussed the British Parliamentary report recently published, and suggested that most, if not all, of the conclusions and recommendations contained in the report were equally applicable to this country. Whether the administration of anesthetics is conducted more safely in America than in Great Britain is a matter of little moment. The salient feature of the situation in both countries is that in no case should an anesthetic be administered unskilfully, and that wherever possible the greatest available skill should be employed. This is to say, that every medical student should have some training in the administration of anesthetics, and that in every large hospital there should be a resident anesthetist who should instruct the internes in the art of administering anesthetics as well as giving them himself in serious cases.

THE ACTION OF LEUCOCYTE EXTRACTS.

THE researches published in 1908 by Hiss and Zinsser as to the curative action of substances extracted from leucocytes in various diseases, but more especially in pneumonia, attracted more than passing notice. The therapeutic value of such extractives was established at that time, and has been confirmed by later observers. Their *modus operandi,* however, has never been made clear, and the leucocyte, which has received at one time or another the credit for most of the beneficial and also the injurious activities of the animal body, still remains in many respects something of a mystery. In the June number of the *Journal of Medical Research* Zinsser reports some later researches carried on in the hope of determining the intimate action of the leucocytic extracts. As a result of these investigations the author is enabled to make some fairly definite positive and negative statements as to the leucocytes and their extracts.

He has found that extracts from normal rabbit leucocytes have distinct bactericidal powers for pyogenic staphylococci and typhoid bacilli. The action of various lots of such extracts upon the same strain of microorganisms is fairly uniform, and separate strains of the same species of organisms show no decided variations in their susceptibility to the bactericidal substances in the extracts. The more marked thermostability of the bactericidal substances in the extractives, they requiring a temperature of 75° C. to destroy them, justifies the conclusion that they are not identical with the bactericidal substances in the serum. Addition of fresh leucocyte extract does not reactivate the substances which have been rendered inert by heating to 80° C. While definitely present, the bactericidal substances of the leucocytes are quantitatively insignificant as compared to the bactericidal powers of normal serum, and it is very unlikely that they have taken any but a secondary activity in combating infection in the living body. The theory that the leucocytes were the source of complement could not be confirmed, as no trace of complement could be found in the extracts of washed leucocytes. Finally, immunization had no apparent effect upon the bactericidal power of the leucocytic substances.

From these findings it would appear, as Zinsser himself suggests, that the bacterial substances contained in the leucocytes, and extracted therefrom, have no activity as applied to the body at large, and no relation to the production of immunity. Their action would rather appear to be merely the destruction of the bacteria which have already become ingested by the corpuscle during its activities as a phagocyte.

The Condition of the Heart in Pulmonary Tuberculosis.

Dr. John Hay, writing in the *Medical Press and Circular*, July 13, points out that pulmonary tuberculosis is relatively infrequent in those affected by valvular disease of the heart, and that the converse of this is also true. Tuberculous disease seems in some peculiar way to inhibit the development of the valvular trouble. In 1898-1907, among 109 autopsies made in the Royal Infirmary, Liverpool, on patients suffering from all types of pulmonary tuberculosis, only 4 per cent. showed evidence of valvular disease of the heart. Brown states that in 8,154 autopsies made upon phthisical patients, 293 were found to be suffering from cardiac disease, which gives 3.5 per cent. Meisenberg found that among all the patients at the Leipsic Clinic from 1889 to 1898, 1.75 per cent. had heart disease, while the percentage suffering from heart disease among those affected with pulmonary tuberculosis attending the clinic during those years was only 1.14 per cent. However, endocarditis may occur as a complication of pulmonary tuberculosis, but in most instances it is either a terminal affection or is due to streptococci or staphylococci and is verrucose in type. Specific tuberculous endocarditis is of all forms the least common. Tuberculous pericarditis must also be classed as another not infrequent terminal event in pulmonary tuberculosis. It very rarely develops in the absence of tuberculous disease. Elsewhere Hay draws attention to the fact that when pulmonary tuberculosis and valvular disease do coincide, the treatment of the two affections is not antagonistic. Rest, which is such an important feature in the management of tuberculous patients, is also an essential to an overworked heart. In the later stages the usual cardiac tonics should be employed. In the earlier stages there should be complete rest, careful dieting, freedom from emotional excitement, and specific vaccine therapy when available.

The Initial Work of the Crocker Cancer Research Fund.

Notwithstanding the large amount of work done in the last decade in the experimental study of cancer, and the elucidation of many biological questions relating to the pathogenesis of the disease, we are still in the dark about its etiology and specific therapeutics. Early diagnosis and early operative treatment are as yet our main reliance in the struggle against the disease. It is therefore satisfactory to learn from the paper of Dr. Levin, published elsewhere in this issue, that the George Crocker Cancer Research Fund of Columbia University has undertaken to make examination of suspected tissue, provided the physician furnish the information needed for its statistical investigation of the etiology of cancer. For some time to come the propaganda of early diagnosis and the clinical analysis of a large number of cancer cases will be of as great importance to the patients and the profession as the experimental study of the disease. The profession should avail itself of this new opportunity. The Department of Health of the City of New York has agreed to cooperate with the Department of Pathology of Columbia University and by the middle of October each collection station of the board will be supplied by Columbia University with jars to be used for specimens of cancer tissue.

News of the Week.

Civil Service Examinations.—The United States Civil Service Commission announces an examination to be held on October 5, 1910, to secure eligibles to fill a vacancy in the position of medical interne in the Government Hospital for the Insane, Washington, D. C. The salary is $600 a year and maintenance, with opportunities for advancement. Qualified persons are urged to enter the examination, as difficulty has been experienced in filling these positions in past years because of the limited number of eligibles available. Application for further information should be made to the U. S. Civil Service Commission, Washington, D. C.

The New York State Civil Service Commission will hold examinations on September 24, 1910, to fill a vacancy in the position of clinical pathologist in the Cancer Laboratory at Buffalo. This position carries a salary of $2,500 a year, and is open to men only. Examinations will be held on the same date to fill the positions of physician at the Lakeview Sanatorium, Troy, at a salary of $1,000, and of trained nurses in State institutions at salaries of from $420 to $600. For detailed information application should be made to the State Civil Service Commission, Albany, N. Y.

Health of the Canal Zone.—During the month of June, 1910, the annual death rate for all employees and from all causes was 10.66, which is slightly higher than the rate for the same month of last year, 9.34. The increase occurred only among the black employees, for whom the rate was 12.80 in June, 1910, and 9.32 for June, 1909. For white employees the rate fell from 9.44 in June, 1909, to 4.50 in June, 1910. The total number of employees was 51,767, and the total number of deaths, 46. As was feared after the heavy rains in May, the month of June showed an increase in the number of cases of malaria, these amounting to 1,253, with 8 deaths. The annual death rate for the Canal Zone and the cities of Panama and Colon was 20.38 in June, 1910, as compared with 16.42 for June, 1909. No cases of plague, smallpox, or yellow fever occurred on the isthmus during the month. Quarantine against Costa Rica has been in force because of the yellow fever in the latter country. From the Government hospitals the surgeons report 154 operations, with 3 deaths. In Panama an inspection has been made in order to determine the character and conditions of buildings from the standpoint of offering places for harboring rats. This is of great importance because of the intimate connections between Panama and plague-infected ports. Of 1,349 homes inspected, 239 were found in bad condition, many of them providing ideal places for the breeding of rats. A partial examination of the gutters in the city also has shown that at least 85 per cent. are in bad condition.

Cholera in Europe.—A number of cases of cholera have been reported in the province of Bari, Italy, occurring principally in ports along the coast of the Adriatic. Active measures have been taken by the Italian Government, and the indications are that the disease will soon be under control. In Germany, also, preventive measures are in force to guard against the importation of the disease from Russia. The total number of cases for the present year up to August 13 in Russia is given as 112,985, with 50,287 deaths, a mortality percentage of 44.5.

These are the official figures furnished by the Government Sanitary Bureau. During the week ending August 20, 6,741 cases of the disease were reported with 3,021 deaths. In St. Petersburg, owing to better hospital facilities, the mortality percentage is somewhat less than in the provinces; and as the number of cases has considerably decreased, it is hoped that the epidemic is on the decline.

Bar Public Drinking Cups.—As the result of an order issued by the Wisconsin State Board of Health, railway trains will not carry public drinking cups in that State after September 1. Trainmen on roads crossing the State have received orders to put the cups in hiding when the Wisconsin State line is crossed, and not to restore them to their usual place until out of the State.

New Tuberculosis Camp.—The Middlesex County Tuberculosis Camp, at Cromwell, Conn., was opened recently. The camp consists of a central administration building, with a number of tents and shacks for the patients.

Nurses' Home.—The Robert Kinlock Home for Nurses, on the grounds of the Roper Hospital, Charleston, S. C., was formally opened on August 4. Accommodations for forty nurses are provided.

More Centenarians.—John Kipp, 103 years old, died in the Warren County, N. J., Almshouse, on August 19. He was of small stature and at the time of his death weighed only sixty pounds. In Reading, Pa., Mrs. Chloe Walker, colored, the oldest resident of the city, died on August 17. According to her relatives she was born in slavery in Virginia, in 1802, and was therefore 108 years old. Margaret Johnson, reputed to be the oldest person on Long Island, died at her home in Bayside recently. On the death certificate the date of birth was given as May 15, 1800, making her over 110 years old.

Plague in Ecuador.—Ten cases of bubonic plague were reported in Guayaquil during the first two weeks of August.

Aid for Japan.—The American Red Cross Society, through the State Department, has telegraphed $5,000 to Japan, for the relief of the sufferers from the flood in that country. The money will be distributed by the American Embassy.

Dr. Anita Newcomb McGee has been appointed chairman of the Health Department of the California Federation of Women's Clubs. Dr. McGee is well known for her work during the Spanish-American and Russo-Japanese wars.

Dr. Charles Stover of Amsterdam, N. Y., becomes president of the Medical Society of the State of New York through the death of Dr. Charles Jewett recently. Dr. Stover, who was elected to the vice-presidency last January, is a graduate of the University of Pennsylvania Medical Department, and attending physician to St. Mary's and the Amsterdam City Hospitals.

The Shenandoah Valley Medical Association, composed of physicians in Virginia, was organized at a meeting held in the Winchester Hospital recently. Dr. D. D. Carter of Woodstock was elected president, and Dr. Walter Cox of Winchester, secretary-treasurer.

American Association of Clinical Research.—The second annual meeting of this Association will be held in Boston under the presidency of Dr. E. S. Bailey of Chicago on September 28 and 29, 1910. Contributions on Researches in Medicine and Surgery, in Prophylactic and Anaphylactic Medicine, in Mental Medicine, in Radiotherapeutics, in Metabolism, etc., are promised. There will also be a public meeting. The secretary of the association is Dr. James Krauss, 419 Boylston street, Boston, Mass.

Obituary Notes.—Dr. L. Drakeley Rood of Des Moines, Iowa, a graduate of the Medical Department of the University of Vermont in 1881; a member of the Iowa, Vermont, Connecticut, and Massachusetts State medical societies, the American Medical Association, the Hampshire and Polk County Medical Societies, and the Tri-State Medical Society, and a member of the Board of United States Pension Examiners, died at his home from septicemia, on August 8, aged 49 years.

Dr. J. Adam Krug of Philadelphia, Pa., a graduate of the Medico-Chirurgical College of Philadelphia in 1889, and a member of the Philadelphia County and Pennsylvania State Medical Societies, died at his home on August 6, aged 54 years.

Dr. Benjamin H. Detweiler of Williamsport, Pa., a graduate of the Medical Department of the University of Pennsylvania in 1855, a member of the American Medical Association, and of the Philadelphia State and Lycoming County Medical Societies, the senior practising physician of Lycoming County, and a trustee of the State Hospital for the Insane, at Danville, died at his home on August 9, aged 79 years.

Dr. William H. Hell of Essex, Mass., a graduate of the Harvard University Medical School in 1865, a veteran of the Civil War, and for thirty years a practitioner in East Boston, died at his home on August 9.

Dr. Samuel B. Bailey of Higganum, Conn., a graduate of the Eclectic Medical College of Pennsylvania in 1859, died at his home on August 11, aged 84 years.

Dr. Lycurgus Coon of Springfield, Mo., a graduate of the Physio-Medical Institute of Cincinnati, Ohio, in 1866, and a veteran of the Civil War, died at his home, on August 6, aged 75 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

ROYAL VISIT TO THE LONDON HOSPITAL—BRITISH MEDICAL ASSOCIATION—TRELOAR CRIPPLES' HOME AND COLLEGE—LECTURES—DENTAL CONFERENCE—FEVER IN DURHAM COUNTY—ANTHRAX—OBITUARY.

London, August 5, 1910.

The Royal visit to the London Hospital, which I mentioned last week, was a great success. Throughout the long journey the streets were crowded both on the route going and on that returning. The drive, extending altogether over nine miles of streets, was not in state, and soldiers did not line the route. Their Majesties were only attended by an escort. The ancient ceremony at the entrance of the city was but a symbol of the past, occupying two or three minutes. The King and Queen exhibited great interest in the Finsen Light treatment, the lamps for which were presented by Queen Alexandra. Dr. Segueira, who has charge of the department, explained the present position of this remedy. Several of the wards were visited and the patients were gratified by the kindly words spoken to them by their majesties.

Yesterday Lord Rothschild announced that as Treasurer of King Edward's Hospital Fund, he had received a check for £500, with the intimation of the King's gracious intention to augment His Majesty's annual subscription of that amount to one thousand per annum to the fund. The check was dated July 30, as the King is anxious that the date of the augmentation should coincide with that of His Majesty's first visit

to a London hospital since the accession. It is obvious that King George will continue that interest in hospitals which was so constantly manifested by his revered parents. There were various incidents besides those I have mentioned which showed the interest of the King and Queen in the work of the London Hospital, which has for years been an object of their care.

The meeting of the British Medical Association closed on Saturday with a series of excursions. There is not much out of the common in a trip to health resorts, and many members were in a hurry to go home after their week in town. About 120, however, went to Brighton and were entertained to luncheon by the local branch and at a garden party by the Mayor. Some 200 visited Bath, which still claims the premier place among our spas, and were provided with luncheon at the Guildhall on the invitation of the Mayor and corporation. I think the most interesting trip was that to the Cripples' Home, established by Sir Wm. Treloar. Some 300 accepted Sir William's invitation, Luncheon was served in the recreation room. Besides this and the usual features of such a reception, a brief review of the circumstances under which he established the Home and College was given by Sir Wm. Treloar, and some other speeches were made. But what was a little out of the way in such excursions, and perhaps the more interesting, was a mixture of science with pleasure. A paper was read by Dr. Morgan on the treatment of tuberculosis in bone, for which he said the three essentials were rest, good food and fresh air. He described an apparatus for spinal and hip cases designed by the resident medical officer, Dr. G. Gauvain, which permitted free movement and enabled the patients to be taken out of doors and into the schoolroom. Dr. Gauvain himself described the method of treatment, which he believed had proved very beneficial, and he gave a demonstration in the plastic room on the uses of plaster of Paris. The college boys were inspected by the visitors at their physical drill.

With regard to the sections much difference of opinion is but natural. The great increase in their number seems to aim at including as much as possible in the general proceedings, and the attractions of a large gathering, while at the same time encouraging the advance of specialism. Some consider that sociology should not have a section in a medical society, and some of the subjects brought forward, though interesting to everyone, are more within the purview of the statesman than the doctor. Similar objections are offered to other sections, but it may be said that only those need go who are interested, and it must be admitted that there was fair attendance at some of the doubtful discussions. On the other hand, there remains the complaint that one can only be in one place at a time, and if much interested in one subject attendance throughout its section excludes everything else.

Leaving the leading sections to your special representatives, who reported them, I will confine my notes to some other points. To-day I may refer to the odontological section, because it illustrates the objections of some to its inclusion and further because yesterday there was opened at Liverpool the Thirtieth Annual Conference of the British Dental Association, which will be continued to-day and to-morrow. The report showed that the Dentists' Act, though it is more stringent than the Medical Act, does not prevent unqualified practice, and a bill has been prepared dealing prohibition to all unregistered persons. The president, Mr. Waite, devoted his address first to the phenomenal advance in almost every detail of dental surgery, and second to the increasing prevalence of dental disease. He approved of dental school clinics for the benefit of the necessitous poor.

Returning to the section, Dr. Sim Wallace said caries was due to the lodgment of fermentable food in contact with the teeth; and discussed the proper feeding of children. It was not merely the hygiene of the mouth that made them suspect the "pap system," but that of the alimentary canal all the way along. Dr. Harry Campbell said English people's teeth were a disgrace. He attributed this largely to insufficient mastication, in consequence of which the teeth protruded too much from the gums, and we were known on the Continent as "large toothed" or "long in the tooth."

Dr. Bennett said freedom from caries was the result of simplicity of diet. It mattered little what food was taken as long as there was not much variety. Mr. K. W. Goadey dealt with the part played by the bacteria normally present in the mouth. Mr. Badcock said the mouths of animals living under natural conditions were clean, and this was due to the friction of hard food in mastication. Dr. Austin pointed out that the popular notion of injury by drugs rested on the slightest foundation. Modern research tended to show that acids developed *in situ* where the natural cleansing by the constant flow of saliva was difficult, were more likely to be injurious than medicines which did not remain in the mouth. Mr. J. G. Turner asked if teeth were necessary. One companion of his profession bewailed that civilized food gave no use for teeth; the other cried out for more teeth. In hospital practice he extracted from children of any age every septic or painful tooth. They always were the better, and he did the same for adults. The toothless could fare as well as those equally equipped. An aged friend of his, absolutely toothless, could eat the crackling of pork with relish. Patients dying slowly of oral sepsis would scarcely be recognized a few months after removal of all teeth. It was a question between beauty or sepsis.

Mr. Mummery, president of the Section, dealt with the subject of susceptibility and immunity, and expressed the opinion that there are more causes of caries than had been considered by the various speakers.

For years the County of Durham has had the highest death rate from typhoid. Attention has often been drawn to this and the blackest spots pointed out. The local government board's inspectors have emphasized the facts reported by the M. O. H., as well as district officers. Now Dr. Newsholme, the board's medical officer, has added to a report by Dr. Wheaton some scathing observations. He says the sanitary authorities of the county cannot excuse themselves by lack of knowledge and faithful counsel from their medical officers, knowledge they have had but have not passed it into duty. Ignorance of the facts now once more set out plainly cannot be regarded as much less culpable than is the failure of other authorities to utilize their knowledge. Durham is a great mining district, one person in every twenty-two of the population—men, women and children—being miners; but the evidence does not favor the conclusion that the infection is acquired in the mines, for it rather depends on the recognized causes of enteric, associated with the filthy domestic arrangements and unwholesome conditions of life rife in the county.

The President of the Royal College of Surgeons in Ireland has addressed an appeal to the Government for more equitable treatment for its medical school. Every other medical school in Ireland receives financial aid but this, the most important, is left out in the cold, although the college was originally founded with the help of a grant from Parliament. The school has done much to improve medical education and ought to be as well treated as its junior institutions.

The M. O. H. for the city reports that a case of anthrax has been notified; the patient being a housekeeper in a block of offices, one of which was occupied by a firm of leather merchants dealing in box calf and dressed leather. Of course the M. O. H. is having every precaution taken against the spread of the disease.

It is sad to record the death of a distinguished man at the early age of 44. Dr. John Edward Platt, surgeon to the Manchester Royal Infirmary and chairman of the board, died thus early yesterday. He was an Owen's College man. At the London University he took the highest degrees in medicine as well as surgery, with first-class honors, gold medals, exhibitions and scholarships. He also took the two London Colleges and proceeded to the F. R. C. S. After serving in the resident appointments, he was elected on the surgical staff of the Infirmary and became surgical lecturer at the University. He was also consulting surgeon to the consumption and some other hospitals and one of the editors of the *Manchester Medical Chronicle*, to which he contributed important articles on surgical questions, as he also did to the Encycl. Med., *The Lancet*, and the Societies.

The death on July 28 of Major William Parsons Tritton, M.D., of the Natal Medical Corps, is reported. During the Russo-Turkish war he was chief surgeon at the Lanheim Hospital, Constantinople. He was a member of the Natal Medical Society and a recognized authority on military surgery, especially on gunshot wounds.

Lt.-Col. Henry Harrison, who died on the 28th July, retired from the R. A. M. C. in 1880 on attaining the rank of Hon. Brigade Surgeon.

OUR CANADIAN LETTER.

(From Our Special Correspondent.)

TYPHOID FEVER IN MONTREAL AND IN TORONTO—THE SANATORIUM FOR TUBERCULOSIS AT MUSKOKA—THE CONSERVATION OF PUBLIC HEALTH IN CANADA—THE MEDICAL SCHOOLS OF CANADA—OZONIZATION OF THE WATER SUPPLY OF LINDSAY—SPEEDING OF PHYSICIANS' MOTOR CARS IN TORONTO—DR. CHAS. SHEARD REAPPOINTED MEDICAL OFFICER OF HEALTH OF TORONTO—AMENDMENTS TO THE CANADA MEDICAL ACT—TENTH ANNUAL MEETING OF THE CANADIAN ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS HELD IN MONTREAL—APPOINTMENT OF DR. GRÜNER AS PATHOLOGIST TO VICTORIA HOSPITAL, MONTREAL—RABIES IN WESTERN ONTARIO.

TORONTO, August 8, 1910.

TYPHOID fever is once again somewhat prevalent in Montreal and in Toronto. In Montreal the number of cases is large for the time of the year, considerably above the average; and the fear is expressed that a widespread epidemic may be apprehended. The origin of the present cases has not been directly traced to the water supply; indeed, it has been urged that infected milk and infected wells outside the city are responsible, but in an editorial which appeared in the *Montreal Medical Journal* for August the water supply is pointed to as the probable cause, and the city authorities are strongly recommended to hasten the making of the proposed filtration plant and to take other steps which are obviously necessary to ensure a pure water supply. In Toronto there have been several cases of typhoid fever which the medical officer of health frankly confessed are in all likelihood owing to polluted water. A filtration plant is being constructed for the purification of Toronto water, but slow progress is being made in its building.

The sanatoriums for the treatment of tuberculosis at Muskoka have had a reputation beyond Canada for some time. Your correspondent has been given recently the opportunity to inspect these institutions at his leisure. Mr. W. G. Gage, of Toronto, chairman of the executive committee of the Muskoka Cottage Sanatorium, invited your representative to stay at the institution so as to be able to observe its working under the most favorable auspices. Muskoka is a wild and picturesque district, dotted with lakes, situated about one hundred and ten miles from Toronto. The country resembles in many respects the Adirondack country of New York State. The Muskoka Cottage Sanatorium, with its adjacent cottages and shacks, is not unlike the Saranac tuberculosis colony. It is, however, on a considerably smaller scale. The main, or administration building, is a large wooden building, surmounted by a lofty tower, and contains accommodation for some twenty patients and the sleeping apartments of the management and the help of the institution. In it, too, are the offices, reception room, music room, dining room, dispensary, laboratory and offices of the medical staff. There are sun chambers, and along the front of the building is a broad verandah. The building, which with the cottages is placed in a well-wooded natural park of seventy-five acres, sheltered from the north and northwest. All the buildings have a southern and southwestern aspect, overlooking Muskoka Bay, the southern arm of Lake Muskoka. It is within convenient distance of the railway, and visitors and patients are conveyed to it by water and by road. The Muskoka Lake region is situated at an elevation of about 800 feet above sea level; the district is rocky and the soil porous; the air is clear and bracing, and the humidity is comparatively low. In fact, so far as climate is concerned, the country is particularly well suited to those suffering from chest affections. The main building and the cottages were presented by various donors, and are one and all adapted to the purposes for which they were built and the style of architecture is in keeping with the scenery. One of the most conspicuous internal features of the main building, and certainly one of the most instructive and interesting, is the experimental laboratory, under the direction of Dr. Caulfield, assisted by Dr. Beattie. Your correspondent was present at several of the meals, and slept in one of the cottages, so that he can personally vouch for the excellence of the food and for the good quality of the sleeping accommodation. The main building and cottages will hold from ninety to one hundred patients, and there are usually more under treatment in the winter than in the summer. The nursing staff is large and well trained, and the cottages ensure to the patients a large degree of privacy. If desired, each patient has a separate room. The open-air treatment is followed out to the fullest extent possible. Shacks have been erected, the latest of which was specially designed by Dr. Kendall, physician-in-chief. These are long, low buildings, with windows occupying the space from the roofs to half way down the buildings, and which can be open or closed as the physician may think fit. The entrance is in the middle of each building, which opens into a washing, dressing and sitting apartment for all the inmates. As at Saranac, the guiding principle of the institution at Muskoka is that it is a colony, the buildings being constructed on the cottage plan, with a main administrative building. The Muskoka Cottage Sanatorium was established in 1896.

There is also at Muskoka a large free hospital for consumptives. This is situated at about a mile's distance from the Cottage Sanatorium, nearer the town of Gravenhurst. It consists of a large main building, a pavilion and numerous shacks, and will accommodate in the neighborhood of 120 patients. There are no private rooms; all the patients are in wards. The main building is arranged and fitted in the most suitable manner possible, and the patients are housed and fed in a most comfortable and generous way. At the free hospital those who can afford to pay something do so, and at the Cottage Sanatorium each patient pays a moderate sum weekly. Dr. Kendall, the physician-in-chief, showed your correspondent over both establishments, and the result of the visit was a conviction that the situation and the treatment at the Muskoka Sanatorium left little to be desired from the tuberculosis patients' point of view. It should be said that the sanatorium at Muskoka and also the sanatorium for the treatment of tuberculosis in the vicinity of Toronto were founded and erected chiefly through the efforts of the Canadian National Sanatorium Association, established in 1896. The association, nevertheless, is a purely philanthropic organization.

The Commission of Conservation of Canada has published recently its first annual report. The question of public health is to be dealt with by the commission, including protection to infant life, improvement of the health of school children, prevention of typhoid fever and other diseases due to organic filth, and prevention of tuberculosis. Dr. Chas. A. Hodgetts, who for many years ably fulfilled the duties of secretary to the Ontario Board of Health, has accepted the position of medical adviser to the Commission of Conservation, and has left Toronto for Ottawa. In the scathing survey of medical education in the United States and Canada, by Flexner and Pritchett, some of the Canadian medical schools were severely handled. There are eight medical schools for a population of approximately 7,000,000; number of physicians, 6736; ratio, one to 1030 inhabitants. In the matter of medical schools, says the report, Canada reproduced the United States on a greatly reduced scale. Western University (London) is as bad as anything to be found in the States; Laval and Halifax Medical Colleges are feeble; Winnipeg and Kingston represent a distinct effort toward higher ideals; McGill and Toronto are excellent. The eight schools of the Dominion thus belong to three different types, the best adding a fifth year to their advantages of superior equipment and instruction. The outstanding feature of the report with respect to Canadian medical schools is the praise lavished on Toronto University Medical School, praise which, it may be noted, is well deserved. The strides made by the school within recent years have been almost astonishing, and only go to show the results which may be achieved by the expenditure of money guided by intelligence. Toronto Medical School has sprung from the ruck of such teaching institutions into quite the front rank. Of McGill Medical School little can be said in further praise. McGill has long ago won its spurs.

The ozonization by electricity of water supplies was widely advertised in Ontario a few months ago, and heralded by some enthusiasts as the coming mode of purifying water supplies on a large scale. Some experts here were skeptical in regard to the wonderful results said to have been brought about by the method of Lindsay, Ontario, and in other places. The Ontario Provincial Board of Health took up the matter and sent a bacteriologist and a chemist to investigate and report on the conditions existing at Lindsay, in connection with the ozonization plant installed there. The report shows that the glowing accounts of the success of purification by electricity at Lindsay were at least premature, and would seem to bear out the views already freely expressed by experts that ozonization of water on a large scale has not as yet proved successful. It is effective on a small scale, under certain conditions, but it is too expensive and too uncertain to be relied on when a large body of water has to be treated.

Much dissatisfaction has been expressed on the part of physicians in Toronto owing to the action of the police in summoning members of the profession who have exceeded the speed limit of motor cars when proceeding to visit patients badly injured, or dangerously ill. The magis-

trates have recognized that the position taken by medical practitioners is sound, and have allowed them some leeway when visiting such patients.

Dr. Chas. Sheard, who has held the post of medical officer of health of Toronto during the past eighteen years, and who resigned the post a few months ago, has been persuaded to reconsider his determination and has been reappointed at an increased salary.

Amendments to the Canada Medical Act were adopted at the recent meeting of the Canadian Medical Association. The bill, as it now stands, gives two representatives to each of the Provinces, to be elected under regulations to be made by the Provincial Medical Councils. All told, the Dominion Medical Council will now have a membership of thirty-one. The Laurie amendment to the British Medical Act provides that any Province may, through its Legislature, arrange a scheme of reciprocity with the British Medical Council.

The tenth annual meeting of the Canadian Association for the Prevention of Tuberculosis was held in the Royal Edward Institute, Montreal, on June 7, 8 and 9. Dr. Oskar C. Grüner, late clinical pathologist to Leeds Infirmary, England, has been appointed pathologist to the Royal Victoria Hospital, Montreal, and lecturer on pathology at McGill Medical School.

Rabies is practically extinct in Western Ontario, only three counties being now affected. Since the first case of the disease reported, in May, 1907, there have been no fewer than 481 cases notified. The result is a convincing practical illustration of the efficacy of quarantining and muzzling dogs. It is stated at the Veterinary General's Department, in Ottawa, that in Toronto alone there are now nearly three thousand fewer dogs than there were six months ago.

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

BERIBERI—WAR AGAINST MALARIA—CHOLERA—PERSONAL.

MANILA, P. I., June 28, 1910.

It may be of interest to note that the recent theories with regard to the etiology of beriberi have received official recognition by the Philippine Government as well as by the United States Army. The Insular Government of the Philippine Islands has issued the following circular with regard to the use of rice, which is self-explanatory:

"In view of the fact that the Director of Health has reported to the undersigned that for some years past considerable experimental evidence that beriberi was caused by the consumption of certain kinds of rice has become available, and that at the recent meeting of the Far Eastern Association of Tropical Medicine held at Manila, Doctors Fraser of Singapore, Aron of the Philippine Medical School, and Highet of Siam, produced additional evidence that showed almost conclusively that beriberi can be caused by the continuous consumption of polished rice, and in view of the further fact that much beriberi has been encountered in the past in Government workshops, in prisons, and in other public institutions; upon the recommendation of the Director of Health and the Honorable, the Secretary of the Interior, the use of polished rice in all public institutions is hereby forbidden. All insular, provincial and municipal officials having control of public institutions, such as workshops, prisons, and so forth, are hereby directed to see that the provisions of this executive order are complied with in the institutions under their control.

(Signed) "W. CAMERON FORBES, Governor-General."

The United States Army has issued the following circular:

"I. On the recommendation of the chief commissary of the division, the issue of Saigon rice to Philippine scout organizations will be continued until Aug. 1, 1910, after which time undermilled rice will be issued.

"II. Circular No. 19, these headquarters, May 9, 1910, publishing schedule of interisland transports, is revoked. By command of Major-General Duvall.

(Signed) "LEA FEBIGER,

"Lieutenant-Colonel, General Staff, Chief of Staff."

Unpolished rice has been exclusively used at the Culion since last March, and since that time no cases of beriberi have made their appearance. This is particularly striking in view of the fact that beriberi was almost constantly present from May, 1906, up until the time that the use of polished rice was discontinued.

Beriberi has also been present almost continuously among the scout soldiers of the United States Army, and it will be of interest to note whether the discontinuance of polished rice among them will also stop the incidence of the disease.

The soldiers connected with the constabulary in the years gone by have suffered very little from beriberi. This is attributed to the fact that instead of having polished rice and other rations issued to them by the Government, they receive a cash allowance and are at liberty to purchase their food wherever they desire. The great majority of them are stationed in the provinces and purchase the rice that is pounded out by hand in the native way; the fact that this is not polished would seem to be the reason why the constabulary soldiers have not been affected to any great extent with beriberi.

With a view of reducing the incidence of malaria in the Philippine Islands the Bureau of Health has purchased 2,500,000 five-grain doses of quinine and will issue them gratuitously to persons living in the malarial districts. It will be of interest to note whether this decreases the incidence of malaria.

The cholera situation in the province of Pangasinan remains about the same, but the infection has gained a foothold in a number of new places in Pampanga, Bulacan, Cavite and Rizal Provinces. Manila was infected by a Greek peddler who arrived from the infected town of Dagupan and entered a boarding house in which there were forty inmates. As soon as he showed positive evidences of cholera the remaining boarders fled to many parts of the city, but in many instances, unfortunately, they had already become infected. As a result, there has been an average number of about two cases per day in Manila during the past week.

Dr. H. E. Schiffbauer of the Philippine Medical School is now in Vienna taking a post graduate course in surgery.

Dr. P. K. Gilman, associate professor of surgery at the Philippine Medical School, leaves July 14 for an extended vacation in the United States.

Dr. Louis Schapiro of Washington, D. C., has been appointed a medical inspector of the Bureau of Health.

Progress of Medical Science.

Boston Medical and Surgical Journal, August 11, 1910.

The Clinical Aspects of Arteriosclerosis.—Henry Jackson says that pathologically the changes in the intima are the most prominent features, representing a conservative process, a protective cement, so to speak, to guard against injury of the arterial wall because of the disease in the media; the primary process is found either as a degenerative or as an inflammatory change in the media, or perhaps some defect or strain of the elastic fibers. Councilman makes three divisions. (1) The nodular form, which does not give rise to clinical symptoms. (2) The senile type, with many symptoms probably directly referable to the condition of the arteries, rather local disturbances in the circulation than disease which affects the body as a whole. The arteries feel like broken pipe-stems. The heart is extremely intermittent and irregular, yet does not show the results of heart failure. (3) Diffuse arteriosclerosis which is a disease found especially in individuals otherwise healthy, most common in those of advanced age. In this form of the disease we find the largest hearts. From clinical and experimental observations it seems probable that we must attach greater importance to the rôle of varying toxic processes associated with acute infectious diseases in the etiology of arteriosclerosis. Yet the chief cause probably lies in overeating and consequent gastrointestinal disturbances. From a clinical standpoint the symptoms may be divided into localized symptoms and general symptoms. Of the former probably the most important are those associated with disease of the vessels of the heart. In many cases of sclerosis of the arch of the aorta we find an extension of the process to the valves of the heart resulting in sclerotic changes of the aortic valves. An important local condition of the heart is found in diseases of the coronary arteries. Again, the heart muscle may be seriously affected by localized disease of the arteries. Among the most important symptoms of localized arteriosclerosis are the disturbances of the nervous system, central and peripheral. The heart and kidneys are the most important organs secondarily diseased. One drug he considers of value as a preventive measure, and, perhaps in some cases, as a curative measure, iodide of potash. In recent years there has accumulated evidence that permanent good is accomplished by the high frequency current.

Notes on the Condition Denominated External and Internal Atony, Suggesting Its Association with Tuberculosis.—A. Mackenzie Forbes is inclined to view ordinary round shoulders or stoop as being a manifestation of a laxity of the ligaments and a weakness in which the

dorsal spine becomes kyphotic in shape, and the lumbar spine compensates by assuming the position of lordosis. It is, in fact, his firm belief that it is impossible to get a dorsal kyphosis without a lumbar lordosis. The way to cure stoop is not to attack the shoulders, is not to attack directly the kyphosis, but rather to attack it indirectly by preventing lumbar lordosis, and thus forcing a reduction of dorsal kyphosis, thereby changing the center of gravity. It is only a question of balance. His practice is to get pressure at the anterior abdominal wall in the hope of primarily altering the lumbar curve, and, secondly, through altering the center of gravity, causing a reduction of the dorsal kyphosis or stoop. To do this he makes a light spinal brace, which is somewhat similar to the spinal brace of the late Fayette Taylor. This brace has shoulders and a pelvic band. The shoulder straps are not to hold the shoulders back, but, with the pelvic band, are calculated to form two fixed points of counter pressure at the upper part of the dorsal spine and at the pelvis. This brace acts simply as a vehicle to carry an abdominal apron or support, which is buckled to it, and which can be expected to so control the abdomen of the patient that a lumbar lordosis is straightened out, which straightening is followed by compensatory changes in the dorsal region of the spine. Among the several interesting points about this condition he mentions its association with tuberculosis; it is undoubtedly the cause of pains referred to the back, to the back of the thighs and, in some cases, to the groins and front of the thighs; it is sometimes accompanied by spasm of the erectores, which may be due to an accompanying tuberculosis of the lumbar glands; there is often a prominence of the dorsolumbar vertebræ, suggesting Pott's disease of the spine; a dorsolumbar kypholordosis varying from an "s" shaped curve to a curved upper dorsal and straight anterior slanting dorsolumbar spine; there is probably always a more or less protuberant abdomen; there is possibly a slight rise in temperature, especially in the evening; there is often associated a neurosis. This condition is to be distinguished from Pott's disease of the spine, from sacroiliac disease, from rheumatoid conditions and from tuberculous lumbar glands.

New York Medical Journal, August 13, 1910.

Singultus Gastricus Nervosus.—Anthony Bassler says that singultus, or hiccough, is a symptom expressed as a sound made by the sudden and involuntary contraction of the diaphragm, and the simultaneous contraction of the glottis which arrests the rising air in the trachea. The type he draws attention to is a functional nervous form occurring as a symptom of a neurotic condition of the stomach. He draws attention to the fact that a neurotic condition of the stomach can exist as a manifest clinical entity apart from any association with hysteria or other generally recognized neurological conditions; he reports two clean cut cases of these. In conclusion, he states that true cases of hysteria in which hiccoughing is a feature are not uncommon, and decidedly more numerous than those he describes. But in these, more or less manifestations of hysteria are always present. Whenever there is any doubt regarding the diagnosis, the rather unimportant feature of local and persistent gastric symptoms, together with the fact that hiccoughing hysterics do not show much if any general deterioration in health would be helpful in distinguishing them.

The Clinical Significance of Depression.—George E. Price says that depression is an emotional state which may be either normal or abnormal; normally it is seen as the direct result of certain definite causes (sorrow, disappointment, ill health, or business reverses). Again, it may be temperamental. Many individuals are what might be termed emotionally sensitive. There is also a class of individuals who seem always to live under a shadow; discontented, dissatisfied—the grumblers. In his article Price considers depression chiefly as an abnormal or pathological state, and it may be said to become abnormal when it occurs spontaneously, without adequate external cause. Depression should be considered not psychologically but clinically. Depression is present in such functional neuroses as neurasthenia and hypochondria, and in such mental diseases as melancholia, circular insanity, dementia precox, paranoia, paresis, and senile dementia. In considering these depressive states it is profitable to approach the subject first from the standpoint of age. In infancy and childhood there is no distinctive persistent depression; no true insanity with dejection; yet depression may be present and together with abnormal sensitiveness, introspection, self-consciousness, or self-distrust, may indicate an unstable nervous system and forecast a mental or nervous breakdown later in life. During puberty or adolescence, depression may appear as a symptom of dementia precox, melancholia, or neurasthenia. In early adult life we find melancholy the chief depressive state. Neurasthenia and hypochondria also contribute their quota of cases. As mature adult life is reached, the depression of early paranoia and of paresis is added to that of melancholia, neurasthenia, and hypochondriasis. In middle life, involutional melancholia is the dominating depressive state and, as old age approaches, senile dementia must be added to the already long list. Melancholy is *par excellence* the insanity of depression; yet depression is no more melancholy than is a cough, phthisis. Memory and orientation are preserved. Self-accusation is conspicuous. Early in dementia precox, it is common for the patient to pass through a period of depression, often associated with apprehension, fear, dread, because of the nature of his delusions and hallucinations. The whole picture of dementia precox is colored by confusion. The depression in hypochondria is dependent on the disturbance of the general somatic feeling; in seeking an objective cause such people arrive at faulty conclusions concerning the nature of the condition. Thus a trivial cough becomes a phthisis, and an indigestion, a gastric carcinoma. The neurasthenic's depression is the result of his pathological fatigue. The neurasthenic does not become insane unless there is the additional element of neuropathy.

Innocently Acquired Syphilis.—The following deductions are offered by Walter Brooks Brouner: (1) That syphilis, one of the most contagious infections afflicting mankind, is undoubtedly on the increase as judged by hospital and private practice. (2) That there is woeful ignorance on the part of the public both as regards its origin, its frequency, and its communicability. (3) That many estimable, respectable people acquire this disease innocently and for a long time are unaware of the real nature of their illness. (4) That these innocent victims innocently infect others. (5) That the most frequent source of infection is by using public drinking cups, public towels in bathrooms, and improperly washed cooking utensils, etc. (6) That the use of the common communion cup in public worship should rapidly be done away with and individual communion cups substituted therefor. (7) That the practice of passing around drinking water in public places of amusement should be prohibited by local boards of health, because of the danger of infection that lurks in these drinking cups. (8) That hospitals, dispensaries, and public buildings should not be provided with public drinking cups, but that indivdual paper cups should be provided. (9) That the public should be instructed as to what to demand from their dentists in the way of aseptic instruments. It is, alas! too common a practice for dentists not to pay any attention to the advances made in our knowledge of asepsis. (10) That medical men should ever be on the alert to diagnosticate lues, or syphilis, when present, ever mindful that it is a disease common alike to the prince and the pauper.

Journal of the American Medical Association, August 13, 1910.

Autointoxication and Allied Intestinal Troubles.—Hiram Woods treats of this as a possible cause of certain vascular and functional disturbances of the eye. The lesions of the adnexa which he considers are those of the lids and mucosa. In discussing the etiology of blepharitis he quotes Shoemaker, who presents the clinical conjunctival picture, with a positive autotoxic cause in view. Before attempting to couple the lid and conjunctival disturbances and discussing the possibility of an autotoxic cause, he adds a third class, recurrent circumcorneal injection, recurrent asthenia of the ciliary muscle, spasm of accommodation, and the condition known as hysterical accommodation spasm, or cyclospasm. In considering the pathogenesis, they call it autointoxication, and there are good reasons for so doing. The reason for calling these eye disturbances, associated with various intestinal disorders, "autotoxic," is that they bear a strong similarity to eye troubles of either known general infectious nature, or to those seen in systemic diseases capable of producing toxins. He thinks there is enough association between the eye disturbances named and manifest symptoms of autointoxication from constipation to justify the belief of causative relation. There is reason to think that the same eye troubles can follow intestinal lesions which do not essentially produce toxic products. It seems that the physiologic chemist is not yet in position to help us much in proving the diagnosis, and that until he is we must study these obstinate cases from a clinical standpoint only. If we are ever to explain them or to relieve them, we must view the eye as the receiving as well as the sending end of what we call remote disturbances.

Vein-to-Vein Transfusion of Blood.—George Morris Durrance and Nate Ginsburg consider this subject under the three following headings: (1) The advantages claimed for the arteriovenous method are that sufficient blood pressure is obtained to introduce the blood quickly from the donor into the circulation of the recipient. The blood obtained is richer in oxygen. On the other hand there are disadvantages; the operation itself is beset with many technical difficulties; the size of the vessel can never be determined beforehand; the pressure and volume of the blood-stream, when the arteriovenous method is employed, are sometimes so great as to cause a grave complication, appearing rapidly and frequently proving fatal. In vein-to-vein transfusion, on the other hand, the surgeon is dealing with the superficial vessels, which are easy of access. Moreover, a gradual flow is obtained so that the danger of engorgement and the resulting sudden dilatation of the right heart are avoided. The size of the structures and the ease of access make it a simpler procedure than the arteriovenous method. The principal advantage they claim for the vein-to-vein method of performing transfusion is its simplicity. There is no danger to be considered except the possible one of hemolysis. (2) The indications for employing transfusion. In general, transfusion is employed either to save life or to hasten a patient's recovery. The indications for performing transfusion are therefore as follows: The sudden depletion of the vascular system due to grave accidents, or following operations, as in the case of hemorrhage occurring during the course of typhoid fever; hemophilia, melena, poisoning with carbon dioxide, coal-tar derivatives and other substances characterized by the production of methemoglobin; the pellagra. (3) The contraindications to transfusion. It is of no value in severe infections, in the cachexia of cancer and in tuberculosis. In pernicious anemia and in leukemia, transfusion has disappointed the great expectations which were aroused. This procedure is decidedly harmful in cases of purpura hemorrhagica, and whenever hemolysis is taking place.

Scab Formation in the Nose.—W. Peyre Porcher considers the etiology and prevention of this condition. Among the most prominent factors to which it has been attributed may be mentioned syphilis, inhalation of dust, tuberculosis, anemia, and chlorosis, tobacco and alcohol, hypertrophic catarrh, effects of a previous purulent rhinitis and suppuration of the accessory sinuses of the nose, fatty degeneration of the infiltrated cells, the trophoneurotic theories and penetration of microorganisms, Lowenberg's ozenacoccus, etc. On account of the fact that whenever inflammatory secretions from any portion of the respiratory tract come in contact with the external air, they become coagulated or gummy and finally hardened with more or less fetid odor, it seems evident that the same process occurs in scab formation, and that therefore it is necessary to select some drug which will maintain the fluidity of these secretions. For this purpose the author has chosen iodid of potassium, and such operative measures as would open the accessory sinuses and give free outlet to all inflammatory exudates, pus collections, etc. It is the custom of the author to begin with the administration of 20 drops of the saturated solution of iodid of potassium and run the dose up rapidly until the secretions in the nose become so fluid that the scabs are easily expelled. Many patients absorbed from 600 to 900 grains daily before the nasal secretions would remain fluid, and this without noticeable ill effects; on the contrary, the gain in flesh would be rapid and the improvement in general health marked. He had been informed that as much as 1500 grains a day had been attended with no ill effects. In every case in which he had used these large doses, together with the operative treatment, the scabs had ceased to form.

A Note on the Treatment of Pernicious Anemia.—Alfred C. Croftan expresses himself as inclined to the belief that gastrointestinal disorders in the overwhelming majority of cases usher in this disease and that the definite point of attack in the treatment is the restoration of nutritive equilibrium by artificial means and the prevention, as far as possible, of abnormal or excessive intestinal decomposition. The author's plan of treatment consists in the incorporation of the maximal amount of proteins administered in conjunction with artificial digestants to facilitate their assimilation and absorption. The diet consists in an abundance of meat, fish, eggs, milk, buttermilk, etc., administered in small quantities at frequent intervals, so that the patient receives five or six meals in the course of the day. Attention must be given to individual idiosyncracies. As many as a dozen eggs should be given daily, if possible. The addition of a little alcohol has been found of value. Nourishment per rectum is given in the form of predigested clysmata, together with sodium bicarbonate, a little sodium chloride, and pancreas, with about ten drops of laudanum. To this treatment are added large quantities of hydrochloric acid by the mouth in mucilage water, ten to fifteen drops of strong acid being given fifteen minutes after each meal, and again thirty minutes after each feeding. Rectal clysmata should be given twice daily, or, if rectal irritation results, once daily. To these remedies the author also adds thyroid extract in doses varying from three to five grains of the extract, three times a day by the mouth or with the clysmata by rectum. The patient may receive some arsenic in the beginning in the form of sodium cacodylate dissolved in normal salt solution in the dose of one grain daily administered intramuscularly. Patients treated with arsenic alone never improved materially and this drug was, hence, merely an adjuvant. Iron was not given, as that drug was ingested in overabundance in the meat juices ingested.

The Lancet, August 6, 1910.

Bilharziosis and How to Prevent It.—James F. Allen recapitulates what is known regarding the cause and prevention of bilharziosis. We know that the disease is caused by a parasite which exists in the water of rivers, streams, and ponds; that it enters the body directly from the water by the urethra or anus during long immersion; and that the longer the immersion the greater is the danger of invasion. Brief bathing in infected water either at home or in a river if followed by thorough drying is perfectly safe. The prepuce most materially assists invasion of the urinary tract and circumcision gives comparative protection. The parasite cannot reproduce itself within the human body. If, therefore, precautions are taken to prevent reentry, the disease will not advance, but will slowly recede, so that by a combination of precautions one can finally get rid of it. The proof of the efficacy of this knowledge is that there are no dangerous or fatal cases of bilharziosis in South Africa. The author compares this status of the disease in South Africa with the terrible ravages that it causes in Egypt, and concludes that State instruction in this matter, together wih facilities for infant circumcision, will cause serious and fatal cases of bilharziosis to disappear from Egypt and will make the disease as innocuous and as infrequent in that country as in South Africa.

Heart Puncture.—J. Wallace Milne relates the history of a girl of 20 years, who, after an attack of rheumatic fever, had a mitral bruit, systolic in time, but with no dilatation and no anasarca. A recurrence still further damaged the heart. A short time afterward she had an attack of heart failure which was tided over in the usual way. A few days later a second attack occurred which was not relieved by these expedients, and, as death seemed imminent, the author opened the left median basilic, but no blood flowed. He then cut into the brachial artery above its division into the ulnar and radial arteries, and only a feeble trickle of dark blood flowed. The patient was half conscious and felt no pain, was cyanosed, and the heart was becoming more and more dilated. He could feel no pulse of the temporals over the zygomata. He then selected the fifth intercostal space, close to the left border of the sternum, as being likely to lie over the right auricle, since the distension had been making more and more to the left. Having frozen the spot with ethylchloride he inserted a trocar and cannula of about the size of a No. 3 catheter vertically into the heart. Blood about the color of porter and thick in consistency flowed. He drew off twenty ounces and closed the puncture by acupressure. Almost suddenly the patient revived, became clear and collected and expressed herself as having felt no pain, and as being quite relieved. The venesections began to show blood through their dressings. The patient remained conscious and free from pain for four hours when she died. The position for puncture in such conditions must be a matter for discussion and selection in each case, as the departure from the anatomical point will be constantly different in each instance. If performed to relieve a heart at the crisis of its struggle, say in acute pneumonia, by lessening the weight and volume of blood, it might in many instances preserve life.

The Serum-Diagnosis of Hydatid Disease; Fixation of the Complement.—After reviewing the principal articles which have been published in connection with this subject, Kenneth Eckenstein describes the method which he used in his experiments, and which is analogous to that indicated by Wassermann for syphilis. Five volumes of absolute alcohol is added to one volume of hydatid fluid obtained from a sheep's cyst. After 24 hours in

an ice-chest the precipitate is gotten rid of by centrifugalization; the supernatant liquid is then passed through a filter and evaporated *in vacuo* at 60° C. The residue is taken up with salt solution and titrated. Before using, the antigen must be diluted with salt solution. The correct dilution is found by testing the hydatid fluid with different sera, as is done with the heart extract in the sero-reaction for syphilis. The dilution which the author uses is one in five. Three rows of tubes are required and the unit used is 100 c.mm. In tube 1 are placed one unit of serum, one unit of salt solution (9 per 1,000), and one unit of antigen; in tube 2, one unit of serum and two units of antigen; and in tube 3, one unit of serum and two units of salt solution. The tubes are incubated at 37° C. for about one and one-half hours. One unit, about 5 per cent., washed sheep's corpuscles is added to each tube, and the whole returned to the incubator until hemolysis has taken place in the control tubes. The third tube serves as a control for the hemolytic power of the serum examined. A positive result is obtained when there is no hemolysis in the first or second tubes but hemolysis in the third. From results obtained in the examination of 18 cases the author concludes that fixation of the complement as a means of diagnosis for hydatid disease would appear to be of considerable value, though it may be absent, either because of the particular method adopted, or because the reaction is latent. The reaction has the same value as any other laboratory test in that a positive result is definite, whereas a negative one is difficult to interpret. There is great difference between workers as to which technique is best. The method set forth in this paper was chosen because of its simplicity, and on account of the good results obtained with it for syphilis.

British Medical Journal, August 6, 1910.

Cats as Plague Preventers.—Andrew Buchanan states that some three years ago he prophesied that "A few years hence we shall look on the neglect of the cat as one of the most extraordinary things in the whole history of our inquiries into the plague and its prevention," and that this prophecy is beginning to come true. While the author does not claim that direct infection never occurs, he holds that there is every reason to believe that plague is mainly due to rats. Poison and traps are ineffectual in disposing of the rats, which are sure to return. The theory that the plague is dying out is not sufficiently well founded to warrant any reliance being placed on that hope. In discussing the comparative value of cats and inoculation, the writer points out that the inoculation of the immense population of India every year or every time the plague threatens would be an impossible task at the present time. Although a knowledge of the value of keeping cats is spreading there are many parts of India in which this is not fully understood, and the interval between epidemics should be utilized to impress the people with the fact that no other means of ridding a locality of rats compares with the rat destroyer provided by Nature—the cat.

Treatment of Smallpox in Red Light and in the Dark.—C. H. Würtzen writes that since Finsen described his method of treating smallpox by exclusion of the chemical rays of daylight in 1893, this method has been employed on every occasion in the Oresunds Hospital of Copenhagen. He finds that panes of red glass present a danger in that they do not always exclude the green rays, even when intensive and of a dark red. No pane of glass should be used unless it has been subjected to spectroscopic examination and proved faultless. Since treatment in the dark differs from treatment in red light only by excluding all other rays as well as the chemical ones, no objection can be made against this method. The idea of treatment in the dark is not new, there being reports of cases treated in this way from 1867 to 1871. Seeing that this treatment can be so easily arranged it is indefensible to expose patients in the early stages of the disease to daylight until they can be exposed to red light in a hospital. The writer points out that in making arrangements to exclude light, attention should be given to passages and adjoining rooms, so that in opening the door of the sick-room no light shall be admitted. When it is necessary to use ordinary light it should only come from a stearine candle. In regard to the effect of red light upon the patient they find that, while some are not appreciably influenced, others find it rather unpleasant. It often produces a feeling of heaviness and headache, and is always found exhausting and tiring for reading. They have not noted any mental excitement, as is said to be the case elsewhere. The wearing of green or blue glasses considerably modifies the red light. The smallest amount of daylight should be excluded, and not admitted freely even for the examination of the patient.

Recovery from Apparent Arteriosclerosis.—After outlining the history and condition of this patient, a man of sixty years, which pointed conclusively to the existence of arteriosclerosis, W. M. Crofton describes the treatment that he employed and which seems to have given unusually favorable results. Working on the hypothesis that arteriosclerosis is due in some cases to nutritional disturbances in the artery wall, partly owing to the exhaustion of the vasomotor nervous system, and partly to the lowering of the food-carrying and eliminative powers of the blood, from a diminution of its salt content caused by autointoxication, the patient was given the salts of Trunecek's serum, slightly modified. They were dispensed in the form of tablets, each containing sodium chlorid 0.4 of a gram, sodium sulphate 0.04 of a gram, sodium carbonate 0.016 of a gram, sodium phosphate 0.012 of a gram, magnesium phosphate 0.016 of a gram, and calcium glycerophosphate 0.012 of a gram. The patient took two tablets three times a day, and also a combination of olive oil, iodine, and glycerophosphates. The iodine would relieve arterial spasm and the olive oil would dissolve out any cholesterin which has been said to be deposited in the arterial walls in arteriosclerosis. He also had a brine bath every morning and occasionally a dose of sodium sulphate before breakfast. Under this régime the patient gained rapidly, and at the end of ten weeks was able to take a long walk and to climb a steep hill without undue fatigue or cardiac distress. The patient is at present in good health and able to do his work without fatigue. The interesting question in this case was, what stage of hardening had the arteries reached? It was conceivable that the arteries might recover from the first two stages but not from the third.

Berliner klinische Wochenschrift, July 25, 1910.

The Ehrlich-Hata Remedy in Suspension.—L. Michaelis has sought to mitigate the irritating action of this substance when injected into the buttocks by preparing it in neutral suspension. When injected in a soluble state, as recommended by the discoverers, the solution is either acid or alkaline. When exactly neutralized it is thrown out of solution. The author dissolves the chloride salts of the preparation in hot water, the resulting solution being acid. A little normal soda lye is added to neutralize it, which causes an alkaline solution. Then phenolphthalein is used as an indicator to secure absolute neutralization. Normal acetic acid is added to the alkaline solution until the indicator is completely decolorized. The substance is at the same time thrown out of solution as a fine yellow suspension. A drop or two of the lye is added until the color of the phenolphthalein barely reappears, and the suspension is at once injected. The patient moves his thigh up and down for several minutes and is then placed in bed for two days. The injections are devoid of pain. The rapid disappearance of the symptoms shows that the remedy is as promptly absorbed as when injected in solution. Thus far the author has treated thirty-six cases without a failure. Rest in bed is intended to prevent afterpains and the formation of a sensitive nodule.

Hereditary Syphilis and the Wassermann Reaction.—Mulzer and W. Michaelis sum up their own findings with those of others as follows: Mothers of syphilitic nurslings and newly born invariably give positive reaction, and women who have borne syphilitic children within four years are to be regarded as latent syphilitics. When newly-born infants present no symptoms of the disease they may react negatively soon after birth, but within the first three weeks post partum the reaction changes to positive, usually coincident with the period of eruption. Nurslings with manifest lues react in general in the percentage of adults in the secondary stage (96 per cent. positive). Children over one year old react like nurslings. Latent syphilitic children react in the proportion of adults with early latent syphilis. It seems more difficult to cause the disappearance of the Wassermann reaction through treatment than is the case with adults. Mothers of syphilitic children give a high percentage of positive results (83 per cent.). When syphilitic parents have several children in succession one is finally born with negative reaction, corresponding to absence of symptoms.

Demonstration of Tubercle Bacilli in Acnitis.—Arndt considers the rare form of lesion described originally as miliary or acneiform lupus of the face, and later known as papulonecrotic tuberculide, acnitis, etc. This and similar conditions have been known to be tuberculous, or at least paratuberculous lesions, through a variety of tests; but demonstration of the bacilli in sections has hitherto been effected, as far as the author knows, in but one case of acnitis. As is well known, demonstration of a few bacilli *in situ* in serial sections is most difficult in this entire

class of affections. The author used successfully the antiformin sediment method for control, and this is much more certain in character, but not free from objection, as bacilli might accidentally find their way into the sediment. The lesions examined were pinhead sized and upward. Serial sections, stained with the Ziehl-Neelsen method, showed in addition to the characteristic histological picture discretely situated rods and granules having all the test qualities of tubercle bacilli. The granular form of the bacillus has long been known to occur in lupus vulgaris of the ordinary type. Generally speaking, the bacilli were both extra- and intracellular, being well represented in the giant cells. As long as the parasite can be shown to exist in lesions of this sort, the author contends that the latter should be known as tuberculides, and no longer as paratuberculides.

Recent Surgery of Pulmonary Tuberculosis.—Samson in a joint review of recent literature concludes that artificial pneumothorax gives good results in advanced and even in desperate cases, provided the disease is confined to one side of the chest and the subject has no other tuberculous lesions. Extensive extrapleural thoracoplastic may be indicated where the preceding intervention cannot be carried out, as when extensive pleural adhesions are present. Freund's operation of dividing the prematurely ossified cartilage of the first rib may be carried out in individual cases, but its theoretical soundness is not yet sufficiently established to warrant it being made a procedure of routine.

Deutsche medizinische Wochenschrift, July 21 and 28, 1910.

Myogenous Leucocytosis.—Grawitz sums up an article on leucocytosis of muscular origin as follows: Increased muscular exertion causes an increase in the leucocyte content of the blood in a ratio of from 1:2 to 1:4. This leucocytosis follows promptly upon the exertion, and is produced apparently by the compression of the lymph spaces by the contracting muscles. The object of the increased production of leucocytes must be the disposal of the metabolic products of muscular activity. Hence under tranquil circumstances we may assume that a normal property of the leucocytes is the taking up and transportation of katabolic substances. This is borne out by the fact that after prolonged muscular repose—as on waking in the morning—leucopenia is present. The first manifestation of myogenous leucocytosis is a marked lymphocytosis, which is succeeded by a neutrophile leucocytosis. The lymphocytes, produced in proportion to muscular activity, no doubt constitute a reserve fund for the leucocytosis, being themselves incapable of function. They enter the blood as the latter is becoming surcharged with the chemical products of muscular activity; and as many as are needed become true leucocytes for taking up the latter. The transformation takes place in consequence very rapidly. The author does not believe that myelocytes are to be found participating in this leucocytosis.

Chloroform Addiction.—Storath reports a case of 15-year-old chloroform habit. The subject was a woman, who began the abuse of the drug at the age of 36. It was taken by inhalation, from 20 to 30 gms. pure chloroform daily. Patient was at times in deep narcosis. It was impossible to find any evidence of destruction of the neurons, arteriosclerosis or renal lesions. The woman was a psychopath, suffered from severe hysteria, and had contracted the chloroform habit from using the drug for typical migraine. There was no tendency to increase the daily dose—if anything the patient was more susceptible than the average individual. There were no withdrawal symptoms when the habit was broken off. The leading phenomena presented throughout by the patient were such as might occur in any psychopath, and were not attributable to any specific action of the drug.

Detection of Spermatozoa in Old Stains.—Gasis, working under Prof. Senator's direction, reports the following procedure. He removes a portion of the garment stained, divides it finely, and places it in the maceration fluid (1 or 2 cm.) for from two to five minutes. A glass rod is used for compression. A drop of the fluid is then spread out on a glass slide and dried by flame. This smear is then stained with 1 per cent. aqueous solution of eosin and decolorized with 1 per cent. aqueous solution of potassic iodide until a faint rose-pink shade is produced. The maceration fluid consists of bichlorid of mercury, 1:1,000. If spermatozoa do not become visible, the stained garment is submitted to longer maceration in a larger quantity of the fluid and the centrifuge used, smears being prepared from the sediment, and again stained and examined as before.

Röntgen Cinematography.—Wertheimer refers to a recent highly successful attempt to produce cinematographic demonstration of radiographs. The idea is by no means new, going back as it does to 1897; and the novelty consists in the method by which the successful results were obtained. The discovery was announced last May by Kastle and two others, and is named "bioröntgenography." The first plate is 18 x 24 in shape and there are 13 negatives in a series. Description of the technique is very meager and without illustrations. It will doubtless appear in full elsewhere. The notice consists chiefly of the objects demonstrated which are the respiratory movements and movements of the stomach, especially the latter. The activity of the stomach is shown in health and in certain diseased states.

Technique of the Injection of the Ehrlich-Hata Remedy.—Wechselmann and Lange appear to have arrived independently of and simultaneously with L. Michaelis (see above) at the determination to inject the new preparation in a neutral suspension. They rejected phenolphthalein as an indicator, however, believing it to be destroyed in the reaction. Their original solution of the remedy is made with soda lye. Glacial acetic acid is used for neutralizing, and ordinary litmus paper as an indicator. Methyl alcohol should not be used as a solvent, for it alone can cause amaurosis in the supersensitive, and this might be set down to the remedy itself. The authors recommend as an injection site the region beneath the shoulder blade. The striking action of the remedy is unimpaired by its injection in suspension. It is not denied that both simultaneous and after-pains are still associated with the injection.

Operative Treatment of Cerebral Apoplexy.—Franke believes in early operation for cerebral hemorrhage, for several reasons. First, there is a marked acute intracranial pressure before death ensues in fatal cases, which should be relieved. This must be done promptly. Second, there is always a possibility of saving life; and third, the destruction of brain tissue which results from hemorrhage may to some extent be arrested. The author is aware that these views are not those which are commonly held. For example, it is taught usually that the sudden escape of a large amount of blood damages the brain tissue immediately. Such teachings, however, rest chiefly on a theoretic basis, and cases are upon record which seemingly prove the converse. The author also believes that the effused blood exerts a toxic action during its absorption as well as behaving as a local irritant. The dangers of puncture are not minimized, but there are but five deaths on record in which puncture itself has caused fatal hemorrhage. Nonfatal hemorrhages are naturally of more frequent occurrence. The author believes that by following the Neisser-Pollack technique for cerebral puncture the danger is reduced to a minimum. He is far from claiming that the time has arrived for routine operation. He would for the present limit intervention to the commonest regional type of apoplexy, viz., that in the vicinity of the lenticular nucleus and internal capsule. If the symptoms point with certainty or probability to this localization he would operate—puncture first, and if this failed, trephine. The symptoms of this type of apoplexy are enumerated in great detail for the benefit of the surgeon, who evidently is not supposed to wait for consultation with a neurologist in an emergency procedure.

Paroxysmal Tachycardia in Basedow's Disease.—Bamberger sums up the relationship between paroxysmal and continuous tachycardia in this affection as follows: The former is rare, incidental, but has a definite connection with the essential tachycardia. It appears to be associated at times with certain developments of the disease. Thus it may coincide with the appearance of the exophthalmus or with an attack of tremors. The author does not believe it is of reflex origin, but regards it as proceeding directly from central nervous influence. It has been observed to follow operative procedures, such as thyroidectomy and ligation of the superior thyroid artery. Paroxysmal attacks doubtless exert an unfavorable prognostic influence. The irritable and often dilated heart can hardly fail to be weakened thereby. Several cases are cited in which dilatation of the heart was marked. The paroxysms therefore demand special treatment. Postural and other mechanical resources for slowing the heart are of no benefit. The author knows of nothing better than opiates given by enema. Cardiac stimulants are of no benefit. Valerian and its derivatives and bromides, both in rather large doses, are of some value. Absolute rest in bed and an ice bag over the heart are indispensable. While the above named all aid in cutting short the paroxysms, there is nothing which will relieve them at once.

Book Reviews.

THE PROLONGATION OF LIFE. Optimistic Studies by ÉLIE METCHNIKOFF. The English translation edited by P. CHALMERS MITCHELL. Popular Edition, with an introduction by CHARLES S. MINOT, Professor of Comparative Anatomy in the Harvard Medical School. New York: G. P. Putnam's Sons, 1910.

THERE is nothing on the title page or in the preface of this book which would explain that it is merely a reprint of the volume published three years ago bearing the same title. The fact is simply mentioned that it is a "popular edition," but evidently the imprint is taken from the same plates as the previous one. Professor Metchnikoff's greatest contributions to science are his "Lessons on the Comparative Pathology of Inflammation," published in 1892, and his "L'Immunite," which appeared in 1901. The present work is in reality a study in optimism and an attempt to show that life can be prolonged by ingestion of the Bulgarian bacillus. Professor Metchnikoff is nothing if not an optimist, and as Professor Minot puts it, "One feels that here is a man to whom hope is a habit of mind." One can only hope that the present edition will be widely read by the general reader.

DESIGN IN NATURE. Illustrated by Spiral and Other Arrangements in the Inorganic and Organic Kingdoms as Exemplified in Matter, Force, Life, Growth, Rhythm, etc., especially in Crystals, Plants, and Animals. With Examples selected from the Reproductive, Alimentary, Respiratory, Circulatory, Nervous, Muscular, Osseous, Locomotory, and Other Systems of Animals. By J. BELL PETTIGREW, M.D., LL.D., F.R.S., F.R.C.P.; Laureate of the Institute of France; Chandos Professor of Anatomy and Medicine in the University, St. Andrews; Fellow of the Royal Botanical, Medico-Chirurgical, Royal Medical, Literary and Philosophical, Harveian, and other societies; formerly Dean of the Medical Faculty, University, St. Andrews; President of the Royal Medical and Harveian Societies; Member of the General Council of Medical Education and Registration of the United Kingdom; Examiner in Anatomy at the University, Glasgow, and in Physiology at the Royal Colleges of Physicians and Surgeons, Edinburgh, etc. Illustrated by nearly 2,000 figures, largely original and from nature. In three volumes. London, New York, Bombay, and Calcutta: Longmans, Green & Co., 1908.

THIS magnificent work consists of three handsome quarto volumes, containing in all some 1,400 pages, with illustrations on almost every page. The title of the work hardly gives a fair idea of its full scope and contents; for although the author has certainly produced the most elaborate and scientific, as well as the latest, contribution to the "argument from design," still the book is not concerned only or even chiefly with this subject (except indirectly). As the author states, "It was necessary to deal with physics, chemistry, botany, zoology, anatomy, physiology, and paleontology more or less in detail, as these all hang together and bear an important relation to each other in such an enquiry as the present." So many topics are introduced, and all of scientific interest, which only bear remotely on the question at issue. The subjects of Animal Locomotion (with which Dr. Pettigrew's name is so intimately associated) and of vertebrate anatomy occupy a large amount of space, and the work as a whole may very fairly be described as a magnificent scientific scrapbook, most skilfully and entertainingly written, of surpassing interest, and of much scientific value.

With regard to "Design in Nature," and his own standpoint in this work, the author says: "In the present work I endeavor to show that the combinations of matter, force, mind, and consciousness are practically endless. I seek to prove that inorganic and organic matter, and physical, vital, and mental force are not opposed to each other; that a Creator, a Prime Mover, or First Cause is necessary to produce dead and living matter and physical, vital, and mental force; and that the same laws, to a large extent, dominate all." And again: "The magnitude of the creative acts and the enormous antiquity of the universe conclusively point to the nature of the Being by Whom, and through Whom everything exists. His presence in matter force, force, life, and intellectual manifestations of all kinds can scarcely be gainsaid if the reasoning faculties be allowed free play and the dictates of conscience followed."

The work contains a clear statement of the author's views and a clever marshalling of the opinions of others, and if we cannot admit that the author has proved his contention it is because we feel that the subject is, at present, incapable of proof. The subject of evolution is not without special difficulties of its own; and while we may incline to certain views on the matter it is safest to say with regard to the origin of our present world and its various forms of living beings, "we do not know."

The third volume is devoted entirely to Animal Locomotion; and what the author has to say on flight, and the principles of construction of wings, will have a great interest at the present time. There are three interesting appendices, reprinted from the *Lancet* and the *Quarterly Journal of Science*, on: (1) History of Anatomical Preparation-making as devised and practised by the author at the University of Edinburgh, and at the Hunterian Museum of the Royal College of Surgeons of England. (2) Aerial Locomotion: Pettigrew *versus* Marey. By Professor Coughtrie. (3) Refutation of the claim put forward by the admirers of Leonardo da Vinci to be regarded as the discoverer of the principles of flight. As a frontispiece to each volume there is a handsome portrait of Professor Pettigrew.

ESQUISSES CLINIQUES DE PHYSICOTHÉRAPIE. Traitement rationnel des maladies chroniques. Par le Docteur J. A. RIVIÈRE. Paris: Imprimerie Bouchy et Cie. 1910.

THIS is a book on mechanical methods of therapy. The first eleven chapters treat of the therapeutic methods of applying electricity, air, light, water, heat and movement. The fifteen final chapters treat of infantile diseases, anemia, pulmonary and cardiac conditions, arthritism, neurasthenia, obesity, arterial sclerosis, disturbances of the digestive tract, of the skin, and of the uterus. The volume concludes with an interesting discussion of the effect of psychic treatment upon disease. There are many statements, however, which can scarcely be subscribed to by American medical men of experience—especially the use of manipulation and massage in cancer of the uterus.

PHYSIOLOGY AND PATHOLOGY OF THE SEMICIRCULAR CANALS. By ADOLPH K. IBERSHOFF, M.D. Foreword by ROYAL S. COPELAND, A.M., M.D. New York: Paul B. Hoeber, 1910.

THIS is in reality a publication of notes taken in the Vienna clinics of Dr. Barany and others, relating to recent work on the physiology and diagnosis of diseases of the semicircular canals. It seems to cover the subject sufficiently, although it is not of course at all exhaustive. There are three tables of differential diagnosis that ought to be of assistance,—namely, the differentiation between labyrinthine suppuration and perilabyrinthitis, neuritis of the eighth nerve, and cerebellar abscess.

HANDBOOK OF THE DISEASES OF THE EAR. For the use of Students and Practitioners. By RICHARD LAKE, F.R.C.S., England. With four colored plates and sixty-six original illustrations. Third Edition. New York: Wm. Wood & Co., 1910.

THIS edition does not differ from the preceding ones in any important details, but it has been thoroughly revised and brought up to date, especially as regards recent work on the labyrinth. It is of course merely a handbook on the subject and is not a work of reference. The author's definition of otosclerosis as a "part of the general sclerosis of the submucous tissue of the upper respiratory tract" might be better. He says that this disease is often associated with atrophic rhinitis. The final chapter deals with the influences of middle ear disease on life assurance.

SOME COMMON REMEDIES AND THEIR USE IN PRACTICE. By EUSTACE SMITH, M.D., Fellow of the Royal College of Physicians. New York: Paul B. Hoeber, 1910.

THIS thin little volume describes the use and misuse of several common remedies, somewhat in the style that made Sir Lauder Brunton's work so popular. The author says that tartrate of antimony is an unjustly neglected remedy; it should be given in small doses at frequent intervals. It is indicated in the early stage of bronchopneumonia in children, and in stridulous laryngitis. As a gastric sedative, hepatic stimulant, and in certain inflammatory conditions of the skin he considers it very useful. Oil of turpentine has rendered him good service as a hemostatic in hemophilia and purpura, likewise in colic, thread-worms, and pernicious hiccough. There is an interesting chapter on the action of the alkalies which the author says should be given in moderate dosage and withdrawn when signs of anemia occur. The alkalies are especially valuable in urinary acidity, and may be used in such diverse conditions as acute bronchitis and toothache where the ache is due to the irritation of an exposed nerve by acid secretions. Dr. Smith uses sodium salicylate in the early stage of appendicitis because he thinks many cases of appendix inflammation are in reality of rheumatic origin.

Unsere Schlafmittel, mit besonderer Berücksichtigung der neueren. Bearbeitet von Dr. C. Bachem, Privatdozent für Pharmakologie an der Universität Bonn. Zweite verbesserte und neubearbeitete Auflage. Mit eine Kurve im Texte. Berlin: Verlag von August Hirschwald, 1910.

We are using fewer and fewer drug hypnotics. If we want to know about the latest one, however, we can find a description of it here.

Die Erkennung des Schwachsinns im Kindesalter. Von Prof. Dr. Th. Ziehen, Direktor der Psychiatrischen und Nervenklinik der Kgl. Charité im Berlin. Nach einem Vortrag für Eltern und Lehrer. Berlin: Verlag von S. Karger, 1909.

A small brochure of 32 pages describing various bodily and mental symptoms found in many feeble-minded children, the early recognition of which aids us in diagnosis and proper treatment.

The Pathology of the Living and Other Essays. By B. G. A. Moynihan, M.S. (London), F.R.C.S. Philadelphia and London: W. B. Saunders Co., 1910.

This book is a collection of numerous essays which have appeared in various medical journals from the pen of the author during the last few years. The wisdom of combining them here is manifest and the book in its present form should enjoy wide reading by the profession and especially by surgeons. There are chapters dealing with the operative treatment of obstructive jaundice, on the violation of Courvoisier's law, the surgical treatment of cancer of the rectum, and the surgery of the common bile-duct. The author lays a great deal of stress on securing a satisfactory history, and makes frequent use of the word "anamnesis" to signify the calling to mind again of past incidents in the patient's career almost forgotten. It is interesting to note that references to American surgery are frequent throughout the volume. The book is to be commended for its clearness and dignity of style.

Imagination and Idealism in the Medical Sciences. By Christian A. Herter, M.D. Chicago: Press of the American Medical Association, 1910.

This is a reprint of an address delivered before the students at the New York College of Physicians and Surgeons in September, 1909. Herter points out that medicine is not an exact science, but "fortunately plastic." It progresses by methods not looking to immediate relief of disease, but toward the solution of some insignificant problem. The monograph sketches in brief the work of modern masters in scientific medicine, especially Helmholtz, Pasteur and Ehrlich. Herter warns against assuming an active practice before the youthful physician is ripe for it. He says: "The student physician who waits patiently year by year to strengthen his individual grip on the processes of disease is laying the unshakable foundations of a telling and distinguished career."

Hématolyse et Hématogenèse. Bacteriolyse et Bactériogenèse. Par Dr. G. Froin, Ancien Interne des Hôpitaux de Paris. Paris: G. Steinheil, 1910.

This extremely interesting volume is devoted chiefly to the problems involved in the first of the two titles. After a general discussion of the chemical and biological characteristics of the red cells the author gives an excellent résumé of the present views in the mechanism of immunity. He then takes up the question of the destruction of the red cells as it occurs normally and as the result of toxic influences, and also the nature of the factors controlling the formation and dissolution of the various types of leucocytes under ordinary and pathological conditions. Then follows a chapter in the destruction and proliferation of bacteria gaining entrance to the body, especially as occurring in tuberculosis. Finally there is a discussion of the blood conditions existing in the anemias and leukemias, polycythemia, tumors of the bone marrow, etc. While not exhaustive, the work is a very satisfactory exposition of the present status of knowledge in the fields in question, and its agreeable style makes it very enjoyable as well as profitable reading.

Consumption, Its Prevention and Home Treatment. By H. Hyslop Thomson, M.D. London: Henry Frowde, Oxford University Press, and Hodder & Stoughton, 1910.

It is desirable that every sufferer from tuberculosis, whether having enjoyed the advantages of a course of sanatorium treatment or not, should be carefully instructed as to his conduct, occupation, diet, and recreation before passing out from direct and constant medical supervision. To instruct the sanatorium patient as to his life subsequent to leaving the institution, and to lay out general principles for the tuberculous invalid who of necessity has to care for himself at home, the author has intended this little volume. The brochure has the advantage of brevity and is to the point, considering without technical nomenclature the causes of and precautions against infection from tuberculosis. General principles are laid down as to hygienic and dietetic treatment, applicable to the patient of ordinary intelligence. Special stress is laid upon the desirability of consulting a medical adviser at stated intervals, and whenever a doubt arises as to procedure. Suitable diets are outlined rather too particularly. On the whole, the pamphlet has merit and is unobjectionable, which cannot be said of many similar works directed to the same object.

Die Forensische Blutuntersuchung. Ein Leitfaden für Studjerende, beamtete und sachverständige Aerzte und für Kriminalisten. Von Dr. Otto Leers, Assistent an der königlichen Unterrichtsanstalt für Staatsarzneikunde an der Universität Berlin. Mit 30 Figuren im Text und 3 Tafeln. Berlin: Julius Springer, 1910.

The demonstration of the presence or absence of blood in suspected spots, etc., is one of the most important problems falling to the medicolegal expert, and often also one of the most difficult. In this little volume Dr. Leers has provided a very comprehensive study of every aspect of the subject, from the macroscopic scrutiny of the spots to the most recent developments of the biological tests, by the precipitin, complement fixation, and anaphylaxis methods. The chemical and spectroscopic tests are described in detail, and the results of these are well illustrated by photographic and colored plates. The descriptions of the technique are sufficiently detailed to serve as working directions, and the book is warmly to be commended to all who are interested in investigations of this sort.

Essentials of Medical Electricity and Radiography. By Edward Reginald Morton, M.D., C.M. (Trin. Tor.), F.R.C.S. (Edin.), Vice-President Electro-Therapeutical Section, Royal Society of Medicine; Lecturer on Radiology, West London Post-Graduate College; Medical Officer in Charge of the X-ray Department, West London Hospital; formerly in charge of the Electrical Department, London Hospital, E. Second edition, revised and enlarged. Chicago: Chicago Medical Book Company, 1910.

The author of this book has attempted to cover in a pocket edition the entire subject of electro-therapeutics and radiography. He has started with the first principles of the physics of electricity and has developed his theme through the many modifications of the constant current, galvanism, faradism, static machines, high frequency currents, and finally a considerable portion of the book is devoted to the *x*-rays. In trying to cover such a large subject in such small space many of the articles are of necessity incomplete. The book, however, only essays to give the essentials of the subject, and this it does in very clear and readable terms. It is written in an especially sane, conservative style, not claiming that electricity is a cureall, nor appealing to mysticism, as is often done in writing upon this subject. While a perusal of the book would not make an electrotherapeutist of the reader, a study of it will be a most useful introduction to larger works on the subject.

Die Zuckerkrankheit und ihre Behandlung. Von Professor Dr. Carl von Noorden, Vorstand der I medizinischen Universitätsklinik in Wien. Fünfte vermehrte und veränderte Auflage. Berlin: August Hirschwald, 1910.

Diabetes is par excellence the disease of which the treatment has been developed on almost mathematical lines, and it is in great measure due to v. Noorden that this has been accomplished. The ability to think of foods in terms of calories is never so essential as in the planning of diabetic dietaries, and the present is an excellent text-book from which to learn the art. In this edition it has been considerably enlarged, and with a number of chapters rewritten, notably those on the physiology and pathology of sugar metabolism, pathological chemistry and metabolism, and the theory of diabetes. In the latter the recent work done in v. Noorden's clinic on the interrelationship of the functions of the chromaffine system and the ductless glands in controlling the sugar metabolism is fully discussed. The chapter on treatment has also been amplified, and the author reemphasizes his former contention that it is necessary to restrict the carbohydrate intake, not only moderately, but as much as possible. The book is the standard treatise on diabetes, and in this edition represents the last word on the disease.

Society Reports.

BRITISH MEDICAL ASSOCIATION.

Seventy-eighth Annual Meeting, Held in London, July 26, 27, 28, and 29, 1910.

(Special Report for the MEDICAL RECORD.)

(*Concluded from page 340.*)

SECTION OF GYNECOLOGY AND OBSTETRICS.

Friday July 29—Third Day.

Is It Justifiable to Leave the Other Ovary, if It Appears Unchanged, When Removing a Proliferating Papillary Ovarian Cyst?—Professor NAGEL, Berlin, read this paper. He said that papilloma formed 8 per cent. of all ovarian neoplasms and was unilateral in 33 per cent. of cases. The prognosis as to permanent recovery was good and he had found 83 per cent. alive five years after operation; recurrence in an ovary left behind at a unilateral operation was not frequent; even in carcinoma of the ovary recurrence was not frequent after a unilateral operation, but good statistics were lacking. Cases of pregnancy after unilateral operation for carcinoma and papillary cystoma had been recorded; in two of his own cases both patients were alive seven years after operation and one had had one child and the other three since the operation. From these considerations he concluded that the extirpation of the other healthy ovary was superfluous, especially in young women.

Professor GOTTSCHALK of Berlin had operated on one case unilaterally twenty-one years ago. Since then the patient had married and borne three children and remained quite well. In another case the patient was well eight years afterward, but these cases should be kept under close observation.

Dr. KYNOCH of Dundee in multilocular cyst would not remove other ovary, but in papilloma had seen recurrence in other ovary and he advised bilateral operation except in young women.

Professor SPENCER of London never removed an ovary which appeared to be normal no matter what the condition of the other ovary; he had found papilloma present in 50 out of 200 cases of all kinds of ovarian neoplasms.

Dr. MUNRO KERR of Glasgow pointed out that papilloma varied in malignancy and in undoubtedly malignant cases he would remove both ovaries and uterus.

Dr. W. H. H. TATE of London said that in his experience when there was malignant papilloma of the ovaries both sides were frequently affected and there was ascitic fluid present; this condition rarely occurred under 35 years of age and he always removed both ovaries.

Dr. BLAIR BELL of Liverpool asked what constituted malignancy in a papilloma? As regarded the histology, he considered that definite invasion of the stroma was required to prove malignancy and that alteration in the epithelium was not sufficient. We could not decide from naked eye examination during an operation, but rapid histological examinations of sections while the operation was proceeding might help.

Dr. LOUISE MCILROY of Glasgow had in two cases examined an apparently normal ovary removed at the same operation by the microscope and had found early malignant growth; she agreed with Dr. Munro Kerr that in undoubted cases of malignancy the uterus should be removed as well as both ovaries.

Dr. FELIX MEYER of Melbourne, Australia, had seen recurrence after unilateral operations, had tried making sections at the time of operation and thought that this method gave assistance though it could not be absolutely relied on.

Dr. HAYWOOD SMITH of London asked whether recurrence might not often begin in the stump of the ovary removed at operation?

Dr. SCHARLIEB, the president, said that in 150 cases of ovarian growths she had found 25 malignant and she had learned to regard the prognosis of cystic tumors of the ovaries as much worse than that of uterine fibroids.

Professor NAGEL, in reply, said that he considered that 50 per cent. of papillomatous tumors were malignant.

The Surgical Treatment of Fibrosis of the Uterus.—Dr. LOUISE MCILROY of Glasgow read this paper. She defined the characteristics as uniform enlargement of the organ with a hardened wall, associated with menorrhagia, metrorrhagia, and dysmenorrhea. Some called the condition metritis, others arteriosclerosis. She preferred the term uterine fibrosis. She gave an account of four cases, two of them in unmarried women. She had treated them by curetting, and, when there was marked retroflexion, by ventrosuspension, but with no benefit, and eventually she performed hysterectomy in two of the cases. Microscopic examination showed thickness of the coats of the arteries and fibrosis of the uterine wall.

Dr. TATE of London had seen many cases. He used to treat them all by curetting first, but now in some cases he did hysterectomy without previous curetting; he did not remove the ovaries.

Dr. COMYNS BERKELEY of Middlesex Hospital, London, thought Kelly's operation of removing a wedge-shaped piece of the uterus was a valuable one.

Dr. CURTIS WEBB of London had found good results from zinc-mercury ionization on Massey's method, using a current of 100 milliamperes; the positive pole was applied internally.

Professor SPENCER of London had obtained good results from atmocausis (application of steam to endometrium); mentioned Duhrssen's operation of opening the uterus and removing some of the redundant mucous membrane.

Dr. BLAIR BELL of Liverpool said that the causes of fibrosis were infection, chronic subinvolution, fibrotic changes of menopause. He did not believe that fibrosis ever occurred in young women.

Dr. KYNOCH of Dundee said that in hospital patients who could not afford to carry out palliative treatment hysterectomy was quite justifiable.

Dr. PURSLOW of Birmingham said that he had published in the *British Medical Journal* 12 years ago two of the earliest cases of this disease; he had not met with the condition in nulliparæ; he drew attention to the value of styptol as a uterine hemostatic.

Dr. HASTINGS TWEEDY of the Rotunda Hospital, Dublin, had tried atmocausis in about 12 cases, and had been very pleased with the results. No anesthetic was required, and the operation was quite painless; he applied the steam for 15 seconds and he strongly advised a trial of this method before proceeding to hysterectomy.

Professor GOTTSCHALK of Berlin had obtained good results from rectal injections of gelatin.

The PRESIDENT had seen such cases in young women; would like to try ionization.

Professor DOEDERLEIN of Munich gave a demonstration, by diagrams, of the operations of extraperitoneal cesarean section and hebosteotomy. In the former he made an incision from the pubes to the anterior superior spine parallel to Poupart's ligament, preferably on the right side; he then made a lateral incision in the uterus and extracted the child by forceps; he closed the uterus by continuous suture. In hebosteotomy he made a small incision above pubes, passed the index finger behind the bone, and then, under cover of the finger, passed a needle carrying a Giglis saw and sawed through the bone.

Dr. HASTINGS TWEEDY had done five pubiotomies by this method, but thought that the method of Bumm, in which the needle was passed up behind the bone from below,

without making a preliminary incision, had some advantages; in his cases the patients had been able to walk and to leave the hospital on the 19th day.

Dr. Munro Kerr of Glasgow thought pubiostomy a valuable operation, but considered that it was more difficult than cesarean section. As regarded the so-called extraperitoneal cesarean section, he could not see that it presented any advantages over the usual method.

In answer to a question by Professor Spencer, Professor Doederlein said that the time required from the commencement of the incision to the delivery of the child was 5 minutes.

Intraperitoneal Hemorrhage in Cases of Fibromyoma Uteri.—Dr. A. J. Wallace of Liverpool read this paper. He gave an account of a case under his care in which symptoms came on suddenly, abdominal section was performed, and the blood was found to be coming from a vein on the surface of a subperitoneal fibroid of the posterior uterine wall. Myomectomy was performed. He pointed out that in the recorded cases only once had a correct diagnosis been made before operation.

The Involution of the Puerperal Uterus.—Dr. Nepeau Longridge of Cheltenham presented this communication. He divided the period of involution into two stages, a rapid one lasting one week, in which the uterus lost one-half of its weight, and a slower one lasting six or seven weeks longer. Involution was a process of autolysis and was independent of bacteria; it took place better in an acid medium, and this reaction was present owing to the formation of sarcolactic acid from the muscular action. The uterus was anemic after delivery, and this was shown by the fact that in most mammals, and occasionally in women, there was no lochial discharge whatever. He advised holding the uterus for one hour after delivery, giving ergot, and taking great care that the bladder did not become distended during the puerperium.

Erosion of the Cervix Uteri.—Professor Gottschalk of Berlin gave a lantern demonstration of the pathology of erosion of the cervix. He showed that the normal squamous epithelium was first lifted up by the distended gland follicles beneath it, then it burst and exposed a raw surface beneath. This formed a simple erosion; later the epithelium lining the glands spread out over this surface and thus papillary erosion was formed. Later the stage of healing took place; in this process permanent epithelium grew over the surface and sent deep prolongations downward into the connective tissue, and this growth of epithelium might become malignant. Erosion of cervix was of inflammatory or irritative origin and the normal epithelium was displaced by the distended glands as described above, or by subepithelial hemorrhages; the new surface was covered by the glandular epithelium from the glands, and he was convinced that squamous epithelium was never converted into columnar. He advised excision of the affected area in all severe cases.

This concluded the business of the section. A vote of thanks to the President, Mrs. Scharlieb, M.D., was proposed by Professor Nagel, seconded by Professor Hastings Tweedy, and carried by acclamation.

TROPICAL SECTION.

Human Trypanosomiasis.—A very interesting paper was read by Colonel Sir David Bruce on Trypanosomiasis of Man. He recapitulated the several propositions he laid down at the discussion in this section in 1904 and pointed out that four of them still hold good. At that time he said that as to prognosis, instead of being favorable, as had been stated, there was a mortality of 100 per cent. This is perhaps a controversial point, but in Sir David's opinion, there is no absolute proof of a single recovery. The figures were, that up to the present 49 cases had been recorded among Europeans; of these 28 had died, of 12 there was no reliable record and of the remaining 9 who are still alive, one was attacked 10 years and another 9 years ago and are now reported to be in good health. Notwithstanding this, Sir David expressed his belief rather pessimistically that with only the means at present known to us for its treatment this disease is a mortal one.

An interesting discussion followed the reading of the paper. Dr. Balfour of Khartoum suggested that trypanosome Gambiense underwent morphological changes when passing through other animals such as the mule and in this way modifications might be brought about. He instanced the finding of trypanosome parasites in the blood of American cattle, and the discovery of the resting phases of trypanosomes found in water buck in the Bahr-el-Ghazel province of Upper Egypt. He said that certain oils were found very useful, as "tsetse-fuges," when rubbed into the skin.

Dr. Cook of Uganda gave an instance of the value of atoxyl treatment. Two brothers came to him suffering from trypanosomiasis with the typical glands in the neck; one entered his hospital and underwent regular treatment. The other refused treatment and died in eighteen months, while the former was alive and well at the end of four and one-half years.

He thought there would be great practical difficulty in clearing the lake shore of jungle and bringing it under cultivation and that for some time those engaged in this work would suffer very severely. In his experience the prophylactic treatment of the early stages with arsenic was very hopeful.

Dr. Low remarked that though the trypanosoma found in Rhodesia was not Gambiense yet the various species were much more closely connected than was generally supposed and might be modified by residence in different mammals.

Dr. Prout recounted his experience of sleeping sickness in Sierra Leone and said that there was no doubt that till recently the disease was only sporadic there and he could only find records of three or four cases in the course of twenty-five years: then it was introduced in a virulent form from the Congo and rapidly became epidemic.

Dr. Sambon detailed some experiments made with chopped-up flies and said that the most reasonable explanation of the phenomena was that the Glossina palpalis takes up the parasite in two stages: if the asexual stage then no further development takes place, but if the gametes are taken by the fly then they continue to develop and infect.

Tuberculosis in India.—A paper was read by Lieut.-Col. Roberts, I.M.S., on "Some Features of Tuberculosis in India." He described a form of febrile attack which he called "acute tuberculous fever," which he said was entirely tuberculous in causation, but was often confused with atypical typhoid fever or with simple continued fever. Abdominal symptoms were usually prominent and as the alimentary canal was the seat of most of the lesions it was probable that infection usually occurred through it. There was another kind of tuberculous fever accompanied by enlarged cervical glands. A third variety he described was characterized by continued low fever, the thermometer seldom rising above 100°, and general ill health and debility.

Europeans in the Tropics.—A paper was read by Sir R. Havelock Charles on "Factors Influencing the Suitability of Europeans for Life in the Tropics." The three great requisites for a man or woman going to the tropics were: (1) Even temperament, (2) good digestion, (3) sound nervous system. These might be called the tropical trinity. It was important that the European should have activity without restlessness, energy without impatience, and inflexibility without illhumor. There were three main factors which shortened life and produced ill-

health in the tropics. These were (1) continued high temperature, (2) sudden and great thermal changes, (3) parasitism. It was the nervous system that bore the brunt of unfavorable surroundings and therefore it was of immense importance to investigate the nervous system and nervous history and hereditary taints of candidates with the greatest care. With regard to women, an irritable, changeable, unoccupied woman who was always reading to be amused was not only a danger to herself but a trial and a danger to her husband; on the other hand, the right kind of woman for a wife was the best asset a man could have. Among bars to employment in the tropics he particularly mentioned severe headaches, insomnia, tuberculosis, athlete's heart, arteriosclerosis, chronic looseness of the bowels, habitual drug takers, and anemia. The man who has found his sphere in the tropics "enjoys the good without disdain and endures the bad without impatience." Seventeen members joined in the discussion that followed. All agreed in their testimony to the great strain that residence in the tropics involved on the nervous system. Work was usually strenuous, conditions were adverse, disease rife, and native servants very trying to the temper. For many the strain of having to conduct not only their business but their household management in a foreign tongue was considerable.

Dr. Sambon strongly held to the opinion that if we could get rid of parasitic diseases there was no reason why Europeans should not enjoy as good health in the tropics as anywhere else, but other members did not seem inclined to support him in this.

Dr. Price gave some interesting statistics based on the causes of death or retirement of missionaries. He had tabulated 628 deaths and of these 96 were due to malaria, 65 to enteric fever, 44 to tubercle, 36 to dysentery, 36 to cholera, 36 to blackwater fever, 22 to typhus and 20 to smallpox. Thus 60 per cent. were due to diseases that might be considered preventible. Out of 265 retirements 65 were due to nervous breakdown, 32 to tubercle, 30 to insanity and 14 to debility.

Professor Fülleborn of Hamburg stated that in Germany candidates were tested for their ability to stand large doses of quinine. This plan seemed to commend itself to many of those present.

Dr. Balfour, speaking of functional albuminuria, said it was often benefited by a residence in the tropics and when a candidate was found to have albuminuria it was advisable to use the lactate of calcium test before rejecting him.

Dr. Anderson pointed out that there was immense variety in the climate of the tropics and that some parts were quite suitable to Europeans in general and that by using discrimination suitable climates might be found for many who would be otherwise rejected.

Dr. St. George Grey of West Africa said that when it was necessary to invalid a man home it was essential to have regard to the seasons. Many died by sending them to England at an inclement season who might be saved were they kept at a place like the Canary Islands till a suitable season.

Microplasia.—Professor Fullerborn of Hamburg gave a demonstration of microplasia. He first dealt with methods of staining and then discussed the anatomy of the plasia, illustrating his remarks with a most beautiful series of lantern slides, mostly microphotographs. He discussed his experiments with the mosquito and other biting insects, showed slides demonstrating the development of the malaria parasite, its access to the mosquito and its egress from the same. The speaker discussed how the plasia entered the body, and gave his opinion that it pierced the skin in much the same way as the anmylostoma embryos and was carried into other parts of the body with the blood stream.

Sand-fly Fever.—Colonel Birt then read a paper on phlebotomus or sand-fly fever. In Malta more than 50 per cent. of the troops at one time suffered from this fever during the summer. The greatest incidence was in the month of July. He showed a number of charts serving to indicate the difference in the temperature curve between this and other fevers such as Malta fever and enteric fever. He also showed some specimens of the sand-fly which causes the disease. The breeding places of the insect have been discovered in the interior of old stone walls. The fever has been recorded from Egypt and other countries bordering on the Mediterranean and also from the Panjab.

A few other short papers of less interest were also read.

Museum.—This was an interesting part of the annual meeting and the array of microscopes, each one exhibiting some beautiful and interesting preparation, was imposing. In the tropical section there were microscopical slides showing nearly all the parasites affecting the human body in the tropics, nematodes, insects, protozoa, bacteria, and so on. Most of these were shown in their various stages. There was an interesting series of slides showing the Leishmania tropica of the Oriental sore.

PROCEEDINGS OF THE AMERICAN NEUROLOGICAL ASSOCIATION.

Thirty-sixth Annual Meeting, Held in Washington, D. C., May 2, 3, and 4, 1910.

Morton Prince, M.D., of Boston, President, in the Chair.

(*Concluded from page 258.*)

Wednesday, May 4—Third Day.

Friedreich's Ataxia.—Dr. William G. Spiller of Philadelphia read this paper, saying that the symptoms of this disease had been known many years, but the pathology had been very imperfectly studied. In the case which he reported, in addition to the usual findings in the spinal cord, the peripheral nerves had been greatly degenerated, recent degeneration detectable by the Marchi method had been seen in some of the muscle fibers, and the cerebellar nuclei showed alteration of the nerve cells. Many naked axis cylinders had been detected by the Bielschowsky stain in the columns of Goll, which by the Weingert hematoxylin stain had appeared almost completely degenerated. Dr. Spiller maintained that Friedreich's ataxia was not a degeneration confined to the spinal cord or cerebellum, but was the result of implication of the entire central and peripheral nervous system.

Dr. Sidney I. Schwab of St. Louis asked about the mental status of this case. Was there a suggestion of any syphilitic etiology?

Dr. E. W. Taylor of Boston stated that in one case he had observed post mortem there had been strikingly beautiful degeneration of the cerebellar tract and of Gower's tract, which he had taken to be part of the widespread degeneration throughout the nervous system. He asked whether Dr. Spiller had been able to trace this degeneration of Gower's tract into the cerebellum, and whether anything had been done towards tracing Gower's tract and the cerebellar tract towards their determinations.

Dr. B. Sachs of New York said that to explain hereditary family diseases in connection with the modern laws of heredity the attempt would have to be made some day, and, even though our first steps might be very infantile, we should make a beginning. The distinction between Friedreich's ataxia and amaurotic family idiocy was interesting. That was one point that might be taken up for the starting point of consideration of family diseases. In hereditary ataxia we evidently had an involvement chiefly of tracts of peripheral structures, as Dr. Spiller had so well shown,

and no doubt there was some cellular involvement as well, while amaurotic family idiocy was a purely cellular disease. Some years ago these cases had been spoken of as cases of arrested development. The biologists and sociologists were not satisfied with that, particularly if the symptoms came on later in life, after normal birth, and so on. These family diseases would not occur if there had not been so vital defect in the germ plasm. That vital defect made the organism less resistant to extraneous influences or to influences within the body than it would have been if this vital defect in the germ plasm had not existed. In former days Dr. Sachs had been absolutely opposed to the idea that any family disease could be due to any toxic or infectious agent. He did not believe that any family disease could be due to an extraneous toxic or infectious agent, but an infectious agent that was formed within the body itself was conceivable, particularly if you allowed that the injury done to the germ plasm in the first place made the various structures of the body less resistent to poisons formed within the body itself. That was the one step forward that we were able to take in the matter of explaining some of the family diseases. What its application would be to Friedreich's ataxia he did not know, but would like to insist that we go one step further than such careful anatomical, histological work as that reported this morning, and endeavor to bring into line the various family diseases about which so much was being written and in which all of us were so much interested.

Dr. Spiller, closing, said that the Wassermann reaction had not been taken, but there were no clinical manifestations of syphilis. The pathology showed no round cell infiltration such as is characteristic of syphilis of the nervous system. In reply to Dr. Taylor's question, Gower's tract was not degenerated, although in many cases of Friedreich's ataxia it has been. Cellular changes were not usually found in Friedreich's ataxia according to report. The nucleus dentatus in this case showed decided cellular changes. There were also some changes in the cortex.

Personal Experience with Freud's Analytic Method.—Dr. James J. Putnam of Boston read this paper, saying that its purpose was twofold: first, to indicate the character of the author's own successes and failures in the application of Freud's method of pyscho-analysis; next, to indicate the respects in which that method seems to him of importance and the points of view from which it should be studied. In so far as Freud had shown us a valuable means of studying the processes which go on unconsciously within our minds and the respects in which they lead to traits of character and temperament, it was difficult to see how any one could fail to recognize the importance of his work. Most of the criticism had come from persons who had failed to verify his conclusions. That, however, was a different matter, although in the author's opinion, based upon his own observations, the more carefully and thoroughly the method was applied, the more accurately the conclusions derived from it would be found to coincide with those laid down by Freud and others who had followed in his footsteps. The only personal observations which the reader would present as conclusive were those made on about six cases, studied during the past year. A brief summary was given of certain of these cases with a view of indicating the difficulties which attend the application of the method, whether to the dream life or to the waking life, as well as the character and degree of success obtained in treatment. Incidentally, comparison was made between this and other methods with reference to their relative value. It was obvious that the talents and interests of neurologists were not all of the same sort, and for those to whom the study of the mind in health and in disease appeared the most important portion of the physician's work, the contributions of this new field were of marvelous promise and of immense practical importance.

Dr. George L. Walton of Boston expressed the wish that Dante could open this discussion and let us know whether, when he credited Desire with being the root of all things good and evil, he had in mind unconscious memory pictures, as of dreams, to which branch of the subject Dr. Walton confined himself in this discussion. Without venturing to offer a complete explanation of the dream, he felt justified in assuming that it consisted of a series of concepts previously entertained but newly assembled, succeeding each other, sometimes with lightning-like rapidity. One important difference between these memory pictures and those of the waking life is the inability of the dreamer to measure time and space; but the main distinction lies, perhaps, in the absence of goal ideas and of the power of control which enables us in our waking hours to guide our thoughts more or less successfully in definite channels. The associations by which these pictures are assembled will vary with the individual and be tinged by his emotional tone, but to read into them, however ingeniously, the fulfilment of desires is to strain a point, and to substitute a preconceived notion for the study of facts. Dr. Walton found it hard seriously to discuss Freud's illustrative case of a child of tender years who sleeps in a very large bed and dreams he is in a tight place. This dream Freud explains as the fulfilment of the child's wish to be large, a wish so abundantly fulfilled that he thinks himself so large that even this bed is too small for him. To credit mere memory pictures, distorted at that, with being symbols is unduly to glorify the dream state—he should perhaps rather say unduly to debase it when the symbols are of the character which permeates the works of this author. At the risk of seeming prejudiced, he found himself disinclined further to follow the leader whose book on dreams contains that of a young woman who thinks she holds in her hand a branch of a tree, which is assumed to symbolize an organ from which her thoughts should rather be diverted, and in which it appears that breaking off such a limb represents improper manipulation of that organ. The reproduction of a dream in detail, and its analysis, is not only baffling and valueless, in his opinion, for medical practice, but may be harmful. Sholtze says that children should not be encouraged to relate their dreams for their already fantastic imaginations will thereby be the more led away from the real things of life. Similarly, in the treatment of the psychoneurotic, the desideratum is concentration upon the external and the real. As to the comparison between getting up and doing something and analyzing the dream, it seemed to him that an ounce of Muldoon was worth a pound of Freud.

Dr. Edward B. Angell of Rochester agreed with Dr. Walton. These patients need ruthless treatment. He recalled a patient sent to him whom he required to sit up and every time the doubts came upon her to say out loud, "What a damn fool I am!" Two treatments of that sort served to relieve the whole chain.

Dr. B. Sachs of New York said he desired to be absolutely impartial in this matter, not only out of respect for the reader of the paper, but because personally he had been acquainted with Freud for 25 years, ever since they sat in Meynert's clinic. He would agree with anything of Freud's with special delight if he could have felt that his teachings were absolutely sound. There were several practical reasons why they did not appeal to Dr. Sachs: the first counted least, that is, the length of time the examination took and the smallness of the result. For instance, it had taken six weeks for his assistants to get the history of masturbation which Dr. Sachs said he knew existed when he looked at the boy. That was an enormous waste of time. The most serious objection to the method was that it had had a distinct sexual taint given it. Whether all the channels led up to that special function or not Dr. Sachs did not know, but the sexual taint was most marked. It might be of great interest to the neurologist to find out

that some sexual misconception or some disagreeable sexual thought had existed in that person in early years, but while it might be of great interest to the physician, and while it might not do a woman of 40 any harm to have her psychic analysis made as carefully as Dr. Putnam had performed it, it was Dr. Sachs' firm conviction that we did no good by taking a young woman of 14 to 20 and pushing her thought back on that one sexual mistake, not a conscious sexual mistake, that had been made early in life. He could not see that the therapeutic results had been any better nor had they been arrived at any quicker than by the older methods.

Dr. Charles L. Dana of New York felt that he would welcome any new method that would help us in studying this serious class of cases, especially a method that Dr. Putnam had taken so seriously and found some real good in. Dr. Dana's practical experience had been not only of failure, but often of disaster with Freud's method. Taking the case of well-educated and delicate-minded men or women and making them go through the details of early experiences had sometimes just stirred up a mass of old memories, had thrown them almost into delirium at times. It had often been most unfortunate and he had practically stopped giving any such treatment in cases of at least the more educated, more intelligent type of patient that came to him. In dispensary practice perhaps we could find rather more scope for the method. In the minor cases of this class of psychoneuroses he found that by ordinary methods of treatment, education and modern resources of therapeutics they got well. Dr. Dana always told psychasthenic patients that they would get well and they generally did. It must be remembered that a certain number of cases run a course; they got well whether one did anything or not in one or two years. There was another group of cases, more serious, which dated back to early life; these were serious cases he had not been able to do much with. If this method would successfully help them, it would be of value, but he did not see exactly how the philosophy of the method could explain or help a condition which was essentially constitutional. Instead of the Freud method, the quickest way of getting at the inside of these cases was to do what we practically all tried to do and often succeeded. Dr. Dana took patients of this kind, put them in a private hospital and gave them an intelligent nurse; he went to see them often and sent masseurs whom he knew to be intelligent women or men to give them treatment and by every process that he knew of he became acquainted with their story. In two or three weeks he learned about these patients, he knew their past history and he did not believe one could get as much by the Freud method as by our present method. He thought we had much better methods than that of Freud.

Dr. L. F. Barker of Baltimore said it had been his good or bad fortune to see a good many of these patients in the last few years. Any method which helped us to understand the nature of these cases and treat them successfully should be welcomed. He was very glad indeed that so fine a man as Dr. Putnam should undertake this study, the practical testing of Freud's method. It seemed to him that the method should be tested by a man in whom we had absolute confidence whose ethical nature was such that we could have no doubt of the motives of the study. Dr. Barker thought the method should be carefully tested. It had excited world-wide interest and some of the better psychologists had become very enthusiastic about it. It was too early to say how much good would come of it, but certainly a large amount of new knowledge concerning the psychology of these patients, the psychology of life generally was being derived from these studies. He thought we should separate the method of psycho-analysis from the purely sexual idea. In his experience psychoanalysis had been helpful, especially in extending the anamnesis.

Dr. Charles K. Mills of Philadelphia said that hearing what had been said by Dr. Dana and Dr. Barker so well expressed his own views in regard to that matter that there was little left to be said. He thought we owed a debt to Dr. Putnam for the manner in which he had approached and attempted to develop this subject. However, he was not in accord with Dr. Putnam's views. The reports so far had not been altogether satisfactory. The cures did not seem to be in greater number or better than those obtained by the old methods. There are dangers in this method.

Dr. Hugh T. Patrick of Chicago said that Dr. Putnam's method did not differ so very much from the ordinary methods of pyschoanalysis. It seemed to him that psychoanalysis, or whatever led us to get back to the definite original cause of any phenomenon in the abnormal patient, or the beginning of what had been the series of abnormal phenomena, was a help. What he believed to be distinctly injurious was to encourage the patient to probe when he was alone, without control and without the leading intelligence of his physician, into his past life, because we all know that patients are unable to observe facts without conclusions, to observe phenomena without interpretation, and it was particularly these neurotic, poorly balanced, hypersensitive people who were constantly drawing wrong conclusions. This was distinctly dangerous and it was that particular part of the Freud method with which he was at variance.

Dr. Alfred Reginald Allen of Philadelphia said that one saw cases that had been the rounds, having been treated by neurologists in a routine way and well treated, too, and he tried himself to treat them and failed utterly until he used the Freud probe.

Dr. Augustus A. Eshner of Philadelphia said that it should be borne in mind that these patients were already unduly subjective and introspective, and that care should be taken not to make them more so as a result of a certain form of interrogation. Herein appeared to reside a danger entitled to serious consideration.

Dr. Harold N. Moyer of Chicago announced himself a disciple of Putnam rather than of Freud. Any one who undertook to practice Freud's analysis upon his patients on their first visit to the office would soon have no patients. The older methods were to be adhered to for a certain time. As to the psychoanalysis of impotence the physician who neglected to look for some prostatic trouble or stricture would probably fail. This discussion had brought out so far that the old methods were efficient as a rule, but there was a certain residuum of cases not relieved by ordinary methods and for whom was left us this psychoanalysis. It was a distinct, adequate, efficient method of getting at a few cases that we had not succeeded with before until it was offered to us.

Dr. Philip Coombs Knapp of Boston stated that on the first appearance of Freud's work he began to try Freud's method. There was one radical defect in Freud's general position which had not been touched upon. We saw almost every day cases of nervous disturbance of one sort or another due clearly and confessedly to some pronounced emotional disturbance. The cases improved as the emotional disturbance was put into the background and forgotten. It did not seem always to be a reasonable method of treatment in those cases which were due to a forgotten emotional disturbance to drag that once more into the field and get the patient to dwell upon it. It seemed to him that this was the primary unreasonableness of the views of Freud. There was a tendency to consider the data derived from the psychoanalytic methods as being absolutely accurate, but he had not always found them so.

Dr. Ernest Jones of Toronto said that it was too late to attempt to crush out Freud. The movement had already attained such dimensions that it could only be delayed, it

could not be crushed. There was now a large international society with subsections devoted to it. There were over 200 trained workers in Denmark and Russia and Italy. There were four periodicals devoted to the work, besides the mass of literature that had appeared in the general neurological literature and the movement had attained such dimensions that it had even reached England. It was perfectly easy with such startling principles as Freud formulated to form all sorts of excuses and pretexts which were not based on actual experience which no one in the room had excepting Dr. Putnam. Experience with the method was the only primal solution and the only primary criterion for the truth of these matters.

Dr. James J. Putnam, closing, said that Dr. Freud was one of the ablest and most intelligent physicians in Europe and one of the most honest and conscientious. His whole attitude towards the question had been practically the same as the attitude of the various gentlemen who had spoken to-day. He simply then had taken up the fact which he had not invented, although his view had been called by Dr. Knapp a hypothesis. It had never been a hypothesis. It was a generalization upon the facts which had forced themselves upon his notice. He had taken them up in a thoroughly conscientious way, then dealt with them in an extraordinarily broad and scientific way. He brought them together with a thoroughness which no one can have any conception of. He said there was a great deal of misunderstanding of this sexual questioning. One did not take a young unmarried girl and begin to talk to her about her sexual relations. It would be very extraordinary if any one should do that. The sexual ideas were the ones the patient himself brought out. That Freud had always contended. If one had to summarise the value of this matter from the therapeutic side the only word that fitted the case was education. Dr. Mills had spoken of the cruelty of trying to force patients into reviewing the things of which they were afraid; this would be true without explaining to them the nature of the enemy they had to meet. Of course as regards the length of time to which Dr. Sachs referred that was not a criticism against the method; those who did not choose to spend the time needed not to do so. We all spent vast amounts of time in studying the anatomy of the nervous system and we were now devoting ourselves to this study, to the anatomy of the mind. One was quite as justifiable as the other. Then again the persons who spoke as though the sexual thought were brought out in these patients' minds had failed to recognize that they were suffering from these thoughts and the purpose was not to dwell on sexual thoughts, but to relieve their minds from sexual thoughts which in another form were active aand producing symptoms. As to the objection to the patient's probing himself, it was injurious to him to probe himself alone, and it was to prevent the patient from doing this that the patient was encouraged to probe himself before the physician; the patient probes himself alone from morning to night otherwise, and it was to make it impossible for him to do this that we used this treatment.

The Nature and Conception of Dementia Præcox.—Dr. Adolf Meyer of New York read this paper, saying that Kraepelin had created the picture of dementia præcox under a set principle of nosology, with general paralysis as the paradigma. Each disease had its specific lesion, and a true clinical entity had its unity of cause, course and outcome and was necessarily the clinical picture of a unitary and specific lesion. General paralysis was a specific disease-process best characterized by its lesions and by its definite syphilitic origin; but in dementia præcox the nature of the lesion was not so decisive. The departure of our recent work consisted in the surrender of nosological dogma for greater interest in the dynamic interpretation of the disorders out of the psycho-biological material at hand as preferable to a dogmatic assumption of a hypothetical unitary toxic principle. The studies of metabolism and toxic states so far furnished nothing specific or decisive in regard to dementia præcox. The neurological and histological data appeared rather as incidental to more clearly definable functional data than with a leading rôle. The data of conduct and behavior and of reactive material of the patients had proved much more directly helpful in furntshing constructive materials. The etiological constellations were necessarily complex. According to the make-up, the same results might be reached by combinations of marked constitutional peculiarity and slight external cause, and slight overt constitutional peculiarity and marked external cause. The essential was the break of compensation of mental (chiefly emotional and volitional) adjustment with more or less deficit—and in most cases with the peculiar attempts at balance and reconstruction which constitute the glaring surface-picture of the clinical description and the special mechanism of the analytical consideration. The main question was, of course, whether the psycho-biological estimates made it possible to distinguish differences of individual risks and prognosis, which would be preferable to the wholesale prognostication under an excessively broad disease "entity." Evidence seemed to favor the postulate of a departure from the Kraepelinian dogma. Dementia præcox was essentially unlike general paralysis and more likely the usually inevitable outcome of (1) conflicts of instincts and (2) incapacity for a harmless constructive adjustment.

On Some of the Mental Mechanisms in Dementia Præcox.—Dr. August Hoch of New York read this paper, saying that the topic assigned to him in the symposium was the symptomatology of dementia præcox from the point of view of the content of the psychosis. In certain paranoic states, such as those described by Rudin and Gaupp, also in a certain type of psychosis recently analyzed by Birnbaum, the content of the psychoses represented conflicts and reactions to conflicts which the individual, owing to a constitutional defect, was incapable of handling adequately. The clinical picture of dementia præcox was much more complicated and often presented apparently a disconnected array of manifestations. When it was possible to analyze these, however, it was found that all the experiences meant something to the patient; that certain Freud mechanisms were at work, and that these apparently disconnected symptoms were connected and related to definite trends. The frequency with which sexual conflicts were found in the history of such patients and the fact that so often sexual trends made up the content of the psychosis pointed to a lack of sexual adaptation. Our memories were grouped as it were in more or less extensive and more or less circumscribed complexes or centers of attraction, in the formation and cohesion of which special interests took an important part. We could conceive of the mind therefore as made up essentially of trends of interest. In the course of individual development certain main tendencies of the personality developed which then took the lead, while other tendencies became repressed. These repressed trends exerted nevertheless a marked influence on the conscious thought and activity, as Fred had shown, but in normal life they did so mainly through the fact that the energy they supplied was led into profitable channels. Every trend naturally pushed towards a realization in the direction of its feelings. If this was in harmony with the main tendencies of the personality this was useful and represented the dynamic force behind our thinking and our pursuits, adapted to the environment and the given situation. If, however, trends which were not in harmony with the main tendencies of the personality and which were, therefore, under the influence of repression, no longer found an outlet in profitable channels, but assumed a more or less independent dominating role, it was not to be supposed that the laws which governed nor-

mal mental activity should be suspended; on the contrary, we should expect to find the same principle of the trend pushing towards its realization, while at the same time the other tendencies of the personality asserted themselves in repressing influences as well as in adjustment reactions, but owing to the disturbance of balance between the usurping trend and the main tendencies of the personality the thinking and acting was then no longer adapted to the actual situation, but appeared as something strikingly out of contact with it, and was of a simpler, more crude type. This in so far as the mental side was concerned was what seemed to take place in the cases of dementia præcox which could be analyzed: the overgrowth of certain trends at the expense of the main, adapted interests of the personality.

The Margin of Error in the Diagnosis of Mental Disease: Based on a Clinical and Anatomical Review of 250 Cases Examined at the Danvers State Hospital, Massachusetts, 1904-8.—Dr. E. E. Southard of Boston read this paper, saying that a series of 250 cases of mental disease, with intra vitam diagnoses by several physicians, recorded at the Danvers State hospital daily clinics, 1904-8, had been subjected to anatomical review for the sake of learning where lay the greatest difficulties in diagnosis. Ten cases (4 per cent.) remained both clinically and anatomically obscure. Seven cases (2.8 per cent.) had diagnostic doubts settled after the clinic, either intra vitam or post mortem (one case each of general paresis, cortical arteriosclerosis, cerebral sclerosis with Graves' disease, streptococcus septicemia, epilepsy, streptococcus meningitis, cerebellar abscess). Sixty-six cases (25 per cent.) had been doubtful clinically, but then correct diagnosis had been obtained by one or more diagnosticians in 49 of the 66 (74 per cent.) of the doubtful group. One hundred and eighty-four cases (74 per cent.) were clinically certain, and the clinical diagnoses had been confirmed (or not altered) by autopsy in 163 of the 184 (89 per cent. of the unanimous group). The correct diagnosis had been obtained by one or more diagnosticians in 49 plus 163 = 212 cases in 250 (85 per cent.). The "correctness" of these diagnoses is subject to some reservation, (1) since within the "organic and senile dementia group" differentiation proved difficult, and (2) since anatomical "consistency" often signifies absence of characteristic lesions. The acute psychoses have been reviewed, however, bearing in mind modern views. Several alcoholic cases failed to exhibit striking brain lesions. The majority of the real diagnostic difficulties uncovered by this analysis would appear to require more intensive work in the field of clinical pathology. For such work in psychopathic hospitals, this paper was an appeal.

Dr. Cotton of Trenton said that the question of error was one that was very important and error in diagnosis was one that could not always be averted; however, at Trenton they found that by presenting the cases twice at staff meetings the errors had been reduced very much. At Trenton they took up the cases that come to autopsy, corelated them with the clinical diagnosis, and gave the results for the benefit of the staff. This acted as a stimulus to each man and showed errors, both in physical diagnosis and mental diagnosis. The therapeutics could be improved by having a more correct diagnosis. He knew of nothing more serviceable to clear up diagnosis than lumbar puncture. If we took it up in organic and functional cases that were at all suspicious, the negative findings in everything except general paralysis made it a very important factor in arriving at correct diagnosis.

On the Differentiation of Dementia Præcox and Depressed States by So-called Biological Blood Tests.—Dr. Ellen Corson White and Dr. S. D. W. Ludlum presented this paper, saying that while the Wassermann reaction was of greatest value in differentiating syphilis and non-syphilitic diseases of the nervous system, it did not permit of further differentiation in so-called functional nervous diseases. Recently Much had published a method by which he believed he could differentiate dementia præcox and manic depressive disease from other diseases. The method was based on the inhibiting action of blood serum in cobra hemolysis. His results had not been confirmed by others. The authors briefly stated that they seemed to have been able to differentiate between dementia præcox on the one hand and melancholia on the other. Their method was based on the determination of the fixation of complement of guinea pig serum by the serum of the patient. They found in melancholia that the amount of complement absorbed was very much larger than in all other diseases that they had studied, and also much larger than dementia præcox, in which disease it was approximately normal. They had tested 67 cases of various mental diseases. Thirty-seven melancholics of manic depressive type and involutional forms had so far been decisive and characteristic in all cases examined. They had also found that by carefully standardizing the factors in Much's test it gave a positive test only in dementia præcox. When the standardization was not done, a positive result was often obtained. The syphilitic cases could be separated by the Wassermann reaction and progress in biological tests was making it possible to discover chemical changes in so-called functional diseases.

The Clinical Significance of the Urine in "Nervousness."—Dr. Edward B. Angell of Rochester read this paper, stating that he had noted for a number of years in examination of urine of patients afflicted with "nervousness" that in making the Heller nitric acid ring test there was formed at the junction of the urine and acid a pigment ring which varied in color from bright red to dark brown. Of the chemical nature of this ring he was unable to give any account, but believed he was safe in saying that it probably consisted of some of the organic nitrogen compounds. It was a reaction entirely different from that given by indican or bile, although these substances might be associated. A similar reaction occurred in cases of exophthalmic goiter and in those taking iodide of potash. That it was associated with excessive nitrogen elimination was shown by the fact that it was almost never present on a non-proteid diet. The patients who showed this reaction were those who complained of headache, backache, restlessness, sleeplessness, numbness, and a general depressed feeling, associated with other symptoms generally classed as nervous. If such cases were put on a diet low in nitrogen, led an open-air life, and were given salicylates and alkalies to aid elimination they would be relieved of their symptoms, and at the same time this reaction of the urine would disappear. From two weeks to two months were required for a cure. In obstinate cases a year might be required.

Dr. Edward D. Fisher of New York City said that it seems to him that Dr. Angell had given us a rather easy clinical method of diagnosis. If we could find this ring, as he evidently had found it so frequently, a thing that could be done very readily in our offices, it would aid us at least in determining whether our cases were organic or functional. He would like to endorse very emphatically the point that Dr. Angell brought out, that there was very frequently a physical cause for many mental symptoms. The treatment as he had outlined it was one which he had long carried out in cases of neurasthenia. Now that we had a positive diagnosis of the metabolic changes which were going on we would be encouraged to be more systematic in our medical treatment of these cases.

Radiculitis of Cervical and Brachial Plexuses, Secondary to Pachymeningitis Externa Cervicalis Gummatosa.—Dr. F. W. Langdon of Cincinnati read this paper, stating that the patient in the case he reported was a white man of 33, married, with healthy children. Occupation superintending outdoor work, grading, etc.; had gradually de-

veloped a paralysis of tetraplegic distribution, beginning in the left forearm and hand and extending in the course of fourteen months so as to render useless all four extremities. The upper extremities were flaccid, the lower spastic, with plus knee jerks and Babinski sign. The paralysis was preceded by sharp pains in left neck and face, neck movements were almost abolished—not by paralysis of muscles, but by articular obstruction. Numbness and tingling were extensively distributed over both arms and legs. A smooth, firm, not bony, boss could be felt in the left side of the neck, between the third and fourth cervical vertebræ. The patient was unable to walk without constant danger of falling, and was unable to grasp a pencil with either hand. Vision was good, pupillary changes slight; ocular movements free, with slight nystagmoid jerking on extreme lateral excursion. Some dysphagia at times. No voice or tongue changes. Sensory changes slight, excepting the initial pain in the left neck and face, which was not prominent after the first month. There was a hand-size area of tactile anesthesia over the left thorax and one twice as large over the right abdomen, where temperature sense was disturbed or confused. Diagnosis was made of an exudate (gumma) situated between cervical dura and periosteum enclosing the nerve roots and compressing the lateral columns of cord; a radiculitis and compression myelitis, secondary to pachymeningitis externa. Under mercury by inunction and supporting measures steady improvement occurred and patient was discharged at his own request in 5½ months, having gained 25 pounds in flesh, and the use of all extremities. Three months after discharge from the hospital he resumed his regular occupation. At the present time, about a year after the events just recorded, the patient is perfectly well and able-bodied, can use pick and shovel well whenever necessary, and attends to his full duties in every respect.

Further Observations on the Ocular Changes in General Paresis and Tabes Dorsalis.—Dr. Edward D. Fisher of New York read this paper, stating that the examination of fifty cases of general paresis, both of the tabic and cerebral type, confirmed a statement made in a paper read before the American Medical Association in 1909, that optic atrophy and ocular muscle paralysis were comparatively rare in general paresis as compared to their frequency in tabes, nor again were the muscular paralyses permanent as a rule. Clinically this would seem to mark out the two diseases as distinct. In the fifty cases only two had optic atrophy and none any third-nerve lesion outside of the Argyll-Robertson pupil. In the cerebral type of general paralysis, that is, those cases with exaggerated reflexes, the Argyll-Robertson pupil was often absent in the early stages. Among over 200 cases of general paralysis only one presented a history of tabes extending over a number of years preceding the appearance of mental symptoms together with the lightning pains, crises, and ataxia.

Lenticular Zone and Anarthria.—Dr. Alfred Gordon of Philadelphia read this paper, saying that the anatomico-clinical case which he reported showed that Marie's contention in regard to aphasia could be entirely confirmed by the pathological findings. The destruction of the lenticulocaudate nuclei had been complete, and yet the patient did not present the least indication of anarthria or dysarthria. The speech was clear and distinct. The patient did, however, present a partial word-blindness and partial verbal amnesia—all symptoms of sensory aphasia. The few symptoms of the latter corresponded to Marie's ideas. The conclusion to which his observation led was that, while the so-called lenticular zone of Marie might play a certain rôle in sensory aphasia, its rôle was not considerable. As to its being a center for anarthria, the present case proved that its destruction did not interfere with phonation and articulation of words.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Missouri State Board of Health.

June 13, 14, and 15, 1910.

ANATOMY.

1. Describe superficial and deep palmar arch; how formed? Give landmarks.
2. Name all muscles that elevate the arm at shoulder joint, giving origin and insertion of same.
3. Give minute and gross anatomy of kidneys.
4. Give minute and gross anatomy of pleura.
5. Give origin, ending, branches, and relationship of posterior tibial artery.
6. Describe the tibia, giving points of ossification. With what bones does it articulate?
7. Draw cross section amputation of forearm, middle third, naming structures divided.
8. Give origin, course, exit, and parts supplied by the second pair of cranial nerves.
9. Describe anterior triangle of neck, how formed, giving contents.
10. Describe the spinal column, giving characteristics of vertebra in each division.

PHYSIOLOGY.

1. State the general character and physiological action of the hydrocarbon and albuminoid substances.
2. Give mode of secretion and composition of the gastric juice.
3. Give physiological action of the saliva.
4. Describe the blood and give the composition of the red and white globules.
5. Explain the cause of coagulation of the blood and its usefulness.
6. Give the composition of the urine and state which constituent is the most important.
7. State the most important function of the medulla oblongata as a nervous center, with full explanation of same.
8. Name and give function of first pair of cranial nerves.
9. Give origin and function of fifth pair of cranial nerves.
10. State the general arrangement and function of the sympathetic nervous system.

CHEMISTRY.

1. Describe and state the physical and chemical properties of oxygen.
2. Give the chemical formula for potassium iodide, and state how it is made.
3. Name the four elements known as Halogens, and describe each.
4. Give chemical formula for phenic acid. From what derived? For what purpose used in medicine? Give treatment for toxic dose.
5. Give chemical formula for sulphuric acid. How obtained? Give toxic dose. For what purpose used in medicine?

BACTERIOLOGY.

1. Describe the process of producing diphtheria antitoxin.
2. Give theory of immunity produced by vaccination.
3. What diseases confer immunity by vaccination or innoculation?
4. Give the technique for staining for the pneumococcus.
5. Describe in detail process of finding tubercle bacilli in a specimen of urine.

PATHOLOGY.

1. What is aortic stenosis? Give pathology.
2. What is the pathological condition found in chronic Bright's disease?
3. Give the pathology in specific iritis.
4. What pathological conditions are found in acute catarrhal dysentery?
5. Give pathology of chronic gastritis.

THERAPEUTICS.

1. Name the officinal preparations of opium. Give dose and therapeutic uses.
2. Give the physiologic action and therapeutic uses of colchicum.
3. Give the dose and therapeutic indications for bryonia.
4. Name the officinal preparations and give therapeutic uses of calcium phosphate.

5. Give the dose and therapeutic uses of veratrum.
6. Give the dose, physiologic action, and therapeutic uses of ipecac.
7. Name the officinal preparations, give the dose and therapeutic uses of nux vomica.
8. Give the dose and therapeutic indications for tartar emetic.
9. Give the dose and therapeutic indications for aconite.
10. Name the officinal preparations of cinchona. Give dose and therapeutic uses.

PRACTICE.

1. Give etiology, exciting cause, and treatment of variola.
2. What are the methods of physical diagnosis, and what phenomena are obtained by these methods?
3. Give etiology, symptoms, and treatment of lobar pneumonia.
4. What are the physical signs of incipient pulmonary tuberculosis? What is the treatment?
5. What is the etiology and treatment of typhoid fever?
6. Give the symptoms and treatment of acute bronchitis.
7. What are the symptoms of acute Bright's disease, and how should it be treated?
8. What is a cataract, and how would you treat it?
9. How would you diagnose a case of non-suppurative otitis media? What is the treatment?
10. What are the conditions found in psoriasis? What is the proper treatment for same?

OBSTETRICS.

1. Describe pregnancy from ovulation to maturity of fetus, giving mechanism of delivery in an L. O. A. presentation.
2. Describe placenta prævia, giving varieties, causes, diagnosis, and treatment.
3. Differentiate hand from foot, knee from elbow, shoulder from vertex. Give management of shoulder presentation.
4. Define eclampsia, giving etiology, prognosis, and treatment.
5. When should chloroform be used in labor? Ditto ergot? Give advantages and dangers of each.
6. When should forceps be used? Give manner of applying the same, with mechanism of delivery after application, selecting your own presentation.
7. Differentiate false from true labor pains. Give stages of labor and what occurs during each stage.
8. Describe asphyxia of new born, giving varieties and treatment.
9. Give your method of caring for the new born from birth until it is dressed.
10. Give signs of pregnancy at third and sixth months.

GYNECOLOGY.

1. Define vulvitis. Give varieties, causes, and treatment.
2. Define vaginitis, giving varieties, causes, and treatment.
3. Define menstruation. Name disorders of same, giving usual causes and treatment of each.
4. Define metritis. Give varieties, causes, and treatment of each.
5. Give differential diagnosis in inversion, polypi, prolapsus uteri, and method of treating each.

SURGERY.

1. Give differential diagnosis between brain abscess and brain tumor.
2. Describe an operation for cure of femoral hernia.
3. Give symptoms and treatment of acute osteomyelitis.
4. Give diagnosis between gastric cancer and ulcer.
5. What is the treatment of gunshot wound of the knee from a revolver wound?
6. Give the signs and symptoms of tuberculosis of the kidney.
7. Differentiate between an old dislocation and tuberculosis of hip joint.
8. What is the best treatment for a fracture about the elbow joint? Why?
9. Give signs and symptoms of intussusception.
10. What operation do you consider profitable for removal of prostrate gland? Give reasons.

HYGIENE.

1. Give etiology and prophylaxis of ophthalmia neonatorum.
2. Discuss etiology, prophylaxis and hygienic care of cholera infantum.
3. Name three infections transmitted through air; through water; through food; through insects. Give prophylaxis.
4. Give period of incubation, length of quarantine and hygienic care of the following diseases: Smallpox, scarlatina, diphtheria, measles.
5. Discuss vaccination and antitoxine, giving brief history of each, and value of same.

MEDICAL JURISPRUDENCE.

1. What evidence would you look for to distinguish cerebral concussion from intoxication?
2. What evidences determine a recent from an old cerebral hemorrhage?
3. What is malpractice—civil, and criminal?
4. In case of drowning, how would you determine whether homicidal, suicidal, or accidental?
5. In case of hanging, what circumstantial evidence would you look for, to determine whether the act was homicidal, or suicidal?
6. Where a question arises as to personal identity, in what manner, or by what tests would you determine it?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

MISSOURI STATE BOARD OF HEALTH.

June 13, 14, and 15, 1910.

ANATOMY.

1. The *superficial palmar arch* is formed by the ulnar artery, and is completed by the ulnar artery anastomosing with a branch of the radial (superficial volar or princeps pollicis). It gives off the four digital branches. The surface marking is a line drawn transversely across the palm from a point where the web of the thumb joins the palm. The *deep palmar arch* is formed by the radial artery, and is completed by the radial artery anastomosing with a deep branch of the ulnar. Its branches are the palmar interosseous, perforating, and palmar recurrent arteries. The surface marking is a line drawn transversely across the palm, one-half inch nearer the wrist than the superficial arch.

2. Muscles that elevate the arm at the shoulder are: Deltoid and supraspinatus.

DELTOID. *Origin:* From the outer third of anterior border and upper surface of the clavicle, from the outer margin and upper surface of the acromion process, and from the lower edge of the spine of the scapula. *Insertion:* Into the deltoid impression on the middle of the outer side of the shaft of the humerus.

SUPRASPINATUS. *Origin:* From the supraspinatus fossa and fascia. *Insertion:* Into the great tuberosity of the humerus.

3. See Cunningham's "Anatomy" (1909), pages 1130 and 1138; or Gray's "Anatomy" (1908), pages 1419, 1423, and 1426.

4. See Cunningham's "Anatomy" (1909), page 977; or Gray's "Anatomy" (1908), pages 1391 and 1395.

5. The *posterior tibial artery* is the continuation downward of the popliteal artery. It begins at the lower border of the popliteus muscle; it ends midway between the internal malleolus and the tuberosity of the os calcis, where it divides into the external and internal plantar arteries. Its *branches* are: Peroneal, nutrient, muscular, cutaneous, communicating, internal calcanean, and malleolar cutaneous. *Relationships. In front:* Tibialis posticus, flexor longus digitorum, tibia, and ankle joint. *Behind:* Skin, fascia, gastrocnemius, soleus, posterior tibial nerve, and abductor hallucis. *On inner side:* Posterior tibial nerve, at upper part. *On outer side:* Posterior tibial nerve, at lower part.

6. See Cunningham's "Anatomy" (1909), pages 230 and 234; or Gray's "Anatomy" (1908), pages 234 and 238.

7. In amputation of forearm at middle third there will be severed: Skin, fascia, supinator longus, extensor carpi radialis longior and brevior, extensor communis digitorum, extensor carpi ulnaris, supinator brevis, anconeus, pronator radii teres, flexor carpi radialis, palmaris longus, flexor sublimis digitorum, flexor carpi ulnaris, flexor profundus digitorum; arteries; anterior interosseus, radial, ulnar; veins; radial, interosseous, ulnar, median; nerves: posterior interosseous, radial, median, ulnar; bones: radius, ulna.

8. See Cunningham's "Anatomy" (1909), page 675; or Gray's "Anatomy" (1908), page 1038.

9. The ANTERIOR TRIANGLE OF THE NECK is *bounded:* In *front* by a line from the chin to the sternum; *behind* by the anterior margin of the sternomastoid; *base* is upward, and is formed by the lower border of the body of the

lower jaw and a line from the angle of the jaw to the mastoid process. It is *divided* into three smaller triangles (inferior carotid, superior carotid, and submaxillary) by the digastric muscle and the anterior belly of the omohyoid. *Contents:* Thyroid gland, trachea, larynx, parotid and submaxillary glands. Arteries: Inferior thyroid, common carotid, internal carotid, external carotid, superior thyroid, lingual, facial, ascending pharyngeal, occipital, submental, and mylohyoid. *Veins:* Inferior thyroid, internal jugular, lingual, facial superior thyroid, pharyngeal, external jugular, and anterior jugular. *Nerves:* Pneumogastric, recurrent laryngeal, descendens noni, communicans noni, superior laryngeal, external laryngeal, spinal accessory hypoglossal, glossopharyngeal, mylohyoid, and sympathetic. Also lymphatic glands and vessels.

10. See Cunningham's "Anatomy" (1909), pages 75, 78, 81, 83, and 88; or Gray's "Anatomy" (1908), pages 48, 49, 53, 56, and 67.

PHYSIOLOGY.

1. *Hydrocarbons* consist of carbon and hydrogen only; as a rule they are not used as food, and have no particular physiological action. The term was often used loosely to denote fats (containing carbon, hydrogen, and oxygen) whose function is to supply heat and energy, and to serve in the nutrition of the nervous system. *Albuminoids* are a miscellaneous collection of proteins which are neither albumins nor proteids; they are generally insoluble in the neutral solvent of the proteins; they are found in connective tissues, cartilage, bone, skin.

2. *Secretion of Gastric Juice:* "The stomach has two secretions, one thick, tenacious, and alkaline—the gastric mucus; the other, thin, acid, and watery—the gastric juice proper. The former is secreted during fasting, while the latter is only secreted when food or fluid enters the stomach. Saliva or alkalies, pepper, alcohol excite the secretion of gastric juice. Their action is reflex; the vagus is probably the afferent nerve, which, acting on the medulla, inhibits the sympathetic and dilates the blood-vessels supplying the glands; the efferent impulses descending along the splanchnics."—(Ashby.)

The *constituents of gastric juice* are: Water, proteid, mucin, pepsin, rennin, hydrochloric acid, salts (sodium and potassium chlorides, and calcium and magnesium phosphates).

3. *The functions of the saliva* are: (1) To moisten the mouth, (2) to assist in the solution of the soluble portions of the food, and thus (3) to administer to the sense of taste, (4) to lubricate the bolus of food, and thus (5) to facilitate the acts of mastication and deglutition, and (6) to change starches into dextrin and sugar.

4. The *blood* is fluid, somewhat viscid, red, specific gravity from 1055 to 1062, alkaline reaction, saltish taste, characteristic odor, variable temperature (average about 100° F.). The *constituents* are plasma and corpuscles. The *plasma* consists of water and solids (proteids, extractives, and inorganic salts). The *red corpuscles* consist of water and solids (hemoglobin, proteins, fat, and inorganic salts). The *white corpuscles* consist of water and solids (protein, leuconuclein, lecithin, histon, etc.).

5. The coagulation of the blood is due to the development in it of fibrin. In the plasma a proteid substance exists, called fibrinogen. From the colorless corpuscles a nucleoproteid is shed out, called prothrombin. By the action of calcium salts prothrombin is converted into fibrin ferment, or thrombin. Thrombin acts on fibrinogen in such a way that two new substances are formed; one of these is unimportant and remains in solution; the other is important, viz., fibrin, which entangles the corpuscles, and so forms the clot. Its usefulness is seen in the checking of hemorrhage.

6. *Composition of urine:* Water, urea, uric acid, hippuric acid, xanthin, hypoxanthin, creatin, creatinin, extractives: chlorides, sulphates and phosphates (of sodium and potassium); phosphates of magnesium and calcium; nitrogen, and carbon dioxide. Urea is the most important constituent.

7. The medulla is the seat of several special centers, the most important of which is probably the respiratory center. "The respiratory center is in reality made up of two centers, one for each side, so that, although anatomically connected and ordinarily acting together, yet if one center is broken up, while the respiratory movements on that side cease, those on the other side continue. Besides this double character of the center, each half is made up of an *inspiratory* and an *expiratory* center. The respiratory center is both an *automatic* and a *reflex* center—*i. e.*, it sends out *spontaneously* impulses which result in movements of the respiratory muscles, constituting its *automatism;* and it may also be excited *reflexly*—*i. e.*, by impulses reaching it from without. Its reflex character is most marked, and it is doubtless as a reflex center that its function is ordinarily performed."—(*Raymond.*)

8. Olfactory nerves; function is special sense of smell.

9. TRIFACIAL NERVE. *Origin:*—(1) *Superficial,* from the side of the pons varolii; (2) *Deep* (sensory root), from the medulla, and upper part of cord; (motor root) from floor of fourth ventricle, and side of the aqueduct of Sylvius.

Functions: First ophthalmic branch supplies sensation to conjunctiva and skin of upper eyelid, cornea, skin of forehead and nose, lachrymal glands, mucous membrane of nose. *Second, or superior maxillary branch,* supplies sensation to skin and conjunctiva of lower lid, nose, cheek, upper lip, upper teeth and alveolar processes, and palate. *Third, or inferior maxillary branch,* supplies sensation to external auditory meatus, side of head, mucous membrane of mouth, anterior two-thirds of tongue, lower teeth, lower lip, and skin of the lower part of the face. This branch, in addition, supplies motion to the muscles of mastication (masseter, temporal, external pterygoid, internal pterygoid), also mylohyoid and anterior belly of digastric.

10. *"The sympathetic nervous system consists of* (1) a series of ganglia connected together by a great ganglionic cord, the gangliated cord, extending from the base of the skull to the coccyx, one gangliated cord on each side of the middle line of the body, partly in front and partly on each side of the vertebral column; (2) of three great gangliated plexuses or aggregations of nerves and ganglia, situated in front of the spine in the thoracic, abdominal, and pelvic cavities respectively; (3) of smaller or terminal ganglia, situated in relation with the abdominal viscera; and (4) of numerous fibers."

Function: It has a controlling influence over the secretion of most of the glands, the lacrymal, the salivary, the sweat glands, the glands of the stomach and intestines, the liver, the kidney, etc.; it presides over the circulation by regulating the caliber of the blood-vessels and the action of the heart; it influences respiration; and, all involuntary muscles, those of the digestive apparatus, of the genitourinary system, of the hair follicles (pilomotor nerves), are under its control to a great extent.

CHEMISTRY

1. Oxygen is the most abundant of the elements; it occurs free in the air, and in combination in very many substances. It is a colorless, odorless, tasteless gas, slightly soluble in water, heavier than air, combines readily with all other elements except fluorine, supports combustion and respiration, and is necessary to animal life. It has a valence of two, atomic weight of 16, and molecular weight of 32.

2. POTASSIUM IODIDE. *Formula,* KI. *Preparation:* Saturate an aqueous solution of potassium hydroxide with iodine:

$$6KHO + 3I_2 = KIO_3 + 3H_2O + 5KI$$

3. *The four halogens* are: Fluorine, chlorine, bromine, and iodine. *Fluorine* is a very irritant, corrosive gas; it decomposes water, forming ozone and hydrofluoric acid; it attacks organic substances with vigor; it forms compounds with all other elements except oxygen. Valence, one; atomic weight, 19. *Chlorine* is a greenish yellow gas, occurring only in combination. It has a penetrating odor, and is very irritating. It has a tendency to combine with other elements, sometimes with evolution of light and heat. In the presence of water it is an active bleaching and disinfecting agent. Valence, one; atomic weight, 35.5. *Bromine* is a dark, reddish-brown liquid, giving off an irritating vapor. It is only found in combination. It is somewhat similar to chlorine, but less active. Valence, one; atomic weight, 80. *Iodine* is found in combination; is a solid, volatile, its vapor has a violet color and peculiar odor; it is scaly, with metallic luster. It is somewhat similar to chlorine and bromine, but is less active. Valence, one; atomic weight, 127.

4. PHENIC ACID. *Formula:* C_6H_5OH. *Derived from* coal tar. *Used* as an antiseptic, disinfectant; as an application to burns, lupus; as an injection for leucorrhea and gonorrhea in the female; as an antipruritic. *Treatment for toxic dose: Externally,* alcohol; *internally,* sodium sulphate.

5. SULPHURIC ACID. *Formula:* H_2SO_4. *Obtained* by combustion of sulphur, and oxidation and hydration of the resulting sulphur dioxide, by vapor of nitric acid and water. *Toxic dose:* "One dram is the smallest dose reported fatal to an adult. One-half that quantity has caused the death of a child one year old. There is no doubt, however, that as small a quantity as two or three drops of the concentrated acid would prove permanently injurious, while it might not prove fatal. Recovery has taken place after four

ounces when appropriate treatment has been given."—(Riley's *Toxicology.*)

Use in medicine: As a caustic for venereal sores and warts; internally, in serous diarrhea, cholera, acute lead poisoning, and for the night-sweats of phthisis.

BACTERIOLOGY.

1. "Diphtheria antitoxin is obtained from the horse, the animal having been rendered artificially immune by repeated injections extending over a period of several months of gradually increasing quantities of the strongest diphtheria toxin. As the bacilli themselves are not injected, the horse does not become infected with diphtheria, but he gradually acquires a tolerance for the toxins of the disease and develops in his blood a substance (antitoxin) which has the power to neutralize those toxins. At the proper time, when it is thought that his blood has acquired the requisite degree of potency, the animal is bled, and the serum—the part of the blood containing the antitoxin—is carefully separated from the clot, filtered, and standardized. The last procedure is accomplished by determining the quantity of antitoxin serum required to offset the effects of the minimum quantity of toxin necessary to kill a guinea-pig in a definite time. The strength of the antitoxin is measured in units, a unit containing the amount of antitoxin required to save the life of a guinea-pig which has been injected with 100 fatal doses of toxin."—(Stevens' *Materia Medica.*)

2. The introduction into the body of the vaccine is supposed to bring about a reaction, which is evidenced by a marked increase in the bactericidal and agglutinative properties of the blood serum against the particular organism.

3. Smallpox, diphtheria, tuberculosis, bubonic plague, hydrophobia, cholera, typhoid; and it has also been tried in some other diseases.

4. *To stain the pneumococcus:* Spread a cover glass with a smear containing the bacteria, dry it, then fix it in a flame. It can then be stained for from five to ten minutes in Ehrlich's solution; it is then to be washed in water and afterwards immersed in Gram's solution for two or three minutes. It is then washed in 95 per cent. alcohol. While in the Gram's solution the specimen is very dark brown, but it becomes violet or blue again on application of the alcohol.

5. *To find tubercle bacilli in the urine:* The urine should be drawn by a catheter, with the utmost regard to cleanliness and asepsis (so as to exclude the smegma bacillus). The urine thus obtained must be centrifuged for a long time. Some of the sediment is placed on a slide with a small quantity of egg albumin; it is covered with some carbolfuchsin, and allowed to steam over a small flame for about two minutes, care being taken that it does not boil. Wash it thoroughly in water and then decolorize by immersing it in a solution of any dilute mineral acid for about a minute. Then make a contrast stain with solution of Loeffler's methylene blue for about a minute; wash it again and examine with oil immersion lens. The tubercle bacilli will appear as thin, red rods, while all other bacteria will appear blue.

PATHOLOGY.

1. See French's "Practice of Medicine" (1907), page 588; or Osler's "Practice of Medicine" (1909), page 802.

2. See French's "Practice of Medicine" (1907), pages 898 and 902; or Osler's "Practice of Medicine" (1909), pages 692 and 695.

3. "The iris is congested, swollen, and infiltrated with round cells. There is an exudate of round cells, fibrin, and pigment cells, which fills the anterior chamber and glues the edge of the pupil and back of the iris to the anterior capsule of the lens."—(Alling and Griffin's *Epitome of the Eye and Ear.*)

4. See French's "Practice of Medicine" (1907), page 254; or Osler's "Practice of Medicine" (1909), page 244.

5. See French's "Practice of Medicine" (1907), page 735; or Osler's "Practice of Medicine" (1909), page 466.

THERAPEUTICS.

1. Opium. *Official preparations, with doses:* Powdered opium, gr. j; extract of opium, gr. ss; powder of ipecac and opium, gr. vijss; vinegar of opium, ♏viij; camphorated tincture of opium, 3ij; deodorated tincture of opium, ♏viij; granulated opium, gr. jss; wine of opium, ♏viij; morphine, gr. 1/5; morphine sulphate, acetate, and hydrochloride, each gr. ¼; codeine, gr. ½; codeine sulphate and phosphate, each, gr. ½; apomorphine hydrochloride, gr. 1/10. *Therapeutic uses:* As an anodyne, in diarrhea, peritonitis, for internal hemorrhages, in mania and delirium tremens, in many respiratory affections, in diabetes, and to prevent or lessen shock.

2. Colchicum. *Physiological action:* It is a diuretic, causes irritation of the gastrointestinal tract, salivation, collapse, and increases the output of uric acid. *Therapeutic uses:* Chiefly used in gout; also in headache, dyspepsia, or neuralgia in gouty people.

3. Bryonia. *Dose,* gr. x to lx. It is *used* as a hydragogue cathartic, in cases of dropsy or other serous effusions.

4. Precipitated calcium phosphate, gr. xv; syrup of calcium lactophosphate, 3ij. It is *used* in diseased conditions of the bones, rickets, mollities ossium, scrofula, anemic conditions, tuberculosis.

5. Veratrum. *Dose,* gr. ij. *Uses:* As a circulatory depressant in pneumonia, in puerperal convulsions, tonsillitis, puerperal inflammations in general, mania, and as a rule very much as aconite.

6. Ipecac. *Dose,* gr. j as an expectorant; gr. xv as an emetic. *Action:* Hemostatic, expectorant, emetic, stomachic, cholagogue, and diaphoretic. *Uses:* As an emetic, to clear the respiratory passages, to relieve the stomach, in bronchitis, emphysema, dysentery and jaundice, and as a diaphoretic in rheumatism.

7. Nux vomica. *Official preparations:* Extract, gr. ¼; fluid extract, ♏j; and tincture of nux vomica, ♏x. Strychnine (with its sulphate and nitrate), each gr. 1/64. *Uses:* As a general tonic or bitter; in indigestion, cardiac depression, impaired peristalsis, pneumonia, phthisis, amenorrhea, dysmenorrhea, impotence, and urinary incontinence.

8. Tartar emetic. *Dose,* gr. 1/10 as an expectorant, and gr. ½ as an emetic. *Indications:* In inflammatory affections of the respiratory tract, when the secretion of mucus is not free; in pneumonia, bronchopneumonia, colds, bronchitis, laryngitis, and tonsillitis.

9. Aconite. *Dose:* Fluid extract, ♏j; tincture, ♏x. *Medicinal uses:* For fevers, some inflammatory conditions, in high arterial tension, in nervous palpitation of the heart, and congestive dysmenorrhea; also externally for neuralgia, pruritus, herpes, chilblains, etc.

10. Cinchona. *Official preparations:* Fluid extract, ♏xv; tincture, 5j; compound tincture of cinchona, 5j. Quinine (with its sulphate, bisulphate, hydrobromide, hydrochloride, and salicylate), each gr. iv; cinchonine sulphate, gr. iv; cinchonidine sulphate, gr. iv. *Uses:* In malaria; as a tonic; in influenza, in dyspepsia, in asthma; as an antipyretic; and locally, for sores in diphtheria, and in hay fever.

PRACTICE.

1. See French's "Practice of Medicine" (1907), page 208; or Osler's "Practice of Medicine" (1909), page 112.

2. Methods of physical diagnosis are: Inspection, palpation, percussion, auscultation, mensuration, and weighing. *Inspection* shows the shape, size, symmetry, movements, and color of the chest. *Palpation* confirms and adds to what is learnt by inspection, shows areas of tenderness, condition of chest walls, presence of tumors, action of heart, and the existence and character of fremitus. *Percussion* shows the composition of structures or tissues, the resistance or elasticity or certain organs, and resonance of lungs. *Auscultation* enables one to study the condition of the heart and lungs.

3. See French's "Practice of Medicine" (1907), pages 151, 156, and 174; or Osler's "Practice of Medicine" (1909), pages 165, 172, and 189.

4. The early manifestations of pulmonary tuberculosis are: (1) *Physical signs:* Deficient chest expansion, the phthisical chest, slight dullness or impaired resonance over one apex, fine moist râles at end of inspiration, expiration prolonged or high pitched, breathing interrupted. (2) *Symptoms:* General weakness, lassitude, dyspnea on exertion, pallor, anorexia, loss of weight, slight fever, and night sweats, hemoptysis.

For *treatment,* see French's "Practice of Medicine" (1907), page 392; or Osler's "Practice of Medicine" (1909), page 352.

5. See French's "Practice of Medicine" (1907), pages 65 and 109; or Osler's "Practice of Medicine" (1909), pages 57 and 99.

6. See French's "Practice of Medicine" (1907), pages 649 and 650; or Osler's "Practice of Medicine" (1909), pages 602 and 603.

7. See French's "Practice of Medicine" (1907), pages 893 and 895; or Osler's "Practice of Medicine" (1909), pages 688 and 690.

8. A *cataract* is an opacity of the crystalline lens or its capsule. *Treatment:* Extraction of the lens by operation is the only means of relieving a patient of senile cataract; discission is applicable only to cataracts of the young. No medicinal treatment, whether local or constitutional, is of curative value.

9. See Rose and Carless' "Surgery" (1908), page 882.

10. *Psoriasis* "is a common chronic inflammatory disease of the skin, characterized by variously sized lesions, having red bases, covered with white scales resembling mother-of-pearl. It affects by preference the extensor surface of the body. The lesions are infiltrated, elevated, clearly defined, covered with white, shining, easily detachable scales which, upon removal, reveal a red, punctuate, bleeding surface. The eruption is absolutely dry, and itching is usually absent. *Treatment* consists in the internal administration of arsenic, codliver oil, oil of copaiba, or potassium iodid, and the use of local applications. The scales should be removed by soap and water, alkaline baths, or oily substances. Ointments containing salicylic acid (3 per cent. to 10 per cent.), tar (5i to 5i of ointment), ichthyol (5i to 5ii), chrysarobin (gr. 10-60 to 5i), ammoniated mercury (gr. 10-40 to 5i), etc., are very beneficial, and should be used after the scales have been removed."—(Gould and Pyle's *Pocket Cyclopedia.*)

OBSTETRICS.

1. See Williams' "Obstetrics" (1909), pages 94, 97, 144, and 254; or Hirst's "Obstetrics" (1900), pages 78, 83, and 396.

2. See Williams' "Obstetrics" (1909), page 809; or Hirst's "Obstetrics" (1909), page 572.

3. The *hand* is in a straight line with the forearm, the thumb is at right angles to the other fingers, and may be bent across the palm. The *foot* is at right angles to the leg, the great toe cannot be altered in its relation to the other toes, the malleoli and os calcis may be felt.

The *knee* has two tuberosities with an intervening depression; the patella may also be felt. The *elbow* has three prominences (the olecranon process of the ulna and the two condyles of the humerus).

In *shoulder* cases (as distinguished from *vertex*) the tumor is unsymmetrical in shape, and is longer transversely or obliquely; the head can be felt in one iliac fossa, and the breech higher up in the flank of the opposite side.

In cases of *shoulder presentation*, if seen before labor, version should be performed to correct the malpresentation; in case of impaction a cesarean section is indicated; sometimes decapitation or embryotomy has been performed, but a cesarean section is preferable. Cases of shoulder presentation have been known to terminate spontaneously, but it is not advisable to rely on this possibility.

4. *Puerperal eclampsia* is an acute morbid condition, occurring during pregnancy, labor, or the puerperal state, and is characterized by tonic and clonic convulsions, which affect first the voluntary and then the involuntary muscles; there is total loss of consciousness, which tends either to coma or to sleep, and the condition may terminate in recovery or death. The *causes* may be: Uremia, albuminuria, imperfect elimination of carbon dioxide by the lungs, medicinal poisons, septic infection; predisposing causes are renal disease and imperfect elimination by the skin, bowels, and kidneys. *Prognosis* is serious to mother and child. *Preventive treatment:* (1) The amount of nitrogenous food should be diminished to a minimum; (2) the production and absorption of poisonous materials in the intestines and body tissues should be limited and their elimination should be aided by improving the action of the bowels, the kidneys, the liver, the skin, and the lungs; (3) the source of the fetal metabolic products and the peripheral irritation in the uterus should, if necessary, be removed by evacuating that organ. *Curative treatment:* (1) Control the convulsions (by chloroform, veratrum, or chloral); (2) eliminate the poison or poisons which are presumed to cause the convulsions; (3) empty the uterus under deep anesthesia, by some method that is rapid and that will cause as little injury to the woman as possible.

5. See Williams' "Obstetrics" (1909), pages 321, 324, 661, and 822; or Hirst's "Obstetrics" (1909), pages 331 and 587.

6. See Williams' "Obstetrics" (1909), page 397; or Hirst's "Obstetrics" (1909), page 809.

7. *False labor pains* are slight, occur before labor, do not cause dilatation of the os, do not produce a "show."

True labor pains gradually increase in frequency and severity, occur during labor, cause the os to dilate, produce a "show."

Labor is divided into three stages: The *first stage* begins with the commencement of labor, and ends with the complete dilatation of the os uteri. The *second stage* begins with a complete dilatation of the os uteri, and ends with the birth of the child. The *third step* immediately follows the second, and ends with the expulsion of the placenta and the beginning contraction of the uterus.

8. See Williams' "Obstetrics" (1909) page 844; or Hirst's "Obstetrics" (1909), page 939.

9. See Williams' "Obstetrics" (1909), page 347; or Hirst's "Obstetrics" (1909), pages 344 and 373.

10. See Williams' "Obstetrics" (1909), page 190; or Hirst's "Obstetrics" (1909), page 204.

GYNECOLOGY.

1. See Rose and Carless' "Surgery" (1908), page 1277. *Varieties of vulvitis:* Catarrhal, follicular, venereal, diphtheritic, and phlegmonous.

2. See Rose and Carless' "Surgery" (1908), page 1277. *Varieties of vaginitis:* Acute, chronic, primary, secondary, catarrhal, membranous, diphtheritic, gonorrheal, granular, emphysematous, and senile.

3. *Menstruation* is a periodical disturbance in the female characterized by a bloody mucous discharge from the uterine cavity; it lasts during the period of woman's sexual activity, but is temporarily suspended during pregnancy and early lactation.

Disorders of menstruation include: (1) Premature or precocious menstruation; (2) protracted menstruation; (3) absence of menstruation (amenorrhea); (4) profuse menstruation (menorrhagia); (5) flow in between periods (metrorrhagia); (6) painful menstruation (dysmenorrhea); (7) vicarious menstruation; (8) regular intermenstrual pain.

AMENORRHEA is *physiological:* Before puberty, during pregnancy and early lactation, and after the menopause. It may also be due to: Absence or imperfect development of the generative organs; also to stenosis, obstructions, or atresia of the genital tract; also to operative removal of the uterus or its appendages. Other causative factors are: Acute infectious diseases, anemia, chlorosis, obesity, drug habits, alcoholism, overstudy, lack of exercise, exposure to cold, and various emotional causes. *Treatment* consists in: (1) Removing the cause, if possible; (2) general treatment by means of proper hygiene, rest, diet, bathing, attention to the bowels, exercise, etc.; (3) drugs reputed to be emmenagogues, such as iron, manganese, aloes, strychnine, apiol, oxalic acid, savine, rue, and tansy.

COMMON CAUSES OF MENORRHAGIA. *Constitutional:* Purpura, scorbutus, hemophilia, hepatic cirrhosis, over indulgence in food and alcoholic drinks. *Local and Vascular:* Uterine congestion and displacement, endometritis, subinvolution, fibroids, and other tumors. COMMON CAUSES OF METRORRHAGIA. *Constitutional:* None. *Local and Vascular:* Disease of uterus or appendages, polyps, extrauterine gestation, the hemorrhages in connection with pregnancy.

TREATMENT OF BOTH: Remove the cause, if possible; treat abnormal conditions that are present; vaginal douches, tampons, and curettage have been recommended; also ergot, hamamelis, hydrastis, and viburnum prunifolium; rest in bed is necessary. Intrauterine applications of astringents or of adrenalin have been used.

DYSMENORRHEA. *Causes:* Pelvic congestion, pelvic inflammation, malnutrition, overwork, lack of development, neuralgia, stenosis or obstruction of the cervix, prolapse or displacement of the uterus. *Treatment:* If possible, remove cause; attend to the general condition, hygiene, tonics, regular habits, etc.; curettage may be necessary, and may have to be repeated (perhaps more than once).

4. METRITIS is inflammation of the body or parenchyma of the uterus. *Varieties:* Acute, chronic, hemorrhagic, catarrhal, suppurative, granular, ulcerative (and also according to etiology). *Causes:* Wounds, injuries, operations, gonorrhea, septic infection, puerperal sepsis, cold during menstruation, intrauterine medication, and manipulations. *Treatment:* Remove the cause, if possible, prevention of sepsis, rest in bed, anodynes, hot vaginal douche, tampons with glycerin, iodin applications, suppository of opium and belladonna, dilatation, curettage, cauterization, irrigation, drainage, etc.

5. In the case of *polypus*, the body and fundus of the uterus are in their normal position in the abdomen, a sound can be passed into the uterus, the uterine and cervical canals are not obliterated, the polypus does not bleed easily, and is not particularly sensible to pain. The *inverted uterus* shows: Absence of body and fundus from normal position, will not permit passage of a sound into uterine cavity, the uterine and cervical canals are absent, the inverted uterus tends to bleed easily, and is very sensible to pain. In *prolapse* the largest part of the tumor is above; the opening of the Fallopian tubes cannot be seen; a sound can be passed into the uterine cavity.

1. SURGERY.

TUMOR OF BRAIN.	ABSCESS OF BRAIN.
1. No primary focus of infection but often history of syphilis or malignant disease of other organs.	1. Suppurating area in ear, nose, pharynx, scalp, or lung abscess.

TUMOR OF BRAIN.	ABSCESS OF BRAIN.
2. Very slow development.	2. More rapid.
3. More definite focal symptoms.	3. Focal symptoms often present, but not so definitely localized as in tumor.
4. No rigors or septic symptoms.	4. Often begins with chills, septic symptoms often continue.
5. Temperature normal or slightly and irregularly elevated.	5. Temperature subnormal, other times higher—pus temperature.
6. Pulse slow.	6. Not slow as a rule.
7. Constant headache.	7. Not a constant or prominent symptom.
8. Projectile vomiting frequently present.	8. Not often; vomiting, if present, more frequent and not projectile.
9. General symptoms of pressure progressive.	9. When present, they vary greatly in intensity.
10. Choked disc constant.	10. Not constant.

—(Eisendrath.)

2. See Rose and Carless' "Surgery" (1908), page 1088, or Da Costa's "Surgery" (1908), page 991.

3. See Rose and Carless' "Surgery" (1908), page 574; or Da Costa's "Surgery" (1908), page 442.

4. *Gastric ulcer* is generally caused by injury or bacteria, is most apt to occur between the ages of twenty and forty-five; after eating there is pain localized in the stomach, vomiting occurs soon after eating, hematemesis is common, there is localized tenderness over the stomach, and examination of the gastric contents show an excess of free HCl.

Gastric cancer does not usually occur before forty years of age, is more common in males, pain is localized and constant, vomiting is copious and occurs some time after eating; the vomitus contains "coffee ground" material; hemorrhages are common; a tumor may be palpated, and examination of the gastric contents shows absence of free HCl and presence of lactic acid; severe anemia and cachexia are also present.

5. See Rose and Carless' "Surgery" (1908), page 243; or Da Costa's "Surgery" (1908), pages 572 and 258

6. See Rose and Carless' "Surgery" (1908), page 1172; or Da Costa's "Surgery" (1908), page 1115.

7. *Tuberculosis of the hip* is characterized by: Mscular spasm, lameness, shortening, atrophy, and swelling. In *congenital dislocation* there is a history of limp since the child began to walk; the trochanter is above Nelaton's line; there is no muscular stiffness, and no limitation of motion at the hip joint.

8. See Rose and Carless' "Surgery" (1908), pages 507 and 513; or Da Costa's "Surgery" (1908), page 497.

9. See Rose and Carless' "Surgery" (1908), page 1121; or Da Costa's "Surgery" (1908), page 838.

10. See Rose and Carless' "Surgery" (1908), page 1220; or Da Costa's "Surgery" (1908), page 1190.

HYGIENE.

1. Ophthalmia neonatorum. *Etiology:* It is due to the gonococcus or some other pyogenic germ; and is produced by contact of the eye with the vaginal secretion of the mother during labor, or infected fingers, or instruments, etc.

Prophylaxis: Whenever there is the possibility of infection, or in every case, wash the eyelids of the new-born child with clean warm water, and drop on the cornea of each eye one drop of a 1 or 2 per cent. solution of nitrate of silver, immediately after birth.

2. See French's "Practice of Medicine" (1907), pages 782, 783, and 781; or Osler's "Practice of Medicine" (1909), pages 507, 508, and 509.

3. Three infections *through air:* Tuberculosis, influenza, measles; *through water:* typhoid, cholera, dysentery; *through food:* typhoid, tuberculosis, beriberi; *through insects:* Bubonic plague, malaria, yellow fever. For *trophylaxis* see French's "Practice of Medicine" (1909) or Osler's "Practice of Medicine" (1909), under name of the disease, in the index.

4. See French's "Practice of Medicine" (1907) or Osler's "Practice of Medicine" (1909), under name of the disease, in the index.

5. "The methods used *in the production of antitoxins* were introduced by Behring, who found that by injecting susceptible animals with increasing amounts of extracellular toxin he produced in the blood serum of the infected animal certain changes which made the serum capable of counteracting the same toxin when injected into other animals. . . . In practice, the bacilli are cultivated in bouillon. The cultures are freed from all living bacilli by filtration. The liquid filtrate contains the toxin. This filtrate is injected into healthy susceptible animals, in increasing doses. Usually the horse is used, since large quantities of blood can be drawn from this animal on account of its size, and, moreover, the horse is very susceptible. . . . Eventually enormous doses of toxin are given, and the animal acquires a high degree of immunity. The blood of the animal is withdrawn, taking care to avoid contamination, and the serum allowed to separate in the refrigerator. The serum of the blood is drawn off and constitutes the antitoxin."—(Williams' *Bacteriology.*)

And see above, Bacteriology, 1, 2, and 3; also French's "Practice of Medicine" (1907), article "Serum," in index.

MEDICAL JURISPRUDENCE.

1. In *cerebral concussion:* There is sudden onset; pulse is slow and weak; respirations are shallow, slight, and irregular; there is functional paralysis; and incontinence of urine and feces. In *intoxication* there is gradual onset; full pulse; respirations deep and slightly stertorous; twitching of muscles; no incontinence; the face is flushed, and the odor of alcohol may be on the breath. *Note:* The two conditions may be coincident.

2. A *recent cerebral hemorrhage* has a red color, the coagulum is not very firm. *Later* the color becomes brownish, the coagulum is firmer and more fibrous, and more adherent to brain and dura.

3. Malpractice is a failure on the part of a medical practitioner to use such skill, care, and judgment in the treatment of a patient as the law requires; and thereby the patient suffers damage. If due to negligence only, it is *civil* malpractice. But if done deliberately, or wrongfully, or if gross carelessness or neglect have been shown, or if some illegal operation (such as criminal abortion) be performed, it is *criminal malpractice.*

4. Drowning. *Homicide:* Rare, except in case of infants; there are probably marks of violence on the body, not due to post-mortem factors. *Suicide:* Very common, and when there were motives to suicide, or tendency to the same, suicide would be suspected; as a rule there would be no witnesses. *Accident:* Very common; often witnesses present; proximity of precipice or other dangerous place would suggest accident. It is often impossible to differentiate the three conditions.

5. Hanging: The presumption is in favor of *suicide;* but evidences of great external violence and marks of a struggle or signs of fingers about the throat would point to *homicide;* a position of the body (with hands and feet tied), in which the patient *could not* have put himself, would point to *homicide. Accidental hanging* is rare, and occurs chiefly among children, while playing.

6. *Personal identity* is based on: Deformities, tattoo marks, scars, general appearance, actions, voice, manner of speech, apparent age, figure, size, gait, dress, moles, birth-marks, professional stigmata, handwriting, finger impressions, foot prints, examination of hair, condition of the teeth, color of hair and eyes.

Practical Indications for the Diet of Infants.—Perier and Gaujoux says that the food ration of the infant should bear relation to its weight, its physical development, and its age. It is also necessary to be careful that the infant is not over fed as well as that it has sufficient upon which to grow. Its amount of food should vary with the season, climate, and altitude. It should vary with the condition of every infant, and it is impossible to give fixed rules for all cases, since each case should be individualized. An infant which weighs four kilograms at birth and whose nurse has an abundant supply of milk that is weak should be fed more than the child who is smaller and gets a more nutritious milk. A young infant who is just beginning to nurse should not be allowed to take all the milk from the breasts when it begins to flow. During the first seven days the amount should be increased 10 grams per day. During the first five months it should be increased 10 grams per month. We may gauge the amount of milk that a child can take by multiplying by two the first two figures of its weight in kilograms. Each time that the child nurses he should suck a single breast, leaving the other for the next lactation. We cannot state in minutes the length of time that a nursing period should last. But the child should never be allowed to suck a long time lest he macerate the nipple, and there is danger of his taking too much. The breasts are habitually asymmetrical; this causes variation in the amount and quality of the milk. Sometimes it is necessary to dry up one breast on account of the difference. It is advised to cause the child to nurse first from the smaller breast so as to increase its size by nursing.—*Annales de Médicine et Chirurgie Infantiles.*

Books Received.

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DIE PRAXIS DER LOKALEN ANÄSTHESIE. By Dr. ARTHUR SCHLESINGER. 12mo; cloth; 160 pages; illustrated. Urban & Schwarzenberg, Berlin, Germany.

LEHRBUCH DER OHRENHEILKUNDE. Von Dr. VICTOR URBANTSCHITSCH. 8vo; paper; 623 pages; illustrated; mks., 18. Urban & Schwarzenberg, Berlin, Germany.

DIE ORTHOPÆDIE DES PRAKTISCHEN ARZTES. Von San-Rat. Dr. GEORG MÜLLER. 8vo; paper; 258 pages; illustrated. Urban & Schwarzenberg, Berlin, Germany.

NERVENSYSTEM UND INSOLATION. Dr. F. A. STEINHAUSEN. 8vo; cloth; 163 pages; 4 marks. August Hirschwald, Berlin, Germany.

BEHELFSVORRICHTUNGEM BEIM SANITÄTSDIENSTE IM FELDE. Von Dr. WESTPHAL. 8vo; cloth; 218 pages; illustrated; 5 marks. August Hirschwald, Berlin, Germany.

LEHRBUCH DER MILITÄRHYGIENE. Band I and II. 8vo; paper; 424 pages; illustrated; 7 marks. August Hirschwald, Berlin, Germany.

REFRACTION AND MOTILITY OF THE EYE. By ELLICE M. ALGER, M.D. 12mo; cloth; 380 pages; $1.50 net; illustrated. F. A. Davis Co., Philadelphia, Pa.

HANDBOOK OF ELECTROTHERAPEUTICS. By WILLIAM JAMES DUGAN, M.D. 8vo; cloth; 242 pages; illustrated. F. A. Davis Co., Philadelphia, Pa.

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LES APPAREILS PLÂTRES. Par le Docteur JEAN PRIVAT. 8vo; cloth; 296 pages; illustrated; 6 francs. A. Maloine, Paris, France.

ÄRZTLICHE FORTBILDUNGSKURSE DER FREIEN ORGANISATION FÜR DIE MEDIZINISCHEN KURZE, AN DER K. K. UNIVERSITÄT WIEN. 8vo; paper; 92 pages. Urban & Schwarzenberg, Berlin, Germany.

MANUAL OF MIDWIFERY. By HENRY JELLETT, B.A., M.D. (Dub. Univ.), F.R.C.P.I., L.M. 8vo; cloth; illustrated; 1,210 pages; $6.00 net. Wm. Wood & Co., New York.

MANUAL OF TROPICAL MEDICINE. By CASTELLANI and CHALMERS. 8vo; cloth; 1,242 pages; illustrated; $6.00 net. Wm. Wood & Co., New York.

DIE ZUCKERKRANKHEIT UND IHRE BEHANDLUNG. Von Prof. Dr. CARL VON NOORDEN. 8vo; paper; 419 pages; 10 marks. August Hirschwald, Berlin, Germany.

ATLAS DER BÖSARTIGEN GESCHWÜLSTE. Von Prof. Dr. D. V. HANSEMANN. 8vo; 53 pages; illustrated; 9 marks. August Hirschwald, Berlin, Germany.

THE JOHNS HOPKINS HOSPITAL REPORTS. Vol. XV. 4to; paper; 542 pages; illustrated. The Johns Hopkins Press, Baltimore, Md.

MORTALITY STATISTICS, 1908. 4to; cloth; 705 pages. Government Printing Office, Washington, D. C.

ST. LOUIS: ITS HISTORY AND IDEAL. 12mo; paper; 172 pages; illustrated. American Medical Association, 1910.

SIXTEENTH ANNUAL REPORT OF THE MANAGERS AND OFFICERS OF THE CRAIG COLONY FOR EPILEPTICS, AT SONYEA, IN LIVINGSTON COUNTY, N. Y. 8vo; paper; 143 pages; illustrated. J. B. Lyon Co., Printers, Albany, N. Y.

FIRST BIENNIAL REPORT OF THE TRUSTEES AND OFFICERS OF THE OHIO HOSPITAL FOR EPILEPTICS AT GALLIPOLIS. 8vo; paper; 119 pages; illustrated. Springfield Pub. Co., Springfield, Ohio.

THE CARNEGIE FOUNDATION FOR THE ADVANCEMENT OF TEACHING—Medical Education in the United States and Canada. 8vo; paper; 346 pages. 576 Fifth Avenue, New York.

THE RELIGIO-MEDICAL MASQUERADE. By FREDERICK W. PEABODY, LL.B. 12mo; cloth; 197 pages; $1.00 net. The Hancock Press, Boston, Mass.

ANALYSIS OF DRUGS AND MEDICINES. By BURT E. NELSON. 12mo; cloth; 384 pages; illustrated; $3.00 net. John Wiley & Sons, New York.

ŒDEMA. By MARTIN H. FISCHER. 8vo; cloth; 209 pages; illustrated. John Wiley & Sons, New York.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of August 20, 1910.

	Cases	Deaths
Tuberculosis Pulmonalis	677	170
Diphtheria	192	17
Measles	81	5
Scarlet Fever	86	1
Smallpox	—	—
Varicella	19	—
Typhoid Fever	129	12
Whooping Cough	16	9
Cerebrospinal Meningitis	—	3
Malarial Fever	—	—
Totals	1,200	217

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, during the week ended August 19, 1910.

CHOLERA

		Cases	Deaths
India, Bombay	June 6–12	..	4
Calcutta	June 19–25	..	42
Rangoon	June 26–July 2	..	2
Present, the interior			
Java	July 2	..	..
Batavia	June 26–July 2	60	50
Mainly among natives			
Samarang	July 2	..	Disapp'r'g
Soerabaya	July 2	..	Do.
Persia, Ardabil	July 2	..	Present
Philippine Islands, Manila	June 12–July 2	33	23
Provinces–			
Bulacan	June 12–July 2	182	122
Cavite	June 12–18	1	.
Mountain Province	June 26–July 2	1	.
Nueva Ecija	June 26–July 2	13	6
Pampanga	June 19–July 2	8	6
Pangasinan	June 12–July 2	1,145	878
Rizal	June 12–25	5	3
Tarlac	June 12–18	1	1
Russia, Odessa	July 10–23	132	69
St. Petersburg	July 10–16	58	20
Straits Settlements, Singapore	June 19–July 2	17	24

YELLOW FEVER

Costa Rica, Siquires	July 31	1	1
Ecuador, Guayaquil	July 1–15	9	3
Sierra Leone	General Aug. 1	..	Present

PLAGUE

Argentina, Rosario	Feb. 1–28	1	1
China, Amoy	July 3–9	..	..
Epidemic in the port.			
Hongkong	June 19–July 2	4	4
Swatow	July 5–11	..	..
Still present in vicinity.			
Ecuador, Guayaquil	July 1–15	4	2
India, Bombay	June 6–12	..	53
Calcutta	June 19–25	..	25
Kurrachee	July 3–9	9	10
Rangoon	June 26–July 2	..	42
Malta, Valletta	July 16	1	..
In quarantine station on Comino Island, from s.s. North Wales			
Mauritius	Apr. 1–June 2	10	7
Persia, Bouchir	June 5–25	7	4
Venezuela, Caracas	July 30	1	1

SMALLPOX

Argentina, Rosario	Feb. 1–28	1	1
	May 1–31	2	2
Brazil, Para	July 17–23	11	6
Santos	June 17–18	..	1
Sao Paulo	June 12–18	..	2
Ceylon, Colombo	June 26–July 2	1	..
Chile, Antofagasta	July 3–9	4	..
Valparaiso	July 10–16	20	..
China, Hongkong	July 19–25	2	1
Nanking	May 8–July 16	..	Present
Shanghai	June 27–July 17	..	10
Swatow	July 5–11	..	Do.
Egypt, Alexandria	June 1–30	2	3
France, Paris	June 19–23	1	..
India Bombay	July 6–12	..	5
Madras	July 2–8	..	1
Rangoon	June 26–July 2	1	..
Italy, Naples	July 18–24	9	5
Malta	July 10–16	3	..
Persia, Kerman	July 2	..	Present
Portugal, Lisbon	July 19–23	65	..
Russia, Moscow	July 9–16	16	9
Odessa	July 2–8	4	..
Riga	July 9–23	97	..

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THE CIRCULATION AS A FACTOR WHICH DETERMINES THE EFFECTS OF MICROBIC INVASION.

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WE all know that microbes attack the weak, the young and weak, and the old and weak (*i. e.* those with but little hold on life), and the poorly nourished, whether young or adults, and this among both animals and men.

But what are the factors that lie just beneath this weakness and poor nourishment? I believe that one of the most important of these factors is *slow and defective capillary circulation.* For capillary circulation controls the function, nutrition, and eventually the structure of every cell of the body tissues; it controls the combustion of the body as a whole, what it does with the food it gets, and what it does with the waste products formed in metabolism; it influences the body temperature, and in a word, its life and reaction to surroundings. for combustion is life and life is combustion.

But what underlies slow and defective capillary circulation? Two factors obviously: (1) Obstruction in the capillaries. (2) Deficient *vis a tergo*, heart power. When both (1) and (2) are present together then the capillary circulation is at its worst and the microbes have the most power for harm.

We now know that the one important cause of capillary obstruction is excess of uric acid in the blood stream, and that this, if severe and long continued, may lead to heart failure from overwork accompanied by malnutrition, leading to dilitation and consequent increased intrapericardial pressure, which again result in extremely defective circulation and nutrition, and eventually bring about fatty degeneration of the cardiac muscle. So that (1) is a direct cause of (2), even if (2) is not originally present as the result of congenital defect in the heart (see "Uric Acid in the Clinic," p. 112).

Let us now take the well-known instance of the common cold. It spreads from person to person through a large community. There is clearly some microbic contagion about it. Yet if we watch carefully we shall see that some take it more easily than others, some individuals take it under certain conditions (*e.g.* women during or just after menstruation), and under other conditions the same people are exempt. Some again do not take it at all and are practically always free from either catarrh, bronchitis, or influenza. Still others, who have suffered perhaps for years a perfect martyrdom from catarrh and bronchitis, alter their diet and become less "gouty or rheumatic" as it is termed, and first partially and then completely lose all tendency to suffer from any form of catarrh or bronchitis (*vide* "Ten Years on a Purin-Free Diet," by Coram James, M.R.C.S., L.R.C.P., in "Folia Therapeutica," July 1909, p. 81). The fact that the tendency to gout and rheumatism is lost at the same time as the tendency to catarrh and bronchitis shows that catarrh and bronchitis have a gouty element in them, and are, as I have elsewhere shown,* due to the precipitation of uric acid by cold aided by the growth and activity of a microbe. Rheumatism may also originate in a precisely similar combined activity of cold and microbe, bringing about a precipitation of uric acid.

Now in the case of catarrh we know exactly the conditions under which the microbe can flourish and succeed in producing trouble; and our knowledge gives us complete power either to cure the trouble or to prevent it.

Prevention, as we have just seen, is by alteration of diet which diminishes the supply of available uric acid. Cure is brought about by dissolving out the uric acid and preventing its reprecipitation in the irritated mucous membranes of the air passages. And provided this is done by so simple a substance as bicarbonate of sodium we need not trouble ourselves in the least about the microbe, as it is thereby rendered powerless for further harm, just as it never has any power for harm in those who are moderately uric-acid-free and whose capillary circulation is constantly good (*British Medical Journal*, Vol. I, 1908, "Treatment of Bronchitis by Alkali").

Let us now compare these conditions, which in the case of catarrh are well known, with the less well-known conditions of invasion by other microbes.

In "Uric Acid in the Clinic," pp. 110, 180 and elsewhere I have pointed out that in certain conditions, such as Bright's disease, mental depression, and neurasthenia, microbes both invade the body easily and may produce the most deadly effects; and there is one condition that is common to all the diseases named, and that is slow and defective capillary circulation, generally entailing defective cell-nutrition and combustion throughout the body with corresponding defects of function and sub-normal temperature. Thus an individual, who is to-day strong, well-nourished, and practically immune to microbic attack, may strain or dilate his heart by some violent and unaccustomed exertion, especially if such exertion is undertaken at the beginning of his annual holiday, when he has for weeks been strictly sedentary and perhaps working overtime in order to get away the sooner. In such a case the immediate effect of the heart strain is slowing of the capillary circulation, which, if it were 6-7 half seconds be-

*"The Etiology, Prevention, and Treatment of a Common Cold." Bale and Danielsson, London, 1905. Also "Uric Acid as a Factor in the Causation of Disease," Ed. VII, J. & A. Churchill, London, 1908.

fore the strain, would now be 8-9. This is the result of two causes, (1) the heart strain, (2) the effect of the heart weakness in lowering general metabolism and combustion; with this last down falls acidity so that all his available uric acid is at once passed into his blood producing a severe collemia, a collemia proportional to (1) the severity of the heart strain, (2) the amount of uric acid available; the latter of these would therefore be much less in those who have lived uric-acid-free.

Now as the result of this greatly defective circulation and combustion, microbes can invade with serious results. They are not long in doing this; either through a skin lesion, which under normal conditions would have healed quickly and safely, or in the intestine where defective circulation means defective digestion and absorption of many foods, leaving to the microbes a rich and varied pabulum in which they can multiply practically unhindered. In this latter case the invasion is evidenced by extremely offensive motions, so that nurses are almost driven out of the room of a patient whose motions in health are nearly odorless.

I may remark in passing that the best treatment of this condition is not by intestinal antiseptics, which are very often nearly powerless in such cases, but by anything that will clear the blood of uric acid even for a time and thus remove one of the factors of the slow capillary circulation, *e.g.* calomel or a minute dose of a salicylate which acts as a retentive. But when the heart condition is very bad even complete clearance of uric acid from the blood may not suffice to stop the microbic invasion. In such cases we have very defective digestion and absorption of food with rapid wasting of tissue as a result, the patient losing as much weight, in some cases even more, than in complete starvation, yet food is being plentifully supplied; but its only effect is to add to the intestinal putrefaction and the triumph of the invading microbes.

Further, as also pointed out in "Uric Acid in the Clinic," p. 287, surgeons are not only finding that precisely the same diet which cures in the case of rheumatism and catarrh also greatly improves the chances of good recovery after operations and assists the healing of wounds. Some surgeons are also coming to the conclusion that in those who live naturally, and have thus a normal circulation throughout the body, surgical wounds require no dressings beyond a piece of lint wrung out of boiled water; for these patients provide their own antiseptics in the shape of a free capillary circulation and a free and active tissue combustion and metabolism.

But before going further I must point out, as already shown in the books previously mentioned, that, in relation to the effects of uric acid on metabolism, life is divided into four physiological stages: two of high nutrition accompanied by retention of uric acid in the tissues so that the blood is pretty clear of it, and two of collemia or solution from tissue deposits in which the blood is clogged with excess of uric acid and the capillary circulation is consequently at its worst. And we should expect that it would be during these two latter stages that microbes would be able to invade with the most deadly effect; and this we shall find to be the case in many diseases. Though, of course, where the nutrition of the body has been completely upset *e.g.* by serious injury or previous disease, these physiological stages are also more or less completely upset and the microbes may then invade at any time, for owing to debility, malnutrition, and anemia the capillary circulation is constantly defective. Apart from such violent inversions of physiology the four stages of life are somewhat as follows: The First Retention Stage of rapid growth and development from birth to 14 in girls and 16 in boys; The First Collemic Stage from 14 or 16 to 25; The Second Retention Stage from 25 to 55, the good nutrition, ruddy health and strength of middle life; The Second Collemic Stage from 55 to death, the decline of all nutrition and metabolism. Each collemic stage is to some extent the result of, and consequently proportional to, the previous retention stage; thus the uric acid stored in the first retention stage furnishes the material for the collemia of the first collemic stage, and so on. Doubtless all these stages would be greatly altered and life itself considerably prolonged and modified if all people lived uric-acid-free.

In reference to pulmonary tuberculosis we find in the Second Edition of Allbutt & Rolleston's "System of Medicine," Vol. V, p. 286, "In children the greatest liability coincides with the approach of puberty, the liability beginning rather earlier with girls." We have seen above that the first collemic stage begins rather earlier in girls for reasons that are fully explained in "Uric Acid," Ed. VII, pp. 517, 521. Girls have also another factor which favors defective capillary circulation, namely, weaker muscles, especially weaker heart muscles.

With reference to enteric fever we find in the same "System of Medicine," Vol. I, p. 1098, "Enteric fever occurs much more frequently among the young and adult persons under 35. It is not uncommon in children, but very rare in infants." I may remark also that when it does occur in infants it is usually milder than in older children nearer the dangerous age of puberty. We must bear in mind that, though we can mark out these stages of life fairly accurately, there is in nature quite a slow gradation from one stage to the next following. Thus no doubt the second retentive stage has greater resisting effect at 35 than at 25.

All that we have said of catarrh and bronchitis applies with almost equal force to malaria. Here we have a parasitic disease the fever of which can be easily and quickly reduced by a solvent of uric acid *e.g.* salicylate; and the attacks can be brought to an end altogether by the uric-acid-free diet (see "Uric Acid," Ed. VII, p. 492-494). Catarrh can also be cured by salicylate when dyspnea does not interfere with its action.

Then again certain conditions such as the time of year act in the same way as the stages of life, and tend to favor the attack of a microbic disease at one season rather than another. I would refer to the well-known fact that the Lent term at schools and colleges is the worst in the year for disturbance of routine by the exanthemata; and I have little doubt that this bears a definite relation to the early spring collemia of returning warmth, when the uric acid retained in the cold of winter begins to pass into solution in the blood and block the capillary circulation. A very notable instance of this occurred in London some years ago when the warm, muggy weather suddenly returned at the end of several weeks of severe cold, and at once almost everyone was down with influenza. Influenza again in every way parallels the relation of catarrh, bronchitis, and malaria both to drugs and to the uric-acid-free diet.

Possibly something of the same kind may explain an experience which used to be related by one of my most honored teachers, Dr. Samuel J. Gee, to the effect that he had been for some years House

Surgeon and Registrar at a hospital with fever wards without taking scarlet fever. He then left the hospital for about a year, and on returning as locum tenens for a friend he at once took the disease and had a sharp attack. It seems probable that this very interesting experience stood in relation to summer collemia (as it occurred in July), as well as in relation to his general condition and stage of life, probably near the end of the first collemic stage, the effects of this being increased by prolonged sedentary life in town.

I may mention in passing that, although some of the complications and sequelæ of scarlet fever (*e.g.* arthritis, endocarditis, and Bright's disease) are commonly attributed to microbic activity, in my opinion they are almost certainly due to the amount of uric acid available in the body, for they are, as far as I know, absent or but little marked in those who are moderately uric-acid-free.

Pregnancy affords an interesting and non-seasonal instance of the same thing, for normal pregnancy is a time of increased metabolism and combustion with good nutrition and relatively high urea and acidity; these latter conditions keep the blood clear of uric acid and the capillary circulation is consequently free. Just as the reverse conditions, debility and starvation with low urea and acidity, tend to flood the blood with uric acid, thereby increasing collemia and defective capillary circulation. Now it is a well-known fact that not only do collemic troubles (*e.g.* asthma, migraine, epilepsy) cease to afflict the pregnant, but they also have a considerable relative immunity from the exanthemata, but only so long as the pregnancy is normal and nutrition and circulation are good. In reference to migraine and pregnancy a friend of mine (the late Dr. E. Horder) made a remarkable diagnosis; a married relative wrote to him that her habitual migraine attacks had suddenly ceased, and he replied that she would now want no more headache drugs for nine months. From the fact that the habitual migraine was suspended he rightly diagnosed that she was again pregnant.

The special liability to microbic invasion which follows the termination of pregnancy is well known, and this is accompanied by fatigue, which means heart weakness, and collemia, which entails defective capillary circulation, the latter being increased by the uric acid of the retention during the period of pregnancy. In the case of those nations who live nearly uric-acid-free the second factor and a large part of the first (as fatigue is proportional to the uric acid in the blood) are absent. Parturition is then encountered without the most rudimentary precautions as to hygiene and cleanliness and apparently very often quite without harm. From which we may again infer that the soil in which it can flourish is very much more important than the invading microbe.

In the relation of scarlet fever to tonsillitis (Allbutt & Rolleston, Vol. I, p. 88) we have again probably a relation to the effects of uratic irritation of tissues which is naturally most marked in cold northern climates. And in the alleged absence of chorea from China (see Allbutt & Rolleston, Vol. I, p. 88) and the diminished severity of measles in Ireland (*loc. cit.* p. 65) we may also see relations between disease and local habits in regard to diet and the consumption of uric-acid-containing foods.

The weak and poorly nourished are an easy prey for the microbes because: (1) any available uric acid is in solution in their blood slowing capillary circulation, (2) their muscles are weak, (3) weak heart is an additional cause of a poor circulation, (4) collemia, weak heart, and slow capillary circulation mean poor nutrition of both blood and tissues, and slow and defective functioning throughout the body. For heart failure increases collemia, and collemia in its turn increases heart failure; then heart failure diminishes both appetite and digestive power, and so the downward trend of the whole physiology of the body is continuous and inevitable till some external factor cuts through the vicious circle.

Chronic underfeeding is thus obviously another factor that increases the power of the microbe to work mischief, and this is a very prevalent condition at the present day. Now such a condition of underfeeding verging toward actual starvation is brought about chiefly in two ways, (1) unconscious and unintentional, (2) intentional as the result of ignorance. The first form has been treated of by Dr. Nathan Rosewater under the name of "Disguised Starvation" (*New York Medical Journal*, Dec. 1909); I have met with plenty of it in my own practice. The patient suffers from collemia and collemic fatigue, and being too tired to eat or digest comfortably takes ever less and less food, and so passes into the power of the vicious circle previously mentioned. The second form is the result of what I regard as the erroneous modern teaching with reference to the quantities required; this leads people to take too little food, and thus they eventually land themselves in collemic fatigue with the results above mentioned (see "Uric Acid in the Clinic," pp. 154, 279, and elsewhere). It is easy to recognise these starvation cases, whatever their origin, as they all have a low and falling blood decimal. My rule is that no one who has been three or four years on a correct uric-acid-free diet should have a blood decimal below .85 or .9. Any one who shows such a defective blood decimal under these conditions has either been underfeeding or taking poisons. Weight may or may not be lost to any great extent, but a low and falling blood decimal renders it advisable to estimate both food and urea from day to day to see that sufficient proteid is being taken and digested. Paradoxical as it may seem, the fact nevertheless remains that up to a certain point the more you eat the more appetite you have, because increased food means increased power of digestion; conversely the less you eat the less appetite you have, because diminished food means diminished power of digestion, and appetite is under all circumstances an index of digestive power.

We see then that there are all gradations from conditions in which microbic invasion is a most serious matter to those in which it is of no consequence. And the one factor that alters in a given individual in the change from one condition into the other is the capillary circulation. When microbes can invade with deadly effect the capillary circulation is always slow; when they are powerless for harm it is always normal or quick. We can now see that the fever that clears the blood of the obstructing uric acid is Nature's effort to burn up the microbes; and where capillary circulation is always free, as the result of a life in accordance with Nature, we know that the microbes are powerless.

The one thing that alters in these various conditions is the capillary circulation, and this can be easily seen and measured; the one thing that lies behind defective capillary circulation is excess of uric acid in the blood, leading by one or other process to the vicious circle previously mentioned.

This is just what we see in Nature, and gives a simple explanation of all the facts mentioned above, as well as of many more which could easily be mentioned, did space permit. Thus uric acid is the factor that controls the results of microbic invasion, and a life free from excess of uric acid is to a large extent a life immune from microbic injury; and this is so because uric acid controls the capillary circulation throughout the body from birth to death.

In conclusion I desire to express my gratitude to Dr. Gee for kindly allowing me to mention his experience, and to my son, Mr. K. G. Haig, for several interesting suggestions which have been made use of to illustrate the subject of this paper.

SOME OF THE OPEN QUESTIONS IN TUBERCULTSIS*

By THOMAS E. SATTERTHWAITE, M.D.,

NEW YORK.

To begin, with, some of us, but the laity more particularly, have been talking and writing about tuberculosis as if we physicians were just beginning to understand it. But Hippocrates, who flourished over thirteen hundred years ago, described it in unmistakable terms, laying down many specific rules for its management, including the use of cow's milk, outdoor exercise, and prolonged rest. Its contagious qualities also were mentioned by Galen, more than two thousand years ago, and he went so far as to say that phthisis was contracted by sleeping with a phthisical patient, living, eating or drinking with him, or even wearing his clothes. This doctrine prevailed until about the beginning of the nineteenth century. Indeed, as early as 1750, the disease was thought to be so contagious that in Italy public measures were adopted to check it. In fact, it is well known that on September 20, 1782, a royal edict was promulgated (in Naples), obliging physicians to report all cases of phthisis to the authorities; while in Rome, certainly as late as 1803, strict sanitary rules were adopted for controlling it. Even up to a date within the memory of living individuals, the consumptive was avoided by the Italians much as if he had the plague. Later, doubt began to be thrown on this doctrine, and it was gradually supplanted by that of a diathesis. Some of the French and English schools supported this view for a time, Sir Thomas Watson maintaining, in 1843, that, being a diathesis, it was not communicable from person to person. In 1857 the tide of opinion began to turn again, when von Buhl came forward with the contention that acute miliary tuberculosis was a specific infection. Villemin, in 1865, supported von Buhl's view by experiments on animals. In 1877 Piffard expressed the opinion (MEDICAL RECORD, July 21, 1877) that there was some infectious agent at the bottom of the trouble.

In 1881, the bacillus of tuberculosis was discovered by Koch, after the most elaborate series of experiments that had thus far been made. It is proper to stay, however, that miliary tubercles had been recognized by Mangetus, as early as 1700, while Laennec had been able to establish the unity of phthisis pulmonum with pulmonary tuberculosis. The special merit of Koch's work was that he separated the bacillus from the tubercle, developed a pure culture, and inoculated it so as to produce miliary tuberculosis secondarily.

At the present time, the bacilli that appear to be the most dangerous to mankind are the human and bovine, the bovine species having exceptionally active pathogenic properties, though how frequently the latter are factors in inducing human tuberculosis is still a somewhat uncertain matter. Birds, various animals, and even fish have tubercle bacilli, but they differ from the human variety in morphology, cultural characteristics, staining reactions, and pathological qualities. Each appears to be tenacious of these peculiarities, and yet under protracted cultivation, we are told, they seem gradually to approach each other morphologically. It is even possible that they may be bred so as to be somewhat akin to the human bacilli in virulent qualities. But thus far no satisfactory proof has been given that these non-human types are actual sources of tuberculosis. On the other hand, there is a so-called pseudobacillus, which has been obtained from feces, human sputum, and other sources, whose relationship to the bacillus of human tuberculosis has not been determined; it is said to differ from the genuine variety mainly in its quality of resisting decolorization by mineral acids, and for this reason is classed as an acid-fast bacillus. According to James, one, the Timothy grass bacillus, one of these pseudobacilli, produces reactions on inoculation akin to those produced by tuberculin. This statement suggests new opportunities for research workers.

In respect to the frequency of the disease, we have no very satisfactory data, and it is impossible to foretell when we may have them. We have only approximate estimates, and the reason is that we have to depend mainly on *postmortem* results, i.e., the ocular evidence yielded by lesions that have healed, and that may have been due to tuberculosis, or ordinary abscesses, syphilis, or even parasites, nothing pathognomonic remaining at the affected spot to show what may have been the cause.

For example, a few years ago (1900), Naegeli, of Zurich, reported from his *postmortems*, evidences of tuberculosis in 90 per cent; and pathologists as a rule are in agreement that there is a very high percentage in adult bodies. Burkhardt, of Dresden, in 1906, found about the same proportion as Naegeli, but Lubarsch put it as low as 70 per cent. Beitzke, of Berlin, however, who examined 1,100 bodies at the Charité, found a still lower percentage; he made it 58.2 per cent in persons over fifteen years of age. And yet he held that in certain large cities almost every adult body was tuberculous, a fact of pretty general acceptance at the present time.

The difference in the statistics of Beitzke and Naegeli depends chiefly on the fact that the former omitted from his classification the puckered scars of pleural adhesions at the apex, and the minute fibrous nodules, two to three millimeters in diameter, found in the lungs and pleura, while Naegeli and others held that these lesions represented healed tuberculous centers. If Beitzke had included these latter as evidences of old tuberculosis, then the figures of the two would be in closer agreement. What appears certain is that more than half of the adult population of the city of Berlin has had tuberculosis at some time or other, while it is tolerably certain that the actual ratio is very much higher. This statement brings out two definite facts: That most adults of advanced age have at some time or other had an attack of tuberculosis; and that in congested localities it is much more common than in the population outside of cities.

*Read before the Medical Association of the Greater City of New York, March 21, 1910.

As bearing on the former point, Von Pirquet has stated that almost everyone yields to his cutaneous tuberculin test.

Another interesting fact is that tuberculosis is very common among our negroes, though it is said to be unknown among the dark races of Africa. It is apt to run a rapidly fatal course in negroes; in fact, according to recent census returns, with them it is from two to four times as fatal as with white persons. Almost the same degree of frequency occurs with our Indians.

In respect to age, the following interesting facts as to fatality have been noted by Wallstein, of the Babies' Hospital, in this city, from her *postmortem* findings:

In the first year of life, 1.8 per cent of all deaths.

In the second year of life, 11 per cent of all deaths.

In the third year of life, first half, 16 per cent of all deaths.

In the third year of life, second half, 20 per cent of all deaths.

Other statistical returns from the same hospital, however, put the incidence in the first year at 5.6 per cent of all cases. Here we have a variance in statistics. But the 5.6 per cent represents the clinical plus the physical diagnosis, making, of course, the percentage greater. These figures may be used to support the theory that the disease was acquired by personal contact; indeed, in these instances it is said that of nearly one-half of the infantile cases of tuberculosis brought into this hospital in recent years the infants had been in close contact with tuberculous persons in their homes.

As a rule, tuberculosis does not occur with as great frequency in the early as in the later years of adult life. I have observed the same thing in cattle, especially among the high-bred. In fact it is clear that the incidence of the disease bears a somewhat constant ratio to the age. On the other hand, the period of the largest mortality of infants is during the first year of life; of adults in the third decade, or between 20 and 30.

The actual proof of contagion is not always easy. It is mostly derived from analogical reasoning. For while it is true that the lower animals can, as a rule, be successfully inoculated with the bacillary poison, the human species rarely takes the disease in this way from direct contact with tuberculous material. Butchers, pathological anatomists, general and special surgeons and dermatologists rarely take the disease by contact, though of course frequently exposed to it. And yet in most of these instances, the poison is wet, and therefore presumably in a form readily communicable. The theory of the dermatologists, who have to deal with the various forms of tuberculosis cutis, is that they are contracted through open wounds or an abraded skin. Epidemics are said to occur in this way among miners. So, too, skin tuberculosis is said to be comparatively frequent among the demented in our insane asylums, the theory being that with their uncleanly habits they contract the disease by contact. Of course, these skin eruptions may equally well be the local manifestations of a tuberculous diathesis. In respect to the contagious qualities of these forms of tuberculosis, dermatologists do not seem to evince much fear.

Thus far, it has been difficult to actually demonstrate that infection comes from the ingestion of contaminated milk or meat, though it has been inferred in some quarters that of all ingested matter milk is the greatest source of danger. Within the past two years, however, Professor Woodhead (MEDICAL RECORD, March 5, 1910), of the British Royal Tuburculosis Commission, has estimated that less than 7 per cent of all deaths from tuberculosis are due to bovine infection. In this connection, it has been urged by Whitla, of Dublin, that tuberculosis is rife in parts of the world where cows' milk is not used at all, while children are known to have utilized the milk of tuberculous cows for years without contracting the disease. Nor have we direct proof that the disease comes from sputum. Experiments on the lower animals, however, show that infection is possible from these two sources; from analogical reasoning, therefore, we are led to believe that the same methods prevail in the human subject. If we could supplement analogical reasoning with direct proof, the evidence would, of course, be more satisfactory.

Uncertainty on these points has led Baumgarten to state that there are three methods by which the disease can be transmitted: the aerogenous, where family and workshop epidemics result from air contagion through dust; the enterogenous, where the disease is the result of swallowing the bovine bacillus, which, however, he claims never produces a progressive tuberculosis, a view that is held by many; and the geneogenous, where the infection is due to the bacilli passing through from the mother to the fetus. This form of inborn tuberculosis will, he thinks, be more and more apparent with the improvement of our microscopic technique.

As already mentioned, the skin may possibly be the medium through which the bacillus enters, and numerous cases have been reported to sustain this view. Also, flies may carry and implant the germ. This latter method, however, is probably quite rare.

Inasmuch as the bacillus soon dies when exposed to light and air, it is not likely to be conveyed by dry sputum. But fresh tuberculous sputum contains the bacilli in vast quantities; hence the danger, which is intensified when the patient coughs in one's face. This, at least, is the theory of the contagionists, and yet the rapidity of infection seems to be intensified by the admixture of such organisms as the staphylococcus or other pus-producing bacteria, such as are to be found where there are suppurating pulmonary cavities, as in the last stages of tuberculous phthisis; on this point there is much unanimity of opinion. High elevations have few germs, hence in them the danger of contamination from dust is diminished. But what is most important in this connection is that the tubercle bacillus does not destroy tissue unless pus-producing organisms are affiliated with it. And so the bacillus alone is not as deadly as we thought it a while ago.

The query as to the ratio between those who inspire the poison and those who ingest it is put variously. As yet we have no material facts sufficient to use for decisive conclusions. The invasion by the air passages varies, according to the views of individual authors that I have consulted, from about 40 per cent to 69 per cent. On the other hand, invasion by the alimentary canal has been put at from 5 per cent to 35 per cent, while Koch has held that the disease is rarely or never contracted in this way, and his dictum necessarily carries with it the weight that attaches to the opinion of one of our ablest present-day etiologists. Taking the average returns of men who have in-

vestigated this point, it is about 21 per cent. Of course, such an average percentage has no precise value.

According to recent statistics (Vienna, in 1908), tuberculosis was prevailing in the proportion of 10 to 10,000 of the population in the better parts of the city, but in the poorer localities as 67 to 10,000. Where the families lived in one or two rooms, the mortality was double that where the family lived in four rooms and upward. However, these statistics do not necessarily sustain the doctrine of direct personal contagion; they are applicable also to deficient nutrition furnishing the base for ordinary aerial contagion, for the tubercle bacillus is very abundant in the air of all cities.

Whether chronic alcholism favors the development and extension of tuberculosis is a moot question. Alcoholism is a condition that is often found side by side with tuberculosis. The patient, feeling that his disease is taking away his strength, may resort to alcohol: in fact, he usually does. Undoubtedly, in many cases it is a food that prolongs his life. In other cases, however, it may increase malnutrition, and so hasten the end. Alcohol is a food for some, for others a poison.

The pure contagionists have thrown over the doctrine of heredity, or have considered its influence of minor account. This has been the trend of opinion of late. Some have held, however, that while persons do not inherit the disease, a physical condition of the chest may be transmitted that favors tuberculosis by inhibiting appropriate respiratory efforts. Others, and they are more numerous, hold that the contagion is inoperative without a certain soil in which the bacillus will grow. Some go further and say that a favoring soil is of as much importance as the germ; others say it is of more importance. That is, in plan language, according to this latter view contagion is not to be feared after exposure, if the individual does not offer a nidus in which it may develop. Others claim that there is in some a normal resistance that prevents infection, while a subnormal resistance invites the disease. Heredity has been claimed as a factor in as much as 60 per cent of infected cases. This, however, is certain: that a predisposition can be handed down; and the family history has its influence in the determination of the disease. Susceptibility or lack of resistance are also governing factors in the etiology of the disease.

One of the most noteworthy efforts toward the prevention of tuberculosis has been the barring of consumptive immigrants to this country by the Marine Hospital Service, while efforts to prevent the influx of those having consumption or suspicions of it have recently stirred the towns of Valhalla, New York; also Summit and Lakewood, New Jersey. Indeed, the residents of Lakewood, by a very large majority, have insisted that a proposed Preventorium should be moved away, and they have carried their point. In this last instance, however, there appears to have been no satisfactory evidence of personal danger, inasmuch as the proposed inmates of the institution were to be merely the children of tuberculous parents, incapable of communicating the disease, though capable of contracting it under unhygienic conditions.

At the present time, the general hospitals of this city are not allowed to take "open" tuberculosis patients, who are referred by the city authorities to the Metropolitan Hospital on Blackwell's Island, the Riverside Sanatorium on North Brother Island, St. Vincent's Sanatorium, St. Joseph's, or the Seton, of New York; if walking cases, to the various dispensaries. A limited number of "closed" cases are admitted to the general hospitals. The profession will look with great interest to see if these methods of combating the disease will prove satisfactory. In the opinion of the writer, open cases of tuberculosis pulmonum can with safety be admitted again to special wards in general or other hospitals, and the reopening of such wards will not only prolong life, and sometimes save it, but remove the very reasonable objection that under present methods consumptives are apt to be sent away to die far from their relatives or friends.

It is surprising how great an effort has been and is being made to check the disease in all civilized countries. During the past year alone, upward of $4,000,000 has been appropriated by 28 State Legislatures. Also, during the year 1909, 28 State or Territorial Legislatures passed laws pertaining to tuberculosis, and 64 laws relating to either the prevention or the treatment of consumption have been put on the statute books. New State sanatoria are to be built in seven states, while in six states existing sanatoria will be enlarged. Such institutions now exist in twenty-seven states. Also, according to a compilation under the Russell Sage Foundation, there are in this State thirty-three institutions that care for consumptives, charging from nothing at all up to $40 per week. Besides, ten states have in all nearly $100,000 to be spent in educating the public about tuberculosis. Traveling exhibitions are used in nine states and in Porto Rico. In addition, the last Congress appropriated $1,000,000 for the maintenance of three Federal sanatoria in New Mexico and Colorado. In all, it has been estimated that fully $8,000,000 will be expended for these purposes in this country during 1910.

Now for results. Optimists believe that we can eradicate the disease, and statistics can be used to support this contention. According to the English tables of Woodhead, of the Royal British Commission, there was a fall in the annual death rate in England and Wales, between 1867 and 1906, of nearly 52 per cent, so that if the same improvement were to continue for another forty years the disease would certainly disappear from those countries. Statistics must, of course, be accepted with caution; most of them contain increments of error. It has been calculated, however, by Menzies, that there is a recovery in 26 per cent of those infected. Whatever the ratio is to be ultimately can only be determined approximately, and then by the careful study of *postmortems*, by experts. For until we can differentiate, as I have already intimated, the *postmortem* findings in syphilis, traumatisms, inflammatory conditions (non-tubercular), including the results of parasitic infections, we cannot get very near the truth.

The returns of the Census should help us, however. According to it, from a national death rate in tuberculosis of 38 per 10,000, in the five years from 1838 to 1842, there was a fall to 12 per 10,000, in the five years from 1901 to 1905, both inclusive. The earlier census tables were quite capable of yielding very erroneous conclusions.

Also according to Bulletin No. 104, Bureau of the Census of 1909, Table 4, the death rate from all kinds of tuberculosis showed a decline to 173.9 per 100,000, in 1908, as against 183.6 for 1907, the average of the five years from 1901 to 1905 having

been 193.2. All this in the registration area. There was, however, a slight increase in the mortality rate in the registration states of California, Rhode Island, and Vermont. (Under the new census regulations and in the present registration areas we are gradually approaching to accuracy of figures). Still, inasmuch as the cost of the Tuberculosis Crusade, according to the National Association for the Study of Tuberculosis, was in 1908 $8,180,621.50, including $5,292,289.77 for the treatment of these patients in sanatoria and hospitals, the returns are naturally somewhat disappointing to optimists.

This is to be so mentioned that after all has been said and done, the brunt of the care of the tuberculous as a class, and including all cases, must come on the general practitioner. Whatever success may be attained will be largely under his direction and with his aid. And, in this connection, he must decry the methods of any municipality whose agents unduly examine, visit, and alarm the sufferer and those about him, prying into their household matters, so that in their distress they fly from one neighborhood to another, or even leave their homes to escape their persecutors. In a recent number of the Journal of the American Medical Association, it was stated that the City Council of Baltimore had inaugurated a system by which nurses were given authority to enter houses and enforce the city's regulations for preventing the spread of tuberculosis. It will result that a number of tuberculous paitents cannot be found, for obvious reasons, and then there will naturally be a demand for more of the public money to hunt them down. It is the very bad cases that are thus disturbed, more than the others; and yet it is these very ones that need absolute rest, physical and mental, and rest in bed. Procedures on the part of public authorities to alarm and needlessly distress these wretched sufferers should be discountenanced by us as practitioners.

When, too, tuberculosis is classed, as it has been, with such contagious diseases as smallpox and the exanthemata, great harm has been done. The following note is to be found in a circular issued by our Board of Health:

"In this provisional classification of the infectious diseases, arranged for practical purposes, the most readily communicable of these diseases, embracing the exanthemata and typhus fever, have been placed in a group by themselves and called contagious. This has been done with a view to emphasizing a distinction, which is not only of scientific significance, but of practical importance, in dealing with the sanitary features of administration. This distinction is furthermore of importance because it avoids the misunderstanding and alarm frequently caused by including in the same class the very readily communicable diseases (such as smallpox), and the much less communicable diseases (such as tuberculosis), which require very different sanitary measures for their control."

It is only to be regretted that the type of this note is small as compared with the text of the Code.

Instead of making the people at large phthisiophobiacs, the public authorities should also discountenance sensational announcements telling "How to Prevent and Cure Consumption." Such announcements are misleading, and may result eventually in a reaction against even sound methods. We cannot truly say that every case of consumption is curable. We can say, however, that all forms are curable under favoring circumstances. But there can never be a cure of consumption, in the sense that issue destroyed will be regenerated. Circulars issued by benevolent associations should be cautious, therefore, in what they hold out to the sufferers.

In a leaflet issued by the Charity Organization Society of this city, a page of advice ends with these excellent words: "Courage is very important; consumptives can be helped, and many are cured."

But our methods are capable of much improvement otherwise. Do we not see about us on all sides men in the first stage of the disease, who are quite able to work in the open air and would be much benefited by it, satisfied to be classed as chronic invalids; to visit the dispensary doctor, get their medicine free, and let a poor old infirm mother support them? I know of such a case at this moment. Or a patient may be discharged from a tuberculosis hospital because his sputum is negative, while his cough and temperature has disappeared. The open lesion has healed, but in the lungs there may be general tuberculosis of the fibroid variety, with dyspnea, tachycardia, and some debility. He cannot do the heavy manual work of his trade. Such a patient was sent to me lately by some philanthropic ladies. He had a wife and five children to support, but he was quite unable from feebleness to do his customary work, that of a stationary engineer. Notwithstanding, he was anxious for something to do, and was quite able to do various sorts of light work. No one, however, seemed able to find him this kind of work, and I was obliged to send him to a general hospital. In the present Tuberculosis Crusade we need employment bureaus to take over such patients; for them work would often be a far greater boon than hospital or dispensary treatment, and might even be more effectual therapeutically. Beds or medicine are not all of the treatment needed. There is an economic side to the tuberculosis question.

Unfortunately, a vast amount of money is being expended, I feel sure, without due regard for the proper method of combating the disease. Rapid results will naturally be expected from such enormous outlays, and if they are not soon forthcoming a reaction against the methods will follow. There are two important things to do: (1) Employ proper treatment while the disease is "closed" and incapable of causing infection, and (2) isolate and treat advanced "open" (or third stage) cases, so that they will not infect others. In this connection, however, we should realize that a certain number of open cases can be cured by the fresh-air method outside of hospitals. When cavities are small, they will often heal under favoring circumstances, such as healthy farm life, with good food and pleasant surroundings. Practitioners of general experience will support me in this statement.

In conclusion, it may be stated (1) with positiveness, that while tuberculosis is communicated by contact, it is not contagious to the same degree as many other diseases, notably the exanthemata, syphilis, and gonorrhea; moreover, it is only communicable under certain favorable circumstances. This fact deserves to be widely known. (2) That fully 50 per cent of all adults contract the disease at one time or another; in cities a much higher percentage. In fact, the tendency to the disease increases with age, in some sort of ratio, after in-

fancy, so that while it may exist in infants of two years in the low proportion of 5 per cent. at the age of ninety nearly everyone has had some experience of it. (3) The disease is contracted in various ways. What the ratio is between the different avenues of invasion has still to be determined. But it is a matter of the very first importance. (4) Many of the problems of tuberculosis are complex, and this fact should be impressed on the laity, who at the present moment are disposed to take a leading part in the crusade, without adequate knowledge of the problems involved. (6) There is also a humanitarian side to the question, apart from its scientific aspects. Public measures entailing unnecessary hardships for the individual or his family will necessarily retard the ultimate success of a movement, however good it is, and this is a philanthropic movement, that should enlist everyone's interest and support. (7) We have reached a point, also, where the intervention of the agencies of our National Government would be very helpful in the Crusade. For it is now an inter-state matter, like that of the water supply of our cities, and the pollution of our streams, all of which call for some sort of governmental control. The establishment of a National Bureau of Health would provide for the supervision of these matters, and physicians at large should sustain the hands of President Taft in endeavoring to establish such a bureau at the earliest possible moment.

7 East Eighthieth Street.

SPECIAL DANGERS ASSOCIATED WITH OPERATIONS ON THE BILIARY PASSAGES AND THEIR AVOIDANCE.

By BENJAMIN T. TILTON, M.D.,

NEW YORK.

Operations for gallstones have become of late years so frequent and the indications and operative technique so firmly established that there seems little new to be added to the mass of literature on the subject. It is well though to remember from time to time that there are certain dangers associated with gallstone surgery which, however familiar to those with large experience, are of momentous importance in the prognosis, and if unknown to the inexperienced, lead to pitfalls and disappointing results. No branch of abdominal surgery requires more careful consideration of each case before operating and greater judgment in the operative work and after treatment. A failure to give due weight to the dangers and possible complications associated with this branch of surgery means high mortality, which may be quite independent of operative dexterity. A surgeon may perform a very skillful and rapid cholecystectomy and yet his patient may died because of lack of judgment in the selection of the operation or of disregard of the patient's power of resistance. The low mortality statistics of such experienced operators as Kocher, Körte, the Mayos, etc., depend much less upon a superior technique than upon an intimate knowledge of the pathology of gallstones, the manifold variety of the changes they produce, and particularly the dangers besetting their removal.

I desire here to call attention to the more important dangers connected with the surgery of gallstones and to emphasize the necessity and means of avoiding these dangers before, during, and after operation.

Diagnosis.—In the first place the diagnosis of gallstones is often attended with such difficulties that mistakes are easily made unless great care is taken. Not only are gallstones mistaken for other lesions, such as those of the stomach, appendix, kidney, etc., but the particular form of the disease fails to be recognized. It is most important, however, to know as accurately as possible the special conditions that one is to meet at the operation. To diagnose simple uncomplicated stones in the gallbladder and find on opening the abdomen a bladder distended with pus or an impacted stone in the common duct, may mean that the operator is unprepared to cope with the unexpected findings, and hence the success of the operation is jeopardized. This error in diagnosis can be somewhat compensated for if in every case the operator prepares himself for any form of pathological lesion of the gallbladder or bile ducts. At the same time an accurate diagnosis before operation lessens very much the dangers of the operative procedure and is possible in the majority of cases. For this purpose we should use every means at our command, especially an accurate history, careful and repeated local examinations, examinations of the blood, feces, etc. It is remarkable what accuracy can be reached by careful attention to the various methods of diagnosis at our command. Great weight should be given to the duration of the symptoms, the number of attacks, the character and location of the pain, and the existence of jaundice. In the physical examination particular attention must be given to points of tenderness, the existence of a mass, enlargement of the liver, pancreas, etc. It is important to remember that a very acute cholecystitis or an occlusion of the common duct may be the first evidence that the patient has gallstones, and hence the absence of typical gallstone attacks must not lead us to exclude the biliary passages.

Shock and Sepsis are dangers that attend many of the operations for complicated conditions in the biliary system, and their avoidance is not always possible. Much can be done, however, by careful judgment and it is here that experience is so valuable. In the first place, the proper choice of operative procedure is of great importance and may determine the outcome of the case. For example, the subjection of a septic, jaundiced, exhausted patient to a choledochotomy will often be fatal, whereas a temporary cholecystostomy for drainage, followed a few weeks later by removal of the obstructing stone from the common duct, will usually save his life and end in a complete cure. The removal of a septic gall-bladder which has ruptured and is surrounded by pus, means a very hazardous undertaking, whereas cholecystostomy by fulfilling the vital indication, viz., drainage, is the safer operation and may be supplemented later by a cholecystectomy, if necessary.

Shock and sepsis can both be materially lessened by selection in each individual case of the safest procedure, which in the urgent cases is the simplest and quickest one. The operator should not adhere to one method, but should select that one which is the most suitable to the case at hand. This may mean a secondary operation at a later date, but this is a wiser course to pursue than to attempt to do more than save the patient's life at the first operation. Even though the local conditions may be best served by a certain operation such as, for example, a cholecystectomy, we must not decide upon that operation if the general condition of the patient

does not warrant more than a cholecystostomy. The proper weighing of the local indications, the condition of the patient, and our own operative experience should precede our choice of operation in every case. In this way we shall avoid many of the catastrophies that come from a careless selection of operative method.

It is true that secondary operations on the biliary passages are often more difficult and, other things being equal, more dangerous than a primary one. For example, a cholecystectomy performed weeks or months after a cholecystostomy means the encountering of adhesions and a prolonged dissection may be necessary to expose the gall-bladder. The dangers from this source do not, however, in my mind, compare with those from performing a radical operation on a patient who is exhausted from prolonged fever, jaundice, and low diet, and whose kidneys and other organs are impaired. At the time of the secondary operation the patient has regained his normal strength and resistance and should be able to withstand, if necessary, a prolonged and difficult dissection.

Whatever operation is decided upon, it is important to remember that the operative manipulations must be simple and short, especially under certain conditions. A patient suffering from long continued sepsis, especially when combined with cholemia and enlarged liver, cannot withstand a prolonged operation, and hence the rule in these cases should be a small incision and the least amount of anesthetic and manipulation. In the presence of infectious foci, either inside or outside the biliary passages, the greatest care must be used to prevent sepsis by too much manipulation and opening up of fresh channels for absorption. Rapid provision for drainage should be the rule in these cases.

Hemorrhage following operations for gallstones need only be considered in its relation to cholemia. The latter condition, when marked, may mean very dangerous postoperative oozing, and many deaths occur from this cause alone. In case the obstructing stone in the common duct is movable, the jaundice may clear up from time to time, and during the interval operation is without serious danger from hemorrhage. In case of an impacted stone, however, the cholemia becomes more and more severe, the jaundice and its accompanying symptoms constant and more intense, and operation under these conditions is very hazardous. Delay now means increase in the operative risk, and one is often forced to take great chances in deciding upon operation. If it has gone so far that subcutaneous ecchymoses occur in different parts of the body, the hope of a successful result is practically nil. In its less extreme cases we may perform the comparatively slight operation of drainage of the gall-bladder and biliary system by means of a rapid cholecystostomy and wait for a more favorable time for removing the calculi from the common duct. In this way extensive manipulation is avoided and the amount of traumatism and hemorrhage reduced to the minimum.

If it is decided to attempt the removal of the obstructing calculus at the primary operation, certain prophylactic measures have been used to increase the coagulability of the blood and limit postoperative oozing. Among drugs the calcium salts have been extensively employed by many surgeons. On the whole their action has been disappointing. Kehr has used with some success the subcutaneous injection of gelatine. The preliminary injection of animal serum has had some advocates. Still better seems to me the employment of human serum. I have recently used the latter in a very bad case of cholemia due to common duct stone, in which the extreme jaundice with intense itching, slow pulse, anorexia, and emaciation had been almost constant for seven months. Encouraged by the remarkable results obtained by Dr. Welch in the treatment of hemophilia neonatorum in the Lying-In Hospital, I had three ounces of human serum injected the day before operation. There was practically no postoperative oozing, in spite of the fact that the viscera were markedly yellow. A very large stone was safely removed from the common duct and the patient made a perfect recovery. Direct blood transfusion has been recommended and is undoubtedly of service. If, however, the same result can be obtained by the very much simpler procedure of injection of serum, the very complicated transfusion operation would seem unjustified. If, in spite of these precautionary measures, dangerous oozing does occur after operation, it is advisable to repeat the injection of serum or resort to direct transfusion, both for restoring the blood lost and aiding coagulation. Infusion of saline seems to be of little avail in these cases.

Uremia.—Long continued inflammation of the biliary passages in the form of chonic cholecystitis and chronic cholangitis is followed gradually by inflammation of the kidneys of a subacute or chronic type. This fact must be borne in mind in operating upon these cases. To avoid serious disturbances of the renal activity we must examine carefully the function of the kidneys prior to the operation. A failure to do this may result in an unpleasant surprise when the patient suddenly develops anuria and uremia after the operation. It is not uncommon for middle-aged patients to be operated upon the day following admission to the hospital and succumb in 48 hours from arrest of renal function. This usually means the failure to discover prior to operation some form of nephritis. The importance of making such a discovery is, of course, great, as we can thus avoid the unfortunate and disheartening outcome of the case. To prevent this the operation may be postponed until the condition of the kidneys is sufficiently improved, or if the operation is urgent a proper selection of anesthetic and anesthetist can be made and the extent of the operative procedure curtailed.

Following the operation measures to stimulate the activity of the kidneys may be employed at once, particularly the Murphy irrigation, etc. These preoperative and postoperative measures should be carefully carried out if there is any evidence of nephritis in middle-aged subjects. Failure to do so will mean the loss now and then of a patient whose gallstone disease was perhaps of a nature that could have been borne with for many years under medical treatment. Such results bring discredit upon the surgery of cholelithiasis and it should be our aim to limit their occurrence by careful and repeated examinations of the urine before operation, so that we may be on our guard in case some renal lesion is found.

Pneumonia.—Like all operations in the upper half of the abdominal cavity, those upon the biliary passages are associated with the risk of postoperative pneumonia. This danger is more imminent in some classes of patients than in others. The aged, the alcoholic, and the plethoric are particu-

larly susceptible, and special pains should be taken with them to avoid this serious complication. In the first place the anesthetic is of great importance. If ether is given it should, where possible, be administered by one specially trained for this work, so that the patient receives the least amount possible and in a nonconcentrated form. Care should be taken while the patient is being washed, while under the operation, and while the dressings are being applied, not to expose too much the patient's body. After the patient is returned to his bed it is a good plan to raise the head of the bed several feet, so that the movements of the diaphragm may be as unrestricted as possible and thus allow the lungs free excursion. In the aged it is well to sit them up in bed very promptly the second day, so as to avoid hypostasis. It is wise to get such patients out of bed at the earliest feasible time.

In thus enumerating the more important dangers connected with gallstone surgery and pointing out the means of avoiding them, I have tried to make the experience gained from my work and that of colleagues of assistance to those beginning their operative experience in this field. I feel confident that careful attention to these warnings will be helpful in preventing the operative disasters which may happen to the experienced, but which are of frequent occurence to those ignorant of the special dangers of gallstone surgery.

121 East Thirty-eighth Street.

THE USE OF DAY CAMPS AND NIGHT CAMPS IN THE HOME TREATMENT OF TUBERCULOSIS IN NEW YORK CITY.*

By N. GILBERT SEYMOUR, A.B., M.D.,

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ATTENDING PHYSICIAN GOUVERNEUR HOSPITAL TUBERCULOSIS CLINIC. ASSOCIATE DIRECTOR ST. GEORGE'S TUBERCULOSIS CLASS.

The day camp is a comparatively recent factor in the home treatment of tuberculosis in New York City. The night camp was its logical sequel. The separate clinic, devoted exclusively to the treatment of tuberculosis, was inaugurated in New York sixteen years ago, but the establishment of such clinics did not become general among the city dispensaries for ten years afterwards, and the day camp was not a factor in the tuberculosis crusade until the summer of 1907, when the Relief Committee of the Charity Organization Society, the forerunner of the Association of Tuberculosis Clinics, first utilized an old ferryboat for this purpose. The *Southfield*, condemned for active service, was secured from the city, equipped with the mere essentials for such use, and maintained as a floating day camp, tied up to a wharf at the foot of West Sixteenth street, for the summer months.

This venture proved so successful that the *Southfield* was secured the following year by the Bellevue Clinic, stationed at a wharf in front of Bellevue Hospital, and has been in commission there, summer and winter, ever since. The liberal use of white enamel paint, and the addition of running water, shower baths, sanitary plumbing, and steam heat, have transformed the old hulk into a veritable floating hospital, admirably adapted to the purpose it now serves.

This transformation of a condemned municipal ferryboat—unfit for active service and consigned to rot away at Staten Island, a useless and unsightly mass of old timber and rusting machinery—into an open air camp for the treatment of tuberculosis was an idea speedily imitated by two more of the city clinics, the Gouverneur and Presbyterian Hospital Clinics. During the summer of 1908, two other old ferryboats, the *Westfield* and the *Middletown*, were rescued from the junk heap, with the consent and assistance of the city authorities, and were towed up from Staten Island to their present quarters on the East River, at the foot of Jackson street and of Ninety-first street respectively, where they were made fit for their present service.

The Presbyterian boat camp was made possible through the generosity of Mrs. J. Borden Harriman, chairman of the Women's Auxiliary of the Presbyterian Tuberculosis Clinic, who sustained the expense of its renovation and equipment. It is by far the most elaborate and ornamental of the remodeled ferryboats, and boasts an average daily attendance of seventy-nine. Within the past year, the Presbyterian Clinic has relinquished the control of this camp, which is now maintained by the Board of Health.

The Bellevue boat has also been made more ornamental, as well as more suitable for its purpose, at a considerable expenditure of money. It is now equipped with every necessity for use both day and night, at all seasons of the year.

The Gouverneur boat alone has been altered only so far as to make it habitable, and with the least possible expenditure. With its exterior unpainted and its rusty smokestack, the old *Westfield*, as one approaches it from the wharf, looks the picture of forlorn and useless delapidation; but the interior—with its model kitchen, its immaculate dormitory and dining-rooms, its open air school room, and its general air of service with efficiency—makes an altogether different impression.

I speak of the Gouverneur boat with more assurance, and with no intention of drawing a comparison, because I have been associated with the Gouverneur Tuberculosis Clinic since its organization, six and a half years ago, and the camp is one of the by-products of its activity in the Gouverneur district.

The ferryboat *Westfield* and the use of Pier 53, East River, at which it is moored, were secured from the city authorities through the initiative and energy of Mrs. Edward Mandel, the chairman of the Women's Auxiliary to Gouverneur Clinic. It was opened July 11, 1908, and was conducted until October 25, practically as a private enterprise, and the figures of that early venture will serve as an illustration of how much can be accomplished with limited funds, provided enough enthusiasm and executive ability can be brought to bear on the problem.

During that first season of 1908, the *Westfield* was used as an open air camp for consumptives for seventy-one consecutive days. In this time ninety-nine patients received the benefit of the treatment, the average daily attendance being twenty-five. During this period, also, the first attempt at a night camp was initiated, nine of the men patients, for whom cots and bedding were provided, being allowed to sleep on the boat. On the closing of the camp in October, necessitated by inadequate facilities for winter weather as well as by the exhaustion of available funds, forty-five patients had im-

*Read before the Public Conference on the Prevention and Cure of Tuberculosis at Montclair, N. J., April 25, 1910.

proved sufficiently to be able to return to work, and it was possible to send nine others to sanatoria. The remainder continued their regular treatment at the dispensary.

The cost of the undertaking was as follows:

Initial expense of putting boat in condition	$194.53
Nurse—Furnished and paid by the Health Department	175.00
Services, including assistant nurse	240.15
Food and medical supplies	219.96
Car fare and loans to patients	33.80
Office, printing, postage, and telephone	28.65
Sundries, including laundry	7.86
Average cost per patient per day	.40½

This, it must be admitted, is reducing the operation of a day camp to its simplest terms. It will be seen that, with the exception of the salary of the head nurse, which was generously assumed by the Health Department, the entire amount was raised and administered by the Women's Auxiliary. It was a large undertaking, splendidly carried through, but the limitation of funds made necessary certain limitations in the work. It was not possible, for example, to provide an adequate noon meal for the patients, and the amount of milk and eggs supplied was necessarily limited. The point was proved, however, that a day camp could be conducted in connection with a large city clinic without an expense out of proportion to the benefit derived from it; and having established that fact, for which she had long contended, Mrs. Mandel gladly relinquished the management of the boat to the city authorities.

The *Westfield* is now under the official management of the Trustees of Bellevue and Allied Hospitals, and with the consequent increase of funds, equipment, and facilities we are now able to report these additional figures for the work of the last year (1909):

From May 19, 1909, to January 1, 1910—that is, from the opening of the camp under municipal control up to the beginning of the present year, a period of seven and a half months—331 patients were admitted: 187 men, 81 women, 27 boys, and 36 girls. During this time there have been discharged from the camp 238 patients: 156 men, 49 women, 17 boys, and 16 girls. There were, therefore, under observation at the camp at the beginning of this year 93 patients: 31 men, 32 women, and 30 children. At the time of their discharge 30 patients were improved and 9 were arrested, 24 were able to return to work, 49 were sent to sanatoria, 5 returned to Europe, 7 were sent to the country, and there were 3 who died. The total attendance of all patients, at both day and night camps, during this time was 14,941. The average daily attendance was 62. A more detailed account of the medical aspect of the work is not within the scope of this paper. As to the cost, I am unable, at present, to give the figures, since our supplies of all kinds are now furnished, on requisition, from Bellevue and Allied Hospitals.

We have now three salaried nurses on the boat—two by day and one at night—as well as a teacher for the school, a clerk, a night orderly, a cook and a scrub woman. The upper deck has been fully equipped for a night camp, with accommodations for thirty men patients. An open air school for tuberculous children is conducted daily, our teacher being provided by the Board of Education. A hot noon meal is served to all patients, and additional milk and eggs are provided in the morning and afternoon. It is possible now to accommodate not only our own suitable cases, from Gouverneur Clinic, but also those from the two tuberculosis districts adjoining ours, that of the Good Samaritan and the New York Dispensary Clinics.

The routine management of the city camps is similar in all essential particulars. I shall describe that at the Gouverneur camp only because I am more familiar with it. The patients attending day camp are required to report at 9 o'clock in the morning, when their temperature and pulse are taken and recorded by the nurse. Those who have been selected by the physicians as suitable for light work are detailed, in rotation, to do some of the necessary work of the boat. The heavier cleaning and the cooking are done by paid assistants. The majority of the patients are required to rest quietly in their steamer chairs in the open air—the women on the upper, the men on the lower deck—the greater part of the day. Here they may read, or write, or sew, or chat, except during the dinner hour, the serving of morning and afternooon nourishments, and during the "rest hour." Between 1 and 2 o'clock in the afternoon, directly after dinner, absolute silence and rest is enforced, the patients being required to stay quietly in their chairs, all work and conversation forbidden. Many of the smaller children, and some of the older patients, sleep through the rest hour, a habit which we encourage.

The children have regular school hours, somewhat shorter than the ordinary, and are also given selected breathing exercises and calisthenics under the supervision of the physicians. Their school room is the open air.

Strict sanitary rules are enforced with all patients, the penalty of carelessness or disobedience being dismissal from the boat. These rules are displayed on conspicuous placards, printed in English and Yiddish, the latter being our prevailing tongue in the Gouverneur district, and they are also given, on small printed leaflets, to each patient admitted to the camp. All patients are required to be familiar with them.

The day patients are dismissed at 5 o'clock, after the afternoon temperature and pulse are recorded. They are weighed, and the weights charted, once a week. We are now making an effort to adapt the dietary to a standard of caloric efficiency, but this is rendered difficult on our boat by the racial prejudices of our patients, the overwhelming majority of whom are Hebrews, to whom some foods of high caloric value, as bacon, are not acceptable. On the Gouverneur boat only Kosher food is served, since the introduction of which practice our attendance has notably increased.

The physicians associated with the work of Gouverneur Clinic visit the boat regularly, for medical rounds, as well as seeing all Gouverneur cases every week at the dispensary.

Many of our night camp patients also attend the day camp, thus living on the boat, under much the same discipline that they would follow at a sanatorium. Several of them are able to work by day. Night camp patients are required to report to the night nurse not later than 9 o'clock. Their morning and evening temperatures are recorded, and they are weighed every week, just as the day patients. They sleep on comfortable and sanitary hospital cots, with clean, fresh bedding—for the

care of which they are held responsible—and, though protected from wind and rain, they sleep in the open air. The contrast between the night camp dormitory and the average tenement home, especially on a stifling summer night, is startling; and yet some of the more ignorant of our patients can with difficulty be persuaded to remain. Such is the work of the Gouverneur day and night camps, and the results, the improvement in the condition of the patients—as recorded in symptoms, physical signs, and gains in weight—more than justify the expenditure of time, effort, and money.

Before concluding this account of the larger city day camps, mention should be made of the splendid day and night camps maintained by the Vanderbilt Tuberculosis Clinic, on the roof of the Clinic building, and by the Tuberculosis Clinic of the Nose, Throat, and Lung Hospital. I am not personally familiar with the details of the work of either, but they are both completely equipped and excellently conducted.

The abandoned ferryboat, with its ample deck room and open cabins, and with its location and outlook, on all the endless variety of river and harbor activities—provides an almost ideal camp for New York clinics; but the expense of adapting such a boat to such a purpose is considerable, at the very least, and can only be justified by the large numbers of patients who can be treated. Obviously, such boat camps are only feasible in large cities with long water fronts and abundant wharfage.

Even in New York, the boat camp cannot wholly, or even very largely, solve our problem. There are a very limited number of such boats, of places to put them, or of clinics to support them. Furthermore, in dealing with smaller and selected groups of patients, as in the tuberculosis classes, the problem of a day camp is a very different one. Such patients cannot, or will not, attend a large city boat camp, and it is often well-nigh impossible, in New York, to secure them outdoor treatment at their homes. It is forbidden by law to use the fire escapes for this purpose—although, in the case of a tuberculous patient, an infringement of the law is sometimes overlooked—and the landlords and neighbors of our patients seem to have a rooted objection to such use of tenement roofs. Dr. Pratt in Boston speaks of the use of back yards as suitable for tents and shacks. Back yards large enough to serve this purpose are beautifully lacking in most of our New York tenements, and, when present, are preempted by everything from stray cats to the week's wash. It is often only by moving an entire family into light and sunny quarters, and providing a window tent for the patient, that we have been able to solve the problem for some of our class patients at St. George's.

That was our predicament before the establishment of our own day and night camp on the roof of St. George's Deaconess' House. This was made possible, in February, 1909, through the generous coöperation of the Deaconess House Committee, and has been one of the most successful features of our work during the past year. The top floor of the Deaconess House, which communicates with this roof, was originally planned as a miniature hospital floor for convalescent patients. As our tuberculosis class work grew, it was felt that a greater amount of good could be done for a greater number of persons by placing this floor, and its equipment, at the disposal of the class. Our camp therefore consists, in addition to the roof, of a bedroom (used as a dressing room only, since no patients are allowed to sleep indoors), a bath room, private hall, dining room, and diet kitchen. The hall communicates directly with the flat, brick-tiled roof, partly covered by glass and open to the south. The bright colored awnings and window boxes gay with flowers make a cheerful picture on sunny spring days; but, summer or winter, rain or shine, our patients are required to be out.

The routine of the camp is, on its smaller scale, not unlike that already outlined, except that the patients take and record their own temperatures, and are weighed at class every week. The parish nurses and the senior deaconess supervise the daily management of the camp, and members of the committee and one of the class physicians visit regularly. A hot noon meal is sent up from the house kitchen, but separate dishes and utensils are used at the camp and are sterilized by boiling. Milk and eggs are provided morning and afternoon, as well as supper and breakfast for the patients living, night and day, upon the roof. Those attending night camp only receive their breakfast, getting supper at their homes after their day's work.

As the roof space is limited, not more than twelve patients by day and five at night can be accommodated, and only women and children are thus provided for at present. We hope soon to be able to open a similar camp for men on the roof of St. George's Trade School building. At present we have three patients living at the camp day and night—one of whom is kept in bed the entire time, except the afternoon she attends class. One patient comes at night only, a graduate who is now at work. Five others are attending only in the day and go home to sleep.

The average running expenses of the camp amount to about $18 a week, that is, about 28 cents per patient per day.

Since we have been able to conduct this day and night camp at St. George's, we have adopted a new method of discharge for our class members. Heretofore, candidates for discharge—cases arrested or apparently cured—were merely graduated from active membership and allowed to return to work, being required to report every month, at first, for observation; and, later, less frequently, if no relapse occurred. Now, our recent "graduates" are required to attend night camp at first upon returning to work—thus getting ten to twelve hours' treatment, at rest out of doors, in the twenty-four—until we deem it safe to restore them wholly to the home environment. It is on this same principle, of making the transition from active treatment to everyday life less abrupt, that we now readmit to the class, after their discharge from sanatoria, those patients whom we have been able to send away.

In conclusion, it seems to me that the day and night camps, as I have seen them in operation, play, in at least three definite ways, a very important part in this crusade against tuberculosis—whether they are conducted in connection with a large clinic, on a large scale, like our ferry-boat camps, or in connection with a church class, on a small scale, like our roof camp at St. George's. First:—They provide the essential of treatment—rest in the open air—under supervision and in a favorable environment. Second:—They provide a place where sanatorium discipline and régime can be taught and maintained. Third:—They provide a place where patients well enough to work by day, or upon their

return from sanatoria to home environment, can continue to take the treatment twelve hours out of the twenty-four.

I know of no means at our command which supply these important features of our work better than the day and night camps.

129 East Seventeenth Street.

A SIMPLIFIED METHOD FOR THE TRANSFUSION OF BLOOD.

By ARCHIBALD M. FAUNTLEROY, M.D.,

passed assistant surgeon, united states navy.

The well-known value of the transfusion of blood for such conditions as great loss of blood resulting in profound shock, hemophilia, and anemic conditions is familiar to all modern surgeons through the published efforts of Crile, Brewer, and others. The great drawback to its more general use as an effective surgical therapeutic procedure is not only the skill necessary in carrying out the prescribed technique, but the methods as previously described have been regarded by the profession at large as too complicated for general use outside the well-equipped hospital. In the hands of experienced surgeons who have used these methods the results have been most encouraging, but to be effective the operation must be performed by one expert in the use of the various tubes as heretofore recommended.

To be regarded as of practical use by the general surgeon in his every-day work there are several factors which would seem to be indispensable for its favorable reception. First of all, a more simplified technique; secondly, an apparatus which can be extemporized if necessary and requires no special skill to use; thirdly, a shorter time in performing the operation and a less formidable surgical procedure. Any method that will meet these requirements efficiently in actual practice would undoubtedly fill a long-felt want and is the writer's excuse for presenting the following method which he has used with great satisfaction several times on cases which will be reported later.

This method consists in a vein-to-vein anastomosis by means of a curved glass tube, one-eighth inch inner diameter and three inches in a straight line from tip to tip. Each end of the tube is slightly flanged to prevent slipping out of vein after ligature is tied. The veins at the elbow are the ones selected for use in both donor and recipient and, depending on the position occupied by the individuals, a full curved or an S-shaped tube is used, the former being known as the "hand-to-shoulder" tube

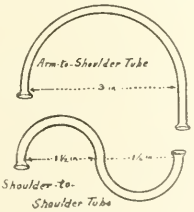

Fig. 1.—Tubes for transfusion; one-third the natural size.

and the latter as the "shoulder-to-shoulder" tube. In other words, when the transfusion is done with the donor and the recipient lying in the same direction, with their shoulders touching, or nearly so, the S-shaped or "shoulder-to-shoulder" tube is used, as the direction of the venous current in this position is the same in each individual. If for any reason the reverse position is selected, such as where the head of the donor is near the lower extremity of the recipient and where the hands of each are near the other's shoulder, the U-shaped or "hand-to-shoulder" tube is used as, in order to effect an

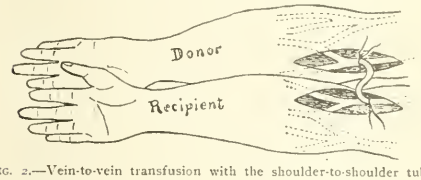

Fig. 2.—Vein-to-vein transfusion with the shoulder-to-shoulder tube.

anastomosis, the venous current from the donor has to be switched around into the venous current of the recipient which is running in the opposite direction. In making this tube, which is curved to represent the arc of a circle three inches in diameter, one arm extends below the semi-circle three-quarters of an inch, and it is this end of the tube which is inserted into the recipient's vein.

The actual technique is as follows: The tubes are prepared first by being boiled and then dropped into melted paraffin, from which, after a few seconds, they are removed with sterile forceps and shaken out to get rid of the excess paraffin and then laid aside in sterile gauze to cool. The outer paraffin is afterwards wiped off when cooled. The arms of both donor and recipient being thoroughly asepticized for six inches above and below each elbow, and sterile towels being arranged to prevent contamination from unclean parts, a rubber tourniquet is placed around the upper arm of the recipient to make the veins prominent and a three-inch incision is made over the median cephalic, or median basilic, through the skin, superficial fascia and fat. The vein at once comes up into the wound and a few strokes of the knife will liberate it completely from surrounding parts for an inch and a half or more. Two ligatures are now passed under the liberated vein, one in the upper and one in the lower angle of the wound, the lower ligature being tied and the tourniquet removed.

This completes the first step in the operation and the operator immediately turns his attention to the donor. The rubber tourniquet is adjusted and the vein exposed and liberated in the same manner as the recipient's vein. The ligatures are placed in the same manner, but in this case the upper one is tied and, while the vein below is being gently held by rubber protected forceps, it is divided completely just below the upper ligature. The operator now grasps the intima of the divided vein with fine pointed forceps and the assistant, being in readiness with the tube, inserts one end into the vein for about a quarter of an inch. The lower ligature is now tied, securing one end of the tube in the donor's vein.

The elbows of the patients are now approximated and the operator picks up with thumb forceps a small portion of the recipient's vein and makes a valve-like opening with a pair of scissors in the same manner as for salt infusion. The donor's vein is now released by removing the rubber protected forceps and the blood allowed to flow through the tube, which is then immediately inserted into the slit in the recipient's vein and secured in place by means of the upper ligature, which has been left untied for this purpose. The tourniquet on the

donor's arm is kept in place throughout the operation and is adjusted sufficiently tight to secure a well-marked venous hyperemia in the forearm and a consequent increased venous pressure. This pressure is ample to force the blood into the recipient's vein, but care should be taken that the tourniquet does not obliterate the radial pulse.

In the writer's cases the anatomosis was kept up for thirty minutes and then the tubes were removed, veins tied, and wounds sutured and dressed. Of course, the donor's pulse and general condition is closely watched, while hemoglobin estimations may be made from time to time from the finger blood of the recipient. When the tube has been secured in both veins it must be watched to see that angulation of the veins does not occur from movement on the part of the patients. If this is not guarded against the blood in the tube will clot and necessitate removal. Ordinarily the progressive improvement in the recipient's pulse, as well as his color, the latter shown by his lips, cheeks and ears, together with noting the fullness and tension in the recipient's vein close to the tube, is sufficient evidence that blood is passing from one to the other. Additional information is, of course, obtained by the hemoglobin estimations and by a blood pressure apparatus on the recipient's free arm. These latter steps are not considered essential, although if the appliances are at hand they may be used.

In addition to the tubes described there are two straight tubes about five inches long, properly flanged at each end and having the same internal diameter as the curved tubes. These straight tubes, after heating over an alcohol lamp, may be curved into any desirable shape in case other veins than the ones at the elbow are selected or in case of some anatomical abnormality on the part of either person. A full set of these tubes cannot only be readily obtained at very short notice in a city of any size from the instrument-makers or glass blowers, but any one, with a little practice, can easily turn out for himself a set that will answer every purpose. The small flange at both ends of the tube is easily made by heating the end of the tube and gently pressing a sharp-pointed piece of metal into the bore of the tube. An ordinary sharp-pointed wire nail answers the purpose nicely. The thin glass tubes may be obtained in any quantity and length from the manufacturers. It has been suggested by others who have used these tubes that it would be well to have three different sizes of each style tube made, so as to fit large, small or medium size veins, as conditions may arise. This may be a practical point to bear in mind, although the writer has never experienced any difficulty in using the size tube as given above.

The writer does not claim originality in the vein-to-vein method, but he does claim that the use of the curved tubes as indicated will greatly facilitate the use of this method in the hands of the general surgeon. The technique with these tubes is simplicity itself and any one who can perform the simple operation for the infusion of salt solution can perform this operation with equal ease and satisfaction.

Note: In the *Journal of the American Medical Association* for August, 13, 1910, in an article on vein-to-vein transfusion of blood, Dorrance and Ginsburg bring out the advantages of this method, the indications, and contraindications. In brief, their animal experimentation, besides operations on the human subject, would seem to indicate a decided advantage in favor of the vein-to-vein over the artery-to-vein method of transfusion.

THE JUVENILE FORM OF GENERAL PARESIS, WITH REPORT OF A CASE.

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The relation between syphilis and the parasyphilitic diseases has long been a subject of controversy and has furnished the basis of many important researches during the past few years. The discovery of the Wassermann reaction at first gave great promise of definitely disposing of this much debated question. It was soon found, however, that diseases other than syphilis gave the Wassermann reaction, and, a fact of much greater importance, that the reaction depended on the action of lecithin and possibly other substances having antigenic power, and not necessarily on the actual presence of the virus or organism of syphilis. The *Treponema pallidum* capable of almost universal demonstration in primary and secondary syphilis has not as yet been found in tabes and other parasyphilitic diseases. It is generally believed that general paresis can only result from syphilitic infection, although this is not as yet susceptible of absolute proof. The disease in adults in the great majority of cases gives a defi-

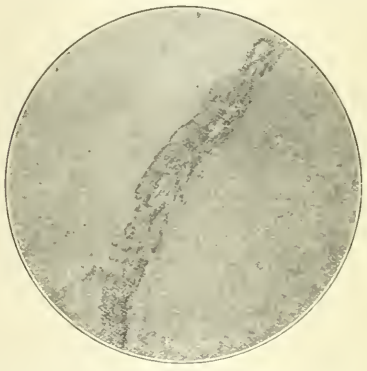

Fig. 1.—Cortex, second right frontal region, showing infiltration of the meninges (low magnification.)

nite history of syphilis. The etiological factor, although undoubtedly the same, is much more difficult to trace in cases coming on in childhood as a result of hereditary syphilis or infection acquired at an early age. The type of the disease, moreover, in juvenile cases presents some different features clinically and is well worthy of further study.

The onset is characterized by a gradual change in the disposition of the child, with an arrest of development, both physical and mental, often attributed to some accident or other traumatism, failure of memory, apathy, and indifference, with possibly a brief mental depression or a short manic attack and occasional hallucinations and delusions, followed by a progressive mental deterioration, with or without epileptiform convulsions, and terminating finally in complete imbecility. Physically there are tremors in the lips, tongue, and facial muscles, with a resulting speech defect, the pupils are unequal, irregular, and sluggish or completely immobile; there is a muscular incoordination, a marked increase or absence of the deep reflexes, changes in the gait, usually with ataxia, muscular weakness or actual paralysis, and contractures with

trophic disturbances, death occurring from exhaustion, bronchopneumonia, or some intercurrent infection. The nature of the disease is often overlooked on account of its infrequency in childhood and the absence of any definite syphilitic history in some cases. The children are often normal men-

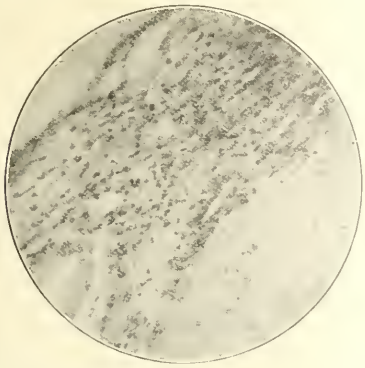

Fig. 2.—Cortex, second right frontal region, showing infiltration of the meninges (high magnification).

tally previous to the onset of the disease, and sometimes unusually bright. A history of some head injury may be misleading. Progressive mental deterioration may be due to various causes. The expansive type of the disease so common in adults is infrequent in children and the paralysis and convulsions are sometimes attributed to other causes. The duration is longer than in adult life. The frequency of infantile forms of paralysis, followed by imbecility and sometimes by epilepsy, adds to the difficulty of the diagnosis. The disease may be confused with cerebral syphilis, brain tumors, and the hereditary forms of ataxia (Friedreich) or spastic paraplegia, seven cases of which were recently reported by Punton[1] as occurring in two families. An absolute diagnosis can be made only by a microscopic examination of the nervous system, post mortem, as a lymphocytosis may not always occur in the spinal fluid and, when present, may be due to other causes. A positive Wassermann reaction is of course of great value but does not exclude other disorders of a syphilitic origin. The pathology of the disease is not essentially different from that in adults, except that degenerations in the cord may perhaps be more frequent.

Fairbanks of Boston[2] has summarized 38 published cases in which the onset occurred before the fifteenth year. The diagnosis was confirmed by autopsy in 29 cases. The average duration was four years. Nineteen were normal mentally previous to the onset of the disease, 8 were unusually bright and 9 were dull. In 19 of the cases there was a history of general paresis or syphilis in the parents, or a history of syphilis in either brothers or sisters. In eight others one or both parents showed syphilitic stigmata without a definite history of the disease. Five had parents who were insane. In 4 of the 38 cases no history was obtainable and in only three cases was it absolutely negative.

A case which is interesting on account of its duration, hospital residence, and confusing symptomatology has recently come to autopsy at this institution, and would seem well worthy of study. I am indebted to Dr. John Irvine McKelway for the family and personal history, as well as the clinical records of the case, which was under his care for some time.

The patient H. V., white, male, was admitted to the hospital on March 2, 1908, at the age of 16 years and four months. His family history shows several points of interest. His maternal great-aunt died insane and his maternal aunt suffered from epilepsy. His father is a man in good physical health as far as could be determined, and apparently normal mentally. The patient is the illegitimate child of a tuberculous woman 36 years of age. She has had two miscarriages since and has had four healthy children by another father. There is no definite information as to the existence of syphilis in either of the parents. The patient was a normal child and attended school until he was 13 years old, commencing at the age of seven. He was considered as being unusually bright and was very quick to learn. When 14 he went to work on a farm, but was mistreated by his employer, who is said to have kicked him in the abdomen and afterwards struck him on the head with a trace from a heavy set of harness. The patient returned to his home complaining of abdominal pain and showing numerous bruises. His illness dated from this time and was attributed to the assault by his parents. It was soon noticed that he was duller mentally and his speech indistinct. His gait became unsteady and peculiar athetoid movements of the fingers were noted. These symptoms gradually grew worse until his gait became decidedly ataxic, his speech hesitating and slurring and he had almost constant purposeless movements of the hands and arms. At this time he was irritable and fault-finding, somewhat dull, with apparent hallucinations of hearing and vision, and was very untidy in his habits.

On admission his appearance was that of a moderately well nourished and fairly well developed boy of 16, weighing 100 pounds, and measuring 62¾ inches in height. The roof of the mouth was narrow, with a high arch, the lobules of the ears were adherent, and typical Hutchinson teeth were evident. His gait was ataxic and he found it difficult to stand or walk without assistance. There was a marked tremor of the tongue and facial muscles.

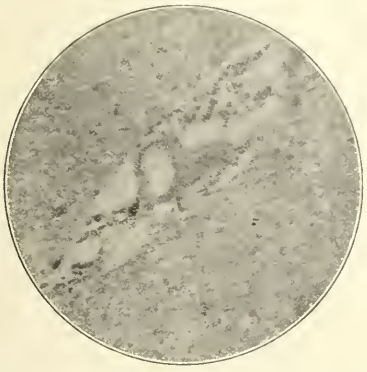

Fig. 3.—Cortex, second right frontal region, showing perivascular infiltration.

The deep reflexes were diminished. The right pupil was dilated and did not react to light, while the left was contracted and reacted slightly. Mentally he was dull and apathetic and answered all questions with the one word "Yes." The patient's general physical strength gradually declined. His weak-

ness and inability to stand or walk necessitated his remaining in bed after he had been in the hospital for about nine months. At this time he showed considerable emaciation, with rigidity and atrophy of the muscles of the legs and some apparent anesthesia of the lower extremities. Owing to his mental condition nothing definite could be learned in regard to either pain or temperature sense. There was a Babinski reflex on the right side, with a slight ankle clonus on the left. The patellar reflexes were absent. The patient was very awkward in the use of his hands, being hardly able to feed himself. The grip was markedly weakened on both sides. Muscular rigidity and contracture of the lower limbs followed in a short time. There were tremors of the hands with athetosis of the fingers and frequent irregular movements of the head. There was no pupillary response on the right side, with only a slight reaction on the left. There were numerous spots of old choroiditis in both eyes, with normal vessels. The optic papilla was normal on the right side, but could not be seen on the left on account of lack of cooperation. The patient, who for months had been able to say only "God damn, shut up," and "No," soon became entirely unable to speak. A mitral systolic murmur was heard at times. An examination of the blood showed practically a normal count, with nothing of interest otherwise. Uranalysis showed neither albumin nor casts. A lumbar puncture showed no lymphocytosis in the spinal fluid. It is possible that subsequent examinations would have revealed its presence had they been possible. After a gradual and uneventful decline, and a bronchitis of some duration, death resulted from a brief attack of bronchopneumonia, after a hospital residence of practically sixteen months. The complexity of symptoms left room for some discussion as to a diagnosis. The paraplegia with ataxia of both upper and lower limbs, the choreiform movements of the arms and athetoid movements of the fingers, the irregular movements of the head, the absence of convulsions, the impediment of speech, the Babinski reflex and ankle clonus, with Romberg's sign, pointing to an involvement of both the posterior and lateral tracts of the cord, and in the absence of any lymphocytosis in the spinal fluid, suggested the possibility of Friedreich's ataxia. The history of the case with the nature of the onset of the disease, the prominent speech impairment, the absence of any evidence of a localized meningitis or gumma formation, the absence of any involvement of the cranial nerves, the permanent nature of the paralysis and the profound character of the mental disturbance all militated against a diagnosis of cerebrospinal syphilis. The absence of nystagmus, the presence of tremors of the lips, facial muscles, and tongue, the pupillary changes, which are unusual in Friedreich's ataxia, and the marked mental deterioration particularly, terminating in complete imbecility, the characteristic speech defect and the syphilitic stigmata finally led to a diagnosis of the juvenile form of general paresis, with an involvement of the lateral and posterior tracts of the cord. While the tabetic form of general paresis is not rare in adults, the pronounced evidences of a combined involvement of various cord tracts gave rise to some question in regard to the diagnosis at first.

An autopsy was performed three hours after death. The body was much emaciated and weighed only 53.3 pounds. The musculature was generally atrophic. The left leg was flexed on the thigh and the thigh on the abdomen as a result of contractures. There was a small bed-sore over the left hip. The brain was quite small in size and weighed 1020 grams. The dura was slightly thickened, but not adherent. The pia showed a slight congestion throughout, with some opacity over the convexity. There was a slight excess of cerebrospinal fluid, which showed a marked lymphocytosis. Investigation of spinal fluid shows, however, that this always results from postmortem changes, even a few hours after death, and cannot be considered as being of diagnostic value.[3] There were very marked granulations in the fourth, and scattered fine granulations in the lateral ventricles. The latter were somewhat dilated. The cerebral vessels showed no macroscopic changes. The convolutions, although small, were normal in appearance. The heart was small and weighed 280 grams. The tricuspid and mitral leaflets were slightly thickened and the mitral valve showed a slight atheroma and some stenosis. There were a few small atheromatous patches in the arch of the aorta and a slight hypertrophy of the walls of the left ventricle. There was a slight edema of the myocardium. The lungs showed a bronchitis with congestion, bronchopneumonia with abscess formation and pleuritis with a seropurulent effusion (300 c.c.). The microscope showed no evidence of tuberculosis in the lungs. The liver showed a slight congestion. The kidneys and adrenals were normal. The spleen showed a beginning amyloid degeneration in the Malpighian corpuscles, with some congestion of the pulp. The pancreas was normal. The vascular system showed no pathological changes.

Microscopic examination of the brain showed some congestion of the meninges. The piarachnoid showed a moderate infiltration by lymphoid and plasma cells. This infiltration, although present in all sections, was more marked in the left paracentral, right anterior central, right paracentral, second left frontal, and second right frontal convolutions, but was not excessive in any area. Plasma cells were observed in all of these sections and were present in the meninges of the cord, and their existence confirmed by the Unna-Pappenheim stain. Although not present in great numbers, they were quite uniformly distributed. There was apparently some increase in the number of vessels in the pia and a very noticeable increase in vascularity in the cortex. Many of the large and occasional of the smaller vessels in the cortex and subcortical regions showed a distinct infiltration by lymphoid and plasma cells in the adventitia and perivascular spaces. This was particularly noticed in the first right temporal and right anterior central regions. Many of the infiltrating cells appeared phagocytic in character and showed pigment. This infiltration of the vascular sheaths was moderate in amount and widely distributed, although many vessels were intact. Occasional rod cells (Alzheimer's *stäbchenzellen*) were found and satellitosis was quite marked. The neurones pointed in all directions and there was a very noticeable disturbance of the normal layering of the cortex. There was some neuroglia reaction in the molecular layer. The neurones themselves showed little degeneration, although there was some destruction of the chromatic bodies in the paracentral convolutions, with an occasional lateral displacement of the nucleus. The Weigert and Marchi sections of the medulla were negative. The meninges of the cord showed an in-

filtration similar to that described in the cortical pia. Occasional cells in the column of Clark showed an axonal alteration. The Weigert section showed a degeneration in the lateral pyramidal tracts which varied greatly in the different cervical segments. At some levels it was present on both sides, at others only on one side. In some places it was slight, in others quite marked and in some segments there was no degeneration at all. The posterior column showed somewhat similar changes. The same variation was present throughout the thoracic cord where there was a slight involvement of the direct cerebellar tract in some segments. At some levels the posteromedian and at others both the posteromedian and the posterolateral tracts were involved. The upper thoracic cord showed more marked changes than the lower, particularly in the posteromedian columns. In the lumbar cord there was a moderate degeneration of the posterior columns throughout, while in the lateral columns it was marked in some segments and slight or absent in others. There was a marked neuroglia reaction in some places, more noticeable in the posterior column. From a pathological point of view the extensive infiltration of the meninges of both brain and cord by lymphoid and plasma cells, the infiltration of the same character in the vascular sheaths, the disturbance of the layering of the cortex, the increased vascularity, the increase in the neuroglia elements, the presence of rod cells, the satellitosis, the degeneration of the cord and the ependymitis of the ventricles would seem to remove any doubt as to the diagnosis of general paresis. The mental condition of the patient can be explained on no other ground. In view of the involvement of the posterior columns of the cord, so frequently found in adults, it is reasonable to assume that the somewhat unusual lesions associated with a diffuse meningoencephalitis in this case are to be attributed to general paresis rather than a combination of that disease with some other affection of the cord.

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ANEMIA, WITH SOME REMARKS AS TO ITS PATHOGENY AND HYPODERMIC TREATMENT.

By G. K. DICKINSON,

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Anemia as a terminal condition in surgical states of continued hemorrhages presents interesting problems in morbid physiology which need to be comprehended before proper treatment can be instituted.

We are told that ordinarily metabolism of the iron-holding bodies is so carefully conducted that but little leaves the system. This is necessitated by the fact that the amount of iron in a being of average size is not more than fifty to fifty-five grains, and, owing to its importance, conservation is essential. The amount of iron in food runs from ½ to 1/6 of a grain a day, but it is so loaded with colloid material that its digestion and absorption are embarrassed. The portion of the intestine which has the selective power over the absorption of iron is the duodenum. Under the conditions of great demand, and if a considerable amount of iron be present, neighboring portions of the intestines and stomach are said to possess the power of absorption in a minor degree. As food iron has to be thoroughly acted upon by the gastroenteric juices before it may be absorbed, much may undoubtedly pass the duodenum without appropriation and be rendered inert for possible later absorption by the sulphur compounds lower in the gut. This may be the reason why the chloride in large doses seems to produce better results than iron administered in any other form, for it is in this condition that it more nearly resembles the end result of gastric digestion of food iron.

After passing through the intestinal epithelia this metal is found stored largely in the spleen as a granular pigment known as "hemosiderin." In the course of a week it will have passed from the spleen to the liver, where it is called "hepatic ferratin," to be delivered later as needed by the economy.

Iron is excreted to a slight extent through the urine, but the largest part through the cecum and continuous portion of the colon.

The synthesis of hemoglobin begins in the spleen and terminates in the red bone-marrow where the red blood corpuscles are formed.

In conditions where there is a constant drain on the blood-forming organs we see anatomical alterations in the bone-marrow, which is, next to the blood itself, the most unstable tissue in the body. In persisting hemorrhages the bone-marrow suffers widespread and profound degeneration supervening upon long and excessive activity, a state of exhaustion which may be attributed to long strain. It undergoes fibroid and gelatinous changes. The latter may be acute as well as chronic, characterized by progressive diminution of the blood-forming constituents and absorption of fat, the cells of which contain the latter undergoing myxomatous changes.

For some reason there may exist a duodenal insufficiency so far as iron absorption goes, due to inactivity of the epithelium or hormone defect, neither food nor medicinal iron being absorbed in sufficient quantity to stimulate the activities of the blood-forming organs; so that blood corpuscles stored with hemoglobin shall be formed. Medicinal iron will at times fail, through the production of gastric distress, pain, heaviness, anorexia, or diarrhea from intestinal irritation.

In order to circumvent the inefficiency mentioned, hypodermic administration seems reasonable. Glaevecke is recorded as being the first to introduce it in 1883, in the form of ferratum citricum oxydatum. His method has not received the general attention of the profession, in part because of failure to apply it in appropriate cases and by measuring its effect on the hemoglobin and blood count. Occasionally we will meet those in whom the iron salt produces a great deal of local irritation, marked pain, local tenderness, and subsequent painful nodes. Another sufficient reason to many is the large number of agreeable iron pharmaceuticals.

Clinically we may divide anemias into two types: that which is maintained by exhaustion of the duodenal mucosa and blood-forming organs, and that due to other conditions. In the former type where medicinal preparations fail, where the anemia cannot be relieved, and where the digestion is markedly embarrassed by medication, the hypodermic use of iron must be resorted to, no matter what its drawbacks may be. Kobert claims that iron

administered hypodermically may irritate the kidneys and produce a nephritis, but Cushny does not recognize this danger in therapeutic doses. In a fair per cent. of cases under treatment by this method considerable pain is produced, while in numerous others there is little or actually no pain.

The citrate of iron is not precipitated in the tissues, quickly passes into the circulation and is a most active bone-marrow stimulant. Two grains of the citrate are equivalent to .32 grain of free iron. A tartrate of iron and potash solution, of which two grains equals .30 grain of free iron, may produce a little less distress in an average run of cases. Other double salts and a succinate have been employed with very much the same result as to distress and recuperation.

Mr. J., age in the 50's, referred by Dr. W. L. Pyle, entered the hospital early in September, 1909; railroad man by occupation; past habits good. History of anemic attacks without apparent cause; debility, gastric, and enteric disturbances, partial recuperation each time by medication per os. Last recurrence the worst of all; mucosas and subungual places very pale; hemoglobin 20 per cent.; red blood corpuscles about 3,500,000, all in a condition of poikilocytosis. A diagnosis of pernicious anemia was made. Four grains of citrate of iron were thrown into the muscles of the shoulder, back, or thighs daily. There was some reaction as evinced by pain, tenderness, and an occasional serous accumulation (cystic.) Meantime, the tissues, being washed by a better blood, took on a stronger tone. His dyspnea ceased and strength came back so that he could walk all around the hospital, and at the end of six weeks his hemoglobin rose to 75 per cent., his blood count became normal and showed no distortion of cells. The duodenum resumed its normal function of iron absorption, and a physiological balance of iron metabolism has been maintained.

Mrs. M., age in the 30's, had been bleeding from an esophogeal angioma for seven years. These hemorrhagic attacks at the start would come every third month, lasting about a week, bringing down her blood content and tension to a point of faintness and dyspnea. As nothing controlled this peculiar cyclic condition, hemorrhages instead of being periodic and excessive, gradually ran together, blood being wiped from the mouth almost daily. Her heart became dilated, venous impulse ran up her jugulars, ankles became edematous, and she had all the other conditions incident to chronic anemia. Iron in any form or dilution did not activate her blood-forming organs. It would instead incite vomiting. Some peculiar tenacity of life kept her going. Good clinicians uniformly predicted death within three months. On September 1, 1909, the hypodermic use of iron was instituted, four grains daily being injected into the muscles. The first effect was an angioneurotic edema of the extremity used. After a week injections ceased to produce that reaction. Hemoglobin percentage, which was down to 12, immediately rose so that by the end of the sixth week it was 80. Her vessels became filled with a better quality of blood, and apparently there was an increase in quantity. Hemorrhages still continue, but come at their regular period of three months. Recuperation is prompt and effective. She has no dyspnea, heart has contracted, she does not suffer from indigestion, can walk long distances, and has resumed her position with family and society.

In closing, where loss of blood is continuous for a considerable time histological changes of a regressive type take place in the red bone-marrow. At the same time there seems to be a suspension of the function of the duodenal epithelia so far as iron absorption goes. Since September 1st this method has been employed on a number of seemingly appropriate cases. It is very painful to many, but, as it is their only hope, they have been compelled to submit to the pain in order to obtain recovery, which has been positive in each instance.

This article is submitted to the profession not as anything new, and simply to explain the condition in which hypodermic iron is of the most value and where this method of administration is absolutely necessary; also to emphasize the importance of continuance in spite of its unpleasant disturbances.

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OBSERVATION ON DENGUE.

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Dengue is a disease which was first described many years ago, but it is only since 1902 that we have begun to know more about it on an experimental and scientific basis. During a recent severe epidemic in Beirut, Syria, a city lying between the slopes of Mt. Lebanon and the Mediterranean Sea, I had the opportunity to study the disease and observed several interesting facts relating to its different phases, to which I would like to call attention. As the disease is confined to certain regions only, and not met with in others, I shall review briefly the whole subject in order to give a clear and thorough representation of it, taking into consideration the etiology, symptoms, and complications, with special reference to the last epidemic.

Dengue is an acute infectious disease of tropical and subtropical regions, characterized by fever, pain in the joints, bones, and muscles, sometimes by an initial erythenta and a terminal polymorphous exanthem. It comes in epidemics and in a short time attacks most of the inhabitants, only a few escaping it. Dengue epidemics are very common in Turkey, coming on in the summer and autumn and with varying virulence.

For many years nothing was known about the germ that caused it, and how it was carried from one person to another. Owing to the readiness with which it spread, direct contact and the air were blamed for its dissemination.

In 1902, however, Dr. Harris Graham, my chief, published a very interesting article titled, "Dengue, Study of Its Mode of Propagation and Pathology," Medical Record, Feb. 8, 1902, in which he cited his systematic experiments and observations and, beyond any doubt, demonstrated that dengue is transmitted from one person to another by a kind of mosquito, *Culex fatigans*. Further in his article he stated that he was able to see within some of the erythrocytes in fresh blood taken from dengue patients, small unpigmented bodies which possessed ameboid movements, and which, if watched long

enough, were seen to shift themselves from one part of the corpuscle to another. These bodies he took to be the parasites of dengue, and called them *Hæmamœba denguii*. Many investigators, however, searched for the parasite described by Professor Graham, but in most cases they failed to find it.

During the last epidemic of dengue, which lasted in Beirut about four months, I had the opportunity of examining the blood of many patients at different periods of the disease and in all the cases where I examined the blood carefully enough I did not fail to find the following results:

1. Fresh specimens examined carefully with the dark-field illuminator showed, in many erythrocytes, small, brilliant, light-reflecting bodies, which changed their shape, at one time appearing round, and at another fusiform, and moved freely in the blood corpuscles.

2. In specimens stained according to Giemsa-Romanowsky, I was able to find in the erythrocytes small, usually round, but sometimes elongated fine, granulated, from purple to blue colored bodies, of the size of 1-5 to 1-3 of a normal erythrocyte, occupying the margin, but also at times the center of the blood corpuscles. In some specimens these bodies seemed to be half way outside the corpuscles and in others to have completely left the erythrocytes, these latter, however, are sometimes difficult to differentiate from the blood-platelets. For the blood examination, special care was taken to select patients who never had had malaria.

The parasites I found, namely the bodies that were seen in the erythrocytes in the dark-field illuminator and in the stained specimens, were present in the blood of each case, showing clinically the symptoms of dengue, and they seem to be very similar to if not identical with those described by Professor Graham. It has been proved that dengue is transmitted by the *Culex fatigans*, and the disease has been experimentally produced in districts where it does not normally occur and where the culex is not found, by allowing mosquitos which have fed on dengue patients to bite healthy individuals in whom all the clinical symptoms of the dengue developed. The blood of such patients examined showed the presence of the parasite described above.

Taking these facts into consideration, together with the observations on the parasite above described, and its constant presence in the blood of patients clinically diagnosed as sufferers from dengue, I have no doubt but that this parasite is the cause of the disease.

The life history of the parasite is not easy to follow. At an early stage of the disease it appears in the erythrocyte as speck which enlarges and eats away the hemoglobin around it; and inside of 24 to 36 hours the speck reaches the size of about 1-5 a normal erythrocyte and fine granules appear in it.

About 60 hours after the beginning of the attack the parasite seems to reach its maximum size and begins to migrate out of the erythrocytes, usually by rupturing the latter. From this time on we find many parasites that are extracorpuscular and other intracorpuscular, as it were another crop beginning its cycle.

The extracorpuscular parasites look like a group of fine granules arranged more or less in circles, sometimes two or three of them lying side by side, each of them esembling a group of blood platelets. In the leucocytes are often found small granules which seem to show that the parasites were taken up by the white corpuscles.

Microscopically there are some points of differentiation between the dengue parasite and that of malaria.

DENGUE.	MALARIA.
1. Smaller.	Larger.
2. Usually round.	Different shapes.
3. Slightly pigmented.	More pigmented.
4. Finer granules.	Larger granules.
5. Less stainable.	More stainable.

The clinical symptoms of dengue in most of the cases were: after an incubation period of three to seven days there was a sudden onset, often with a chill, sometimes with vertigo and a high rise of temperature, accompanied by headache, bachache, pains in the joints, especially in the knees, and in all the muscles, and often pains in the eyeballs. There was usually an initial erythematous rash on the face and chest, which disappeared after the second day. In the course of the disease there often developed anorexia, tachycardia, and insomnia, and in some cases delirium.

The temperature was high, between 39° and 41° C. (103°-105.8° F.), lasted from three to six days, and terminated usually by a crisis, and with its fall there often developed a polymorphous exanthem, which rapidly faded away, occasionally with scaling of tne skin.

In some cases there was enlargement of the spleen. In the course of the disease some patients complained of chilly sensations and sweating. In some cases the symptoms were so mild that the patients did not even feel sick enough to go to bed. As to the duration of the immunity, it seems to last a few years.

Many authors writing on dengue say that it is a disease which runs a mild course, and is unaccompanied by any serious complications. The last epidemic, however, which we had in Beirut was accompanied by more or less serious complications, which I think are worthy of note. These complications were:

1. Hemorrhages into the skin, varying in size from that of a pin's head up to four or five cm. in diameter.

2. Alarming hemorrhages from the mucous membranes of the nose, stomach, and intestines. Two cases of hemorrhages from the nose and stomach terminated fatally.

3. Menorrhagia and metrorrhagia were observed in a number of instances.

4. Abortions in the fifth, sixth, or seventh month of pregnancy.

5. Severe gastrointestinal symptoms, pain, nausea, vomiting, diarrhea, and dysentery-like symptoms.

6. Heart infections, with two cases of myocarditis ending fatally in patients at the ages of 4 and 14, in whom before the dengue there were no symptoms of heart disease.

7. Typical conjunctivitis, which subsided with the end of the attack.

8. Edema of the skin, anasarca-like, which disappeared when the dengue was over; no heart or kidney trouble being present.

9. Relapses in about 15 per cent. of all cases, coming on after the second or third apyretic day; and in some cases even a second relapse had been noticed.

10. Protracted course, running two or three weeks, during which the patients have an irregular fever, malaise, lassitude, and inability to do any work.

MEASLES AND GERMAN MEASLES: CHARACTERISTICS OF THE PRESENT OUTBREAK IN PHILADELPHIA.*

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The most striking characteristic of the outbreak of German measles and measles in Philadelphia this spring has been the fact that the eruptions in both of these diseases have been very similar, in fact almost identical. While, in some cases of German measles, the eruption has resembled that of scarlet fever, the great majority of these cases, adults as well as children, have had a rash which could not be distinguished from that of true measles. The other striking characteristic of both diseases has been the extreme mildness of the attacks; serious cases of measles have been rare, even when complicated by pneumonia.

The cases of true measles have been typical, with marked, even severe symptoms just before the rash appeared. But catarrhal symptoms always preceded the eruption, bronchitis, with coryza and conjunctivitis, being very common for some days or a week or longer; Koplik's spots have been observed also, in many cases. The great majority of cases of true measles have occurred in children who were known never to have had measles. The eruption has been profuse and has been visible for from five to ten days. Even these children with mild attacks have been in bed for a week or longer, though, in a great number of cases, no physician has been in attendance. In some young children pneumonia has been present almost from the beginning, the disease terminating fatally in some of these cases. Otitis media has also been a common complication.

German measles, on the other hand, has come on very suddenly, without any previous cough. A child or adult, generally one who distinctly recalls a previous attack of measles, is surprised to discover an eruption, which usually appears without any antecedent symptoms. In many cases enlarged occipital and cervical glands have been noted; in the majority no other physical signs could be elicited, the rash being the whole illness. In many young children, however, malaise, fretfulness, and anorexia were noticed. But inside of seventy-two hours all trace of eruption had disappeared, with a few enlarged cervical glands or nothing at all remaining.

In these cases of German measles in which the eruption simulated that of scarlet fever, the fact that the rash was limited to portions of the trunk or extremities, instead of spreading over the whole body, and the total absence of the other cardinal symptoms of scarlet fever, made the diagnosis easy. But when some throat condition, such as acute tonsilitis, occurred at the same time, or there was some gastric derangement with vomiting, the diagnosis was more difficult. The lack of a high temperature just before the eruption and of the fall of temperature after the rash has appeared; the relation between pulse and temperature; some known cause for the tonsilitis or gastritis, and the rapid disappearance of the eruption, without desquamation following, all helped to make the diagnosis clear.

Other eruptions have been confused with German measles, such as rashes due to strawberries, tomatoes, or other foodstuffs; prickly heat; insect bites, and eruptions resulting from drugs. In one confusing case, a colored girl, with a chronic eye condition which was under treatment, developed a scarlatiniform eruption, without other signs or symptoms; in fact she felt quite well. Investigation brought out the fact that her eye lotion had been increased in strength and the number of drops instilled into each eye doubled the day before the eruption appeared. On omitting the eye drops the flushing due to the increase of atropin at once disappeared.

In many of the cases of true measles a fine, branny desquamation has been observed over almost the entire body. Desquamation, like that due to sweating, has been most noticeable on the palms of the hands and soles of the feet, the skin coming off in tiny circular or irregular-shaped bits, from two to four weeks after the beginning of the illness.

Finally, the physician of Philadelphia must learn to differentiate between German measles and true measles, as it is his duty to report both diseases to the Bureau of Health. The present regulations call for a placard upon the front door of a house in which true measles exists, while German measles remains as yet unplacarded.

118 South Twenty-second Street.

*Read before the South Branch of the Philadelphia County Medical Society, May 27, 1910.

Excision of Adenoids and Tonsils.—Steinhardt mentions that a short time ago when the old diagnosis of intestinal inflammation was proved to be erroneous in many cases of abdominal pains and that symptom was called appendicitis it was the fashion to remove the appendix on the slightest provocation, but after the profession woke up very few appendices are now excised and then only for due cause. The same thing exists, in Steinhardt's opinion, in regard the excision of tonsils and adenoids, and as soon as the physician discovers that a child has them he jumps to the conclusion that the child must be nervous, etc. The worst thing is that most medical men believe the operation so simple that any one can perform it and the result is that more than two-thirds of the tonsils and almost all the adenoids remain after the operation. Steinhardt believes that when it can be proven that these glands retard the physical or mental development of the child, medical treatment should be instituted and, only when that fails we must recur to surgical means; but when we decide to operate the most radical procedure should be employed, as we frequently see that many operators leave large quantities of tonsil and adenoid tissue. Incidentally he records his belief that an anesthetic should be employed in all cases.—*Crónica Médico-Quirúrgica de la Habaña.*

Abuse of Forceps in Primiparæ.—A. Isaacson says that he believes it to be very unfair and unjust, non-professional, for a physician to apply the forceps simply because he is too busy and cannot wait for the natural forces to act or because he is envious of his brother physician and desires to lead in the percentage of forceps deliveries performed. A forceps delivery, even in the hands of the most competent, is, nevertheless, an operation which should not be taken too lightly; it surely does not add to the safety of the mother or child; and to subject a patient to this ordeal for selfish reasons only, as it is often done, constitutes, in his mind, a criminal act. It is not necessary to dwell upon the advantages of natural births, which are self evident, when we look upon the contrasting manifold disadvantages of forceps manipulations: (1) necessitating, as it does, the use of an anesthetic, most commonly chloroform, with its ordinary dangers; and it has been recently shown that chloroform always has a deleterious effect upon the liver; and there are cases on record of latent chloroform toxemias. (2) Manipulations increase the chances of infection. (3) The greater possibility of lacerations; and (4) lastly, but not of least importance, the dangers to the child in forceps application. With these great disadvantages staring into our faces, the author thinks the profession should limit the use of forceps only to cases indicated, and not merely use it at random or to please one's self. With conscientious consideration for the patients, our percentage of natural births in primiparæ would be greatly increased if the forceps was applied only where absolutely necessary.—*New York Medical Journal.*

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SANITATION IN THE TROPICS.

THE work which, at the present time, is being done in various tropical countries has only been rendered possible by the results of the studies and investigations of many scientific men. In every tropical land malaria has been the chief disease which has stood in the way of the white man living and working effectively therein. The researches and practical labors of several men headed by Laveran, Manson, Ross, and Grassi have robbed malaria of most of its terrors. In addition to malaria, which is prevalent in all parts of the torrid zone, there are and have been many other even more deadly diseases, which are to a large extent restricted to certain regions. Among these may be mentioned bubonic plague, sleeping sickness, and yellow fever. Time was, not long ago, when yellow fever was a scourge of the West Indies, of South America, and of some portions of this continent, but the confirmation by the U. S. Army Board of Finlay's discovery that the mosquito was the means of spreading yellow fever and the practical application of this discovery by Colonel Gorgas put an end to yellow fever as a necessary menace to the inhabitants of the tropics. It was because of Gorgas' triumph in Havana that to him was entrusted the task of bringing order out of sanitary chaos in the Canal Zone. When the making of the canal had been decided upon it was freely recognized that the greatest obstacles in the path of its successful and speedy accomplishment were the unsanitary conditions prevailing in the Canal Zone. Havana had had a bad reputation, but that of Panama and locality was certainly no better. The country through which the canal had to pass was looked upon, and rightly, as a pest hole and a death trap. During the time that the French were working there the death roll among white men, yellow men, and negroes was appalling. Hence, the American Government viewed the project with some misgiving and apprehension.

However, from the standpoint of health all these fears have been dispelled, and now the mortality and morbidity rates of the white men on the Canal Zone are less than in most American cities. This reads like a fairy tale and the outstanding fact is not so much that the canal is certain to be a commercial success, but that proof has been afforded that the most deadly portions of the tropics can be made habitable and healthful for men and women of the northern races. This will be the true triumph of the building of the Panama Canal.

No expense would seem too great to attain the ends which have been attained on the Canal Zone. Indeed, as said before, the labors of Colonel Gorgas and coadjutors have perhaps alone rendered it possible to construct the canal. But as a matter of fact, the sanitation of the Isthmus has not been and is not nearly so costly as is generally conceived. At the meeting of the American Society of Tropical Medicine held in St. Louis in June, 1910, Colonel Gorgas read a paper (*Gulf States Journal of Medicine and Surgery*, July, 1910) dealing with the expenses necessary for sanitation in the tropics, in which he showed that the general opinion as to the cost of the sanitation of the Isthmus was greatly exaggerated and that really the sum devoted annually to this object was not unduly large. He computed that, reckoning the average population of the Canal Zone during the past five years as one hundred thousand, the per capita appropriation for sanitation in the same period was $3.38 per year, or 28 cents per month. The amount would not be excessive in any circumstances, and when the magnificent results from every point of view are borne in mind the sum seems trifling. The work of Colonel Gorgas and his associates is not only in the interests of this country but of humanity at large, and is such that money cannot recompense. Another important lesson, too, may be learned from the sanitary results in Cuba and Panama, and taken to heart by the inhabitants of many American cities. If a little of the energy and intelligence which have been expended in the cleansing of Panama had been put forth by the authorities of the Gulf cities in destroying mosquitos and improving sanitary conditions generally, the death and disease rates of these cities would be more satisfactory than they are at the present time. Still the Gulf cities are not the only sinners in sanitary matters in this country, and the example set by the Canal Zone sanitarian under most difficult conditions should incite civic pride throughout America to generous emulation.

ADRENALIN THERAPY OF MALIGNANT TUMORS.

BERLIN savants, at least those connected with the Imperial Institute for Cancer Research and Prof. Bier's University Surgical Clinic, continue to show plainly their belief in the possibility of finding at last a medical remedy for cancerous growths and malignomata in general. This is an encouraging sign, for surgical resources hold out no hope for attaining a permanent solution of the problem; so that no one should belittle earnest efforts to find new therapeutic adjuvants in the domains of physicotherapy and biochemistry. Certainly no one should fail to keep himself posted as to the work of von Leyden, Bier, and their numerous lieutenants. For if the problem of curing cancer still seems as far off as ever, knowledge has been greatly multiplied; and it is probable that the ultimate solution will rest on knowledge thus acquired rather than on

the "accidental discoveries" which some laymen are prone to credit for radical advances in medicine.

In the *Deutsche medizinische Wochenschrift* for July 21 Reicher of the Berlin Cancer Research Institute demonstrates that mouse-cancer (adenocarcinoma) responds to all the tests for human cancer, save that it is much more amenable to treatment. He explains this tentatively by the naturally short life of the mouse, which may imply a greatly lessened resistance of its tissue cells to remedial agents. Among the substances which may be made to cause the complete disappearance of mouse-cancer is adrenalin, when injected into the tissues surrounding the growth. The morbid tissue undergoes necrosis as the result of the injections. One's first impression would naturally be that adrenalin therapy represents a starvation treatment through the characteristic action of the drug on the blood-vessels. The author, however, does not allude to this possibility and, in fact, his vain endeavors to immunize animals against inoculation-cancer by preventive injections of the drug show a belief in a specific property of the latter. To transfer the adrenalin possibility from the mouse to man, in view of certain alarming consequences sometimes attributed to systemic injections of the drug, is to assume some responsibility. Adrenalin has been pronounced contraindicated in a variety of degenerative diseases and certain other disorders, because of its action on the blood pressure. It is true that it would be injected for its local effect—and in the trifling amounts employed for local anesthesia unpleasant consequences are not feared; but if employed systematically for weeks at a time, enough might be absorbed to affect the blood pressure unpleasantly. This could in part be offset by physiological antidotes.

Reicher announces, moreover, that he has already tested adrenalin on human cancer with encouraging results. His forthcoming report will be awaited with interest.

Cause of Beethoven's Deafness.

Surprisingly little has ever been learned concerning the physical basis of this great composer's gradual and complete loss of hearing. It is naturally much easier to determine what was not instrumental in causing it. We may, of course, state that the lesion involved was a progressive otosclerosis, but this expression throws little light on the nature of the process in his particular case. Any acute or chronic infectious disease may, or might in theory, give rise to otosclerosis as a complication. Dr. Jacobsohn of Charlottenburg has discussed the subject of Beethoven's malady quite compendiously in the *Deutsche medizinische Wochenschrift* for July 7 and gives all the data obtainable, along with a brief list of references drawn from varied sources. There is some evidence that the composer had "abdominal typhus" about a year before his hearing gave way. But little was known of typhoid at that time—it had not been differentiated from pestilential typhus. We know to-day that typhoid is a not infrequent cause of otosclerosis. There is absolutely no evidence that the composer had ever contracted syphilis, but attempts have been made to show that his skull formation was suggestive of congenital syphilis; nothing was found at his autopsy to indicate that he had ever suffered from this malady. Although he died with cirrhosis of the liver, there was not sufficient evidence to show that he was an alcoholic. He had had smallpox in early life, but so had approximately half of all his neighbors. By exclusion, therefore, Jacobsohn is inclined to regard typhoid fever as solely responsible for the lesion which transformed a naturally cheerful and optimistic individual into a crabbed misanthrope. The accident brought out heroic qualites in the man, but Dr. Jacobsohn does not venture to express an opinion as to whether the sufferer's art was a loser or gainer through his misfortune.

Electrolytic Arrest or Cure of a Malignant Epithelioma.

For a generation or thereabout electrolysis and other methods of electrotherapy have made distinct headway against forms of tumor which, while not technically malignant as a class, have been progressive and often inoperable, including fibrosarcoma of the nasopharynx, cavernous angiomata of the tongue, and the like. Actual malignant growths have been amenable as a class to such treatment only when very small, as in the earliest stages of relapses in localities where wide incision is impracticable. Occasional results are obtained where the prognosis under such treatment would not have been called in the least encouraging. Kafemann reports a case of this kind in the *Deutsche medizinische Wochenschrift*, June 30. To use the author's own method of summing up, he states that he had to do with a very far advanced case of epithelial cancer of the nasopharynx with numerous glandular metastases on both sides of the neck. The growth, three months after surgical removal, suffered a violent relapse. The recurrence was first curetted and then treated for thirteen sessions with electrolysis, with the result that the tumor cells appeared to have lost their power to proliferate. The case was watched for two full years and no renewed activity was manifested. Certain pathologists would doubtless explain this result by the activating of the defensive leucocytes, by the formation of enzymes hostile to cancer growth, or by the stimulation of the young connective tissue cells which should normally possess the power to antagonize the growth of cancer cells. The author believes that reports of similar recoveries occur in the older literature, and either escaped fair notice or were received with incredulity.

Treatment of Rheumatism by Bee-Stings.

Some years ago bee-stings were advocated by a medical man in the Isle of Wight as an efficient remedy in the treatment of rheumatism. Latterly, little has been heard of this somewhat unusual and heroic treatment, and that it had ever been thus employed had probably escaped the memory of most physicians. However, recollection has been stirred by an article which appeared in the *Lancet* July 23, extolling the merits of the treatment. Dr. F. H. Maberley writes to that journal to say that the results from the employment by him of bee-stings in the treatment of rheumatism have been attended by conspicuous success. He cites a large number of cases, in which great relief has been obtained by these original methods. With regard to the mode of applying the insects he writes as follows: "In elderly people it is better to start with

about six stings for the first three applications, when they may be gradually increased even up to a couple of dozen. Sickness often supervenes if too many are put on at first. There is a little difficulty for a novice in putting them on, but I have perfected a pair of forceps which, while preventing injury to the bees, holds them firmly. The stings should remain in for a few minutes before removing them. In old standing cases treatment will have to be continued for many months." Dr. Maberley says that if this form of treatment does not effect a complete cure it gives relief in almost hopeless cases. There are doubtless many sufferers who would willingly allow themselves to be stung by bees if by such means respite from pain could be obtained. It is therefore encouraging to learn on good authority that the sting of bees has a deterrent influence on the course of rheumatism.

News of the Week.

Straus Milk Depots.—Because of the persistent attacks made upon him by a newspaper in New York, it is said, Mr. Nathan Straus has announced that he will not continue his free stations for the distribution of pasteurized milk in this city after the close of the present season. Believing that the criticisms are merely personal, Mr. Straus hopes that upon his withdrawal the city authorities will be compelled to take up the work of supplying pasteurized milk to needy babies, and that the charity will thus spread even more widely. During the present season Mr. Straus has maintained seventeen stations in the city, the annual distribution being about 4,000,000 bottles of milk. In addition to these seven stations are maintained during the summer, approximately 1,500,000 glasses of milk being served to all comers. It is said that the work will be continued by Mr. Straus in other American and foreign cities.

Charitable Gifts.—The Presbyterian Hospital receives a bequest of $7,500 to found a bed in perpetuity, under the will of the late Mrs. Harriet Coles of Glen Cove, L. I.

The New York Academy of Medicine receives under the will of the late Mrs. Margaret E. Gray a bequest of $50,000 to establish the Landon Carter Gray memorial, in memory of her husband. The income of the fund is to be used from time to time in purchasing books for the library of the academy.

A Ruling Against Osteopathy.—Justice Putnam of the Brooklyn Supreme Court, on August 26, handed down a decision in the case of Charles F. Bandel, an osteopath, who applied for a mandamus to compel the Board of Health of New York to grant a burial permit on a death certificate signed by him. Justice Putnam upholds the demurrer of the Corporation Counsel, and sustains the action of the Board. In a memorandum accompanying the decision Justice Putnam says: "While the State has wisely allowed the practice of osteopathy, it does not follow that it thereby holds out one, without any practice in surgery or experience in prescribing drugs, as fully qualified to certify the cause of death. Indeed it is not certain that a board of health would be compelled to take the certificate of death of all licensed physicians in the event of an epidemic or the spread of some new and mysterious disease. Granted that the theoretical education of the osteopath is of a standard equal to that of a doctor of medicine, after he enters on his profession his practice is restricted, so that it does not appear that he can make the tests by examination of blood and tissues by which alone many diseases can be certainly detected. The sanitary code is discriminatory, but the discrimination is not personal and arbitrary. It is based on a limitation which the osteopath may be said to make for himself, and deprives him of no rights which he ought to exercise consistent with the public safety."

Cholera in Europe.—An improvement in the cholera conditions in South Russia is shown in the latest reports. For the week beginning August 14 the Sanitary Bureau reported 16,106 new cases, with 7,743 deaths, the figures being several thousand below those for the previous week. The total figures for this epidemic in Russia up to August 21 are given as 121,091 cases and 58,030 deaths. The appearance of the disease in Vienna is reported, the victims being recent arrivals in that city from Hungary. In Roumania it has been thought advisable to omit the annual maneuvers of the army because of the numerous cases of cholera along the frontier. A number of new cases have also been reported from the province of Bari in Italy, cases are reported from Spandau in Prussia, and several suspicious cases have been discovered in Berlin.

Epidemic Poliomyelitis.—Dr. Simon Flexner of the Rockefeller Institute has issued a request for specimens of the nervous system from fatal cases of epidemic poliomyelitis, which is widely prevalent throughout the United States and Canada at the present time. The specimens should consist of portions of the spinal cord, preferably of the lumbar or cervical enlargement, removed as soon after death as possible, and preserved in plenty of pure glycerin. The specimens are to be used for experimental purposes, and may be sent by mail or by express collect to Dr. Flexner at the Rockefeller Institute, Sixty-sixth street and Avenue A, New York.

Race Suicide in Hawaii.—According to a report made recently by Governor Frear of the Hawaiian Islands, the birth rate of Hawaii is decreasing in proportion to the population, while the death rate is increasing. Last year the deaths numbered sixty-one more than the year before, whereas the births numbered 600 less.

New Offices for Coroners.—The Board of Coroners of Manhattan Borough, New York, will move shortly from its present quarters in the Criminal Courts Building to 75 Lafayette street, which has been leased for the purpose.

A Lutheran Hospital.—The Lutheran Inner Mission Society of New York is working to establish a new hospital to be especially for the Lutherans of the city. The society has already established a district medical service, having for this purpose divided the city into fifteen districts, each in charge of a physician who responds to calls sent by the workers in Lutheran churches to treat cases of needy persons.

Germ-Proof Bills.—The National Bank of Spokane, Washington, announces the issuance of the first antiseptic, germ-proof National banknotes. Fifty thousand dollars in bills recently sent out were printed with ink consisting largely of carbolic acid.

The Southeastern Wisconsin Physicians' Association at its seventh annual meeting held at Racine on August 17 elected the following officers: *President*, Dr. Edward Kinne of Elkhorn; *Secretary and Treasurer*, Dr. Milton V. Dewire. The next convention will be held at Elkhorn.

Mr. Gustave Moynier, President of the International Committee of the Red Cross since its foundation in 1863, died at Geneva on August 22, aged 84 years.

Obituary Notes.—Dr. John Wells Bulkley of Washington, D. C., a graduate of the Berkshire Medical College (Medical Department of Williams College), Pittsfield, Mass., in 1844, and one of the oldest practitioners of the District of Columbia, died at his home on August 23, aged 87 years. Dr. Bulkley was one of the first physicians to attend President Lincoln after he was shot, and remained with him until his death.

Dr. Joseph Janney Hull of New York, a graduate of the Medical Department of New York University in 1858, a member of the New York State and County Medical societies, the New York Pathological Society, and the New York Hospital Alumni Association, and consulting physician to the Nursery and Child's Hospital, died at his home on August 26, aged 76 years.

Dr. Paul Cheseborough Skiff of New Haven, Conn., a graduate of the Yale Medical School in 1853, and a practitioner of medicine in New Haven for over forty years, died in that city on August 26, aged 82 years.

Dr. Francis Collamore of Pembroke, Mass., a graduate of the Dartmouth Medical School in 1847, died at his home on August 18, aged 84 years.

Dr. Samuel B. Littlepage of Oakland, Cal., a graduate of the College of Physicians and Surgeons of Keokuk, Ia., in 1885, died on August 11, aged 72 years.

Dr. B. Wagener Hunter of Charleston, S. C., a graduate of the Medical College of the State of South Carolina in 1894, and a member of the Charleston Medical Society, died at his home on August 13, aged 47 years.

Dr. John W. Klein of Louisville, Ky., a graduate of the Hahnemann Medical College of Philadelphia in 1871, died at his home on August 13, following a stroke of apoplexy, aged 59 years.

Dr. Wilson N. Heflin of Roanoke, Ala., for many years a practising physician in Randolph County, a graduate of the Medical College of Georgia in 1851, died at his home on August 13, aged 82 years.

Dr. Wellborn Calhoun of Atlanta, Ga., a graduate of the Jefferson Medical College in 1869, Professor of Diseases of the Eye in the College of Physicians and Surgeons of Atlanta, a member of the Georgia State and Fulton County Medical Societies, and attending surgeon to several hospitals, died at his home after several months' illness on August 21, aged 65 years. Dr. Calhoun was a veteran of the Civil War, having served in the Confederate Army.

Dr. William B. Stewart of Unadilla, N. Y., a graduate of the Vermont Medical College of Rutland, a member of the Vermont State and Bennington County Medical Societies, and until recently a practitioner in Bennington, died at his home on August 21.

Dr. Robert Amory of Boston, Mass., a graduate of the Harvard University Medical School in 1866, formerly lecturer on Physiology and the Action of Drugs in this school, and later Professor of Physiology in the Medical School of Bowdoin College, and the author of several works on physiology and therapeutics, died at his summer home at Nahant, Mass., on August 27, aged 68 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

BRITISH MEDICAL ASSOCIATION—THE MUSEUM—BACTERIOLOGY TYPHOID CARRIERS—EFFECT OF ALCOHOL ON NERVE TISSUE—SOURED MILK TREATMENT—OBITUARY.

London, August 12, 1910.

The immediate effect of the British Medical meeting seems to have passed into the limbo of yesterday's forgotten news or to have evaporated with the excitement of the entertainments and hospitalities; or, as one says, become "ancient history," and so no longer talked about or edged out of conversation by later events. But the serious side will, of course, have its influence. The meeting was well organized to secure publicity; indeed, as an advertisement, could not be bettered. Discussions on sociology and semi-political topics were well adapted to draw the lay press in the dead season, and were so far successful. It was rather curious in a medical meeting to hear speakers interrupted by "cheers" or "yes, yes" and "no, no," as happened in the debate on the falling birth rate, as to which acute differences of opinion were expressed by members more or less competent to discuss such subjects. But the notice of the newspapers was obtained, and even the genial Mr. Punch remarked that if the arrival of a baby is really so rare, might not the Mayor of the locality formally wait on every newcomer and welcome it to the community with the hope that the arrangements made for its reception will give it complete satisfaction.

One of the best things connected with the meeting was the museum arranged in nearly twenty departments. Of these those illustrating tuberculosis and cancer research were perhaps most attractive to practitioners, but bacteriology generally was well represented. So, too, were most of the sections, each under a separate curator. The collection must have cost an immense amount of time and care by many experts, and it seems a pity that it should have only been available for three or four days, when the visitors had so little leisure to examine the exhibits.

The bacteriologists mustered well in their section, and their president (Dr. C. J. Martin) suggested that physicians and health officers might do well to consider more carefully man as himself a propagator of disease. In diphtheria prevention it would, if practicable, be more effectual to shut up contents with burning sulphur than to turn them out and fumigate the room.

Dr. Houston then opened a discussion on recently obtained knowledge of pathogenic organisms bearing on disease prevention. He thought passive transmitters—soil, food, water, air—had been too exclusively studied and the living storehouses of bacteria rather neglected. Soil does not seem to feed the bacteria, which, in fact, are gradually destroyed in it. Even in water, which he admitted was a transmitter, the bacteria tend to lose vitality—not to multiply. Solid food did not play a large part in propagating diseases, though vegetables grown in polluted soil and fish in polluted water eaten uncooked were possible transmitters. On the other hand, in liquid foods multiplication may take place. He did not say dead matter played no part in contagion, for it was well known that soils infected by tetanus and anthrax were almost permanently dangerous.

He held that living carriers were of the greatest importance, for typhoid is not the only disease which is distributed by them. Indeed, the question might well be discussed how far infectious diseases generally were so conveyed. Perhaps the nation might not be spending too much time and money on the purification of contaminated materials, the protection of the uncontaminated, and the avoidance of dangerous surroundings. But too little attention was given to the attempt "to discover and render inoperative the living storehouses and factories of disease." The hope of progress in preventive medicine was based on this study.

Prof. Otto Linz read a paper dealing with this question of carriers in epidemics of typhoid, and said it had been shown that the bacilli might persist for years in as much as 4 or 5 per cent. of all cases. Many cases owed their infection to them, but not so many as might seem likely, as most of those around the carrier would suffer either severely or mildly, and so the community become immune.

In a paper on dysentery carriers it was stated by Drs. Macalister and Menzies that the disease is only propagated by convalescing patients, not by those perfectly recovered.

Dr. Arkwright said that in diphtheria 50 per cent. of cases are free from bacilli two or three days after the

exudation has disappeared, but, on the other hand, in hundreds of cases convalescents had been found to harbor nonvirulent strains.

Prof. McWeeney mentioned a case of a carrier who during seven years had infected a number of persons.

Dr. Buchanan remarked on the difficulty of ridding the gall-bladder and urine of bacilli.

In reply Dr. Houston admitted that the weak point lay in lack of proof that bacilli in carriers could provoke epidemics.

Radium gave its name to a section in which important statements were made. Its value in cancer was, of course, discussed. Dr. Louis Wickham of Paris, who has carried on extensive researches in this matter, did not confine his appearances to a single section, but a rough summary of his views may be gathered from several sources. He claimed to have treated about 600 cases, and though he could not speak of radium as curative, he believed it may prove of service in the treatment of disease. Thus it could render operable cases which were inoperable, and could consolidate the subsequent cicatrices, but it must be controlled by those with experience. The limitations to its use were great—inaccessibility or vital nature of parts involved, advanced age, etc.—but still an expanding field was open to the surgeon. If five years elapsed after operation for cancer without recurrence, he considered it cured, though this was not fully accepted by the profession. He believed if malignant growths were excised at an early stage they would be cured. He did not, however, define the exact stage, and he did not therefore show how they could then be recognized.

Sir J. J. Thomson, the great physicist, who disclaimed medical knowledge, gave a most interesting address in which he attributed the injurious effects of *x*-rays to the soft ones only, but suggested that as they were the more readily absorbed their mode of production should be studied. It was very difficult to get them from the Roentgen tube, but under some conditions secondary radiation might obtain a definite softness, as shown by Barkla. Metals when struck by *x*-rays gave out a special quality which was constant for the metal, so he suggested that the radiation from some metal would probably give out soft radiation of a definite value for medical use, and would be more easily obtained than from the Roentgen bulbs.

Drs. Dominici and Warden of Paris showed eight patients who had been brought to London to give an opportunity to the surgeons to satisfy themselves of their cure.

Dr. Freund advocated the removal prior to applying *x*-rays of all crusts and scales which might hinder penetration.

The effects of the rays on the brains of growing rabbits were stated in a paper by Drs. Turner and George, which led to some talk about the treatment of ringworm and its possible danger. Opinions differed. Some members also contributed instances of the value of the rays in diagnosis, especially in fractures and diseases of bones. It was also useful to corroborate a diagnosis, such as calculus. The organization of an *x*-ray department in a general hospital was described by Dr. Simmons. Dr. Lazarus Barlow described his recent researches at the Middlesex Hospital cancer department. Dr. Barclay of Manchester illustrated by radiographs affections of the stomach. Others discussed the appearances of phthisis, active and healed, under *x*-ray examination.

So much has been said and written on the questions relating to alcohol that it was a relief to hear Dr. Mott say he would rather give a demonstration than read a paper on the subject he was announced to bring forward—"The effect of alcohol on the nervous system." Accordingly, he showed a number of lantern slides to illustrate such points as the wrist-drop, the degeneration and destruction of nerve fibers in varying degrees, changes in sensory cells, neuritis of the vagus, hemorrhage into the brain from degeneration of the middle coat of an artery, and so on. He dealt to some extent with the mental symptoms of alcoholics and defectives, and said he thought alcohol and imbecility combined in parents led to insanity in the offspring.

Sir C. Allbutt divided alcoholics into spasmodic drinkers and regular boozers. The former seemed to be assailed with sudden desire and displayed no remorse for their conduct, in some points resembling epileptics.

Mr. Shattock questioned if they would experience the desire if they had never tasted alcoholic drinks.

Dr. Passmore said one of the slides showed definite mischief in the brain, and he was of opinion that all chronic alcoholics were eventually affected, though they might not have visceral disease.

Dr. McVicar had observed that the mental symptoms of alcoholics were like those of senile degeneration.

Dr. Willcox gave an account of the plan of employing oxygen mixed with the vapor of alcohol devised by himself and Prof. Collingwood. The oxygen was passed through absolute alcohol before being inhaled, and appeared to take up a definite amount of alcoholic vapor, and so greatly enhance the effects of the gas. Cases of cardiac failure where oxygen alone produced no effect had been restored, it was said, by this mixture. In emergency a wash-bottle with inlet and outlet tubes could easily be utilized.

The soured milk treatment has had such a run in London that one naturally looked for a good discussion of it in the therapeutical section. Dr. Grünbaum dealt with the theory involved, and said the bacilli formed the acid just where it was wanted. The *B. bulgaricus* was more active than others and easily distinguished from other organisms. He gave the milk just at the stage when it curdled. Mucous colitis cases benefited, but gastric cases did not. Putrefactive toxins were neutralized. Uremia and diabetes he thought sometimes had improved.

Prof. Hewlett testified to the superiority of the *B. bulgaricus* over the other lactic acid-producing organisms, and related experiments as to the value of some preparations. He found tablets inefficient and uncertain as ferment starters.

Prof. Vaughan Harley's experiments convinced him that soured milk given by the mouth reduced intestinal putrefaction.

Dr. Bryce referred to the disadvantages of the remedy he had noticed, viz., constipation, aggravation of acid dyspepsia, and rheumatic complications.

Prof. Sahli had seen benefit in acidosis, and he attributed the effect to lactic acid, which he had given by itself. The dose was thus easy to regulate.

Dr. Robert Hutchison preferred ordinary intestinal antiseptics to this soured milk treatment which had become a popular craze.

Dr. Bond said whey was the best medium of lactic acid, as the casein was got rid of. Whey might be freely taken, for it did not cause dyspepsia, and was, moreover, a good cardiac tonic.

Prof. Bradbury had found the lactic treatment useful in cardiac irregularity and bradycardia.

Dr. Hertz had seen severe diarrhea produced. On the other hand, it had relieved constipation. Acute infection of the colon was benefited. It was proper to control the secretion under bacteriological examinations while giving the lactic acid treatment.

Dr. Wm. Berry, J.P., F.R.C.S.I., Senior Surgeon to the Royal Infirmary of Wigan, where he had lived for many years and was a prominent citizen as well as a practitioner, died on July 29. He had been a guardian of the poor and a municipal councilor, and was made a justice of the peace. He was a good all round practitioner as well as a skilful operator. The president of his college was represented at the funeral, as were various local authorities and the profession.

The death of Dr. Danford Thomas, coroner for Central London for some thirty years, removes a prominent figure from the public life of the metropolis. A few years ago he remarked that he had held several hundred thousand inquests. In his long career he had carefully studied the facts of criminology, and a number of his suggestions have been embodied in our law. He had never quite recovered from a seizure a year or two ago, and last week a second closed his career. As a barrister as well as a doctor he was eminently qualified for the office he so admirably filled.

Dr. Wm. Spence, who died on the 27th ult., after an operation for appendicitis, in his fiftieth year, leaves a widow and four children. He had practised in Dollar most of his career, and was greatly esteemed. He spent last winter in Davos, and returned, as was thought, much better for the change and rest.

The death of Dr. Mary A. Marshall at the age of 74 recalls the early days of woman's entrance into the profession in modern times. She took her degree of Doctor of Medicine at the University of Paris in 1879, and the Science of the Royal College of Physicians in Ireland in 1890. She became Senior Physician to the New Hospital for Women.

The death is reported from Southern Nigeria of Dr. A. B. Sigismond Powell, of the Medical Department of that Colony, who at the time of his decease was quartered at Forcados.

Dr. Ernest D. Simpson, I.M.S., died in India on the 1st inst., of cholera. He was only 28 years old, and was to have been married next month. At school and the University of Edinburgh he was noted as a steady worker and a leading athlete.

OUR LETTER FROM VIENNA.

(From Our Regular Correspondent.)

THE URINE AS A TEMPERATURE INDICATOR—A MILLIONAIRE RUINED BY MEDICAL FEES—AN AIR-SWALLOWER—THE ENZYME TREATMENT OF COLD ABSCESSES AND SEROUS EFFUSIONS—GANGRENE OF THE LUNGS—606.

VIENNA, July 23, 1910.

MARTIN ENGLANDER has constructed a urine thermometer, an apparatus for the determination of the body temperature from the freshly discharged urine. This consists first of a celluloid funnel, with an aperture for the penis. The celluloid is neither influenced by the air or moisture, and its camphor smell covers that of the urine. Within the celluloid funnel is a smaller one of cork, which prevents the radiation of warmth from the urine. Inside the cork funnel is placed for each measurement a new filtering funnel, with an accurately dimensioned opening for the escape of the urine. The cork and filtering funnels make it possible to obtain fully trustworthy temperatures with a maximum thermometer fixed opposite the aperture in the celludoid funnel with the aid of a detachable clamp; this quite independently of the room or surrounding temperature. Parallel measurements between the urine and axillæ show that the axillary temperatures, especially in actual and suspected consumptives, do not give the diagnostically important subfebrile and high subfebrile temperatures, but in many cases, normal values only.

Prof. Dr. Herm. Schlesinger presented before the Gesellschaft der Aerzte an American patient—a former millionaire—who had become impoverished as the result of the expense entailed in the treatment of a painful malady. The case was one of aerophagy, for which a gastroenterostomy had to be done. For seven years patient had suffered from extremely frequent pains in the gastric region, and had already been laparotomized four times. The attacks persisted, however, and were only mitigated from time to time by hydrotherapy. Patient had employed for the individual attacks large doses of morphine and chloroform, had been narcotized several hundred times without any disadvantages, and had used morphine and scopolanin in doses regarded as lethal. In all his attacks pains first appeared, followed suddenly by a firm, smooth tumor in the region of the stomach, whereupon the pains became unendurable. The tumor represented the sudden distention of the stomach by the swallowed air; this vanished under narcosis, and the attack was at an end. The air could not be withdrawn with a stomach sound. As patient expressed the intention of suicide, a gastric fistula was established as a last resort, which is ordinarily closed. When patient notices an attack coming on he opens the tube and the gas escapes, so that no attack develops.

In the Gesellschaft für Aerzte, N. Schiller spoke on the ferment treatment of cold suppurations and serous effusions. The nature of the treatment is that pure ferment solution is applied to the abscesses so that the accumulated non-absorbable albumin may be broken up into soluble substances, and the stagnation removed with promotion of absorption. As ferment solution Schiller and Jochmann first used only the pure leucocyte enzyme; later, as a result of further study, it appeared that the leucocyte ferment could be replaced completely in its chemical properties by trypsin. The preparation is a reddish gray powder, relatively easily soluble in water. A 1 per cent. sterile solution is used for injection, and this because of slight stability must be prepared fresh daily. Physiological saline solution serves as a solvent. The technique of injection is as follows: After previous cleansing of the puncture site the abscess is punctured with a strong needle and the contents either aspirated or expressed. It is recommended to make the puncture opening a little to one side of the abscess, and not at its most dependent point; as in the latter case a fistula will result, through which the newly collected pus will continue to seep. Cold abscesses are very favorably influenced by the ferment treatment, and at times heal with surprising rapidity. It has been shown to be very useful to empty the abscesses daily and use the trypsin solution every second day. In abscesses up to the size of a hen's egg, Schiller, as a rule, injects from 2 to 3 cm. trypsin; in larger ones from 3 to 4 cm. A light compression dressing is always applied. As a rule, three or four injections suffice. Of tuberculous lymph nodes Schiller has only treated the softened ones, and with success. On the other hand, tuberculous joint affections are very refractory to the treatment. Serous effusions are very favorably influenced by the latter. Ganglions vanish ordinarily after a single puncture and injection. The same holds good for bursæ mucosæ (bursitis prepatellaris), and in these cases, the author said, he had often seen excellent results follow the institution of the ferment treatment.

Primarius Lotheisen demonstrated in the Gesellschaft der Aerzte a 45-year-old female subject, upon whom he had operated for extensive pulmonary gangrene. The woman first suffered from pneumonia, was strongly pulled down thereby, and finally had foul-smelling sputum, with coincident rise of temperature. She was brought to the hospital, where to the right side, close by the spinal column, a locality was found with amphoric respiration, coarse rales—in short, with cavitary symptoms. In the dependent region was empyema, as confirmed by trial puncture. Radiography showed darkening of the right half of the thorax, with a clear area at the fifth and sixth rib, medial at the scapula, over which a still clearer area was visible. This was a gangrenous focus, with an air bulla. The woman was almost too weak to submit to examination; she became cyanotic, temperature 39.4 degrees C. Under local anesthesia the empyema was evacuated below the eighth rib. As had been supposed, this did not communicate with the gangrenous cavity, but was separated from the latter by a bridge about 5 cm. thick. Thereupon, under Schleich's anesthesia, the sixth rib was resected from the process outwardly to the extent of 7 cm. A sclerotic lamina, 1.5 cm. thick, partly pleura and partly lung tissue, now had to be divided in order to enter the gangrenous cavity, which was larger than the first, and contained gangrenous shreds (histologically lung tissue) and pus having a carrion odor. At the base was the lumen of a large bronchus, the size of a heller, which, previous to the operation, had been drawing off 70 cm. sputum daily. The cavity was tamponned and drained externally, and the sputum at once lost its gangrenous smell, and in a few days came down in amount to 20 or 30 ccm. The empyema quickly healed under aspiration drainage. The gangrenous cavity closed more slowly. It is interesting to note that the bronchial fistula closed without a second operation (suture is often required); it was sufficient in this case to cauterize the lumen often with nitrate of silver stick. The granulations which shot up about the lumen were incited to more rapid growth by the application of tincture of iodine.

The Ehrlich discovery as to the cure of syphilis has naturally caused a justifiable sensation among us. Several reports of clinical investigations have already been made.

Walter Pick reported on over thirty cases of syphilis treated by the Ehrlich-Hata preparation No. 606. Ehrlich found that after a single injection into the gluteal musculature the visible symptoms vanished in strikingly brief time. This was true of both early and late symptoms, and also for malignant syphilis which had proved refractory to mercury. Pick himself saw a large ulcer in the pharynx and a gumma of the forehead heal in fourteen days. In a second case, fourteen days after an inunction cure, papules appeared on the tonsils and disappeared in five days. Secondary symptoms disappeared most rapidly of all. Wassermann's reaction was not influenced thereby. Injurious collateral effects were not observed, but the injections caused pain, which lasted four or five days, and also a temperature rise to 39 degrees C. Pick summed up his experience as follows: The Ehrlich remedy does excellent work in causing the symptoms of syphilis to disappear; but whether or not it is a cure must be shown by further observation.

Rudolf Doerr corroborated the basic idea of the new therapy, which is the sterilization of the body by a single injection, *i. e.*, by the destruction of the spirochetes. This is best accomplished by intravenous injection. Doerr has in several cases made intravenous injection of from 0.1 to 0.25 g. Only four hours later a short fever appeared. Twenty-six cases were treated with intragluteal injections of 0.3 to 0.4 g. Threatening phenomena never appeared. Fever and tenderness at the site of the injection developed, but these became less marked when the new methyl alcohol preparation was substituted. There is no connection between the fever and size of the dose, which Doerr has now brought up to 0.5—0.6 g. The therapeutic results are as follows: Scleroses recede, secondary symptoms fail to appear. When the latter are already present they disappear for the most part in a week, and cases treated for from one to four weeks have not relapsed. Two cases of syphilis—one a universal crustous syphilis with fever and night sweats, and the other one of deep ulcerations the size of the palm—which had proved refractory to all previous treatment—were promptly benefited by the injections. Among the old syphilitics treated were five cases of paralysis; after injection of 0.4 g. there was improvement in the vertigo, paresthesiæ, and lack of attention.

Progress of Medical Science.

Boston Medical and Surgical Journal, August 18, 1910.

What Is the Experimental Basis for Vaccine Therapy?—Theobold Smith gives a very brief sketch which is significant in showing the rapid march of events from vaccination before exposure to protect from an impending infection, to vaccination after exposure and even during the course of an acute disease. Experimental medicine has very little to offer which is of service in deciding upon the efficacy or harmfulness of vaccination during disease. Vaccine therapy or therapeutic vaccination is simply an offshoot of prophylactic vaccination; one shades insensibly into the other. The principles underlying prophylactic vaccination are applicable to vaccine therapy. Animal experimentation has taught that immunity and susceptibility are purely relative terms. Immunity has been shown to consist of a series of cooperating and interacting forces represented by antitoxins, bacteriolysins, opsonins, agglutinins, and phagocytosis. The discovery of the different antibodies has not thus far been of much assistance in practically gauging the value of vaccines or making them more effective, if we except the measurement of the opsonic index as devised by Wright. He pictures the difference between prophylactic and therapeutic vaccination. If an animal is injected with a given dose of living or dead bacteria, this animal is protected against a subsequent inoculation which would have been fatal to an untreated animal. The vaccination has put the body in a state of preparedness, probably by increasing the supply of antibodies. Now, suppose the body was not so well prepared; not so prompt in closing in upon the invaders. They then begin to multiply and when the body is roused a large number of bacteria are to be destroyed. A local process of inflammation and perhaps suppuration is the result. We may have a systemic infection. The process might have been nipped in the bud by vaccination or preparedness. Success attending vaccinal prophylaxis has carried it as a practice into the heart of the disease. There is a wholly different situation between vaccination during health, when only a few bacteria are to be checked, and vaccination during disease, when there are myriads of bacteria to be checked and disposed of, and the body largely robbed of its store of antibodies. The production of more antibodies by the tissues under the influence of vaccines leads to a sufficient reaction to effect a cure; where the capacity of the body for producing antibodies is low or exhausted, no cure can be hoped for. The effectiveness of vaccines applied in the course of acute febrile diseases must be accounted for by the principles of which experimental medicine has as yet no definite knowledge. The mutual relation between the tissues of the host and the parasite is complex and it behooves us, therefore, to be exceedingly careful in the use of vaccines.

The Therapeutic Use of Ascitic Fluid.—Timothy Leary and Robert H. Hastings offer this as a preliminary communication for the purpose of calling attention to the apparent therapeutic value of a substance hitherto discarded as valueless or toxic. The clinical results described are at least suggestive. It is their intention to carry out a wide series of observations on the value of ascitic fluid in nutritional disturbances, shock and infection. In the dozen cases reported the administration of the fluid has been followed by amazing results. The notes on these cases are brief, intended only to cover points of nutrition in feeble, poorly nourished babies.

New York Medical Journal, August 20, 1910.

A Critical Review of Existing Theories and the Presentation of a New Theory of the Etiology of Achylia Gastrica.—George Edward Barnes says that the purpose of his paper is to attempt to clarify our conception of achylia gastrica by presenting certain original observations. Achylia gastrica means gastric juicelessness and denotes the essential feature of the disease, making impossible the digestion of proteids in the stomach. He reviews some of the theories of achylia and infers that the so-called primary form of atrophy or achylia gastrica cannot be idiopathic, inherited, congenital, or the result from a congenital predisposition. He could therefore with reason question whether there is any such thing as a distinctive primary atrophy or achylia gastrica. From his further considerations he thought they were justified in inferring that the so-called nervous achylia gastrica has not been explained and even that its existence as a distinctive form has not been proved. He feels certain that the writers on this subject will admit that they have all been engaged in a guessing match and that they have found no real etiological basis for this disease and have made no scientific classification. In his work in stomach diseases he was much impressed by the observation that achylia gastrica without any usually well-known organic disease of the mucosa is so frequently accompanied by gastroptosis. It is significant not only that achylia is often associated with gastroptosis, but also that they occur at about the same age and most frequently in the female sex. He then considers how gastroptosis may cause achylia. The stretching of the nerves would seem to be a possible cause. If it is true, as suggested by his observations, that gastroptosis may cause lesions of continuity in the vagi which in turn cause achylia, we may infer that achylia in cases not associated with gastroptosis is probably caused by the same lesions. Any disease or injury which destroys the secretory axons, *e.g.* a severe neuritis or rupture from tension, would produce such lesions. It seems to him that his theory, which holds that achylia gastrica is caused by a lesion of the secretory axons of the vagus nerves, best explains all the chemical and microscopical conditions, and all the symptoms of the disease.

Blood Pressure and Uranalysis in Chronic Nephritis.—H. Brooker Mills says it is evident that but little work has been done with a view of establishing any relationship, directly or indirectly, between blood pressure and uranalysis, especially in the presence of albumin, tube casts, and the variable urea elimination occurring in chronic nephritis. He has made a number of comparative observations on healthy individuals, in whom the urea elimination was normal and the blood pressure practically so. Almost without exception a low urea elimination and a high blood pressure occurred in the diseased cases, while no such relation existed in the healthy. The objects in presenting this paper are: (1) To call attention to the frequency and importance of the relationship existing between urea elimination and blood pressure; (2) to urge the more frequent microscopical examination of the urine in the absence of albumin; (3) to make the urea estimation a regular procedure in uranalysis; (4) to urge the more universal employment of the blood pressure test in the diagnosis and treatment of disease, especially the various toxemias; (5) to stimulate comparative studies along the lines suggested, with the view and in the hope that, upon being able to determine the real value of the blood pressure test, both singly and relatively, we may thus secure an aid to the earlier diagnosis of conditions present than would be possible by the most careful physical examination and uranalysis.

Journal of the American Medical Association, August 20, 1910.

Ophthalmia Nodosa or Caterpillar-Hair Ophthalmia.—Walter R. Parker, after describing the symptoms of this affection, referring to the various theories advanced to explain them, and reviewing the anatomical changes which are by no means characteristic, reports the case of a man who consulted him in April, 1906, with a history of having had recurrent attacks of very severe pain and redness in the right eye at intervals of about 30 days since from October, 1905. After about three months of unsuccessful treatment it was discovered that just previous to his first attack he had worked to rid his trees of caterpillars. Examination showed five areas of infiltration in the superficial layers of the cornea, but did not reveal the presence of the hair. After an acute attack the writer determined to curette the indurated area. From the scrapings he recovered a hair which was classified as *Bombyx rubi*. In a short time the patient was cured. The author gives a table which contains a record of all the cases reported in the literature, 38 in number. In a majority of the cases there is a history of injury to the eye by a caterpillar; in the absence of such a history there is one of sudden onset of the symptoms, consisting of pain, more or less severe, much photophobia and lacrymation. These symptoms tend to subside, but do not entirely disappear, and exacerbations occur from time to time at intervals varying from four days to three years. The different tissues of the eye affected are the conjunctiva, cornea, iris, sclera, episclera, and choroid. There was a history of injury in 73 per cent. of the cases and the hair was demonstrated in 86.4 per cent. of the cases. The species of offending caterpillar was demonstrated in 50 per cent. of the cases in which the hair was found. The treatment was mainly symptomatic. Operative treatment has been limited to iridectomy and to the excision of nodules and hairs.

Primula Dermatitis.—O. H. Foerster states that the primula or primrose is frequently the cause of a dermatitis and that this fact is not sufficiently recognized in this country, as is shown by the few cases reported in comparison with the large number of cases reported and articles

appearing in English and German medical and botanical journals. The personal experiences of the writer comprises some forty or fifty cases, and he believes that a widespread knowledge of the toxic properties of the primrose will shed light on the etiology of many instances of so-called recurrent eczema and of cases of "mild erysipelas." This form of dermatitis presents itself in three types, depending on the degree of idiosyncrasy. First, those with an intense inflammation, erythematovesicular in character, at times with the formation of bullæ, and accompanied by more or less swelling. Others develop an erythematosquamous eruption of a less acute type, with considerable infiltration, after repeated attacks, and scaling continued over a long period. In others, there is an intense itching or burning sensation, confined to the pulps of the fingers, which are puffed, tense, and slightly reddened. The inflammatory reaction remains limited to those parts which come directly in contact with the plant. Repeated attacks do not develop immunity, but, on the contrary, seem to produce an increased susceptibility. The author believes that the source of the dermatitis must be sought for in the secretion of the plant, and thinks that florists should warn prospective purchasers of the danger of *Primula abconica* and *Primula sinensis*. The treatment is conducted according to the usual principles followed in cases of acute dermatitis.

University Medical Schools.—In his address to the graduates of the St. Louis University Medical and Dental Schools, James J. Walsh referred to the maimed and incomplete medical education of a generation ago in the United States, and to the present time movement that is reforming medical education. The one hope of medical education is, and always has been, organic connection with the university. The evolution of our medical schools has now reached this epoch. While this system is comparatively recent in this country, it is not new in the Spanish-American countries, where educational systems have been adopted from the mother Latin country, and as a consequence a good preliminary education has always been required. Dr. Walsh reviews the history of university schools from the establishment of the University of Alexandria to the present time, and points out the scientific work that the universities have done in medicine and surgery in ancient times and during the Middle Ages. The great universtiies founded during the thirteenth and fourteenth centuries did far more effective work than is generally recognized. Huxley said, in writing of medieval education, that the undergraduate work of the medieval universities was better than that of his time, and the postgraduate work was as fine as the undergraduate work. There is practically nothing in modern surgery that these men did not touch upon in their books. With the reorganization of the universities at the time of the renaissance the universities of Italy carried on original investigations of the greatest value. The history of science and medicine, as written, seems to contradict this. There is striking testimony to the papal patronage and encouragement in fostering medical education, and for seven centuries papal physicians have been the greatest contributors to medicine. The lesson that history teaches is that when medical education is seriously undertaken as a university department all is well; when it is not results are disastrous.

Permanent Elimination of Yellow Fever.—The achievements of Colonel Gorgas, the suggestions of Dr. Carter, and his own observations, have led J. F. White to state that yellow fever can be permanently eliminated. If the endemicity is once destroyed the chance of epidemic occurrence is also destroyed. Such work would require the cooperation of the Latin-American countries and Great Britain, and, perhaps, France and Holland. The plan may be summed up as follows: (1) Each center under one man's control and he given full power to make a steady, insistent, and minutely exact fight on all Stegomyia breeding places. (2) No attempt made to handle the sick, and so arouse the ire of the individuals. (3) Be most careful to make it plain that subordinates shall annoy no one, and see that they do not annoy. The officer should approach the question of human carriers only through friendly suggestion to local authorities. The achievement would be worth to the western world each year all of its cost.

A New Method of Inflating the Stomach.—Stewart Lewis has practised the following method in about 50 cases: He places the patient on the examining table, with the abdomen exposed, and arranges a siphon of carbonated water so that the patient can drink. He directs the patient to drink slowly at first, and then as rapidly as possible. The average patient takes about eight ounces, though in favorable cases half this amount will bring the outline of the stomach into view, while the mixture of gas and fluid gives to palpation a crackling feel and a typical splash apparent to the most inexperienced. The direct method of percussion is employed with a small wooden object such as a lead pencil or a paper knife. The following objects are attained: Size and position are accurately determined. With practice some idea of the gastric tone may be obtained. Roughly speaking, four ounces of fluid will lower the border of the normal stomach about an inch; in atony it may lower the border two or three inches. (3) Rapidity of escape of the gas into the intestines will be a crude test of the tone of the pylorus. Tumors may be more readily palpated. This method has the advantage over other methods of being safer and much less unpleasant, and, in the opinion of the author, it is efficient.

The Lancet, August 13, 1910.

An Aid to Diagnosis in Malignant Diseases.—Elsie M. Royle gives the results of the examination of the urine and a determination of the ratio of phosphates to uric acid in cases of malignant disease with the object of ascertaining if this ratio could be of use in diagnosing obscure cases of the latter. She summarizes her work as follows: From the results obtained and from the figures quoted it appears that an examination of the urine will prove of great value as an aid to diagnosis in obscure cases of cancer, especially in cancer of the alimentary canal and abdominal organs. In order to apply this test it is necessary to estimate the uric acid and phosphate content of the urine and to consider the figures separately, and then to take into account the ratio of phosphates to uric acid. The author considers that her figures establish the following facts: (1) That in cases of cancer the uric acid is usually higher than is found in healthy cases under similar conditions. (2) That the output of phosphates in the urine in the majority of cases of cancer decreased when compared with healthy individuals. (3) The ratio of phosphates to uric acid is almost invariably reduced in malignant disease below that found in health, any ratio below 4 being suggestive, especially if it remains low on several occasions, and any ratio below 3 is almost diagnostic of malignant disease or of a blood disease, unless further work shall prove that the same is found in other conditions. Before these conclusions can be definitely adopted it will be necessary to determine how far they are true of other forms of cachexia and what their relation may be to the secondary forms of anemia usually present in malignant disease.

On Occluding and Suboccluding Ligatures.—Victor Bonney calls attention to the fact that the application of a ligature in the course of a surgical operation produces in the tissue distal to it a condition of artificial infarction which, like that occurring spontaneously, may be either white or red, depending upon the method of ligature employed. From this point of view ligatures may be divided into two classes: Occluding ligatures, when every blood channel leading to the distal tissue is included in the ligature, and suboccluding, when a tract of tissue remains which is capable of establishing capillary anastomosis beyond the ligature and unincluded in it. The area of a white infarct dead of anemic necrobiosis and cut off from all vascular communication with surrounding tissues is singularly nonirritant to the structures in juxtaposition to it, provided no septic processes have been concerned with its production. On the other hand, a mass of tissue in a condition of red infarction is more or less dangerous as (1) a source of hemorrhage; (2) a powerful tissue irritant and an incentive to infection; and therefore (3) is a potent cause of adhesion. The logical conclusion is, therefore, that suboccluding ligatures should be avoided. The occluding ligature is quick, but in certain circumstances insecure, while the suboccluding ligature takes longer but is less liable to slip. This form of ligature and also the mattress suture can in most cases be converted into occluding ligatures by bringing the ligature back round the hemostatic forceps and tying it again on the opposite side. By this means the advantages of the encircling ligature with its perfect occlusion are combined with the security of the simple transfixion or mattress ligature.

The Effect of Radium on the Healthy Tissue Cells.—G. Percival Mills makes a perliminary report on some experimental work as to the effect of exposure to radium on the normal body cells. He used mice, making the application for 30 minutes in each case, and choosing the liver, as it is conveniently situated for application. The mice were killed at varying intervals after the exposure, and the liver examined microscopically. The earliest definite change noticed occurred about one hour after irradiation. Three hours after irradiation the liver cells were profoundly altered. The protoplasm was deeply granular,

and the nucleus stained very clearly and was considerably swollen. The whole cell was slightly increased in size. The areas of mixed cell infiltration round the veins were larger and more numerous, and consisted mainly of lymphocytes and spindle cells, but there were occasionally polymorphonuclear leucocytes. There was a general increase of connective tissue cells throughout the section. The hyperemia was intense. Sections taken after six hours showed that the liver cells had become more normal. After 24 hours the majority of the liver cells appeared normal. In most of the sections there was a place near the edge where the cells suffered a greater and more permanent change; this seemed to correspond to a spot immediately over which the radium was applied. Neglecting this area of intense action, the liver may be said to have become normal in three days after irradiation. There was a late inflammatory reaction coming on about the fourteenth day and lasting much longer than the primary reaction.

British Medical Journal, August 13, 1910.

Tetanus in a Septuagenarian: Recovery.—E. Barnes reports the case of a man, 75 years old, who developed tetanus following an injury to his forefinger. The tetanus was very severe; only a few drops of fluid nourishment were got down his throat at a time. Rectal feeding was resorted to. During his attack he developed a severe bronchopneumonia with edema of the leg. These complications gradually subsided and about two months after the accident he was feeling well, except for slight stiffness and cramps in one leg and both arms. Medication consisted of 50 cubic centimeters Pasteur's dried serum at first, followed by 20 cubic centimeters of the same daily for a week, then by 20 cubic centimeters daily of Allen and Hanbury's serum for nine days, injected under the abdominal skin. Chloral was given in 20-grain doses thrice daily. He also received as much precipitated sulphur, in treacle, as could be got down; he took half a pound in all. Very moderate purgation resulted. The recovery seemed remarkable, considering the patient's age, the severity of the disease, and the complications. He was inclined to give some credit to the sulphur.

Intestinal Myiasis.—Stephen M. Laurence reports the case of a child of thirteen months with this infection of about eight months' duration, and in whom it was difficult to image frequent reinfections. When the child was four or five months old the mother found maggots on his napkin. Since that he has passed maggots up to the day he saw him. They were passed intermittently, the longest interval being a month, and a week the longest period of continuous passing. Although seen and treated by more than one doctor, he has never been cured, and now, eight or nine months after their first appearance, he still passes them.

Sloughing of Lung Tissue in Pyopneumothorax.—Sidney W. Curl reports the case of a girl, sixteen years old, with pulmonary tuberculosis in which a pneumothorax occurred, and at the post-mortem examination of which several sloughs of lung tissue were found in the pleural cavity. He was under the impression that the case was a unique one; but he finds that Coats, in speaking of the formation of cavities in phthisis, says: "By the separation of the sloughs the cavity of the abscess may come to communicate wtih the pleural cavity, and so pneumothorax may result. Sometimes there is even a gangrenous condition developed, and actual sloughing of pieces of lung tissue occurs." With this exception he is unable to find any reference to the subject in the literature.

Berliner klinische Wochenschrift, August 1, 1910.

Operative Treatment of Spastic Paralysis by Resection of the Posterior Spinal Roots.—Foerster sums up our knowledge of this resource to date, adding the references to the literature, as far as he is aware of them. He evidently is ignorant of the recent work done in this field in the United States. Thus far the European material has been reported by Foerster (including the articles published by Küttner and Tietze, who have done his operations); Gottstein, Kotzenburg, Anchütz, and Hevesi. The last three mentioned have operated in but a single case each. Gottstein has operated five times, but in some of these, at least, the operation was for the gastric crises of tabes in which life was menaced. The operation, therefore, is still largely in the personal or individual stage. We do not learn the number of Foerster's cases from this article. Küttner has operated for him at least ten times, while his colleague, Tietze, who was the first to carry out Foerster's ideas, must have operated on a number of occasions. The intervention is a severe one, and questions will arise as to whether one should operate in one or two stages, and whether or not bilateral resection is indicated in a given case. At present Foerster concedes that his operation is not a specific for spastic paraplegia, but must be conjoined with all other useful measures, such as tendon and nerve transplantation. On the other hand, it is indispensable in all severe cases. If we read between the lines it seems evident that this article is not so much concerned with what the operation might accomplish under favorable circumstances as with the means of minimizing the dangers of a formidable surgical intervention.

Therapeutics of Gonococcus Vaccine.—Schindler appears to devote himself chiefly to the validity of the claims of rival manufacturers of gonococcus vaccine, which to a certain extent are based on different viewpoints. Leaving this question of relative superiority aside, he has obtained the best general results from vaccinotherapy in epididymitis and diseases of the adnexa, together with gonorrheal arthritis. Failures must be expected at times, and coincide chiefly with the presence of mixed infection. This necessitates a guarded prognosis, for it is in precisely these affections (annexitis, epididymitis, arthritis) that we are most likely to encounter mixed infection.

Superinfection in Rabbit Syphilis.—Tomaszczewski in using the term superinfection refers naturally to the successful inoculation of a disease already prevalent in the individual. Superinfection of syphilis in mankind is a somewhat doubtful phenomenon. A second successful inoculation must either take place before the first is in full evidence or after a certain period in which the community is lost. It seems to be quite otherwise in rabbit syphilis; for an animal with syphilitic keratitis remains susceptible to scrotal inoculation, while conversely animals with scrotal primary infections are still susceptible for months to intraocular inoculation. The author does not attempt to explain these phenomena.

Gasis's Method of Staining Tubercle Bacilli.—This method, devised last year in Prof. Senator's laboratory, is said by Gasis to be more delicate and trustworthy than any other in vogue, although some regard it as too complex for routine use. This alkali test, while possibly susceptible of simplification, is certainly not less complicated than its competitive procedures. The sole drawback to Gasis's method lies in the necessity of preparing the color solution fresh for each test (4 or 5 c.c. of a solution of 1 gm. eosin in 5 c.c. alcohol and 95 c.c. water must be boiled in a test tube with crystallized mercuric chloride). Tubercle bacilli, thus stained, are alkali-fast. Not all of Koch's bacilli are acid-fast, and tests based upon that theory are therefore fallacious. As smegma bacilli are also acid-fast, they may readily be excluded, as may naturally all other unknown acid-fast organisms. No one to-day would confine himself to a single test, however satisfactory; and Gasis only claims that his method should be used in conjunction with other well-known procedures, not only for corroboration of the results but also for checking up in doubtful cases.

Sources of Fallacy in the Antiformin Method.—Beitzke refers simply to the danger of the introduction of alien organisms from without which may behave like tubercle bacilli in the sediment used in the antiformin method. Acid-fast bacilli may be found at times in the scrapings from faucets, rubber tubes, etc.; and in fact in any apparatus or solution used in making tests; this even if the utmost cleanliness is employed. Whether these represent tubercle bacilli or only simulate them they are equally sources of fallacy. Of much greater significance is the discovery of bacilli closely resembling Koch's in sections from normal tissues. These were clearly artefacts from impure water or apparatus. To avoid all such sources of fallacy, the latter should be tested independently for the presence of acid-fast bacilli. Even distilled water cannot be trusted as to purity. Mere attempts at strict asepsis are insufficient, the author maintains, unless such parallel or control tests are made use of.

Transfusion of Blood in Man Under the Use of Control Tests.—Schultz concludes a serial article on this subject as follows: Defibrinated human blood which had dissolved and agglutinated blood corpuscles in vitro caused, when injected into the circulation of a patient with secondary anemia, acute collapse, chills, and fever to 40° C., and edema. Nevertheless, although the patient failed to obtain any new erythrocytes, he was benefited by the operation. In the main, however, cases of transfusion after operation did well when the blood and serum injected reacted negatively in vitro as to the presence of isoagglutinins and hemolysins. The author believes that such biological control tests should always be made before transfusion.

Münchener medizinische Wochenschrift, July 26 and August 2, 1910.

The Ehrlich-Hata Remedy in Nonsyphilitic Affections.—Loeb mentions incidentally that in the course of treating syphilitics with the new Ehrlich-Hata preparation and when the latter is tested independently on nonsyphilitic affections, a collateral field of usefulness seems to be suggested. It has already given phenomenal results in spirilloses, for which it may turn out to be a specific. The author saw a confirmed case of ordinary juvenile warts of the hands and face disappear rapidly under its use. The dermatosis known as lichen simplex Vidal has also yielded to it. Other writers have noted the accidental disappearance of psoriasis. These facts are not in themselves singular, for arsenic is believed to have power over such affections.

Epidemic Cerebrospinal Meningitis with Especial Reference to Carriers.—Mayer and three others have made a study of recent epidemics of this affection, in which naturally the questions of transmission, disinfection, carriers, etc., received due attention. Over 9,000 soldiers in barracks were examined in a research for latent carriers, and less than 2 per cent. in average found to harbor the meningococcus. No connection between carriers and epidemics was found. The regiment with the largest percent. (2.4%) had never had a case of the disease, let alone an epidemic. The percentages above given refer to a single examination. A much smaller series, subjected to repeated examinations, gave only a slightly higher per cent., and it is safe to say that 2 per cent. of all healthy individuals harbor the meningococcus in the throat, and this without any regard to the presence of epidemics or sporadic cases. Accumulation of troops in barracks does not appear to increase the number of carriers. In fact all attempts to penetrate into the mystery of this disease and control its spread, as is practicable with typhoid fever and cholera, have been attended with failure.

Wassermann's Method in Differentiating Cerebrospinal Syphilis from Multiple Sclerosis.—Hauptmann and Hössli, working under Professor Much, have reached the conclusion that the numerous negative results with this reaction in testing the cerebrospinal fluid in cerebrospinal syphilitics are due to the fact that the amount of liquor used in the test contains too few inhibitory bodies (by 0.2 c.cm.). When this is offset by adding more liquor positive reactions are much more frequently encountered. It also becomes possible to differentiate between cerebrospinal syphilis and multiple sclerosis.

Treatment of Anthrax.—Koelsch states that the old-time active surgical therapy has not accomplished much, and that better results are obtainable by medical measures, such as rest, dietetics, and cardiac stimulants, including alcoholics. In very high degrees of inflammation the carbuncle should be opened by cross-incisions, while the thermocautery should be employed in the periphery, to arrest the spread of the process. Pure tincture of iodine may also be injected peripherically, one or two drops at a distance of 5 to 10 cubic centimeters circularly about the pustule. Measures like these are employed whenever the peripheral inflammation takes on an erysipelatous character, which latter gives the indication for abortive treatment. Barlach of Neuminster, who sees many such cases, has pursued this plan with success for many years. Serotherapy has been employed in these cases for some years in Italy, with alleged reduction of mortality and improvement in cosmetic results. This resource has also been tested in Bavaria of late years, the serum having been thrown into the veins. The benefit has been of a startling character (the serum is prepared by a well-known commercial house). With serotherapy only the most conservative local measures have been employed.

Treatment of Variola.—Drever, who is attached to the Board of Health in Cairo, Egypt, has come into constant contact with variola cases, which are in evidence every winter and spring. The light treatment answered as far as it went, but such measures cannot prevent the decomposition of pus. The author has used potassium permanganate in saturated solution, and believes it accomplishes all the good that can be effected by the Finsen light, besides being a perfect deodorant. Naturally it is very difficult to learn whether this treatment has any real effect on the course of the disease or the mortality. It certainly influences favorably the secondary suppurative fever, and in this connection the cosmetic results.

Ascaridiasis and Its Treatment with Oleum Chenopodii.—Gockel calls attention to the efficiency of this old American remedy in roundworm disease. It is well known that ascaridiasis may simulate a great variety of severe diseases, and that it is often necessary to exclude it before making a diagnosis. Once this capacity for simulation is admitted the need of a roundworm destroyer is magnified, not only for diagnostic but for therapeutic ends. Hence, perhaps, the rediscovery by German pharmacologists of the old American remedy, which is admitted to have fallen into unmerited disuse. The technique advised by the author is complicated. The stomach should be empty for two days before the remedy is given. The dose of the latter should vary with the age of the patient. The author gives quantities for adults only, children's doses, presumably, to be calculated by weight and age. An adult takes two or three drops every three or four hours, in combination with menthol and in association with ordinary laxatives, such as castor oil.

Deutsche medizinische Wochenschrift, August 4, 1910.

Temporary Cortical Blindness from Commotio Cerebri.—Hirsch relates two cases of which the first was an example of total blindness following blunt violence on the occiput. It set in immediately after the injury and lasted two and one-half hours as total blindness. It then passed into homonymous hemianopsia of the right side. This condition had passed away by the third day. The case appears to be unique. Those which most closely resemble it in the literature appear to have been due to hematoma of both optic nerves, which in the present case could clearly be excluded. The hypothesis of a single large hematoma compressing the cortical visual centers may also be excluded forthwith. In hematoma of the optic nerves, from four days to six weeks seems to have been required for absorption of the clot and restoration of vision. It must be borne in mind, however, that this explanation of the cases in point is largely conjectural. A few cases of homonymous hemianopsia alone, succeeding upon occipital traumatism, are also known. The author's second case was of this type. It persisted for nine months, and was believed at first to be due to hematoma pressing on the occipital lobes. A study of the symptoms of hematoma of the dura did not reveal ocular symptoms of the character above described; and from a careful analysis of the symptoms of violence in this part of the body, the author concludes that the condition known as commotio cerebri is the one best adapted to explain the occurrence of these transitory eye disturbances.

The Present State of Our Knowledge of the Viscosity of the Blood.—Krone concludes, after comparing the various data as to the clinical significance of the changed viscosity of the blood, that our attitude must continue to be one of reserve. Workers have tested all kinds of blood (arterial, venous, mixed, etc.), with all kinds of methods. What is most needed in future is systematic, practical, bedside research. Purely theoretic and experimental treatment of the subject does not lead to practical conclusions. In other words, the viscosimeter, as used today, is of no practical benefit to the physician; for determinations of viscosity as thus secured have no practical significance.

Amenorrhea and Tertiary Syphilis.—Meirowsky and Frankenstein claim to have isolated a special syndrome, hitherto undescribed, in connection with severe and extensive tertiary syphilis. Three cases are sketched. Each woman suffered from severe tertiary syphilis. Each one, sexually mature and active, had had pronounced amenorrhea, lasting from six to eight years. Under antiluetic treatment two recovered their menses, while the third developed hemorrhages which pointed to vicarious menstruation. The evidence seems conclusive that the association of severe tertiary syphilis and protracted amenorrhea is not an accident. The question of specific oöphoritis naturally suggests itself as a ready explanation, but this seems sidetracked by the occurrence of ovulation and menstruation in patients with syphilitic ovaries. It is evident that the spirochete, if it does not attack the ovaries in situ may at least attack the blood, and so establish an anemia with resulting amenorrhea. In such a condition, return of menstruation should coincide with recovery of the normal blood count. It is evident that the deposit of the spirochete in the ovary is responsible for syphilitic sterility, syphilis of the fetus, syphilitic abortion, and congenital syphilis in general. Such an association of cause and effect is common enough. But the problem of explaining this very rare case of protracted amenorrhea is much more difficult. The women all suffered from very severe destructive lesions of the skin and periosteum. One developed parasyphilis (tabes dorsalis). The ovaries were not palpated in any case and there were no evidence of adnexitis. Such cases necessarily remain paradoxal.

Book Reviews.

Die Spinale Kinderlähmung. Eine klinische und epidemiologische Studie. Von Professor Dr. Eduard Müller, Direktor der medizinischen Universitats-Poliklinik in Marburg. Mit Unterstutzung von Dr. med. M. Winkmüller, Assistenzärztin der Poliklinik. Mit 21 Textabbildungen und 2 Tafeln. Berlin: Verlag von Julius Springer, 1910.

Great interest has been manifested by the profession in recent years in anterior poliomyelitis, especially since our last big epidemic. This is one of the best contributions on the subject which we have seen. Interesting illustrative cases are introduced throughout the book. After a brief chapter on experimental poliomyelitis in apes, the pathological anatomy and pathogenesis of the disease are described, and this is followed by an excellent chapter on its epidemiology. The main part of the book is devoted to symptomatology; but there are also chapters on the cerebral type, on abortive cases, and on its early diagnosis and treatment.

Kurzgefasstes Lehrbuch der Kinderheilkunde für Ärtzte und Studierende, von Dr. Carl Seitz, A.O. Universitätsprofessor und Vorstand der Kinderpoliklinik am Reisingerianum in München. Dritte vermehrte und völlig umgearbeitete Auflage. Berlin: Verlag von S. Karger, 1910.

The publication of the third edition of this work, the first edition of which made its appearance seventeen years ago, has been necessitated by the advances in the pediatric science during the past ten years, especially in the knowledge of biology in medicine, in the action of internal secretion. The book has been completely rewritten and at present appears as a volume of 550 pages, which gives in brief form the chief facts needed by the practitioner, at the same time as briefly as possible taking up the physiology and pathology of disease. The work is much shorter than most of the modern German works upon the subject, as the author devotes but little time to the discussion of abstract theory. The facts as known, however, are given in a clear, concise, and readable form, and the book appears to be well brought up to date. The book reminds one more of some of the modern American works on the subject, in which the practical outweighs the theoretical. For the American student who reads German as well as English this book will prove a useful textbook. For the student to whom the reading of German is a labor, his time might be expended to better advantage in the perusal of an English or American book, as the book is not sufficiently superior to our own upon the subject to make the extra labor profitable. The book is not illustrated.

Die Epilepsie im Kindesalter, mit besonderer Berücksichtigung erzieherischer, unterrichtlicher und forensischer Fragen dargestellt. Von Prof. Dr. med. Heinrich Vogt, Nervenarzt und Abteilungsvorstand am neurol. Institut in Frankfurt a/M. Berlin: Verlag von S. Karger, 1910.

Everything points to the desirability of a book on this subject. Epilepsy as a so-called idiopathic disease seldom develops after the age of twenty-one. Attacks begin most commonly in youth. Fits may follow an injury to the cortex sustained at birth or be due to a cortical vascular disturbance during infancy. Early convulsions predispose to epilepsy later in life. All sorts of peripheral irritations serve to disturb the balance in children with faulty cortical nerve cells. The author treats the subject in an excellent manner, both from the standpoint of neuropathology and that of psychopathology. The book comprises 225 pages. There are five chapters: on etiology, symptomatology, pathological anatomy, diagnosis, prognosis, treatment, and prophylaxis of epilepsy in childhood and youth; and a chapter on the social status of the youthful epileptic in the community and his relationship to criminology. The book is interesting, and seems authoritative. It contains a bibliography chiefly of German authorities.

The Johns Hopkins Hospital Reports. Vol. XV. Baltimore: The Johns Hopkins Press, 1910.

With three exceptions the fifteen monographs which comprise this volume of over 500 pages are devoted to the subject of pneumonia, the experiences of the Johns Hopkins Hospital for the past twenty years with this disease being collected by various authors. Four of the articles are by Chatard. This writer makes an analytical study of the 658 cases of pneumonia which have been admitted to the wards since 1889, an analysis of the leucocyte counts in 582 cases, a study of terminal pneumonia based upon thirty-five cases, and a review of thirty-five cases of acute pericarditis complicating the disease. Fabyan analyzes the pathological reports of 195 cases. Emerson reports on the mode of termination in recovery cases, including temperature fall, leucocyte count, chloride output, and resolution of physical signs. Marshall writes on acute endocarditis complicating pneumonia. McCrae offers contributions on the subject of empyema and delayed resolution. Steiner reports three cases of venous thrombosis in pneumonia, and reviews the literature upon this subject. Howard discusses pneumococcic arthritis, and Hanes pneumococcic meningitis. The series, taken together, makes up a most valuable study of the clinical aspects of pneumonia and its complications. The other three articles included in the volume are a bacteriological and clinical study of seventy-four cases of diarrhea in children by Knox, a study of skin transplantation by Davis, and a review of the experiences of the hospital with epidemic cerebrospinal meningitis and the Flexner-Jobling serum, by Sladen.

Medical Electricity and Rontgen Rays. By Sinclair Tousey, A.M., M.D.; Consulting Surgeon to St. Bartholomew's Clinic, New York City. Philadelphia and London: W. B. Saunders Company, 1910.

This book is the most ambitious work on electricity and its medical aspects which has appeared in recent years. A great part of the book is devoted to the physics of electricity in general, and careful descriptions and explanations of the various forms of machines which produce or transform the currents abound. In this part of the work the author does not confine himself strictly to his subject, wandering occasionally into such bypaths as wireless telegraphy. Such digressions, however, do not in any way detract from the value of the work. The physiology of electricity receives careful attention, and a short chapter is devoted to electropathology, including lightning stroke. Electrodiagnosis is covered in the usual manner by reference to excellent photographs showing the motor points. Possibly slightly more emphasis is laid upon the relative strength of the contractions at the different poles than is usual in such works, this rather abstruse subject being treated in a very clear manner. Under electrotherapeutics ionic medication by electrolysis, static electricity, and the high frequency current are treated especially fully and rationally. The book is conspicuous among works upon this subject in being entirely devoid of extravagant exaggeration as to the curative powers of the various currents and by the care with which the author goes into details as to strength of current and length of treatment indicated for the various conditions. Brief chapters are devoted to phototherapy and to radium, and over 400 pages are given up to the *x*-ray. The book is complete, thorough, and scholarly, and will probably be accepted as the authority in the English language on the subject of electrotherapy. It is well printed and bound, and is profusely illustrated with photographs and diagrams.

Chirurgische Operationslehre für Studierende und Aerzte. Von Prof. Dr. Friedrich Pels-Leusden, Oberarzt der chirurgischen Universitatsklinik und Leiter der chirurgischen Universitätspoliklinik an der königlichen Charité zu Berlin. Mit 668 Abbildungen. Berlin und Wien: Urban & Schwarzenberg, 1910.

The author, disclaiming any ambition to write a complete "Operative Surgery," sets forth in a very readable volume of about 700 pages the material he has used for lectures and practical courses in his official work. It is essentially a practical book, and, without sacrificing clearness to brevity, seems to cover a great deal of ground in a very concise manner. The illustrations are excellent and very enlightening. The use of shading in those of resections, amputations, etc., to show the portion to be removed and that to be left behind is especially commendable, though the failure to label the illustrations, common in German books, puts the reader to unnecessary trouble. Another fault, also common among German writers, is the apparently absolute ignorance of all that is not German. This is the most charitable interpretation to be put upon behavior that has often been called by a harsher name. With the exception of a few Englishmen and Americans, long since passed to the "Great Beyond," modern surgery has evidently been built up almost entirely by subjects of His Imperial Majesty. Either Dr. Pels-Leusden is trying to "stem the tide" or else he is behind the times, for he still snips off the tops of his tonsils, and does not even mention the modern operation of tonsillectomy. He clings to the old idea of the importance of a complete dissection of the synovia in his resections of tuberculous knees. Possibly if his book goes through the editions to which it really seems entitled, its author may glean from the works of other Germans something of what is going on in the outside medical world.

Society Reports.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Thirty-Second Annual Congress held at Washington, D. C., May 3, 4 and 5, 1910.

(Special Report to the MEDICAL RECORD.)

JAMES E. LOGAN, M.D., OF KANSAS CITY, MO., PRESIDENT

(*Concluded from page 343.*)

Second Day, Wednesday, May 4.

Intranasal Route for Growths of the Hypophysis Without External Incision with Report of a Case of Intranasal Decompression.— Dr. NORVAL H. PIERCE of Chicago presented a preliminary report of a case of this nature. The patient suffered from diplopia, increasing blindness and headache and it was suspected that he might have a growth in the sphenoidal sinus. There was a mucopurulent discharge coming over the portion of the middle turbinate left from a previous operation; removal of this and of the anterior wall of the sphenoidal sinus was followed by exploration of the ethmoidal region in which nothing was found. The removal of pressure thereby occasiontd led to an improvement in the pain lasting only two weeks. A second operation was done later consisting of the following steps (1) local anesthesia with adrenalin, (2) removal of at least both middle turbinates (3) removal of the septum between the following lines, (a) a vertical line drawn downward to the floor of the nose to the glabella; (b) a horizontal line drawn downward and backward from the lower anterior margins of the nasal bones to the body of the sphenoid bone; (c) a diagonal line which intercepted the lower extremity of the line (a) and ended at the point where the vomer joined the sphenoid. Flaps from the mucosa might be preserved to cover the cut edge of the septum. This was best removed by cutting forceps and chisel. (4) Removal of anterior walls of both sphenoid cavities and removal of the dividing septum. This was done either by means of the punches already employed for this work or by means of specially constructed chisels. (5) Packing the nasal cavity with xeroform gauze. After healing was well under way we might proceed with the second step. (1) Anesthesia, local or general with adrenalin. (2) Removal of inner wall of sphenoid and exploratory puncture of walls of tumor. If it is cystic, then drain; if solid, remove with curette.

Dr. J. N. MACKENZIE of Baltimore called attention to the fact that one of his assistants at the Johns Hopkins, Dr. West, had already performed the intranasal operation several times on cadavers and had published his views in the *Journal of the American Medical Association.*

Dr. R. C. NYLES of New York had had three cases in which the tumor involved the sphenoid sinus and in which it was necessary to remove the septum. Two were done by removing the nasal bone to one side, breaking loose from the frontal sinus and throat back to the sphenoid. The sinus was easily entered and the growth removed. The hypopoysis was easily seen and could be entered.

Diagnosis of Dentigerous Gysts of the Antrum.— Dr. PIERCE also presented this paper, saying that for many years the division of these growths into follicular and periosteal had obtained. The former had its origin in errors or disturbances of development through which degeneration of the dental sac eventuated and was clinically characterized by the fact that the tooth to which the sac belonged was missing in dentition unless it was a supernumerary tooth. This variety was extremely rare. The other variety originated from a peridontitis at the apex of the root of a fully developed tooth. Microorganism gained access to the peridont from the diseased pulp through the root canal. Eliphelial remnants participated in the process and the end result was a small cyst perched on the apex of the root which was not infrequently removed in situ at the time of extraction. The sac consisted of connective tissue lined with epithelium. The cyst contents varied according to the presence or absence of infection. The cyst might increase in size until it perforated the antral wall. Two illustrative clinical histories were given.

Case Reports Illustrating Ocular Affections Due to Intranasal and Accessory Sinus Disease.—Dr. LEWIS A. COFFIN of New York City read a paper with this title and presented a series of *x*-ray plates, together with a collection of charts illustrating the variations of the visual field for white and for colors. Cases were often not recognized in which aid was sought for relief to eye symptoms but in which the lesions involved the nasal mucosa and sinuses. He reported four such cases from his own experience and collated the literature on the subject. The various conditions of the eyes in such cases were summarized as follows: Circulatory disturbances, venous engorgement, choked disc, hyperemia, edges of disc blurred, pallor of disc and frequent concentric contraction of the visual fields, especially the red. The reader of the paper exhibited charts of radiographic pictures of eight cases. He said that there were probably physiological variations in the normal fields of vision and that they varied under varying conditions as fatigue, light, etc. No definite conclusions were drawn by the author as his report was simply one of progress, but he was inclined to believe that further experience in studying the visual fields of these patients would be of great assistance in diagnosis. The removal of enlarged turbinates pressing on the septum would of course cause eye symtoms and relief of this pressure would cause them to disappear.

Dr. F. J. PARHER of New York City had examined the eyes of the cases mentioned by Dr. Coffin. He said the eye men met a certain class of cases with optic atrophy and that if no apparent cause could be found it was customary to give them the iodide. He believed that many of these cases which had not improved and had been injured by the remedy were due to ethmoidal and sphenoidal disease. Some of Dr. Coffin's cases did not had sinusitis but intranasal turbinate swelling, and could be divided into two classes, those due to circulatory disturbances and those due to perineuritis, causing swelling and beginning atrophy. These cases showed first in the visual fields. The object of the paper was to find the value in diagnosis of these disturbance.

Dr. C. G. COAKLEY of New York said that in three of his recent sinus cases there had been no contraction of the visual field. In another case with unilateral involvement both eyes were practically normal. The matter, was, however, well worthy of further investigation.

Rr. H. L. SWAIN of New Haven said that, considering the relations of the optic nerve to the walls of the sphenoid, it was surprising that it was not not always affected in lesions of this cavity.

Dr. GREENFIELD SLUDER of St. Louis had seen a case of a boy who had had a headache and suddenly gone blind. The gap between the middle and superior turbinates was red and edematous. With great difficulty he had gotten this area shrunk with adrenalin, and the next morning, after a gush of a teaspoonful of pus and blood from the mouth, the boy could see.

Transportation of Rib Cartilage Into the Nose in a Case of Nasal Deformity.—Dr. D. CROSBY GREENE, Jr. of Boston presented this paper. The patient was a young man referred to him on account of a deformity of the nose received in a football accident eight years ago. He had had an abscess of the septum following the injury. There was a symmetrical flattening of the organ at the bridge. Under ether the space for the implantation of

the rib was prepared while at the same time the latter was carefully dissected away from its muscles, having been exposed by an oblique incision over the eighth and ninth ribs and removed without any injury to its perichondrium. In the meantime a vertical incision was made through the septal mucosa of the left naris just posterior to the mucocutaneous junction. Through this incision two layers of membranous septum were separated by knife dissection anteriorly as well as posteriorly. At its upper and posterior portions the chamber thus formed was enlarged backward and upward over the depressed nasal bones by means of a sharp rasp, which elevated the skin and soft tissue from the nasal bones. The size and shape of cartilage to be used were determined by fitting a piece of sterilized leather in the space prepared. A piece of cartilage was then fashioned according to this pattern and inserted into its new position, the wound closed by a single catgut suture, and both nares lightly packed with gauze. Healing was by first intention, and there was only moderate swelling of the nose following operation. The rib wound really caused more discomfort than the nose wound. A hematoma formed in the gap left by the removed rib and delayed union at this site, but in two weeks the man was all right.

Syphilitic Stenosis of the Oropharynx.—Dr. J. M. Ingersoll of Cleveland reported this case. The patient was a young man who had acquired his initial lesion two years before. There was difficulty in swallowing fluids, which regurgitated through the nose. Solids could not be swallowed at all. There was a nasal opening through the scar tissue about 1 cm. in diameter. Just below the level of the tongue scar tissue could be seen extending across the oropharynx, uniting the lateral and posterior walls of the oropharynx with the tongue. In about the center of this tissue there was an opening ½ cm. in diameter, through which food and inspired air could pass. The breathing was labored, and the patient weak and emaciated. A free incision was made to the lateral pharyngeal wall on each side and then a good view of the larynx could be obtained. All structures below the level of incision were apparently normal. In about a month of comfort the cicatrization began to reappear and the man was again incised and given a rubber bougie to pass several times daily. He then was lost sight of for five months, during which time he had failed to use the bougie, and fresh incisions were called for. He was then given metal tubes to use so that the tissue might not recontract. Dr. Ingersoll related several similar cases collected from literature referring to the method of treatment of the late J. E. H. Nichols, reported to the association in 1896.

Dr. J. H. Bryan of Washington commented on the obstinacy of these cases, and had found all plans unsatisfactory. He had tried the flap operation, bringing the upper and lower edges together and trying to form a posterior pharyngeal wall, yet there had been contraction, and his patient was very uncomfortable.

Observations of the Variety of Germs Present in Wounds Following Operations on the Faucial Tonsils.—Dr. Alexander N. MacCoy of Philadelphia reported the results of his own observations. Some 20 cases were examined. Of these, 9 showed mostly staphylococci and streptococci. One showed the predominating organisim to be a short, stout, spore-bearing bacillus. In another it was a short, stout, unidentified bacillus, singly and in pairs. In 9 of the cultures there was no predominating organism, but colonies of cocci and common mouth bacilli. In 4 of them, however, a large diplococcus was found, and in 2, irregularly beaded bacilli. In 1 culture there were proteolytic colonies which digested the blood serum; in none of the cultures were the Klebs-Loeffler bacilli found. The author concluded that there was no predominating organism in the pseudomembranes; that mouth bacteria were to be found in all cases, in varying quantities, the cocci being the most numerous, and that cultures would most often show staphylococci and streptococci, due probably in part to their greater hardiness on artificial media.

Lymphosarcoma of the Nasopharynx and Tonsils with Results of Operative and Medicinal Treatment.—Dr. Clement F. Theisen of Albany, N. Y., reported three cases. Two more cases had come under his observation during the past winter but were not included in the report. Case 1 was a boy of 14 years, operated on under general anesthesia and then placed on arsenic carried to the point of tolerance. Coley's serum was not used, as the author's experience with this remedy had been unfavorable. Temporary benefit resulted but the boy had recently died. Case 2 was a man of 48 years. The mass was removed from the left tonsil under cocaine and adrenalin, but recurred in the larynx, the original site remaining free from deposit. Arsenic seemed to keep the laryngeal recurrence stationary and the man is now comfortable. Case 3 was a man of 32 years, with a growth apparently confined to the right tonsil, and was removed by dissection of the right tonsil entire. The wound healed well but it was too soon to predict the eventual outcome. Arsenic has apparently had a good effect. No attempt was made to cover the literature of the subject in the author's paper.

Vaccine Therapy.—This subject was discussed in joint session with the American Otological Society and the American Climatological Society. Papers were read by Dr. H. S. Birkett, C. G. Coakley, and F. C. Cobb, representing the Laryngological Association.

Dr. Birkett presented the following conclusions: (1) Vaccine treatment will sterilize the accessory sinuses of the nose when the subject of chronic disease. (2) The chronic discharge of mucus from the accessory sinuses is due not so much to bacterial infection as to habit-secretion. (3) The symptoms are due not to infection but to hypersecretion and retention. (4) Although vaccine therapy is a valuable adjunct to treatment, the establishment of free drainage by the removal of polypoid masses and redundant mucosa is more important. (5) The cases of sinusitis showing a tendency to become chronic should be treated carefully by homologous vaccines.

Dr. Coakley took a less hopeful view of vaccine therapy. His results had led him to the following conclusions: The bacterial flora of the sinuses consisted of the following organisms: streptococcus pyogenes, micrococcus albus and aureus, staphylococcus pyogenes albus and aureus, and bacillus mucosus capsulatus. The opsonic index has been unsuitable either as a means of clinical diagnosis or as a criterion for further treatment. The vaccinations made in varying strength have not been followed by the changes in the opsonic index which would be expected, were this method of treatment one on which we could rely in practical work. The amount of time necessary to carry out fully "a careful opsonic treatment was not only beyond that which the ordinary practitioner could afford to spend, but was with the present technique and status of the subject quite out of proportion to the value of the information which one might derive from such a procedure. The therapeutic results of his own cases were, in his own judgment, absolutely valueless. He could not see, on the other hand, that any harm had been done to his patients. Before the use of vaccines the chronic cases had had frequently periods of improvement of the symptoms and periods of aggravation. In a few instances some improvement was noted after the first or second injection, but later the discharge and other symptoms returned as they had done under other plans of treatment.

Dr. Cobb had had good results in clearing up chronic ear discharges, but not such good results in nasal cases, although the anatomical conditions so far as closed cavi-

ties draining through narrow openings were concerned were apparently alike. In a series of atrophic rhinitis cases, however, the results were better. A bacillus of which he could find no description was found in pure culture in all cases. From it a vaccine was prepared and injections varying in amount from 150 million to 500 million were made. A very general improvement in odor, amount of crusts and discharge had resulted, yet in no instance could an absolute cure be claimed. Before commencing vaccine treatment these patients were in the habit of using nasal washes, and this treatment was not changed while carrying out the injections except that before periodical examinations they were not allowed to use a douche for twelve hours. The patients themselves were enthusiastic over the results of treatment. Autogenous vaccines seemed to yield better results than stock vaccines. The same general degree of results had followed in sinus cases—improvement, but no absolute cure.

Dr. J. Solis-Cohen of Philadelphia had given thirty years ago the first injection of tuberculin ever made in Philadelphia. In one case he had succeeded in curing a man in whom not only injections of tuberculin were made, but the remedy was rubbed into the laryngeal ulcerations, and rectal injections were taken every night. He had always used the old tuberculin of Koch when he could get it. When he began the practice of medicine half a century ago it was customary to apply fly blisters over the site of pulmonary lesions. We knew nothing of the bacillus at that time. Many of the cases improved, and since serum treatment and tuberculin had come into use he had wondered if the absorption of some of the serum raised by these blisters was not the real cause of the improvement. Acting on that principle, it had been his custom for a long time to blister the chest below the clavicle, taking care that the blister should not burst, so that the patient's own serum should be absorbed on the same principle as autogenous vaccines.

Dr. W. S. Casselberry of Chicago said that up to this time the results of tuberculin on laryngeal lesions had been uniformly bad. He had seen, however, good effects in the larynx follow tuberculin injections even weeks and months after. He had reported elsewhere 40 per cent. of arrested cases in laryngeal tuberculosis, some of them having taken small doses of tuberculin. Many of the men who treated large numbers of tuberculous patients failed to examine the larynx, whereas if they would so do we might better note the laryngeal effect of tuberculin.

Third Day—Thursday, May 5.

Esophageal Diverticula.—Dr. Emil Mayer, New York City, read this paper (see page 10). He presented the following conclusions: (1) Examinations should be conducted in a routine manner, the esophagoscope being used last, bearing in mind always the danger of a rupture of a possible aneurysm. (2) In making the examination with the *x*-ray, the introduction of a small tube filled with shot might take the place of bismuth. (3) Esophageal diverticula might be easily diagnosed. (4) Modern surgery offered much hope for these patients.

Dr. Chevalier Jackson of Pittsburg thought that the passing of a bougie was a more dangerous procedure than a skillful esophagoscopy.

Dr. J. Gordon Wilson of Chicago exhibited a specimen of a diverticulum in a young lion twenty months of age. It was one of the first instances of the kind known to occur in the lower animals. The lion had died in a choking spell. In addition there was a thickening of what Killian calls the sphincter muscle of the esophagus.

Dr. Mayer said, in closing, that it was all a matter of the experience a man had had with reference to the choice of instruments. Care should always be taken in the use of the bougie, and if one found an obstruction, he should desist from its further use. He would, however, lay stress on the necessity of a routine method of examination strictly adhered to, and one should first satisfy himself of the absence of any serious condition.

The Cutting in Two of a Large Steel Pin While Transfixed in the Left Bronchus and Its Removal by Lower Bronchoscopy.—Dr. W. E. Casselberry of Chicago reported this case and exhibited the instrument referred to. The pin was glass-headed and about one and a half inches long and had been in position in the bronchus of a fifteen-year-old girl for about ten weeks, having caused in the first fortnight only a few spells of coughing with blood streaked sputa. The *x*-ray, however, clearly demonstrated its presence although with some uncertainty, but the bronchoscope settled the matter. The pin was firmly fixed and all efforts at removal with ordinary instruments failed as it was impacted at both ends and it was necessary to cut it in two, but the question was, how to prevent a portion from falling further down the bronchial tree when the division was made. So he had devised a beak-shaped scissor-like instrument so arranged as to avoid losing the smaller fragment by electing it to be held in the grasp of the pin-cutter. After the cutting the larger piece settled somewhat but was easily withdrawn with a Jackson forceps.

Dr. Chevalier Jackson of Pittsburg referred to the reader's statements with reference to the unreliability of a negative skiagram. We might get the history of a metallic body when it was not metallic and not dense enough to show. We had frequently to make an examination in the face of a negative report. In a case of a pin similar to the one reported he (Dr. Jackson) had utterly failed to remove it and he congratulated Dr. Casselberry on his success and the ingenuity displayed in the making of his new device.

Dr. T. H. Halsted of Syracuse referred to a case of his own in which an attempt to remove a large brass-headed upholsterer's tack had resulted in the very accident referred to by Dr. Casselberry, namely, the loss of a fragment. The tack could be grasped with the forceps but the head was so imbedded that it came off and no amount of searching could discover the shank. It was thought it might have been lost in the subsequent vomitus. However, the child made an uninterrupted recovery.

Dr. Emil Mayer of New York City said that to see a foreign body in a bronchus and to remove it were two different things. In one case in which the *x*-ray showed a tack in position quite plainly he could not see or feel anything with the tube as the foreign body had been so long in position that it had become surrounded by granulations and was not protruding so he felt that in view of the limitations of the case as to sight and feel of the body it would be harmful to the child's best interests to remove it. The child was perfectly well except that it was known that it had a tack in its bronchus.

Dr. C. G. Coakley of New York City referred to a case in his own practice in which a pin had been in a bronchus for a month when he was called to the patient. In spite of a tracheotomy and the dissecting away of a large thyroid gland, which bent the trachea from its normal course, he had been unable to remove the pin although he could see it and grasp it with the forceps. Finally in a paroxysm of coughing it was dislodged and disappeared. It was located by the *x*-ray lower down. Dr. Jackson had seen this case and it was the one referred to by the latter. He (Dr. J.) was unable to see the pin but could feel it, yet not extract it. In six months the patient developed an abscess of the lung followed by pneumonia and then died. In this case such an instrument as Dr. Casselberry's might have succeeded.

Dr. R. C. Myles of New York City referred to the intense anxiety and pain these cases had given before the

days of direct examination and referred to the extraction of a large needle from the larynx of a woman in whom the foreign body lay across the larynx and had finally torn itself loose under traction with a heavy forceps.

Dr. Casselberry said, in closing, that it required a skillfully planned campaign to remove these impacted foreign bodies. It had taken him some two weeks to weigh and balance all the factors in his own case, but after these had been considered, his treatment devised, and removal attempted, the latter required but four minutes and a half. A motive running through his paper sought not alone to describe the mechanism but to convey in logical sequence the train of thought and intelligent management to overcome successive adversities ere the culminating technical moment had arrived.

Epithelioma of the Left Vocal Cord.—Dr. Charles W. Richardson of Washington reported this case. The patient was a young man of forty years who developed a cold in October, 1908. Had hoarseness and a cough. Examination of the left cord showed it congested with some proliferation near the anterior commissure. Process looked more like a tuberculous than a malignant one. Four weeks of treatment relieved the symptoms though not the local appearance which slightly increased so far as proliferation was concerned. A small fragment revealed the epitheliomatous nature of the growth. A thyrotomy without the usual tracheotomy was done. The method employed for the removal of the growth was the usual subperichondrial one. Healing by primary union occurred and was completed in about two weeks. When last seen thirteen months later there was no recurrence of the growth.

Dr. J. Solis-Cohen of Philadelphia said that as far as he knew the superichondrial method was original with himself and he had first performed it several years ago, the patient being still alive. He had at first applied tincture of benzoin to the denuded cartilage. Later he had used acid nitrate of mercury thinking that there might be lingering deposits of malignancy.

Dr. W. L. Ballenger of Chicago had performed the same operation a year ago and his patient was still well two months ago with no recurrence.

Dr. T. P. Berens of New York City had reported to another society a description of a recent case of a man with epithelioma and a hoarseness of some five years' standing, in whom he had removed intralaryngeally the whole anterior two-thirds of the cord and found that his suspicions were confirmed. Finally he slit the larynx, having in mind to do the Cohen operation. He found that the periosteum was more adherent over the center of the false cord and removed the wing of the cartilage on that side. By applying adrenalin to the wound surface of the mucous membrane he had a dry wound when cut through. In three days he was able to remove the tracheotomy tube and his patient made an uneventful recovery from the operation. He now spoke in a very useful voice and could use the telephone without difficulty.

Dr. C. G. Coakley of New York City said that he wished he could report as good results as he had heard in this discussion. In a case of his own hemilaryngectomy was done, and later there ensued a contraction requiring the insertion of a tracheotomy tube. He did not believe that a total laryngectomy would prolong the patient's life, but a year ago the man was in very good condition.

Dr. H. L. Swain of New Haven referred to a case of his own operated on now some three years ago without recurrence. Now the patient has a perfectly loud and clear voice. There has been added a cicatricial band filling the area formerly occupied by the true cord, which had been removed, and it had a free, clear edge, with some range of motion so that the man had now a pretty fair pair of vocal cords. He would like to know if such a result had been a common one with the men who had done the operation.

Dr. Emil Mayer of New York had had two years ago a young man with every appearance of cancer, but who cleared up under the iodide. This was an experience which might happen to any of us.

Dr. D. Bryson Delavan of New York City referred to the varying microscopical findings in superficial and deep portions of these laryngeal growths, saying that they often differed, citing an illustrative case. The special rather than the general surgeon should operate on such cases as were under discussion. He himself did not believe in the preliminary removal of a fragment for microscopical examination. The present discussion had completely proved the correctness of Dr. J. N. Mackenzie's position in this matter; every one knew that the irritation of these growths was bad, but when it was admitted that the patient should be told to prepare himself for a completer operation very shortly after the removal of a piece of the growth for microscopical examination, the case was simply given away.

Dr. Richardson in closing said that his patient had developed rather a hoarse voice. The hand referred to by Dr. Swain was commencing to grow and at his last examination was distinctly in evidence and he supposed it would gradually develop more fully.

A Case of Laryngeal Syphilis.—Dr. Harmon Smith of New York City dwelt on the difficulties of differential diagnosis. His patient was a male of 25 years who five years after the initial lesion had an attack of laryngitis and shortly after had on his right vocal cord a soft polypoid mass about the center which seemed to project from the ventricle. There was slightly retarded movement while the voice was strong though husky. The case was regarded as specific in origin but later developments and local changes led to a suspicion of either tuberculosis or malignancy. The points of differential diagnosis were passed in review. At no time during the observation had there been the appearance of any projection that would justify an attempt at obtaining a specimen for examination under the microscope. The patient's subsequent history had seemed to confirm the truth of the original diagnosis although there had been no evidence of an external destructive process which we regularly expected to find when a specific process had existed for a long period. Although all the true cord could be seen in the mirror it would undergo queer physical changes while being examined. It would seem to change from a normal condition to a puffy, redder and mucus-soaked look during phonation. This condition had been explained as a disturbance, probably vascular and lymphatic in nature.

Fatal Case of Asphyxia Due to Pressure on the Trachea and Bronchus by a Tuberculous Mediastinal Gland.—Dr. C. G. Coakley of New York City reported this case. His patient was a girl of three years whose lungs revealed no lesion but she suffered from dyspnea, mainly exposure, suggesting some growth in the subglottic region. Attempts at examination with the bronchoscope under chloroform anesthesia led to cessation of respiration and the attempt was given up. A short time after an emergency tracheotomy was done under great difficulty as the child was struggling. Cocaine anesthesia was employed. Death occurred somewhat over an hour later. Autopsy revealed beneath the left tracheal mucosa an ovoid mass 2½ cm. in length which encroached on the tracheal lumen to such an extent as to almost entirely occlude it. A nodule was found at the apex of the left lung. Microscopical examination of a portion of the lung nodule revealed the presence of lymphoid tissue in which there were numerous epithelioid tubercles. The peritoneal glands were markedly enlarged and showed remnants of lymph gland tissue with closely massed epithelioid tubercles containing giant cells but with no caseation. The center of one nodule was caseous and infiltrated with leucocytes.

Dr. D. Bryson Delavan of New York City had had a very similar case, the autopsy revealing a tuberculous lymph node pressing on the trachea as well as general tuberculosis.

Dr. Chevalier Jackson of Pittsburg said that the case showed that we were gradually eliminating the things which used to be classed as status lymphaticus. In cases such as the one under discussion the alternating periods of free and obstructed breathing were very deceptive, and a tracheotomy ought to be done immediately. In one instance in which he had been called to see a child with dyspnea he had passed a bronchoscope and found the bronchi obstructed with cheesy material. Tracheotomy was done but the child lived only a few hours. Both lungs were found solidly tuberculous while lymph glands had broken down and filled the trabronchi with the material found.

Dr. E. Fletcher Ingals of Chicago reported the case of a child sent to him for removal of a foreign body from the bronchi, the symptoms being typical of this condition. The child was anesthetized with a view to bronchoscopy but died on the table. Post-mortem revealed a very large thymus.

Dr. J. Solis-Cohen of Philadelphia asked Dr. Coakley to mention the character of the dyspnea in his case. Was it suprasternal or infrasternal; with regard to thymus gland pressure cases he (Dr. Cohen) had seen instances in which the dyspnea was immediately relieved as soon as incision was made through the thymus?

Dr. B. R. Shurly of Detroit referred to those cases of apparently laryngeal dyspnea seen before the days of bronchoscopy in which the passage of an intubation tube gave no relief; an explanation of such cases was found in the one under discussion. The possibility of mediastinal disease in children was not appreciated by most of us. There was as yet no classified definite symptomatology of these cases but we might be helped in our diagnosis by the *x*-ray.

Dr. J. Price-Brown of Toronto asked if such a series of causes and post-mortem findings might occur in adults?

Dr. Coakley said in reply to Dr. Cohen's inquiry that dyspnea in his own case had been both inspiratory and expiratory, more expiratory. There was absolutely no cough although the history of the case in the beginning suggested pertussis.

Recurrent Papilloma of the Larynx Extending Over Thirty Years, During Which Time Two Thyrotomies Were Performed.—Dr. Francis R. Packard of Philadelphia reported a case of this nature. The interesting points in the case were (1) The long time during which the patient had been under observation and throughout which intelligent treatment had been directed toward the relief of his condition. (2) The fact that throughout that period, practically as far as could be learned, there had been no change in the nature of the neoplasm. (3) The fact that this growth was so typical as to etiology (followed a severe cold from getting wet), occurring in an auctioneer, as to progress and recurrence in spite of repeated removals, as to growth and microscopic appearance and (4) as showing no tendency in spite of repeated operations and traumatism to undergo any malignant degeneration.

Dr. Samuel Johnston of Baltimore referred to a case of a child in his own practice in whom cure had been effected by applications of chloride of zinc.

Dr. D. Bryson Delavan of New York City said that the types of papilloma mentioned by Dr. Packard and Dr. Johnston were altogether different things. In one of these recurring cases under his care the larynx had been split and kept open while radium was used. During the last three months there had been no recurrence. It was too early yet to predict the ultimate outcome.

Dr. C. W. Richardson of Washington said that these recurring growths apparently reached a certain stage or limit of reproduction and that if we kept at them until that time they would cease.

Dr. J. P. Clark stated that in his experience with papilloma he had never known a case in which the growth had begun in early life. It was a matter worthy of notice that in the reader's case the growth had not begun until he was forty. In the case of treatment of the lesion in the larynx of the child it was hard to say just how much good treatment did, for papilloma would come and go as did the ordinary wart. When it got ready to go it went.

Dr. W. E. Casselberry of Chicago had seen a number of cases of papilloma originating in adult life. We could not divide these cases into merely two categories, he would rather say ten or more. They ranged all the way from the narrow circumscribed, base-pedunculated growth to the persistingly recurring growth filling the larynx. He advocated the use of the galvano-cautery for the destruction of the base. Much surface could be destroyed without any impairment of the cords.

Dr. W. K. Simpson of New York City had used lactic acid; in one case the recurrence had ceased with perfect restoration of the vocal cords and voice. He had come to the conclusion that lactic acid was one of the best escharotics we had.

Dr. H. L. Swain of New Haven mentioned one case of recurrence in which he had been compelled to do a thyrotomy and burn out the base with the Paquelin cautery. Even after that the patient had had one or two small recurrences. He thought it better to avoid instrumentation if it was possible.

Dr. B. R. Shurly of Detroit had treated several such cases with tracheotomy and removal of all the growth possible. Ordinarily the putting of the larynx at rest was sufficient for recovery.

Dr. R. C. Myles of New York City was an advocate of tracheotomy and putting the larynx at rest. There was danger of pneumonia after the more serious operations. Care should be taken not to remove the growths from opposite sites on both cords at the same time.

Dr. Packard said in closing that his patient who was an unusually intelligent man had urged him not to do any intralaryngeal work if it could be avoided as the growth recurred after every such procedure. The speaker thought it better to have a piece removed and to get out as much of the mass as possible if it showed malignancy.

Black Tongue, Lingua Nigra Villosa.—Dr. Charles H. Knight of New York City reported a case of this disease. He said that Blegvad had been able to collect 183 cases including ten of his own in 1907. He passed in review the various theories as to the cause of the condition, quoting various authors, the persistence of the lesion, the variability of the symptoms and the doubtful efficacy of treatment. He believed the malady to be innocuous and that no apprehension of malignancy ought to be entertained. At present there was no evidence pointing to the existence of a causative organism. Blegvad had decided that the parasitic theory was not tenable. He thought that the reported cases called attention anew to the etiological importance of the vasomotor system. In our study of germs and of the rôle played by the internal secretions the rôle assumed by the nerves in the causation of certain elusive and obscure affections might have been neglected. There seemed to be no necessity of entering upon an energetic therapy of the malady although something might be done to relieve the mind of the patient. He closed by giving a selected bibliography of the literature of the subject.

Ozena and Respiratory Gymnastics.—Dr. Marcel Natier of Paris sent this paper. The author related a case of ozena occurring in a young boy who at an early age developed an acute attack of dysentery but who as he

grew up developed an ozena also. Regulation of the diet and general sanitation were followed by regulated respiratory gymnastics which led to a cure of the nasal malady. The author made a plea for a more careful investigation into the personal antecedents of this class of patients saying that the ozenatous condition often followed and was directly referable to some disease of childhood and said that there could be no plan of treatment applicable to all cases but that each one ought to be considered by itself and treated accordingly. In this way the ozenatous condition would frequently disappear as the child grew up. To focus the therapeutic efforts on the nose alone was to commit a grievous error.

Supplemental Report on Operations on Malignant Growths of the Upper Air Tract.—Dr. J. PRICE-BROWN of Toronto reported on three cases of nasal sarcoma the histories of which were presented to the Association one year ago. In two of the cases there had been a return of the growth in the middle turbinate and upper part of the posterior naris. He followed again his electro-cautery method, under twenty per cent. cocaine anesthesia and in one case forty per cent. when in the region of the sphenopalatine ganglion. The cases were still under treatment The patients were regularly at work and there had been no hemorrhage after treatment. He never packed the nostril after operation. He thinks it would be pernicious to take fresh sections for examination.

Election of Officers for the coming year resulted as follows: *President,* Dr. D. Braden Kyle of Philadelphia; *First Vice-President,* Dr. R. C. Myles of New York City; *Second Vice-President,* Dr. J. M. Ingersoll of Cleveland; *Secretary and Treasurer,* Dr. J. E. Newcomb, 118 West 69 St., New York City; *Librarian,* Dr. J. H. Bryan of Washington; *Member of Council* to serve for four years, Dr. J. E. Logan. Place and date of next meeting to be selected by the Council. Drs. O. Chiari of Vienna, E. J. Moure of Bordeaux and F. Massei of Naples were advanced from Corresponding, to the list of Honorary Fellows while Drs. E. von Navratil of Buda-Pesth and L. Réthi of Vienna were elected Corresponding Fellows.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, Held on April 18, 1910.

THE PRESIDENT, DR. REYNOLD WEBB WILCOX, IN THE CHAIR.

The Use of Radium Emanations in Internal Medicine.—By Dr. S. WACHSANN.

Alcoholism in Women, Including Its Treatment; Medicolegal Aspects.—Dr. G. ALFRED LAWRENCE read this paper. He stated that the subject of alcoholism in women was one that merited the most serious consideration of not only the medical profession but of civic, social, and legislative bodies as well. The greater susceptibility of women to the baneful effects of excessive alcoholic stimulation was a well recognized fact. Women were the mothers of our children, and alcohol, as we know, was one of the most pernicious hereditary factors in the production of defective offspring, and how could it be otherwise? The ovum containing the toxic alcoholic poison, perhaps impregnated by the spermatozoa of an alcoholic father, or the blood of the pregnant mother laden with greater or less amounts of the same toxic alcoholic beverage, continually flowing among the developing tissues of the growing fœtus, or the nourishment derived by the suckling infant from the breast of the alcoholic mother, could not help but have a marked pernicious inhibitory action upon the normal and active development of the offspring, resulting in a stunted, atrophic, unstable organism, defective both anatomically and physiologically.

Dr. Lawrence said that the medicolegal responsibility of the female alcoholic was a subject of the greatest importance, and the present laws appertaining to the same were far from satisfactory in many ways, and should be revised to conform with the medical advance in the knowledge of the various diseased states presented by the alcoholic. At present, legal recognition of inebriety was largely taken up with the disposal of the woman only after she had lapsed into a criminal offender against the law, and was punitive in character. So long as she merely ruined her own health and destroyed the happiness of herself and family, and dissipated her fortune, without committing some overt act against the public by a disturbance of the peace, and thus being placed under arrest as a disorderly or drunken person, or committing some crime of a given nature, the law, as it existed to-day, practically permitted her to pursue such a course without restraint. When, however, a crime was committed, in most cases she was held fully responsible, and not infrequently a more severe penalty was meted out than if the act were committed by a non-alcoholic, although, from a strictly medical standpoint, she might be entirely irresponsible. In New York State the means of properly caring for this large and ever increasing class of patients were crude and inadequate. The usual short sentence that was inflicted neither reformed the individual nor protected society, and when fined, if the same was paid, such was done usually by a relative who could ill afford to do so, but made the sacrifice in order to save the inebriate and her relations from further disgrace. Such a public exposure tended to lower the selfrespect of the individual, and frequently caused loss of employment or entirely demoralized the household, with the accompanying neglect of the husband and children when the woman was a wife and mother. No discrimination was made in the treatment of the occasional and the habitual inebriate, and the institutions to which such were now committed were not adapted to the properly classified treatment of the various cases coming to them, and there were no suitable provisions for their commitment at present. Such short term commitments and petty fines resulted in the "rounder" returning frequently to the hospitals, police stations, courts, prisons, and workhouses. Remedial measures were practically a negative quantity under such a procedure, whereas punitive measures were emphasized, and the courts were thus overcrowded with many cases that never should appear before them. Many patients who should receive careful medical attention were thus hastily disposed of in an improper manner. Many of these cases could be properly and successfully treated at their homes, or in a hotel, private hospital, or sanatorium, under the directions of a medical expert. In large centers like New York a vast majority of these inebriates required custodial care under proper legal commitment and for a proper length of time. During the past three years efforts had been made in this direction, and bills had been presented in the State Legislature for appropriations for the establishment of a suitable board which should have general control of the problem of dealing with public intoxication, and to establish a suitable hospital and colony for the care of such cases under proper commitment, but nothing had been done up to the present time. In concluding his paper, Dr. Lawrence said that surely our alcoholic women as well as men should have the most scientific medical-legal care and treatment under proper control in a suitable environment for the eradication of this entirely preventable habit, which all too soon might become an enslaving disease, with far-reaching pernicious results.

Effects Upon the Mind and Nervous System.—Dr. GRAEME M. HAMMOND said that in the majority of instances, alcoholic psychoses in women differed but little from the alcoholic psychoses in men, but in their forms they did differ to a certain extent. Women were particu-

larly sensitive to the effects of alcohol, and although he could not agree with the statement made by Dr. Lawrence that it was a habit which could be readily cured—because he believed that in many instances women were born inebriates—still, in a considerable number of cases it was a habit which treatment could affect. Speaking of the alcoholic psychoses in women, Dr. Hammond first took up pathological drunkenness, which was characterized by manifestations of blind motor explosions, attacks of melancholia or of mania. The duration was short; it was followed by stuporous sleep and generally by complete forgetfulness of what had taken place. This form of drunkenness was generally observed in those who showed a congenital intolerance for alcohol, in hysterical and neurasthenic subjects, and in mental defectives. Women, who as a class were generally more intolerant to alcohol than men, rarely in this form of drunkenness exhibited the tendency to violent actions. This was probably because the instincts of the man differed from those of the woman. Delirium tremens was an acute psychosis in chronic alcoholism, and, in the speaker's experience, it was decidedly less common in women than in men. This was probably due to the fact that, generally speaking, it took less alcohol to intoxicate a woman than a man, and, again, women seldom indulged in prolonged sprees to the same extent that men did. Even in dipsomaniac women delirium tremens was not very common. When it did occur, it differed in no essential details from the same psychosis in men. It was seen, probably, more often in women of the lower classes of society than in those of greater wealth more on account of the difference in the quality of the intoxicant than in the quantity consumed. Acute alcoholic hallucinosis was a psychosis lasting but a short time, and characterized by voluminous hallucinations of hearing, and often by paramount delusions of persecution, jealousy, and sexuality, but without disorientation. It was of far more common occurrence, in the speaker's experience, in women who drank to excess, than was delirium tremens, and was certainly more frequently seen in women than in men, bearing in mind the proportion of women drinkers to men drinkers. Probably the greater emotional nature of women was responsible for their so readily acquiring this hallucinatory psychosis. Korsakoff's psychosis, in which, from alcoholic toxemia, a multiple neuritis developed, with confabulation, loss of recent memories, and defective memory retention was again more often seen among women of the poorer class than among the well-to-do. While in connection with this disorder he used the term "alcoholic toxemia," he believed, in many instances, at least, that it was more likely to be caused by other deleterious substances contained in the liquor than by the alcohol. Were this not so, Korsakoff's syndrome, in view of the enormous quantity of alcohol consumed by the public at large, would be of much more frequent occurrence. The disease presented the same clinical picture in both sexes, but the prognosis for complete recovery, never excellent, was better for men than for women, because men had greater physical vigor and stronger vitality. Dr. Hammond said he had never seen a case of true paresis result from alcoholism. He had seen pseudoparesis result from alcoholism, but those patients might recover, while he had never seen a case of true paresis recover. In dipsomania, a hereditary psycosis, in which the tendency was to drink to excess, there was no difference in the symptoms between the two sexes, and it was pretty nearly as frequent in one as in the other; in fact, it was probably more frequent in women than in men, on account of the more delicate organism of the former. To-day, women were drinking more than ever before. This was probably due, to a large extent, to the fact that in recent years women had more absolute control of their own property and fortune, they had become more aggressive, and were no longer kept in the background. Years ago, women of the better class seldom drank in public; now, it was the exception not to see them do so. The cocktail and the highball were familiar to many women whose mothers knew nothing about alcoholic drinks whatever. It was the fault of the men who encouraged women to drink; it was the fault of the great wealth of the country; it was the fault of the great hostelries in our cities, where women could be seen drinking at all hours of the day; it was a condition of recent years. This free use of alcoholic beverages was producing a state of health among women which was somewhat new. In symptomatology it was like neurasthenia, with one or two important differences; there was the same nervous irritability, and inability to concentrate one's self upon any fixed occupation, but it entailed more moral degeneration than did neurasthenia. The mental deterioration was greater than occurred in simple neurasthenia. It was as though these patients had lost the finer tone of their ethical sense. There was no such moral degeneration as was seen in chronic alcoholic dementia, but the patients became less truthful and less careful in attending to the needs of their children and household. Dr. Hammond said we knew that the alcoholic male was capable of producing defective children, but we had not yet proved conclusively that this was so on the opposite side. In regard to the cure of women inebriates, the speaker said he had his doubts. Many would improve under seclusion, but he did not feel hopeful in regard to the ultimate outlook. Very few cases of pronounced alcoholic psychosis in women were susceptible to an absolute, permanent cure.

Effects Upon the Circulatory System.—Dr. Louis Faugères Bishop discussed this phase of the subject. He said that the effect of alcoholism on the circulatory organs was primarily functional; that it interfered with the vasomotor system, and resulted in a disturbance of tone of the heart and blood-vessels. The result was that the tonicity of the heart and blood-vessels was reduced, and that the blood pressure was lowered. In acute alcoholism this loss of tone often resulted in death when a strain was put upon the circulation by acute dilirium. In chronic alcoholism there was overloading of the heart with fat, and a fatty degeneration of its fibres. The same effect also occurred in the blood-vessels, and there was a loss of tone in both organs. However, in the course of time, if the kidneys became damaged, the heart and blood-vessels became hypertrophied to produce the high pressure required for the proper action of the damaged kidneys, and there developed the clinical picture of chronic Bright's disease. The effect upon the kidneys was the production of chronic interstitial nephritis of a more or less pronounced degree, but in people using good wines and not subject to other poisons than alcohol this might not be such as to lead to high arterial tension. Thus we saw heavy drinkers who escaped accidents and reached a great age. The effect on the liver was in the production of cirrhosis. The question of the relation between alcoholism and the circulatory organs was a complicated one. Probably a more frequent cause of disease of these organs was found in the absorption from the gastrointestinal canal of the products of bad food chemistry, and was closely connected with the appearance of indican in the urine. This happened very often in those whose digestive organs were disturbed by alcoholic indulgence, and the over-ingestion of food that we found in such subjects. The whole question of alcoholism, Dr. Bishop said, was so complicated that it was hard to isolate one topic from another, and if, in his attempt to do so, he had appeared to minimize the evils of alcoholism, such was not his intention.

Dr. Charles E. Atwood said that what to do with

cases of alcoholism in practice was one of the most serious problems of the physician. In a word, very little could be accomplished without the co-operation of the patient and her family and household. With such co-operation, a cure could be effected, but relapses were frequent. A very thorough and careful examination of the physical condition of the patient was absolutely essential. The chief physical disorders met with in these cases were affections of the digestive system, the kidneys, and the heart. More or less neurasthenia was also present. It was usually desirable to withdraw all alcohol quickly, but sometimes such a procedure was undesirable or even dangerous, and in nearly all cases, when it was withdrawn, some substitute stimulant, such as strychnine, was required to sustain the patient. Cases of inebriety induced by physicians' prescriptions for milk punches or malt liquors, or the daily use of wine, long continued, were difficult to treat, as patients claimed a physician's original sanction for their indulgence. Other cases, such as those resulting from social drinking, required some change of environment as a first essential of treatment. A measure of success had been attained at the Vanderbilt Clinic by combining several elements of therapeusis. A number of patients had been brought there, at the speaker's suggestion, by social workers, and their treatment at the clinic had been medical, hydrotherapeutic, and suggestive. Hypnotism was employed, when possible, and the improvement of the patient was tested for, at each visit, in the psychological department. Cases of inebriety which presented a true psychosis might be treated, as a last resort, in hospitals or sanatoria licensed to receive the insane. Alcoholic psychoses were developed on a basis of chronic alcoholism; they usually occurred where there was a neuropathic condition, often associated with a faulty heredity, which weakened the will power and diminished physical resistance to all toxic agencies. The most common forms of alcoholic psychoses in women were alcoholic deterioration, alcoholic delusional insanity, acute alcoholic hallucinosis, pseudoparesis, and Korsakow's psychosis, which was a form of mental disorder accompanying alcoholic neuritis. Delirium tremens was much less common in women than in men. Nearly all of the alcoholic psychoses were curable. As to the frequency of inebriety in women, outside of the large cities and the wealthy classes, the speaker thought that it was not on the increase. In his experience among the poor at the Vanderbilt Clinic, during eighteen years, there had been really a decrease in the number of women alcoholics treated, and the number had never been great. During his term of service at Bloomingdale, the psychopathic branch of the New York Hospital, which drew patients mostly from well-to-do classes of New York City, the number of women with alcoholic psychoses had been larger in proportion than the number treated by him at the Utica State Hospital, which received patients mostly from the poor and middle classes from small communities and from the rural districts. At Bloomingdale, 40 women out of 755 admissions had alcoholic psychoses, and 56 others were moderate or excessive drinkers, but developed other forms of insanity. At Utica, of 792 women admitted, alcohol was given as a sole cause of psychosis in only 15 cases, and as an associated factor in 18 cases. At the New York Hospital for Nervous Diseases on Blackwell's Island, there were comparatively few cases of nervous disease among the women, due to alcohol. On Randall's Island many of the idiots had an alcoholic neuropathic heredity. Alcohol was known to be a protoplasmic poison. It was estimated that only about ten per cent. of the children of hard drinkers were normal mentally and physically, and the character and physique of the child was greatly affected by the condition of the mother while carrying it. If the pregnant women drank considerable alcohol, some of it passed as such into the fetus *in utero*. Of children thus born of drunken mothers, more than half died in infancy or were still born, while a number of survivors were mentally defective or epileptic, or exhibited mental degeneracy later in life.

Dr. Arthur C. Brush of Brooklyn said the greater susceptibility of women to the effects of alcohol was well known, and was doubtless largely attributed to the education of women. Boys, from the earliest childhood, were taught to control themselves; it was far different with the girl, who was allowed to give way to her emotions at any time. Women yielded more easily to the alcoholic habit than men, and in some cases it undoubtedly formed a distinct disease. Some of these defectives never felt well unless they were whipped up by alcohol; this might form a continuous condition, or the paroxysmal one of dipsomania. The speaker said he had always looked upon dipsomania as almost an epileptic impulse to drink. Discussing Dr. Lawrence's idea to control the sale of intoxicants to those who were addicted to the habit, Dr. Brush said it would be very difficult to identify such persons, especially in the large cities. As to the question of the responsibility of the drinker, the law held that so long as the person knew the nature and consequences of his act he could be held responsible. The plan of having drinkers committed by special commission would work probably as did our insane law, where such persons always had the right to demand a trial by jury. At present there was no means in this State of controlling the drinker. Dr. Brush said he had been in charge of the alcoholic ward of the Kings County Hospital for twenty years. His experience there was confirmatory of that of the other speakers that delirium tremens was less common in women than in men. On the contrary, multiple neuritis was more frequent in women than in men, probably because she took her alcohol in more concentrated form and frequently in the form of patent medicines that contained a poor quality of alcohol. He had never seen a case of true paresis resulting from alcoholism. That drink was on the increase among the better classes, was well known, but he did not think this was the cause among the lower classes. At any rate, the male wards in the hospital with which he was connected was not quite as full of alcoholics now as it was ten years ago, and that institution drew its patients from among the lower classes. The number of alcoholic women seen there were few. Among the causes for the increase of the use of alcohol by women was our modern mode of living. Women now generally preferred to live in flats, they neglected their household duties, and had an insane desire for pleasure.

Dr. John Herman Branth said the defects in children of alcoholic parents were not only mental, but also physical. In 1901, at a meeting of the New York County Medical Society, he had read a paper on cleft palate and harelip, and mentioned that Lawson Tait and others had searched in vain for causes for such deformities. Dr. Branth, upon close questioning of the parents of such children, learned that in the majority of cases the parents, one or both, confessed to an intoxicated condition at the time of the sexual act to which conception followed. Again, alcoholism not only attacked the nervous system, but the entire metabolism of every part of the body was, of course, influenced. If we examined the cadaver of a chronic alcoholic, we would find the fat and muscle soft and oily, the tissues were so friable that one could crush them between thumb and finger. When on the dissecting table, the oily liquid continually oozed out from the deeper tissues. Then, again, the recuperative powers of an alcoholic were far below normal. Let an alcoholic meet with an attack of pneumonia or a fracture of the thigh, and recovery was one of the rare results. That the ingestion of different kinds of substances affected the general metabolism in the individual could be seen macro-

scopically in hogs. Some of these animals were farm fed, others exclusively corn fed, and others were fed on distillery swill. The first made the best pork for human consumption, the second a lower grade, and the third (the swill fed) the poorest and cheapest pork, the latter looking bluish-white, and being soft and friable.

Dr. William M. Leszynsky said he agreed with the previous speakers as to the greater difficulties in managing women addicted to the excessive use of alcohol. As an illustration of the influence of impressive suggestion, he narrated the history of a patient who had been under his care for several years. She had then drifted from one physician to another without improvement. After an operation for the removal of a large ovarian cyst, she was told by the surgeon that if she returned to the use of alcohol another dangerous operation would be necessary. This occurred over six years ago, and she had since refrained from the use of alcohol. Some time ago, the speaker said, he was asked to see a patient with pronounced signs of multiple neuritis. He was told that she was a total abstainer, but he soon discovered that although she never drank beer, wine, or whisky, she had for a long time been in the habit of taking a tablespoon of the "essence of peppermint" every two or three hours. Essence of Jamaica ginger was another alcoholic stimulant used by some women, and the same was true of a number of "tonics" sold in the drug stores.

Dr. Daniel H. Smith said he wished to take exception to the statement of one of the speakers regarding the quality of the liquor that was offered for sale in the average drug store. With the exception of those stores that sold the liquor in the original package, the stuff sold under the name of liquor in many of the drug stores was unfit to drink. Instead of whisky, they usually dispensed French spirits at the rate of about 75 cents for four ounces.

The President, Dr. Wilcox, said that under the Pure Food Law it was to be hoped that there would be some reform in the quality of the liquors sold in the drug stores. Under the present laws, the speaker said, it was practically impossible to control the female inebriate without the co-operation of her entire family. Women could purchase all the liquor they wanted at the grocery stores; this class of dealers were apparently not amenable to the laws that controlled saloon keepers, and practically defied any attempt to restrain them from sending liquor into the home. Apparently, the more pretentious alleged grocery stores were conducted with less sense of moral obligation than the lowest grogeries.

Dr. Lawrence, in closing, emphasized the importance of preventative measures, which he regarded of even more importance here than in connection with tuberculosis. The public should be educated in regard to the evils of alcoholism, and he saw no reason why we should not be able to control the alcoholic in this country just as well as they did in New South Wales. A commitment could be secured in many appropriate cases, even where the patients took advantage of their right of a trial by jury.

Dr. Hammond, replying to the question of whether there was any difference in the quality of the beer and liquors brewed and distilled to-day, as compared with those in olden times, especially in England, where a drunk was guaranteed for half a shilling, and yet we did not read of any of the alcoholic psychoses then which were so common to-day, said that these psychoses probably existed then as now, but there were no statistics kept of such cases and no public institutions to which they were sent. As to the proper care of the inebriate to-day, the law was undoubtedly inadequate. These patients did not want to go to an institution, and there was no law that compelled them to go. They could only be tried in open court as habitual drunkards.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of August 27, 1910.

	Cases	Deaths
Tuberculosis Pulmonalis	518	153
Diphtheria	225	23
Measles	75	6
Scarlet Fever	74	1
Smallpox	—	—
Varicella	13	—
Typhoid Fever	118	14
Whooping Cough	33	9
Cerebrospinal Meningitis	3	2
Malarial Fever	—	—
Totals	1,059	209

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, during the week ended August 26, 1910.

CHOLERA.

PLACE.	DATE.	CASES.	DEATHS.
Austria:			
Galicia—			
Padwoloczyska	June 20	*1	1
From Russia.			
Colombo, Ceylon	June 3-9	1	..
India, Bombay	July 13-19	..	8
Calcutta	June 26-July 2	..	29
Negapatam	June 12-18	..	4
Italy, Puglia, province	Aug. 20	70	60
In 8 localities, mainly at Trani. Imported from Russia.			
Netherlands, Rotterdam	July 23-29	1	..
From a vessel from Russia.			
Russia, general	July 23-29	7,999	3,384
Odessa	July 24-30	120	49
Moscow	July 17-23	3	2

YELLOW FEVER.

Brazil, Manaos	July 17-23	5	5
Para	July 24-30	7	4

*Bulletin demographique and sanitaire suisse, June 30, 1910.

PLAGUE.

Brazil, Bahia	July 9-15	1	1
Rio de Janeiro	June 5	1	..
Chile, Mejillones	Apr. 27	..	Present
China, Amoy	July 10-16	..	4
Hongkong	July 3-5	1	1
India, Bombay	July 13-19	..	50
Calcutta	June 26-July 2	..	31
Kurrachi	July 10-16	7	6
Rangoon	July 3-9	..	31
Persia, Ardebil	July 1-6	20	6
Russia, Odessa	July 23-Aug. 7	6	3
Including 5 cases previously reported.			
St. Petersburg	May 6-28	3	3
Tunis, Tunis	June 30	5	3

SMALLPOX.

Argentina, Rosario	June 1-30	1	1
Barbados	Aug. 16	1	..
From steamship Byron.			
Canada, Halifax	Aug. 1-13	3	..
Toronto	July 11-Aug. 6	9	..
Chile, Valparaiso	July 19-23	60	..
Deaths not reported.			
Egypt, general	June 3-17	124	25
Italy, general	July 24-31	7	..
Naples	July 24-31	19	..
India, Bombay	July 19	..	3
Kurrachi	July 12-16	2	..
Japan, Formosa	July 10-16	1	1
France, Paris	July 24-30	1	..
Germany, general	July 24-30	1	..
Korea, Seoul	June 5-July 2	1	3
Malta, Vale	July 9-23	12	1
Mexico, Aguascalientes	July 30-Aug. 6	..	1
Mexico	July 10-23	..	3
San Louis Potosi	July 24-30	1	1
Persia, Teheran	May 1-31	..	28
Among pilgrims.			
Portugal, Lisbon	July 24-30	56	..
Russia, Libau	July 11-17	6	1
Moscow	July 10-23	5	4
Odessa	July 9-16	1	2
Riga	July 24-30	22	..
St. Petersburg	July 3-16	81	13
Warsaw	May 15-21	..	10
Spain, Barcelona	July 25-Aug. 1	..	1
Seville	July 25-31	..	2
Vigo	July 24-30	..	1
Uruguay, San Jose	July 7	..	Present
Zanzibar, Zanzibar	July 1-14	..	11

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Original Articles.

A BRIEF STUDY OF THE CONTRIBUTION OF IGNAZ PHILIP SEMMELWEIS TO MODERN MEDICINE.*

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IGNAZ PHILIP SEMMELWEIS was born in Budapest, Hungary, in July, 1818, and died in Vienna in August, 1865.

His father was a tradesman in a fair way of business, and his mother came of good, respectable stock. The particulars of his early life do not seem to be well known, nor are they of especial concern to us. He studied medicine at Vienna where he was known as a light-hearted and companionable young man, who, however, was an earnest student, capable of an extraordinary amount of painstaking and laborious effort. He had developed a strong taste for midwifery, and, in 1844, he took the degree of master of midwifery and applied for the position of assistant to the Clinic for Obstetrics attached to the Vienna General Hospital. This was an important position and its occupancy was esteemed a great advance for a young man, and an indication that he would achieve substantial honors in the obstetrical world.

Owing to the fact that his predecessor in this post had obtained a two years' extension of the regular tour of duty, Semmelweis was obliged to wait from 1844 to 1846 for his chance to fill the position. During these two years he made good use of his time by studying in the clinic—this he could do quite advantageously while not tied down by the routine duties of a regular assistant. Although he could not spare the time for regular attendance at the Gynecological Clinic he devoted himself with considerable assiduity to the pathological study of the bodies of the women who had died from gynecological diseases and operations. Owing to the friendship which Professor Rokitansky entertained for the young man, Semmelweis was afforded abundant opportunity for study upon the cadaver, of which he made good use.

In 1846, Semmelweis obtained the regular appointment as clinical assistant in the first obstetric clinic. There were two clinics; the first for the instruction of medical students, and the second for the instruction of midwives. The assistant in the first clinic had to visit and examine every patient in the early morning so that he might report on each case to the professor, upon the arrival of the latter in the wards, later in the day. The assistant on these rounds was accompanied by a crowd of students, each one of whom might examine any or all of the patients. As Sinclair sententiously remarks, "here we have a glimpse of practices which may well make the modern accoucheur shudder." In the afternoon it was the duty of the assistant to take the students through the wards again for the purpose of clinical instruction and to reexamine every patient who was in labor.

Not satisfied with the performance of his prescribed duties, as outlined above, Semmelweis continued his researches into pathological anatomy in the pathological institute during the early morning hours before visiting his patients. This he did chiefly to perfect his knowledge of the pathology of gynecology and obstetrics. He was a most assiduous worker in pathology and, as he afterwards stated, had by the practices just recounted unwittingly consigned many an unfortunate woman to an untimely grave.

During the year 1846 there were 460 deaths in the first clinic and 105 in the second from puerperal fever alone, in spite of all the then known treatment in midwifery practice.

Other young obstetricians, the predecessors and contemporaries of Semmelweis, were aware of these facts, yet seemed to regard them with indifference. In the spare time which they enjoyed between professional work and social engagements they discussed, like the surgeons of our own day, small variations in operations and modifications of instruments, more or less trifling, or the introduction of new therapeutic maneuvers, but Semmelweis took little interest in such discussions.

It was under such circumstances that his immediate successor, Carl Braun, invented his blunt decapitation hook and other clinical assistants made contributions to the technique of obstetric practice which have since been forgotten. Semmelweis had been cast in quite a different mold from his colleagues. He could not accept verbiage for reality, nor amuse himself with toys. His heart bled for the sufferers he saw sicken and die daily while under his care. The constantly recurring questions before his mind were: What is puerperal fever? How does it arise? What can be done to prevent it? What treatment can prevail against it? With the kindly sympathies of a strong man and the tender heart of a woman he "was to exhibit in due course the most cutting indignation and sarcastic contempt for those students and nurses who by their levity and carelessness endangered the lives of the poor women" who were consigned to their care.

In order to be able to appreciate, at least in part, the enormous progress which this man made in unraveling the mystery which had hitherto shrouded the etiology of puerperal fever, it is necessary to consider briefly the various theories which had been advanced in the long course of years to account for its prevalence and mortality.

*Read before the Orange Mountain Medical Society.

While it will be impracticable to even mention all of the almost innumerable theories which had been brought forward from time to time, a short reference to some of the more generally accepted will serve to show something of the attitude of the medical mind in the early part of the last century, and also can scarcely fail to be of some historical interest.

Furthermore, as intimated above, only by this means can the enormous debt which the world owes to Semmelweis be even partly appreciated. A case that occurred under the care of Dr. Johann Chiari while Semmelweis was studying for the degree of master of midwifery, and which he had the opportunity of observing, serves to illustrate the simple faith of that day in the supposed terrible power of epidemic puerperal fever. It also casts a strong side light upon the then prevalent methods of practicing gynecology.

A woman suffering from a fibroid polypus of the uterus was admitted to the clinic and the tumor was removed in the usual way. The patient soon showed the symptoms usually noted in puerperal fever and shortly afterwards died. Post-mortem examination revealed lesions identical with those commonly found in puerperal fever. Dr. Chiari explained this state of things by declaring that the patient had actually died from puerperal fever, although she had not been pregnant, nor passed through the puerperium, because, as he alleged, the epidemic influence of the fever had become so strong that it had even attacked and carried off non-puerperal women. This, he explained, might happen in cases where the epidemic influences were exceptionally virulent. A marked instance one might say of an explanation which does not explain. The sort of talk which the casuists in medicine have been wont to employ, and still do sometimes employ, as a cloak to their ignorance.

Sinclair, from whose "Life of Semmelweis" I have been freely quoting, tells us that two principal theories of the etiology of puerperal fever were strongly prevalent up to at least the end of the first third of the nineteenth century. According to one of them the disease was a "milk fever." Without having been able to lay my hand upon a succinct statement of exactly what was meant by the term "milk fever"—a term apparently almost as common amongst physicians seventy-five or eighty years ago as the term autointoxication is among us to-day—I think that I am justified in defining it as a fever which every lying-in woman suffered from when her milk "came." As in those filthy days probably every woman had some infection and showed some fibrile rise when lactation was established, no doubt the fever was looked upon as a necessary accompaniment of the process, and in cases where the fever, instead of subsiding in a few days, increased in virulence and intensity, along with the development of lymphangitis, adenitis, pleurisy, peritonitis, and so forth, accompanied by fibrinous exudates and mitastases, and finally leading to death; the fever which was known to have started when the process of lactation should have begun seemed to have been caused by some pathological change in the milk itself or some derangement of the process.

This assumption would naturally be strengthened by the disappearance of milk from the breasts and the suppression of lactation so generally noted in puerperal fever. The learned men of those days talked about milk pneumonia, milk peritonitis, and so on, evidently believing that the disease producing milk had found its way into the lungs or into the abdominal cavity. One French observer asserted that he had found milk in its natural form inside the peritoneum.

This theory had many supporters in England, and that is probably why it was adopted by Böer, afterwards the professor of obstetrics in the Vienna School of Medicine, and the predecessor of Kline, under whom Semmelweis served in the obstetric clinic. Böer, it should be stated, had studied in England where obstetrics were somewhat better taught, it seems, than in Continental Europe, and had carried the English ideas to Vienna and taught them there. At all events Semmelweis, when he became assistant to the First Obstetric Clinic in Vienna, was what was called a "milk fever epidemicist," which seems to me to mean that he believed that some epidemic influence interfered with, prevented, or altered the secretion of the milk in parturient women, and changed this innocuous fluid into a most deadly systemic poison.

The other common theory of the cause of child-bed fever was that it came from the suppression of the lochia. Smellie, the well-known English obstetrician, was an advocate of this theory, and had probably brought his opinions from France, where they were taught in the School of Mauriceau, whose influence as a teacher spread this doctrine over Western Europe.

The so-called physiological school, as Sinclair tersely remarks, *a lucus a non lucendo*, held to a mixture of these two luminous theories, which were really, it seems, much alike in so far as they explained the fever by attributing it to the alteration or suppression of a natural bodily function.

The so-called gastric bilious fever theory had a considerable vogue in England at one time. The severe cases of puerperal fever were also called putrid fever. Arising apparently at about the same time and holding its ground for about a century was the assumption that inflammation was the central fact in child-bed fever. The advocates of this doctrine naturally divided themselves into cliques accordingly as they followed the teachings of different individuals who claimed that the trouble might start in one or another of the organs of the body, which might be the peritoneum, or the womb, or the intestines, or even the omentum. William Hunter and, later, Baudelocque, were perhaps the most prominent and influential advocates of the theory of a primary peritonitis as the cause of puerperal fever.

About the middle of the eighteenth century we find the first reference to erysipelas as closely associated with child-bed fever. Gordon of Aberdeen (1795) alleged that puerperal fever was an erysipelas of the bowels and peritoneum. By the middle of the nineteenth century the almost universal belief in England and America was that erysipelas and puerperal fever were identical maladies.

Another doctrine was maintaned more or less strenuously during this time, which was apparently at variance with the theory of the intimate relationship between erysipelas and child-bed fever. This maintained that the latter was really a disease *sui generis*, independent as an entity, but most variable in its phenomena, owing to fortuitous influences. This belief still prevailed in England, even when it was assumed that any zymotic disease was capable of taking on the form of puerperal fever while con-

cealing its own most characteristic features. As for example, scarlet fever, without its rash and without its angina, was supposed to seize the lying-in woman in the form of child-bed fever. "Nulla febris est quæ non alquando cadat in puerperam." (There is no kind of fever which does not sometimes attack the lying-in woman.)

This pathological hodge-podge was called the "variable" theory of puerperal fever as enunciated by Eisemann in 1837. No doubt my esteemed colleague on this historical committee, my old friend Dr. Harvey, recollects as I do similar theories of the etiology of puerperal fever which were still taught and believed when we were students.

Ultimately came the dawn of the wound-fever theory as the internal factor in the causation of this disease. Yet even in England, where the most rational pioneer opinions had developed, there were for years and very likely still are vestiges of a general belief in a *contagium*, and the pioneers of our modern pathology harked back to a "specific something" an "unknown something," the *divinum aliquid*, perhaps a specific primary change in the blood, which was alleged to produce the local lesions.

During those long years when these chaotic ideas prevailed regarding the internal factors in the etiology of puerperal fever, the explanation of the external factors was still more vague and incomprehensible. Certain more or less clearly defined influences of an atmospheric, telluric, or cosmic nature were alleged as causes of the disease. To them the term *genius epidemicus* was applied, and so evanescent were they alleged to be that mere changes in the weather were constantly referred to by some writers, especially German, French, and even Scotch authors, as sufficient to account for the greater or less prevalence of child-bed sickness. A specially injurious entity, more fearsome by reason of its mysterious origin, was alleged to be developed and spread abroad in some unknown way. It was called a miasma. This miasma, or *genius epidemicus*, might extend over a vast area, or it might be restricted to a single town, or even a single building, such as a hospital, where it was especially prone to develop if there was overcrowding of pregnant or puerperal women—the so-called "crowd poisoning" of our ancestors. This was the theory to which Cruveilhier lent the weight of his powerful authority.

It was believed by many that with a certain intensity and extension of the malady a contagion was brought into existence. According to this belief a contagion represented a specific virus which originated only in the diseased organism and that from that point of origin could produce in another individual the same disease. In some minds the contagion assumed the form of a mysterious halo, or areola, which clung to the unfortunate practitioner who had come under its malign influence and rendered him a source of danger wherever he went. Coming near to the time when the doctrine of Semmelweis was announced we find an almost general prevalence of the belief that the pregnant and puerperal woman was a thing unique in nature. This theory of loaded blood and tissues generally, this state of unstable equilibrium when the system was hanging on the verge of fever and was especially vulnerable to the influence of any adverse factor, held the field for years, especially among the "older, unteachable, obstetric mandarins of England." Yet it had to give way finally before the advance of modern thought and was the last barrier to the spread of the present doctrine of the pathology of child-bed fever.

It will take us too far afield to describe the doctrines of blood crasis and hyperinosis, which seem to have been lugged into this hypothetical pathology to explain why the pregnant and parturient female was assumed to be a being governed by suppositious laws which had no application to any other living creature. We still find Virchow in 1801 and Barnes in 1875 teaching the spontaneous origin of child-bed fever. My venerable colleague and I can still remember the talk about the *locus minoris resistentiæ* and the malign effects of sudden emotions, indiscretions in diet, and changes in the weather upon lying-in women. Is it to be wondered at, then, that when Semmelweis made his great discovery he found, like Copernicus and Galileo, a wall of prejudice and human vanity directly in his path, which made his progress exceedingly difficult?

To return to the personal history of the subject of this paper we find Semmelweis, in 1846, duly installed as assistant to the Chair of Obstetrics and in charge of the First Obstetric Clinic in the Vienna General Hospital. He had observed that there were between three and four times as many deaths in child-bed in the first clinic as in the second, and he also reflected that students fresh from the operating room and the dead house freely examined the patients in the first clinic, while the midwives, who had no such free access to cadaveric material, handled and delivered the patients in the second clinic. He also observed that it was especially the young and vigorous primiparæ, often powerfully built and strong young women, whose first labors were naturally tedious, who were most apt to suffer from the dreaded child-bed fever.

So marked had the difference in the mortality records of the two clinics become, that the patients themselves were aware of the dangers of being delivered in the first clinic, and begged and prayed with tears and lamentations not to be sent into its wards. Still the rule of sending every other patient into the first clinic and the alternates into the second was maintained. Except in the medical attendance there seemed to be no difference whatever in the surroundings, appointments, and management of the two clinics.

Semmelweis had noted all these things, but their true significance had not yet dawned upon him. In 1847 (March 20) Professor Kolletschka, whom Semmelweis especially honored and esteemed, received a prick of the finger in making an autopsy. He thereupon became afflicted with lymphangitis of the arm, followed by pleurisy, pericarditis, peritonitis, and meningitis, from which he died in a few days after the initial infection. Shortly before his death a metastasis occurred in one of his eyes. The autopsy revealed a series of lesions identical with those found after death from child-bed fever. As Semmelweis says, "Excited as I then was, it entered into my mind with irresistible clearness that the disease from which Kolletschka had died was identical with that from which I had seen so many lying-in women die." This instance, with its powerful shock to his feelings, broke upon Semmelweis like a revelation and led him to his great and immortal discovery. The difference in the mortality rates of the first and second obstetric clinics was explained. It was because the students without sufficiently cleansing their hands after handling cadaveric material examined the lying-in women in

the first clinic, while those in the second were not exposed to this source of infection. It also explained why the young and strong primiparæ were more prone to child-bed fevers in the first clinic than the multiparæ, simply because being in labor longer they were examined more times and by more students than those whose labors were shorter and less interesting. Semmelweis immediately ordered that every student before examining a woman in the lying-in wards should wash his hands thoroughly in chlorine water. As a result the mortality of parturient women in the first clinic fell from 12 per cent. to 3 per cent. in the course of two months.

In the month of March, 1848, the students and professors, including Clinical Assistant Semmelweis, were busy with the military affairs of the revolution, and the deliveries in the first clinic were left almost entirely to chance and the care of the head midwife. Under this policy of non-interference not a single death occurred in that month. During eight months of the previous year the mortality rate was as follows: In April and May of every 100 parturient women over 18 died, while in the following six months, after the careful washing of the hands of the students and professors with chlorine water had been enjoined, out of every 100 parturitions only 2.45 women died.

Semmelweis had promulgated the following assertions: "Puerperal fever must always be considered as a fever due to the absorption of decomposed animal, organic matter. This absorption may result from *auto*-infection (the product of infection coming from the individual herself) or from *hercto-infection* (the product of decomposition coming from without). Consequently not only the cadavers of every age and of every sex, when they are in a state of decomposition, but also the sick of every age and of every sex whose disease is accompanied by the decomposition of organic, animal matter, and, furthermore, every animal, organic tissue which presents a certain degree of decomposition—every one of these may be the starting point of puerperal fever."

This is unquestionably sound pathological doctrine. Had Semmelweis only had some knowledge of bacteriology his name would have been bracketed with those of Lord Lister and Pasteur. However, he deserves far more recognition for what he did than he has so far ever received, and doubtless time, which makes all things equal, will do justice to the reputation of a great and unselfish benefactor of the human race. Like all promulgators of a new and startling truth, he met with but scant appreciation when he first announced his discovery, and he had the misfortune to excite the enmity of his superior, Professor Kline, who had little sympathy for reformers, or even for investigators of any sort. This latter functionary prevented Semmelweis from obtaining a reappointment for two years as assistant to the Obstetric Clinic, a privilege which had been granted to his predecessor.

With the help of his satellites and the court favorites, both men and women, who had far too much influence at that time in medical affairs in Vienna, Kline proceeded to make Semmelweis' life in Vienna as intolerable as possible. They denied his assertions that by his method of prophylaxis the mortality rate in the Obstetric Clinic had been reduced fourfold, and when Semmelweis demanded access to the hospital records in proof of his statements they forbade him the use of the records.

Semmelweis then applied for the position of privat docent in obstetrics. After some vexatious delays this was granted him, but with certain humiliating conditions, probably intended to cause him to decline the position. When certain of Semmelweis's friends demanded the appointment of a commission to investigate the claims which he had made, the court party succeeded in preventing the investigation and began a counter attack upon Skoda, Semmelweis's principal champion, alleging that he entertained "materialistic opinions," whatever that may have meant. This contest waxed exceeding warm and the laity and the clergy, then as now quite ready to mix up in a quarrel, the bearings of which they could not comprehend, took a full part in the proceedings.

Semmelweis, whose native modesty had for a long time prevented him from accepting the invitation of the Vienna Medical Society to expound his views before them, finally apparently stung into action by the persecution to which he had been subjected, came before the society and set forth his claims with the proofs. He was exceedingly well received and was elected a member of the society. This was in 1850. Yet this partial triumph seemed to redouble the efforts of his enemies to drive him out of Vienna. Finally he yielded to the pressure, suddenly going back to his native town, Budapest, in Hungary.

So far as the advancement of his doctrine and the establishment of the truth of his great and beneficent discovery was concerned, his retreat from Vienna without even bidding his friends good-bye, was a bad move, as by so doing he alienated some excellent and powerful friends, including Skoda, whose energy and fearlessness had enabled him to triumph over the same stupid and malicious coterie that was persecuting Semmelweis. The sudden departure of the latter from the field of battle also gave the reactionaries an opportunity to say that there was nothing in his claims, or he would have remained at his post to defend them.

Some of the students of his life think that his sudden and ill-judged retreat from Vienna was due to an uncontrollable impulse and was an early manifestation of the mental malady which finally carried him into an insane asylum.

We have no time to follow this interesting man into his new field of labor, where his great learning and industry finally brought him sufficient recognition to secure him the chair of obstetrics in the local hospital, and where his abilities secured him a living practice. He wrote a book setting forth his theory and its proof. The latter part of the work, particularly, is burdened by long and ill-natured tirades against his enemies and those who refused to accept his doctrine, showing a gradual undermining of his crisp and vigorous intellect by the increasing mental alienation.

He gradually became more and more subject to alternating periods of mental exaltation and depression, and finally, in July, 1865, it was found necessary to take him to an insane asylum near Vienna. It was then ascertained that he had a gangrenous wound of one finger which had involved a joint and gradually extended up the arm, producing lymphangitis and adenitis; metastases formed and the disease finally assumed the form of pyopneumothorax, from which he died on August

13, 1865, within a fortnight after having left his home in Budapest.

It is a remarkable thing that he died of the disease which he had all his life fought so vigorously and finally succeeded in explaining so clearly. There was quite as much reason really for calling his fatal malady puerperal fever as for saying that the septicemia that carried off the patient of his friend Dr. Chiari in 1844, of which we have already spoken, was puerperal fever. An autopsy revealed the fact that Semmelweis had suffered from chronic degenerative changes in the brain and that those changes had been progressing for a considerable time.

While modern obstetrics and gynecology undoubtedly received their present great advance in antisepsis from surgery, especially from the epoch-making teaching of Lister, it is safe to say that if Semmelweis's teachings had been followed to their logical conclusions they would so far have revolutionized medical thought that surgery would have been indebted to midwifery instead of midwifery being indebted to surgery for the greatest advance ever made in the healing art, viz., asepsis. Curiously enough in this connection we note that in a report of Haller's on the work of the General Hospital in Vienna several pages are devoted to a discussion of Semmelweis's discovery, and the opinion is expressed that its bearing should be of inestimable importance to surgery. This was in the spring of 1849 and was probably the first time in the history of medicine that any suggestion had been made regarding the importance of observing prophylaxis, that is, asepsis, in surgical practice. As might have been expected, the solemn, conventional professors and teachers of surgery in the General Hospital smiled sarcastically at their colleague the *physician* who was so imprudent as to entertain any views upon surgical questions, and they treated his inspired suggestion with the same lofty disdain that Sinclair tells us the "unteachable obstetric mandarins of England" showed toward the first announcement of the great truths underlying the wound theory of the etiology of puerperal fever.

Semmelweis's great discovery was really no inspiration nor a revelation from heaven. It came, as nearly as all good things in science and education have come, to the trained and receptive mind of a faithful and painstaking worker in an especial field after years of study and careful thought. The death of his friend Kolletschka from an autopsy wound revealed the great truth to Semmelweis that the poor women in the first obstetric clinic were really dying of autopsy wounds. Semmelweis's interpretation of this phenomenon was as truly a scientific triumph as Newton's interpretation of the phenomenon of the falling apple. Both phenomena were common enough, yet in both cases it took a scientific intellect trained and directed by years of painstaking research to interpret the underlying causes correctly and thereby confer upon mankind inestimable and eternal benefits.

I cannot close this meager account of a most interesting personage without paying a tribute to his kind and manly heart. Had his pity not been stirred by the unfortunate women condemned to suffering and death while paying to nature the sacred debt of perpetuating their species, probably his great discovery would never have been made.

"Consider," says Carlyle, "how the beginning of all thought worth the name is love, and the wise head never yet was without the generous heart."

THE ETIOLOGY OF PROSTATIC HYPERTROPHY.

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In order that the connection between the different parts of the paper may be clearer I will begin with a synopsis of my argument. None of the many alleged causes of the gradual progressive enlargement of the prostate gland in elderly men has been accepted as the true cause of this hypertrophy which occurs in about one-third of all men after 50 years of age (Thompson). This frequency implies that the cause is of very common occurrence. One of the first questions to ask is, "What can cause hypertrophy?" Adami says toxic irritation, small in amount and long continued, may cause overgrowth of the tissues subjected to such an irritant. The next question to suggest itself is, "Can a toxic irritant be found in the prostate glands of a sufficiently great number of men for it to be a possible cause of overgrowth in such a large percentage of elderly men?" The answer to this is yes. A mere glance through a microscope at preparations of the prostatic secretion, using the Reichert dark field illuminator, or stained so that the germs are seen actively motile, would be a much more convincing and also a startling answer, as millions of microorganisms can be seen, and this, too, from a prostate gland that is not inflamed; the largest number of germs being present when no pus cells are found in the secretion. These millions of bacteria have been demonstrated in the prostates of 110 patients during the past year, and finding them in so many patients with sexual neuroses, hyperesthesia of the deep urethra, occasional mild irritation of the bladder, itching of the urethra, "morning drop" discharges, etc., has done more to clear up these dark places in my work than any tests I have heretofore used. It is the enormous number of these nonpyogenic and almost nonpathogenic (excepting the hypertrophy) colon bacilli and staphylococci (occasionally other organisms) which I claim produce the mild persistent toxin which it is admitted by pathologists might cause hypertrophy.

Those who doubt my findings may easily verify them by a series of examinations of prostatic secretion obtained and stained according to the technique described later, or by the dark field illumination.

Many observers have noted the fact that from the pathologic standpoint the hypertrophied gland presents features characteristic of growths of inflammatory origin, and yet the histories often do not give the symptoms of inflammatory disturbances. They do, however, nearly always show the symptoms of these low grade infections. In carrying out these observations and studies I have attempted to verify the essential features of other work along this line, and to correlate them with my own findings, and I think the most convincing part is their complete accord with the clinical histories, bacteriologic and pathologic reports of a large number of careful workers in all of the different phases of this subject.

Among the alleged causes of prostatic hypertrophy nearly all of them are causative factors of the above-mentioned irritative infections (not inflammations). The study of bacteriuria and bacterial infections demonstrates how large is the number of

ways in which infections of the genitourinary tract may occur. Keyes says "bacteriuria is usually perpetuated by a renal or a prostatic lesion"; it is with the latter that this paper has chiefly to deal, although many phases of the character and sources of genitourinary infections will be discussed.

With this prostatic bacteriuria in mind the argument of my whole paper revolves around the following paragraph: Under the head of irritative overgrowth Adami says: "I have already dwelt upon the fact that substances which, in larger amounts and greater concentration, are toxic, leading to degeneration of tissues or arrest of function, often, in small amounts, act as direct stimuli to cells—and one of the effects of stimulation of the cells to increased activity may be increased growth." Whether the toxin leads to increased absorption and assimilation on its own part, or whether it produces a nutritional hypertrophy due to hyperemia, does not concern us in the present work, but rather the more important fact that toxic irritation, small in amount and long continued, can produce overgrowth of the tissues subjected to such an irritant. This being the opinion of Adami, a pathologist of the highest standing, my contention is that in the light of our present knowledge it does not seem unreasonable to assume that the toxins liberated by these mild germs cause the progressive chronic enlargement in elderly men. That there are other causes of prostatic enlargement, such as true adenomata, fibromata, myomata, carcinomata, and sarcomata, I readily admit. It also seems quite likely that the very small, hard, fibrous prostate is the result, at least at times, of a species of cicatricial change subsequent to very acute or destructive inflammation of the prostate. All of the above-mentioned enlargements are admittedly far less frequently encountered than is the ordinary form of prostatic hypertrophy.

I fully realize that the presence of these germs in the prostate gland even when enlarged does not prove that they cause the enlargement. Nor do I think direct proof or disproof possible. I have collected, therefore, as much collateral and circumstantial evidence as was possible with reasonable effort, hoping that I might at least enlist the assistance of other investigators whose reports and future observations might solve definitely this pathologic riddle and perhaps lead to its satisfactory prophylactic treatment.

History.—Home thought the cause of prostatic hypertrophy to be the slow return of blood from the neck of the bladder, with a habitual congestion of the part. Sir Astley Cooper believed enlargement of the prostate to be the consequence of age. Velpau, Paget, and Billroth thought the hypertrophy a true tumor formation (neoplasm). Brodie believed it a part of a general senile change. Thompson, and many writers in the early part of the nineteenth century, believed it to be of inflammatory origin. Guyon regarded it as merely a local manifestation of a disseminated arterial sclerosis or general atheroma. Reginald Harrison thought it the nature of a compensatory hypertrophy to overcome the primary depression of the floor of the bladder. Sir Charles Bell asserted that an irritation of the bladder with a frequent contraction of this viscus resulted in prostatic hypertrophy. Ammusat claimed that it is observed most frequently in elderly men who have for a long time used sounds or bougies upon themselves (Lydston). Desault found it very common in elderly men who had numerous attacks of gonorrhea. Lydston says, "A certain amount of diffuse hyperplasia from prolonged hyperemia incidental to various causes of irritation probably exists in many men under middle age."

Sir Henry Thompson found prostatic hypertrophy in 34 per cent. of men after 60 years of age, and that it produces manifest symptoms in about 15 or 16 per cent. of the cases in which it is enlarged. He thought it inflammatory. Virchow and Gouley believed that it was due to chronic inflammation which started in the glandular substance of the prostate. Wilson claims that strict celibacy, on the one hand, and venereal excess on the other are alike productive of hypertrophy, though admitting exceptional cases in persons living abstemious lives. The elder Gross laid great stress upon irritation and habitual engorgement as a cause of hypertrophy. Are not the majority of these observations in a way reconciled by the presence of the irritative infection of the prostate?

More recently Ciechanowsky reached the conclusion, from a study of pathologic histology of the enlarged prostate, that both the glandular and the fibrous overgrowths of the prostate are the long-delayed result of gonorrheal inflammation, insidious in onset, slow in course, and for many years, perhaps, entirely latent. Crandon, and Green, and Brooks have made similar studies, and reached the same conclusion.

In refuting Ciechanowsky's views, Keyes has collected the histories of a large number of patients who have had prolonged attacks of gonorrhea, but did not find that they showed any special tendency to prostatic hypertrophy. "This," he says, "taken in connection with the fact that every established genitourinary practitioner can call to mind many prostatics who he may be morally certain never had gonorrhea, seems to establish the fact that prostatic hypertrophy is not necessarily gonorrheal, but may be due to congestion of the sexual organs, to sexual excess or continence, to gonorrhea, or simply to advancing years."

Casper asserts that "neither the history of cases nor pathological investigation lends Ciechanowsky's theory support. In fact, the exact reverse is true. It is certain that there are men who have had gonorrhea and prostatitis for years without the production of prostatic hypertrophy, and conversely, he says, he has known many persons with enlarged prostates who never had gonorrhea." Adams says, "We know, however, that the process begins in the neighborhood of the glandular elements."

Pathological Histology.—Examination of a microscopical field from an enlarged prostate shows most noticeably, as a rule, increase in the glandular structure. Some have thought that new acini were formed, as in the case of the true adenomata observed in the mammary gland, where the chief pathological change evident is the preponderance of glandular tissues over the normally present fibrous reticulum; but in the prostrate the process does not appear to be one of true tumor formation, since the acini are merely dilated gland tubules which though previously present were then insignificant in size (Deaver).

Gouley says that the view of certain modern writers to regard chronic progressive enlargement of the prostate as a true adenoma is not in accord with our present definition of this term. Deaver asserts that "most recent writers have returned to the original view of an inflammatory cause and reject altogether the adenomatous theory." Deaver also says, "Nevertheless, practically every one is

agreed that there do exist two main pathological characters under which enlargement of the prostate gland is seen: one where there is a disproportionate increase in the glandular elements, and, second, where an increase in the stroma of the gland is conspicuous. In either case the increase may be local or general, or both processes may coexist, one exceeding the other in different parts of the same organ.

Young has observed from a study of sections of the prostate gland when inflamed that the "prostatitis is usually segmental in character, that it is most marked about certain groups of glands, and it is this which often produces the irregularity of the surface and nodular condition which is found on palpation." This being true of prostatitis, it would not seem unreasonable to assume a similar condition with different degrees of infection of various follicles would account for irregularities in the shape of the hypertrophied prostate.

Casper says, "Overgrowth of the glandular substance, however, is rare; it is usually destroyed, stroma being the portion which hypertrophies. I have, however, often seen considerable enlargement of the prostate as early in life as the middle, and even the beginning of the fourth decade." He thinks adenomata are very rare.

A form of prostatic obstruction may result from inflammation which differs from the progressive enlargement in that the former is of small size and is firm or fibrous in consistency. It contains none of the lobulations of the true hypertrophy (Young.)

Such prostates may result from active inflammation where the round cell infiltration becomes transformed into fibrous tissue before it is absorbed, or perhaps it may arise from a persistent subacute inflammation, which ultimately forms the fibrous prostate.

"No given example of hypertrophy adheres strictly to any one type; indeed, it is the rule to find all three types existing in different parts of the specimen: in one place a diffuse soft enlargement, in another dense masses of fibrous tissue, and scattered everywhere enucleable tumors, large and small, the larger ones complex in structure." (Keyes' last edition.) "These changes are due, as we have seen in the preceding paragraphs, to chronic interstitial fibrosis of the prostate; and however descriptive the terms adenoma and fibroma may be in this connection, we must remember that in using them we do not refer to true neoplasms, but to the pseudoneoplasms resulting from inflammation of the gland."

Organisms.—In my own work, as well as in nearly all of the reports and writings which I have consulted, there is a significant uniformity in the frequency with which colon bacilli and staphylococci are found in the genitourinary organs. In fact, so great is the preponderance of these organisms that all others sink into a relative insignificance.

The culture of thirty-one patients with subchronic prostatic inflammation grown for me by Dr. Edgar Paullin (to whom I am under many obligations for his skillful services in isolating and identifying these organisms) showed germs belonging to one or both of these groups in every instance. The *Staphylococcus albus* grew in the cultures of 14 patients; *Staphylococcus aureus* in 10; the colon bacillus in 10; *Staphylococcus citrius* in 1. The staphylococci alone were found in 15, colon bacilli alone in 9, and were mixed in 7; the *Staphylococcus aureus* and *albus* were found together in 6.

These observations are in accord with most of the work done by others in determining the kind of germs present in bacteriuria and genitourinary infections.

At times the colon bacilli appeared as cocci when first grown, and later assumed their usual form. This accounts for some of the motile cocci seen in the specimens. I think the motile colon bacilli also cause the staphylococci to seem to be moving when in reality they are knocked around by the myriads of colon bacilli.

Neither my own work nor that of most writers on this subject proves absolutely from the cultures that the germs which grow are from the prostate gland, as the urethra, especially the anterior portion, is always infected to a greater or less extent with a variety of organisms.

It is not, however, upon the cultures that I have depended to determine the presence of the millions of bacteria in the prostatic secretion, but upon microscopic preparations after thorough irrigation of the urethra and bladder, though cultures were made from thirty-one patients.

Cohn made cultures from twelve cases of prostatitis, using the following method: "Irrigate the outer urethra with boric acid till the fluid flows away clear; insert a sterile endoscopic tube in the urethra as far as the bulb; dry it with sterile cotton; massage the prostate gland; finally transfer the secretion from the tube to the culture by a platinum loop or a pleget of cotton." He found the *Staphylococcus albus* 11 times, streptococci 3 times, colon bacilli once and a Gram positive diplobacillus twice, and an unrecognized bacillus once.

Nottshaft grew cultures from 120 cases of chronic prostatitis which presented themselves from twelve to thirty years after the last gonorrhea, and besides the gonococcus he found micrococci 110 times, bacilli 15 times, and other bacteria 14 times. His technique was as follows: After the patient had urinated the urethra and bladder were irrigated with boric acid, then with physiological salt solution. The glans penis was "disinfected," then the prostate was massaged and the secretion caught, as it appeared at the meatus, in a sterile vessel. Both cultures and smears were made.

Saxe reported 150 cases of gonorrheal infections from six months' to eighteen years' duration. Of the 108 cases with prostatitis 28.7 per cent. showed gonococci in the prostatic secretion. Mixed infection was found in the prostate in 86 per cent. of the patients. Staphylococci, 74 per cent.; diplococci, 10 per cent., and streptococci in 7.6 per cent. Thirteen cases showed absolutely clear urine, although the smears showed prostatic infection.

As further proof that these infections often follow acute gonorrhea, I quote the following from Keyes: "The gonococcus alone, unaided by any predetermining cause, may excite an acute cystitis; in such cystitis the urine is acid and this purely gonorrheal cystitis recovers or is replaced by a secondary mixed infection so that the gonococci, if still present, can no longer be found. Hence, that striking clinical condition, acute gonorrheal cystitis, may be accepted as purely gonococcal in origin; while nearly all of the chronic manifestations in the bladder are due to secondary infection by the *Bacillus coli* and pyogenic cocci that everywhere follow in the wake of the gonococcus to perpetuate the inflammation inaugurated by it."

Posner says, "To-day it is recognized that with-

out any external interference and without any involvement of the neighboring organs urinary infection may occur." Anders asserts that there are probably few specimens of urine that do not contain bacteria. Reymond and Van Calcar believe the colon bacilli pass directly out of the rectum and into the bladder, where there is constipation or other intestinal obstruction.

Speaking of the prostatic type of bacteriuria, Keyes says, "there may or may not be prostatic hypertrophy." This would appear to show that he has seen it in hypertrophy. He says the distinction between pyelonephritic and prostatic bacteriuria may not be easy in a given case. "Indeed, the two may doubtless coexist. Yet an alkaline bacteriuria is almost invariably prostatic; a bacteriuria following gonorrhea or due to instrumentation or to stricture is probably prostatic. A bacteriuria occurring during the course of a prostatitis or of a prostatic hypertrophy is doubtless prostatic. Finally, the expressed prostatic secretion after urethral and vesical irrigation will be found to contain the incriminated bacteria in great number if the bacteriuria is prostatic."

Corner has had the urethral discharges examined in fifty cases, and found gonococci in 46 per cent., and other organisms in 54 per cent. Among the latter colon bacilli and staphylococci were found to predominate.

In discussing bacteriuria Geraghty says, "It is well known that both the *Staphylococcus albus* and the *Bacillus coli communis* may have little or no pathogenicity, and this explains to a certain extent why the growth and persistence in the urinary tract (of the germs) occur without producing inflammatory phenomena."

Whiteside, emphasizing the importance of nonvenereal infections of the urinary tract other than tuberculous, has recently asserted that nonspecific infections are more common than is generally supposed, and that the severity of the symptoms ranges all the way from the very transitory irritations to chronic cystitis. In many of these he has found that the "colon bacillus is the infecting germ; in others the *Staphylococcus albus*, the pneumococcus, and a short square ended bacillus may be found in pure culture, or sometimes two or more kinds together." Young says, "it seems probable that multiple infection is not uncommon." Chute has collected and reported cases of alkaline bacteriuria and mild infections due to *Staphylococcus pyogenes albus*. In these no ammonical decomposition occurred. Gassman reported a case of cocciuria associated with seminal vesiculitis and double epididymitis. Krogius reported two cases of bacteriuria with a prostatitis as a probable cause, and Goldberg one such case accompanying seminal vesiculitis. Young remarks many surgeons can recall similar instances in their work.

In the fifth annual report of the Henry Phipps Institute it is recorded that in 185 kidneys which were examined bacteriologically and cultures grown microorganisms were found in 82, while none were found in 103—streptococci, 28 per cent.; *Staphylococcus aureus*, 8.5 per cent.; *Bacterium coli commune*, 48.8 per cent.—(this last was the most common during the last year, being found 11 times out of 20 positive cultures, total number being examined, 62).

Typhoid bacteriuria occurs in from 15 to 30 per cent. of all cases of typhoid fever, and while the bacilli usually spontaneously disappear from the urine they may remain for years. The urine is acid and closely resembles that of bacillus coli bacteriuria (Keyes).

In discussing Rovsing's view that colon bacilli never cause cystitis, Keyes says, "Numerous attested cases of cystitis prove it (the colon bacillus) is not always as innocent as Rovsing believes—(Keyes records in a footnote 'these usually originate from a bacillus coli prostatitis') while the increasing number of reported cases of bacteriuria containing bacillus coli in pure culture show that its venom has been overestimated in the opposite camp." (Melchoir and Albarran and Halle, who assailed Rovsing's position.)

Bacteriuria was first described in 1881 by Roberts; since then, an increasing number of observations have been reported and the condition studied by many workers, especially Rovsing, Krogius, Janet, Jeanbrau, Geraghty, and others have recognized its not infrequent occurrence. The term bacteriuria is limited to conditions characterized by the presence of enormous numbers of bacteria in the freshly voided urine without any pronounced symptoms of inflammation of the urinary tract. Rovsing has observed two types of the affection, one in which the urine is absolutely free from pus, another in which a few pus cells are present, but the peculiar cloudiness of the urine is due to bacteria. The writer has distinguished these two types both in the prostatic infections and in renal or bladder bacteriuria.

Of bacteriuria Casper says, "Many of the organisms are merely excreted in the urine, having their origin in the distant parts of the body and pass through the kidneys into the bladder without causing disease of the latter organ." Fresh normal urine is sterile.

For a number of years I have observed patients with sexual hyperesthesia, or the so-called sexual neuroses, without demonstrable lesions to account for the persistence of the symptoms. Rarely did smears of the prostatic secretion show sufficient organisms to lead me to believe the germs to be the cause of the trouble. In studying the prostatic secretion of these patients, however, with the Reichert dark field illuminator, my attention was at once strikingly focussed upon the large number of motile organisms frequently seen in specimens free from pus cells. Later I found that a drop of this discharge, mixed with a 1 per cent. aqueous solution of dahlia, over which was placed a cover glass, enabled me to see more readily these actively motile organisms. Since that time about 140 patients have been examined in this manner to determine if there was a bacteriuria or prostatic infection. In the present report I have not included the patients where pus was present except in small amounts, as such cases come under the heading of the inflammatory conditions, which are much better understood than are these "subchronic" infections.

In 110 patients with very mild genitourinary irritation or slight affections of the sexual organs, a large number of mildly pathogenic organisms were observed in the prostate gland, seminal vesicles, or in the urine. Cultures of thirty-one of these showed the germs to belong to the colon bacillus group, or to the staphylococcus group. A surprisingly uniform and well-defined symptom complex was found to attend these infections.

Etiology.—Usually the origin or at least a possible source of the infection could be found in the past history of the patient. Gonorrheal urethritis and instrumentation seemed to be the most likely and the most frequent of the possible causes.

Probably three-fourths of the patients gave a

history of acute inflammation of the urethra which had been apparently cured, or almost cured, and yet at times a little irritation would develop at the neck of the bladder at more or less frequent intervals, and lead the patient to believe that he was uncured, and about to have a recrudescence of the original gonorrhea. Not infrequently there was a history of the passage of sounds for a considerable period of time, and often with temporary relief of the "uneasy" feeling in the urethra. (Of course, urethral strictures have been excluded from this report.) Very frequently there were evidences of rectal or anal lesions such as hemorrhoids, fissures, fistulæ, ulcerations, pruritus ani, etc. Ten patients with enormous numbers of these mildly pathogenic organisms in the prostate gave no history of urethral inflammation of any kind or of urethral instrumentation, but they all admitted having indulged to excess in masturbation, prolonged ungratified sexual excitement, or having remained continent for a prolonged time.

Anything which produces a continued congestion of the genital organs seems to act as a causative factor, and to favor the development of prostatic and vesicular infection. Rovsing has reported 285 cases of colon bacillus infections of the urinary passages; in 180 the disease arose as an acute nephritis or hydronephrosis in patients who had never been catheterized. He believes that in many cases the colon bacillus reached the urinary organs through the blood stream, and that some of the starting points were tonsillitis, cholecystitis, acute enteritis, appendicitis, colitis, cancer of the colon, and typhoid fever.

Fuller, speaking of colon bacilli in the chronic inflammations of the seminal vesicles, says they are to be expected in nearly all such cases. "A seminal vesicle which long remains pathologic from any primary cause can hardly escape colon bacillus infection, owing to its position in close opposition to the rectal wall." The same probably is true of the chronically congested prostate gland, and this probability is greatly increased if we bear in mind the additional danger of infection from the urine, from kidneys diseased as those reported by Rovsing, or from organisms of hemotogenous origin passing through healthy kidneys.

With all of these possible sources of infection one hesitates to express an opinion as to which is actually the most frequent one. Raymond and Van Calcar go even further and claim that colon bacilli pass directly through the rectal wall into the bladder when there is constipation, or rather, intestinal obstruction.

Symptoms.—The symptoms are usually those of a very mild urethritis, with a little irritation at the neck of the bladder, and mild symptoms sometimes referred from this region. A very common symptom is itching in the urethra, not severe, as a rule, but often returning without any apparent reason. The patients also frequently complained of a sensation as if discharge were escaping from the urethra, and yet upon examination no discharge would be found. Occasionally sharp, fleeting pains were observed in the urethra, penis, or prostate. A "morning drop" of mucus or mucopus was found in some of the patients, while in others it was persistently absent.

Well marked sexual impotence was found in 10 out of the 110 patients; about 72 experienced premature ejaculation, and a few complained of pain, or burning, in the deep urethra during the orgasm or immediately after its occurrence.

Mild rheumatism, involving the knee, hip, shoulder, wrist, ankle, and other joints, was observed in 25 patients. The rheumatism was characterized by its mildness and persistency, being amenable to no ordinary form of antirheumatic treatment. Slight pain, or aching in the lower part of the back, was of frequent occurrence, and was of the character often seen in chronic prostatitis.

The conditions I have previously considered sexual neuroses and hyperesthesia, where the disturbance was all out of proportion to the inflammatory products, have in every instance shown the prostate to be infected with these mild organisms.

In 69 of the patients the urine showed a few mucous shreds; in 20 it was macroscopically clear, but at times it would become slightly cloudy, or opalescent, resembling urine in which there is a slight precipitation of phosphates. This cloudiness was due to microorganisms which at times caused the urine to have an unusually disagreeable odor, especially if it was allowed to stand for any length of time. A number of observers have found that bacteriuria due to colon bacilli produces an acid urine, but when due to staphylococci it is likely to be alkaline. This, as a rule, has been confirmed, but exceptions are not unusual. Neither filtration nor centrifugation will clear the urine of this cloudiness.

The size of the prostate gland seemed to vary in size almost always directly in proportion to duration of the infection in the patients where a definite history could be obtained as to the approximate date of the infection. In some patients it was impossible to estimate the duration of the trouble. The age of the patients was from 19 to 65; nearly all of the older ones showed distinct increase in size, while several patients between 40 and 65, with well-marked hypertrophy, but free from pus infections, showed large numbers of germs, although the urine was macroscopically clear. I have not yet seen a patient with an uninflamed hypertrophied gland from which the secretion did not show an infection. Unfortunately, many of the patients with well-developed hypertrophy had pyogenic infection with true inflammation of the bladder urethra or bladder, and were thus excluded from the class of patients included in this report, as these changes are secondary to the hypertrophy. It is from the beginning enlargement rather than from the fully developed cases that our studies of the etiology will be productive of results. Where there was not a distinct enlargement, as in the older men examined, there was generally a sensation of firmness rather than of "bogginess" or "congestion" observed in chronic inflammations; others appeared to be of normal size, and some even smaller than usual. The patients nearly always complained of undue tenderness of the glands during the massage. The secretion, as a rule, was rather small in amount and looked much like diluted milk. A peculiar feature was that the large acutely inflamed glands, as a rule, showed very few germs and in the secretion from chronic inflammation the organisms rarely were as numerous in that which was free from pus. While this was almost always true of the prostate, it was variable in the urethral and bladder inflammations, as here sometimes millions of organisms were present with much pus.

One of the most significant cases was a patient, 29 years of age, with epispadias, the entire roof of the urethra being deficient. The prostate was about

three times the normal size and reeking with millions of germs, but no pus was present. A glance at the fertile soil afforded by the urethra and moist mucosa was sufficient to convince one that the deeper parts must of necessity have been infected in childhood or early youth if not during infancy. No other cause could be found which seemed to have any bearing upon the hypertrophy of the prostate in this case.

Technique.—An irrigation of the urethra and bladder is given according to the Janet-Valentine method with a normal saline solution until one to two quarts of the solution has been used. Having the bladder partly filled with the irrigating fluid, the prostrate is then massaged and a drop of the secretion which appears at the meatus is placed on a slide; a drop of a freshly prepared 1 per cent. aqueous solution dahlia is mixed with this drop of secretion. A cover glass then placed over it is sealed in place by applying melted white wax or paraffin around its rim with a camel's hair brush. As a confusing precipitate forms at times, and especially when the specimen contains urine, it should be placed under the lens of the microscope and allowed to remain in this position for 15 or 20 minutes or longer, to allow the precipitate to settle to the bottom and become quiet, otherwise the Brownian movement of these minute bodies might be mistaken for motile organisms.

The germs remain motile for a few days to a week, and a positive diagnosis may be easily made by a series of subsequent examinations, when their motility differentiates them from the débris which settles and becomes motionless. If preferred, the specimen may be viewed with the dark field illumination and the diagnosis thus made. Fixed smears may also be made and stained in the usual manner, but these rarely give as accurate an idea of the presence of microorganisms as does the above method.

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THE ANTI-TUBERCULOSIS PROPAGANDA.*

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We shall get much inspiration and encouragement in this crusade if we consider the tuberculosis situation before and since Koch's epochal discovery in 1882.

Tuberculosis, or consumption, is probably as old a disease as the human race. At any rate, more than twenty centuries ago Hippocrates, the father of medicine, spoke of it as the disease which caused the most suffering and the greatest number of deaths. And since his time, throughout the ages, consumption has ever been the greatest destroyer of mankind. Such diseases as smallpox, cholera and the bubonic plague have never been in the running with consumption. During the nineteenth century 14,000,000 died in wars, either through camp disease or by the bullet and the sword; while in that century at least 30,000,000 succumbed to consumption.

Up to our own time one death in seven from infancy and old age has on the average been due to tuberculosis, while between the ages of fifteen and forty-five one-third to one-fourth, and sometimes one-half of all lives have been sacrificed. Think of this: Between the fifteenth and forty-fifth years, the years when young men and women are entitled to look forward to marriage, between those years when men should be strong to work for and maintain their families, when wives should be strong to rear and bring up their children, when you and I should be strong to do the world's work—every third or fourth among us has succumbed to the great white plague. And among our negro brethren every other adult has died of consumption, though this unfortunate race never knew anything about the disease until we benevolent whites decided to confer upon it the blessings of civilization. Our Indian wards—what irony does the term convey?—have been dying off in greater numbers than the negro, and in much greater number than our white population—so states the Bureau of the Census in Washington. Like the negro, the Indian never knew consumption before our blessed advent; neither did he know the curse of rum; and now our tubercle bacillus and our fire water are fast wiping that once splendid race of men off the surface of the earth.

Among the various occupations in which our people are employed tuberculosis has been claiming from 38 to 87 per cent. The yearly consumption mortality in the United States has averaged 140,000.

Nor do these figures connote the many months and years of sickness endured by those who have recovered from their disease. Nor do they connote the anguish and suffering endured by the families of the consumptive (who is so oftentimes the wage earner); what the husband, the wife or the children of the consumptive have to endure in these dreadful circumstances. Consider the matter also on a purely cash basis. Dr. Porter, our Commissioner of Health, states that the disease has yearly been cost-

*Address in a mass meeting at Niagara Falls, N. Y., under the auspices of the State Department of Health and the State Charities Aid Association.

ing the people of our State $70,000,000, while Prof. Fisher of Yale—one of those men who have recovered from consumption, and who are now so nobly fighting the disease in behalf of their fellows—has found that tuberculosis has annually been costing the United States more than a thousand millions of dollars.

Such has tuberculosis been in the past. But a new era dawned when Pasteur demonstrated to the world the germ origin of infectious diseases; it was this great man who encouraged the world with the scientific statement that it is within human power to banish all parasitic diseases from the face of the earth. Soon thereupon in 1882 came the discovery of the essential cause of consumption, the tubercle bacillus, by Koch. And thus was established a sure and logical basis for the fight against this age-long scourge. And upon the foundation thus laid by Pasteur and Koch, Bodington, Brehmer, Trudeau and hundreds of other devoted colleagues have worked—and with what result?

In Koch's own Prussia the terrible mortalities of the past have been cut down 40 per cent.; in Boston nearly 50 per cent.; in New York City 50 per cent. From the reports of Mr. Frederick Hoffman, the statistician, we gather that between the years 1901-1906 tuberculosis decreased 20 per cent. in our Northern cities. In England there is a noble worker, Bulstrode, who well defined the object of preventive medicine to be "to curtail, and, if possible, to prevent, disease, to prolong existence, and to render life happier by means of improved physical conditions." Recently Bullstrode declared that if the tuberculosis mortality should continue to decrease in England and Wales in the ratio that has obtained during thirty years past, consumption should disappear totally within those borders within the coming three or four decades. Flick of Philadelphia, another lifelong and earnest worker (himself once a consumptive), has expressed the judgment that if the anti-tuberculosis propaganda on which we are now engaged gathers normal and natural force as it progresses, the disease should in from fifteen to twenty years be stamped out in all the large centers of our population.

Now, I, for my part, do not expect such results so soon; however, let us but recognize that a fight half won is already won; that we have already half won this fight, and we can safely leave the element of time to take care of itself. And this I do believe: that, if we continue faithful in our efforts, our little children before they have grown to maturity will find tuberculosis bereft of many of its age-long terrors; that before they in their turn are a-graying, they will recall tuberculosis as we now think of smallpox. There is a legend raised in this hall—*No tuberculosis after 1930;* did crusader ever raise a more inspiring banner under which to fight?

And now I put this to you: Before the beneficent discovery of Jenner smallpox devastated whole cities, and wiped whole towns and villages out of existence. Every other man or woman one met on the thoroughfare was a pock-marked survivor. If any one had said in those days that smallpox would be eliminated from human experience, he would have been considered unfit to be at large. Yet today who among you know of a case of smallpox? And it would be easier to eradicate consumption than it has been to eradicate smallpox, for this reason: that the tubercle bacillus cannot thrive (except under laboratory conditions) outside the living body. So that the ultimate extinction of tuberculosis will rest simply upon the destruction of this germ before it can be transferred from the consumptive to the healthy individual; and such destruction is, in theory, and should be in fact, one of the simplest processes in disease prevention. "No spit, no consumption"—this is a wonderfully good working motto, though it does not, of course, tell the whole of the story.

How have these wonderful results been brought about? And upon whom do we confidently base our hopes for the future? Not by the doctors alone; not upon them alone. Tuberculosis, let me assure you, is not only a doctor's affair; it is, or should be, the intimate business of every man, woman, and child in the State and nation. You see that, besides being a disease, tuberculosis is also a most baneful sociological and economic factor.

Medical science has been, since Pasteur and Koch, the pillar of fire to lighten the way; but we have progressed so far because all sorts and conditions of men and women have worked with the doctor in the introduction of tuberculosis prevention, which means practical sanitation, into every phase of our infinitely complex civilization. And the campaign against consumption is one against disease in general; don't lose sight of that. The individual as husband, wife, and child, teacher, nurse, tradesman, laborer, artisan, builder, statesman, humanitarian, and churchman; humanity as organized in lodges, leagues, societies, and associations, have all and are now most loyally, with the doctor, putting the shoulder to the wheel—with the superb results we have considered.

Among the many factors by which we are winning this fight against consumption I would mention here especially the notification and registration of cases, which measure should have the heartiest support of all good citizens; the diagnosis of cases in the incipient stage, so that the sufferer may be cured of his disease; the removal of adenoids and unhealthy tonsils from children, so that they shall not become predisposed in adolescence to tuberculosis. Then there is the vital factor of tenement house and sweatshop reform; most vital by reason that tuberculosis is preeminently not a hereditary or a family disease, but a *house* disease. Then dispensaries (with visiting nurses) and sanatoriums should be established. Hospitals for advanced cases are an inexorable need; for the poor and most unhappy consumptive, in his last days, so weak oftentimes that he cannot raise the sputum cup to his lips, is a dreadful distributor of infection, not only in his family, but in his neighborhood as well. There is now a most beneficent law by which, after a hearing by the Commissioner of Health of the State and the local health office, such hospital may be established in any community. Every citizen should further this good law to his utmost ability. Far from being a menace, these hospitals are the community's greatest possible safeguard against the Great White Plague.

Finally there is education, such as you see exemplified in this magnificent exposition which now surrounds us, and which has been made possible by the union of governmental with non-governmental forces, by the cooperation of State Charities Aid Association and State Department of Health.

And now I shall ask you to consider the legend which adorns the pavilion which our labor bodies have enacted in Albany for tuberculosis sufferers: "This is organized labor's contribution to the anti-tuberculosis propaganda. *What's yours?*"

ACUTE INFLAMMATIONS OF THE MIDDLE EAR AND THEIR TREATMENT.*

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When asked to present a paper before your Association at rather short notice, I decided to offer a few remarks upon acute inflammatory affections of the middle ear, and their treatment. Before considering the subject from a therapeutic aspect, permit me to call your attention to some of the etiological factors frequently associated with aural disease.

Among the contributing causes influencing the organ of hearing are (*a*) anatomical or mechanical, (*b*) pathological, and (*c*) constitutional. As an illustration of division (*a*), I would mention congenital narrowing or malformation of any portion of the bony auditory apparatus itself, or of the nasal cavity. Membraneous or osseous obstruction of one or both nasal cavities is not common, but does occur. Absence of proper atmospheric pressure under such conditions induces circulatory changes. Tubal engorgement and obstruction soon retard normal ventilation of the middle ear and a disturbed ratio of atmospheric pressure results.

It is not my intention to describe the anatomy or physiology of the Eustachian tube and its surrounding structures. We must learn, however, to appreciate the importance of normal nasal respiration and its bearing upon auditory function. When we inspire, there is a partial vacuum created in the nasal cavity which is followed by an increased air pressure at expiration. This alternating rythm causes an interchange of air in the nose and adjacent spaces. Any condition interfering with or retarding this physiological ventilation predisposes the surrounding tissue to circulatory disturbances. We may here briefly consider the most prominent factors in the production of catarrhal diseases of the Eustachian tube, and the tympanic cavity.

Pathological changes in the nose, nasopharynx, and faucial region are the direct cause of the greater number of such affections. Nasal obstruction, due either to repeated colds in the head, enlarged turbinals, septal spurs, ethmoidal disease, or adenoid growths, causes a diminished atmospheric volume in the postnasal space or epipharynx. This negative pressure permits an engorgement of the mucous membrane which interferes with the natural action of the Eustachian tube, thus retarding normal middle ear inflation. Repeated coryzas or earaches in children should direct our attention to the possible presence of postnasal irritation. An aural examination will reveal the retracted or sunken drum, demonstrating the absence of adequate ventilation.

The infectious diseases of childhood and their associated respiratory complications are active causes in the primary or secondary infection of the middle ear. Especially is this true when some nasal or pharyngeal ailment previously exists. Enlargement of the faucial tonsils predisposes the individual to infections in the gland, which may be the starting point of a serious otitis. This may occur either through the Eustachian tube or by secondary involvment from the lymph channels. The careless use of the douche in obstructive diseases of the nose and the faulty use of the handkerchief are also causes of acute inflammations of the tympanic cavity. It is surprising how many persons employ this necessary article improperly. In clearing these spaces, one side of the nose should always remain free, so that the increased air current can find a ready exit. If both nostrils are occluded at the same time, the increased pressure finds the path of least resistance at the Eustachian opening and may carry infected secretion through this passage.

Constitutional causes may act in a primary manner but usually start their influence through the circulatory system. Lithemia produces a sensitive mucous membrane susceptible to barometric and digestive disturbances. Syphilis as a rule attacks the internal ear, and is characterized by abrupt and profound deafness. The tuning fork shows nerve involvment. Tuberculosis is rarely acute and is not accompanied by pain. In these specific infections, the modern pathological laboratory will promptly assist in establishing a diagnosis.

Acute otitis media is most frequently due to some form of infection, finding an entrance through the Eustachian tube. It is generally preceded by an acute process in the fauces and nasopharynx, which also involves the Eustachian canal. Examination will find the nasal tissues catharrhal and swollen. Postnasal inspection demonstrates an acute inflammation of the mucous membrane, with more or less occlusion of the Eustachian opening. Secretion is frequently observed lodged in the mouth of the tube. Coughing or sneezing may force the exudation into the canal and incite infection.

The attack usually appears with a feeling of fulness in the affected ear, accompanied by a dull ache, which increases during the act of swallowing. Some elevation of temperature may be present, and at times a chilly sensation is experienced. In children the temperature is usually high and constitutional symptoms are more marked. In cases of moderate severity the congestion of the drum is limited to its upper portion (Shrapnell's membrane). If the inflammation is more active, the entire membrane will be reddened, and may become so swollen that all landmarks are eliminated. In the influenza type small vesicles appear on the drum and canal and are characteristic of this disease; tinnitus is not always present. When considerable exudation exists, there will be some bulging of the tympanic membrane. Pain may be of a neuralgic type, involving the teeth and face.

Treatment of acute catarrhal otitis media should be started by an active saline laxative. If any elevation of temperature is present, absolute rest in bed for a day or two will assist in bringing about a good result. For the relief of pain, heat seems to be the most efficacious remedy. It may be applied in dry or moist form. The salt, sand, and hot water bags, Japanese hot box, or heated hop rag are well known methods. In the use of the douche, we shall get better effects by combining with it the glass return flow apparatus of Lucae, or Fowler's automatic suction attachment. The latter is especially serviceable when suppuration exists, and continuous drainage is desired.

The higher the temperature the irrigating solution can be borne with comfort by the patient the better the result. We must be careful not to parboil the auricle, however; ordinarily a temperature of 110° to 120° will feel very soothing to an adult with a throbbing ear. In children the temperature should be about 105° to 108°; a quart of physiological saline solution should be used with the douche every two hours, while the patient is awake. If the pain per-

*Read before the Society of Alumni of Lebanon Hospital, December 7, 1909.

sist in the interim, a few drops of a ten per cent. carbolized glycerin may be introduced into the external canal after each douching. In children a five per cent. is sufficiently strong. Continuous heat may be applied by salt or hot water bag after the drops are instilled. A mixture of cocaine, menthol and carbolic acid has also been recommended for the relief of pain, to be similarly employed. The latter is also used as a local anesthetic when myringotomy is indicated, though nitrous oxide anesthesia is much more satisfactory to both patient and operator. When bulging of the drum appears we must assist nature by opening through its most prominent portion. A free incision should be made, otherwise good drainage will not follow. To avoid the introduction of infection it is necessary to cleanse the canal with pure alcohol or other antiseptic solution, before incising the drumhead. Douching the ear may then be continued as before mentioned.

Bier's hyperemic treatment has been employed as a prophylactic measure in cases of acute otitis media and when mastoid symptoms exist. Professor Eschweiler of Bonn claims that prompt application of the elastic band to the neck immediately after the onset of the otitis may often control the disease and prevent further complications. If an abscess has already formed this must be incised, and suction is applied in conjunction with the neck constriction.

Treatment to the nose and nasopharynx is important. The congested mucous membrane should be reduced by applications of weak adrenalin solutions. All secretion must be removed, and then gentle inflation with the Politzer bag should be attempted. If the parts are very sensitive, it is advisable to wait until the active acute symptoms have subsided before using inflation. To protect the sound ear during inflation with the bag, the patient should place the finger tip into the external meatus. If the auscultation tube is employed with the Politzer bag or when the catheter is in position, the presence of secretion in the Eustachian canal or middle ear can be detected. Instead of a blowing sound, râles will be heard. At times it is possible to see fluid through the drum, after the initial congestion has disappeared. A line may be seen extending across the membrane. The level of the fluid is disturbed by changing the position of the patient's head. After inflation, bubbles may be seen in the tympanic cavity, the fluid having been spread by the air pressure.

In a young woman under my care this method had no effect upon the residual secretion. She experienced considerable discomfort on account of the existing deafnes, and an annoying fulness which persisted, but did not complain of any pain. There was no elevation of temperature. On inspection the fluid could be readily seen behind the drum. After cleansing the external canal in the usual manner, an incision was made along the lower segment of the membrane but no fluid appeared. The catheter was then used and a mucoid secretion of gelatinous consistency popped through the incision. At once the unpleasant symptoms were relieved.

It is important to continue tympanic inflation for some time after active signs have passed, in order to prevent adhesions from forming. We can assist the natural drainage of the middle ear by keeping the Eustachian tube patent. Applications of weak silver nitrate (1 to 2 per cent.) and stronger organic silver (30 per cent.) solutions, through the nose to the pharyngeal orifice of the tube, and postnasal applications of the same remedies, act very nicely in catarrhal cases. A one per cent. camphomenthol benzoinol spray for the nose is of value for its local effect. Aural massage may be resorted to later on. It is not to be used until inflammatory symptoms have disappeared. With a combination of the Delstanche masseur and the Siegle otoscope the effect upon the tympanic membrane is constantly observed, and unpleasant consequences can be avoided. Severe pain and vertigo may follow the too strenuous application of this instrument. In subacute cases where tubal symptoms persist I usually introduce through a sterilized catheter a few drops of a one per cent. camphomenthol benzoinol solution. In chronic cases iodine is added to the mixture.

The symptoms of an acute purulent otitis are similar to those of the catarrhal type, only greater in their constitutional effect. Many such cases start as a catarrhal condition and terminate in pus formation. When the disease is purulent from the beginning the temperature is high, a chill may have ushered in the attack, and the aural pain is severe and continuous. Children show considerable nervous disturbance and convulsions may occur. The eruptive and infectious diseases are active factors in the production of severe purulent disease in the middle ear.

In young children the presence of pus in the external canal or on the pillar is often the first manifestation noticed by the mother. Examination of the ear shows a congested and swollen drum, with probable bulging. Sagging of the posterosuperior portion of the auditory canal indicates invasion of the mastoid antrum and anterior cells. Prompt drainage should be performed along the posterior portion of the drum and carried upward into the attic.

Hot antiseptic douching should be regularly employed, and a bacteriological examination made of the discharge. All severe infections of the middle ear may cause tenderness by pressure over the mastoid antrum. When we consider that this cavity is merely a continuation of the tympanic cavity and lined by the same mucous membrane, it is natural that congestion will occur at this site also. Consequently tenderness over this region is frequently present. If in spite of free drainage and hot irrigations this symptom persists, together with sagging of the posterosuperior canal wall previously mentioned, and streptococcus infection, one should not hesitate to open the mastoid cells.

Suppurative otitis resulting from scarlet fever, influenza, and other infectious diseases are usually severe and extend rapidly. Early drainage of the middle ear is important to prevent destruction of tissue and further complications. We must not overlook the possible involvement of cranial tissues during an acute process. Cases of labyrnthine involvment are recorded during the course of typhoid and other infections.

When secretions are thick, alkaline solutions for douching should be employed. Peroxide of hydrogen is of service in dissolving the tenacious discharge. It should not be used where drainage is retarded. Irrigations with formalin solutions one to one thousand act favorably, after the acute period is passed. Inflation of the middle ear must be carried out to prevent adhesions from forming.

Rest, early drainage, and attention to the nasal and postnasal factors are the cardinal features in the treatment of acute otitic inflammation.

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HOSPITAL NOISE.

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Before proceeding to discuss this subject of "Noise" it is desirable that we should know exactly what is implied. The Standard Dictionary defines it as a sound of any kind, but especially one of a disagreeable nature. My attention was forcibly called to this subject by an incident reported by a leading specialist of one of the cities of Ontario who had just returned from London. While visiting one of the homes for the nervous in that city he said he was much impressed by the almost absolute silence of the place. What impressed him most was the whispering tones in which his questions were answered by those accompanying him and by a courteous request to modulate his own voice. "Surely," thought the doctor, "this is an ideal atmosphere for nervous patients." But why is it not essential for the best results in the treatment of any type of disease.

"My," I thought, "how different are the conditions subsisting in our hospitals, although 'silence' as a printed word may be prominent upon our door posts and lintels it enjoins a law honored more in the breech than in the observance."

Have you not heard the slamming of the door and the doctor's stentorian "good morning," the stumbling of the visitor as he slowly mounts the stair, the laughing chatter of some idiotic house surgeon or sillier nurse, the moaning of the operative, the crying of children, the whistling of the staff, and the thousand other noises which may be within our walls. But let us ask ourselves the question do we really hear them or have we become so accustomed to the commotion that it goes on all unnoticed. It seems to me we are much like the inhabitants of that Scottish city in which the incessant noise of steam hammers and the clangor from boiler plates created a din deafening to the unaccustomed ear of the visitor but so natural to the natives that when some accident resulted one night in the closing down of the machinery, the sudden quietness produced, every sleeper awoke to find out "what the racket was."

The fact is we have never seriously considered the matter. I am free to confess that is true in my own case. Judging from the little I could find written on this subject, I think it is one that has been neglected both in theory and practice. At first sight it may seem too trivial to merit serious consideration, but I am convinced after due thought you will agree with me that it is of paramount importance and that the abolition of every unnecessary noise is a crying need in every institution for the care of the sick. If the whole number of superintendents had suddenly to change places with the patients and betake themselves to their cots how long would it be before there would be a revolution?

Imagine a patient from the London Home described by our specialist friend transferred to the conditions I have described, would he not say to himself, exist rest—enter pandemonium.

Let us consider for a moment the case of the pneumonic nearing the crisis or the gasping victim of myocarditis. We all know that every thought as well as every act requires a definite expenditure of vital energy. This expenditure seems directly proportional to the unpleasant content of the thought or act. We, who are well, know the drain felt after a day in which have occurred three or four irritating or annoying experiences. If we, then, feel such drain how ill can these weak ones bear the waste of the irritation to which they are subjected. Can you not recollect cases in which the balance easily turned was moved against such a one by some of the preventable disturbances we have mentioned.

Have I overdrawn the picture of conditions subsisting in our hospitals on this side of the Atlantic? I hear some say this does not describe things as they are with us. We hope many can honestly so affirm, but even to these dissenting ones is the consideration of this subject waste time? Can we not all see many ways this disturbing factor "Noise" is preventing the realization of the highest efficiency in our hospitals? I wish I could leave this paper with these broad generalities as it is. I think the representatives from Canadian and United States hospitals would acknowledge that it contained material for personal application. It is not a sermon that each can apply cheerfully to the other fellow.

A friend of mine who was a patient in one of the largest hospitals in one of the largest cities of this continent, an hospital that deservedly enjoys a continental reputation, told me that its associations to her would always be crystallized in its personification of not only perpetual motion, but noisy perpetual motion. When this is the impression given by one of the best institutions what would be that made by the rank and file.

But you may say, how is all this to be remedied? This brings me to a phase of the subject I would gladly escape trying to deal with. Gladstone is said to have always held the breathless interest of his hearers even when dealing with statistics. I never heard of his putting his charm to the test of a monologue on the details of proper hospital construction and management.

Again conditions are so different in each institution that it must work out its own salvation, but I could not see my way clear to closing this paper without briefly referring to a few of the general principles applicable to all conditions and perhaps touching upon a few specific factors in the breaking of that peace which should be characteristic of the buildings in our charge.

First the site for a new hospital should be selected more with reference to its surroundings than to its convenience of access for visiting doctors and friends. It is needless to say that it should be removed as far as possible from the roar of city traffic or factory machinery. Where the site is already chosen the Governing Board should be ever alert to prevent the coming of undesirable neighbors and to seize every opportunity for the removal of such as are already too near.

Secondly, much of the quiet of an institution depends upon its construction. Hospital architecture has become a science and art by itself, and in a new building or even remodelling or changing an old one the most expert direction should be secured. Floors can now be laid so as to be nonconductive of sound, doors hung with noiseless automatic checks and springs, windows to glide smoothly on large ball bearing pulleys, walls to confine sound to their own enclosures. These attainments are beyond the or-

*Read at the annual meeting of the Canadian Hospital Association, held in the Royal Victoria Hospital, Montreal, on March 25, 1910.

dinary house contractor and should not be expected from him.

Thirdly, in arrangement of departments much may be accomplished even in an old hospital by readjustment. The Medical and Surgical wards should be separated from each other. A recovery room will be necessary off each surgical ward in order that convalescents and others may not be subjected to the depressing influence of the operative recovering from chloroform. For obvious reasons the obstetrical and children's wards should be in a separate building. The Lying-in room should be situated in a part of the building where its sounds cannot reach the ear of other patients. Ward pantries should be far enough away from the rooms that the sound of washing dishes will be inaudible. Again if there is one thing more than another which patients complain of it is the constant ringing of bells. Replace them with the electric light signal system.

Fourthly (and you will be relieved to hear me say lastly), is the most important factor of all—the personnel of the staff. Let us begin with the Superintendent. This official should teach by precept and example that quietness is the one thing needful in the best interests of all concerned. Frequent visits to the words of the institution will have a good effect in preventing any disturbance. Disorderly conduct on the part of any individual in the hospital must not be tolerated.

Next I consider the interne. A conscientious, faithful one is one of the most valuable assets a hospital can have. His influence for calmness and quietude will be far reaching, while that of one is foolish and frivolous will work for disorder and mischief. A great difficulty met with is the self-importance and over-confidence of the recent graduate interne. He illustrates the word of Goldsmith "For e'en though vanquished he could argue still, while words of learned length and thundering sound amazed the gazing rustics ranged around, and still they gazed and still the wonder grew that one small head could carry all he knew."

One hears him going down the wards walking on his heels as though he had gained considerably in weight since the night he received his degree amid the glare of lights and the singing of his praises for the great work he has just completed. Sad to relate many a man never recovers from this head swell until after he has left the hospital. This type of man and the jocular one is never satisfied until he has proved his wit by throwing some nurse into a convulsion of laughter alike do violence to the quiet decorum of our wards. It is most important, therefore, that great care be taken in selecting men to fill that position.

Of all the individuals connected with a hospital there are none who can do more to disturb its peace or blast its prospects than the nurses, therefore it is of utmost importance that only capable, conscientious women be chosen to fill the ranks of the nursing profession. Lady Superintendents should weed out all those who show a lack of sound, sensible, dependable qualities during their probationary days. Even after nurses pass the probationary period if they persist in disturbing the wards by engaging in foolish talking and laughing with house surgeons or visitors they should be severely reprimanded. One who habitually disturbs her patients in this way does not care for their welfare, hence she will neglect them and doubtless make false records. She is not conscientious and faithful, hence the sooner the hospital is rid of her the better for all concerned. We all know a great deal may be accomplished by keeping nurses in check by having a faithful head nurse in charge of the wards. Not only will she have a good effect in this connection, but every one on the ward will do his or her work in a quieter manner.

By no means is all the unnecessary disturbance made by those who are intra murals at the institution, for many of the disagreeable sounds are made by some members of the visiting staff. Who has not heard two of the jovial sort in the corridors have a good laugh over something, forgetting that they are harassing some poor patient in the adjoining room. Then again, shall I venture to say it, have you not heard the wide vocabulary of profanity which some of the physicians and surgeons have, especially when something goes wrong on the ward? However, in the majority of instances the doctor is a great help in keeping things quiet by wielding an influence over his convalescents, preventing them from becoming too hilarious.

We shall next turn our attention to the visitors. Many of these are so inconsiderate that they create considerable disturbance in walking heavily along the corridors or by loud talking and laughing. It seems to me the only way to deal with this is to limit the hours for visiting, and secondly, to request them to keep as quiet as possible.

We are all cognizant of our inability to reach perfection and have absolute silence, yet it is not unreasonable to think that each and every one may move closer and closer to that ideal. I am convinced that by eternal vigilance we shall be able to change the atmosphere of our hospitals from that of ceaseless and bustling activity into one of calmness and repose, wherein even the most fastidious neurasthenic will be unable to find a source of irritation and one in which every weary sufferer may find rest, sweet rest.

THE CATCHING COLD PHOBIA.

By WM. BRADY, M.D.,

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Insofar as ordinary minds, subject to mortal error, can grasp the truth in the teachings of Christian Science, we have, in Mary Baker G. Eddy's explanation of disease, an admirable definition of hysteria—the disease from which Christian Science chiefly derives sustenance—viewing hysteria in the light of psychic analysis. It may well have been "catching cold" that Mrs. Eddy had in mind when she wrote that "disease arises from association calling up the fear that creates the image of disease and its consequent manifestation in the body." Certainly it is nothing else than the fear of "catching cold" that has created the image which manifests itself so impressively in the difficulty experienced in persuading the tuberculous to live outdoor lives and in the application of the outdoor treatment of pneumonia, in private practice, during cold weather. Indeed, the catching cold bogy proves a most deplorable obstacle to present methods of palliating and eradicating disease, and the responsibility for the well-nigh universal worship of this false image rests largely on our own shoulders since the stupid habit of speaking of "taking cold" prevails quite as widely among physicians as the laity.

One can scarcely form an adequate conception of the abuse of this nonentity unless one makes an en-

deavor to avoid reference to cold, in the colloquial sense, in conversation with patients. In general practice it is really a problem to elicit a history from a patient of even high intelligence without recourse to this vicious phrase; fully nine-tenths of our patients believe, if they have not already been told, that their ailments are caused or aggravated by "taking cold." The very exceptional case in which the history does not gratuitously open with a "cold" somewhere or other will promptly rise to the bait of a leading question, put by the physician, bearing on the probable cause of the illness. Therefore, the adjective universal is advisedly applied to this abuse in the preceding paragraph.

Conscious of this unfortunate state of affairs, we should consider it our duty to show our patients, at every opportunity, the utter absurdity of their delusion. This, of course, will prove a gigantic task so long as medical men persist in the use of the catching cold sophistry as a cloak for diagnostic ignorance—for such it is, in all truth, at all times. Many practitioners greedily seize on this accommodating phrase as a useful scheme for hedging on the diagnosis pending the period required for the signs to disclose the true nature of the illness. These magicians are always capable of turning a "slight cold" into measles, influenza, typhoid fever, tuberculosis, or whatever the exigency may demand. A very few of the craft, fortunately, become so expert at this trick of the trade as to conceal the mark of unclean instruments or unwashed hands, in certain cases of septicemia, under the familiar label "she has taken cold"—a crime to which we, as a profession, are accessory when we do not try to discourage the widespread catching cold fallacy that permits it.

A bulletin from the bedside of a certain "exposed" politician recently stated that "the senator has contracted a very heavy cold, which it is feared may settle on the lungs!" We are almost daily consulted for "colds" which, by virtue of their specific gravity, "settle" even lower—in the epididymis or in the female pelvis, for example. Finally, there is that joy of the blunderbuss therapist, the diffuse or general cold which "settles all over" and is consequently to be attacked by figuratively closing the eyes and shooting at random a scattering charge of some such junk as "cold-improved" or "cold-preferred tablets" into the victim's body. It is surprising how many survive such an attack, only to pass the remainder of their lives at the popular pastime of dodging draughts.

Our medical ancestors, if we may except their intimate comprehension of the ubiquitous itch mite, were quite innocent of any practical knowledge of bacterial infection. They were very willing victims of the catching cold delusion because it served them excellently as a useful factor with which to account for an appalling amount of otherwise mysterious illness. In ye olden times the doctors did not auscult the chest, but rather they searched for a hole in the patient's jerkin. Through that hole they managed to trace bronchitis, tuberculosis, pneumonia, even rheumatism (*rheuma*, catarrh, a flow) and a host of other maladies. So it was only natural that, in their benighted wisdom, they should have fostered the catching cold idea so fondly, to hand it down to us—a veritable lemon among the fruits of the forefathers' pristine medical lore.

But however useful it may have been in the past, have we to-day any further need for it? Does it not cost too dear a price as a hindrance to medical progress? Medical authors no longer claim that cold causes disease other than frost-bite, but most writers assert that "cold merely predisposes to infection by lowering resistance"—which plausible words are but the expression of a reluctant compromise with the scientific proof educed by the bacteriologists to shatter the hereditary traditions relied on by the champions of the catching cold idea. How much influence cold may have on the body resistance is admittedly an open question; experimental evidence is available, however, to show that repeated applications of cold insufficient to produce frost-bite as, for example, plunges and shower-baths, tend to raise the opsonic index. Moreover, the "tonic effect" of porch bedrooms, open-air exercise, and getting out in the weather is to-day generally recognized. When authors speak of "cold and exposure" in this connection, they presumably mean the environment of the average individual whose occupation requires him to go forth into rain, shine, hail, or snow regardless of temperature and humidity—if not, then what else? But here it is hopeful to note that Osler, in giving the etiology of acute coryza, makes no mention of cold or of "catching cold," rather directing attention to the *Micrococcus catarrhalis* and the epidemic character of the disease.

Now, if the proverbial "cold in the head" be thus denied its mooted dependance on cold, the venerable catching cold chimera bids fair to vanish utterly from the textbooks of another generation. Therein will be substituted, instead of the hackneyed repetition of "lowered resistance from cold and exposure," an elucidation of the influence on the opsonic index of dietetic errors, unhygienic clothing, and the excessive heat and defective ventilation of civilized buildings.

Accepting Webster's definition of the word draught there can be no ventilation without draughts. It is absurd and futile to instruct a family to "secure good ventilation, but avoid draughts." More correctly, we should say: "Be sure to have a good draught." A draught becomes harmful only when it carries dust and bacteria to the patient's nostrils. A current of clear, moist, cold air cannot injure the body, though it may at times be uncomfortable. There is no denying that a stream of cold air playing on a fractional portion of the freely perspiring body after violent exercise may be followed by local soreness and stiffness. This ill-named "muscular rheumatism," however, is only an indication of dietetic excess or sedentary habit, since it does not occur when metabolism is normal.

Writing on the fresh-air treatment of surgical tuberculosis in children, Whitbeck says: "The wards have been so arranged that a free circulation of air can take place. . . . The windows are never closed day or night, summer or winter. The word draught is not known in the vocabulary of Sea Breeze Hospital." How refreshing is such untrammeled progressiveness in contrast to the egregious custom of cautioning patients against "exposure!" Carrying Whitbeck's suggestion further, could we not advantageously drop the word draught from our general medical vocabulary? The schematic diagram here shown illustrates one faulty method in vogue for dodging draughts. The board placed beneath the lower sash of an open window cannot modify the physical law by which cold air falls and hot air rises; the best it can do is to alter slightly the direction in which the confined current of much dreaded air approaches the body surface.

What is here said regarding draughts will, it is anticipated, be repudiated by the majority of our senior colleagues. Still, when we remember how innumerable are the plans exploited in works on hygiene and sanitation for securing fresh air in homeopathic doses, and when we also remember that somewhere in the neighborhood of the thirty-fifth year of life one's mind, according to Professor James, becomes "set" like plaster-of-Paris and one's opinions correspondingly fixed, we expect this view to meet with hostility in some quarters.

A much quoted argument of the catching cold exponents is that respiratory diseases prevail mostly during the changeable weather of spring and fall and are less common in midsummer. This incontrovertible fact calls attention to the misguided methods commonly in use for heating our offices, dwellings, stores, factories, schoolrooms, and railway cars.

With steam heat, fuel economy and free ventilation are at cross purposes, the less ventilation permitted, the greater the heating capacity of a given plant and therefore the less fuel required. Stoves with draft-pipes are somewhat better, since by heating the atmosphere unequably a certain

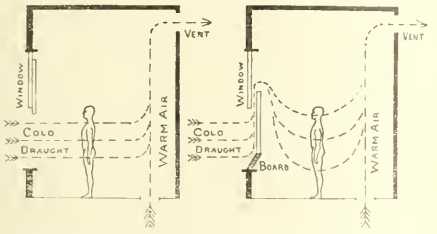

Diagram showing the futility of dodging draughts; on the left is a wide-open window with "direct draught"; on the right is a window fitted with a board "to prevent draught."

amount of ventilation is enforced. But hygienic requirements are best fulfilled by the hot-air furnace, provided the air is properly moistened and the intake is from a clean source; a hot-air furnace heats satisfactorily only when ventilation is good.

With all forms of heating, but particularly with steam heat, the American habit, extravagant as in all else, demands for comfort a temperature of 75° F., and in many instances the thermometer is kept hovering around 80° F. In England, on the contrary, 65° F. is considered a comfortable average, and this assuredly approaches the hygienic standard. American schoolrooms, often abominably ill-ventilated and overheated, furnish the foul air and enervating warmth that unquestionably act as factors of the respiratory and eruptive diseases to which school children are so much exposed. However, it is hopeful to know that in Buffalo, Rochester, Chicago, and elsewhere open-air, unheated schoolrooms are becoming very popular.

The unfailing benefit derived from the administration of an active saline cathartic in acute coryza, for instance, gives a hint of the connection between dietetic errors and respiratory diseases. This intimate relationship is at least partly explained by the direct communication that exists between the portal system and the venous plexuses of the esophagus, pharynx, and nose. Overeating equals or, perhaps, outstrips alcohol as a predisposing factor of respiratory infections, and to eradicate such factor an ounce of Fletcherism excels a pound of pepsin or a barrel of salts.

A third important predisposing cause of respiratory disease is improper underclothing. Since discarding his hairy coat, man has ever felt the need of a substitute in this climate, and there is no adequate substitute for hair but wool. Encased in a light, porous, knitted suit of woolen underwear with woolen stockings, the body enjoys much the same protection against sudden temperature changes originally afforded by hair. Thus arrayed, comfort alone need be consulted as to the amount and weight of the outer garments or wraps. Wool, being a slow heat conductor, permits the body surface to cool gradually on passing from a warmer to a colder atmosphere, so that the vasomotor system adapts itself naturally and there is no congestion produced. Cotton, on the other hand, is an excellent heat conductor; it dissipates heat so rapidly, under similar conditions, that the vasomotor function of the ordinary individual seems unable to cope with the gymnastic strain demanded, and therefore a large volume of blood is driven toward the great splanchnic or thoracic areas, constituting an active congestion of one or another organ, which condition invites infection as an immediate effect, or induces hyperplasia of tissue as a chronic sequence.

"Chest protectors," throat mufflers, abdominal binders, and pneumonia jackets are contrivances based on such untenable theories as hardly to deserve condemnation, yet physicians often prescribe them. They are surviving relics of that interesting period of the dark ages when spells, humors, and witchcraft held sway, and cold was believed to penetrate directly through the skin that was not amply protected against draughts and the dread night air. Coddled throats and chests are noticeable with undue frequency among our cases of respiratory disease, and in this instance, *post hoc ergo propter hoc* seems a safe deduction, when we are mindful of the lowered mortality recently obtained in the treatment of pneumonia and tuberculosis by cold air.

Laying aside unfounded traditions and depending solely on our present knowledge, it may be confidently affirmed that the vulgarly listed causes of respiratory disease, such as cold, dampness, exposure, wet feet, and draughts, are, for all practical purposes, entirely negligible factors, and the only precaution necessary against them is the effort to secure bodily comfort, which is purely instinctive, though very commonly misguided.

In conclusion, our contentions are:

(1) Cold has no demonstrable etiological relation with respiratory disease.

(2) Clean draughts are not only harmless, but salutary, being requisite for perfect ventilation.

(3) The phrase "catching cold" is meaningless, misleading, undignified, and obsolete.

(4) The groundless fear of cold, fostered by the abuse of this misleading phrase, constitutes a form of hysteria that opposes and embarrasses earnest therapeutic measures.

(5) So far as we now know, the true predisposing factors of the various respiratory diseases (acute and chronic) are dietetic sins, unhygienic clothing, overheated apartments, and defective ventilation.

(6) Prophylaxis therefore consists in directing intelligently man's instinctive effort to secure bodily comfort, together with reasonable isolation of every case of respiratory disease.

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SOME REMARKS ON THE TREATMENT OF PELLAGRA.

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Just now in several sections of this country pellagra is appearing with alarming frequency—a frequency not accounted for by more prompt recognition of incipient and atypical cases, as some would have us believe. In this brief paper the theories as to its origin and the diagnostic features will not be discussed, as leading too far afield.

While admitting that many of the therapeutic measures invoked to combat this disease have not been productive of success, the writer feels that, in the light of his own experience, as well as data furnished by several careful clinicians, we have much reason for encouragement, and little excuse for the attitude of wooden pessimism assumed by some present-day observers.

Pellagra is with us. As the late Grover Cleveland said: "A condition and not a theory confronts us," so, while the zeists and antizeists are waging their learned warfare, it behooves us to be up and doing with the actual cases on hand.

The treatment naturally dividing itself into dietetic and medicinal, we shall first consider the dietetic.

Until it is disproved that spoiled maize or its products are factors in the causation of this disease, it is wise to give the patient the benefit of the doubt, and prohibit all food and drink (alcoholic or otherwise) derived from this source. A point overlooked by some is the fact that many of the cheaper grades of flour are adulterated with "corn hearts," so that the pellagrin may be unknowingly ingesting a large proportion of maize every day. The only way to avoid this is to use the best quality of flour from a known and reliable source, if possible.

Other dietetic regulations depend altogether on the state of the gastrointestinal tract, or as to the presence of constipation or diarrhea, and need not vary materially from the regimen instituted for the same manifestations of digestive disquietude set up by other diseases. Speaking generally, a liberal diet is indicated, the flesh proteins being specially well borne. The writer also ventures the opinion—which opinion is not as yet widely accepted—that the diarrhea appearing early in the course of pellagra is of central origin, and, to an extent, compensatory. It would naturally follow, therefore, that a diarrhea of this sort need not entail a too limited dietary. Later on, when the diarrhea has become inflammatory the physician may to advantage eliminate articles of food containing much cellulose, or yielding after digestion a residue of irritating particles. In any event, so far as is consistent with local conditions, the patient should be nourished to the limit of assimilation.

Coming to the medicinal treatment we enter into a maze of contradictory opinions, where set methods of management yield such divergent results that the conscientious seeker after light becomes almost bewildered. It is evident that in many respects we are still floundering among the shallows and breakers, not having as yet been able to land on the solid ground of therapeutic certainty. Realizing these facts, the writer, from interviews and correspondence with some well-known practitioners, as well as from a fairly broad personal experience, is endeavoring to give a résumé of the best recognized methods now in use.

Dr. R. T. Dorsey, of Atlanta, gives one of the most optimistic reports. After treating about thirty cases with atoxyl, etc., with unsatisfactory results, he began giving a combination of Fowler's solution and a saturated solution of potassium iodide (two parts of the former to one of the latter) in ascending doses up to the physiological limit. The diarrhea he controls with bismuth subgallate and powdered opium. Constipation, when present, is best relieved by castor oil, and this should be carefully watched for. Dr. Dorsey contends for an absolute milk diet with an abundance of lime water while there is acute buccal and intestinal irritation, followed by a liberal diet when admissible. He reports nine consecutive recoveries, several of whom have passed a spring without a recurrence.

Dr. E. J. Wood, of Wilmington, advises large doses of atoxyl (0.25 to 0.50 gram) hypodermically, giving the dose every third or fourth day, and arsenite of iron on the other days. In the first two years of the disease he considers this treatment highly efficacious, but does not hold out much hope after the third year, nor in fulminating cases.

Lombroso's teaching on therapy has had such a profound effect that it seems well to give some of his views. He looks on arsenic as in a certain sense an antidote for the toxins of spoiled maize, to which he attributes pellagra. As an antidote he compares it to the action of opium in alcoholism and mercury and the iodides in syphilis. He uses arsenic in the form of Fowler's solution in doses of 5, 10, 15, 20, and 30 drops, or in the form of pure arsenious acid, dissolved in slightly alcoholized water, in doses of one-fortieth to one-twentieth milligram, increasing up to tolerance. The administration of arsenic is suspended for a few days from time to time.

Among the dangers incident to the exhibition of this drug are the appearance around the neck of an herpetic eruption, profuse salivation, anorexia, vomiting, diarrhea, palpitation of the heart, syncope, burning in the pharynx and stomach, great muscular weakness, and bronchitis.

Some types benefited by arsenic are cases with marked marasmus, cases with incipient paresis, cases with sitiphobia (gastralgic type), cases with vague mania, but not marked delirium, cases in the aged but not decrepit.

The types generally not benefited compose the very young, well-nourished and robust cases, those with systematized delirium, those with mental aberration of several years' duration, cases having lobar pneumonia, tuberculosis, albuminuria or severe vertigo.

For grave vertigo Lombroso recommends the tincture of cocculus orientalis in doses of 3 to 5 drops daily, progressing slowly to 30 drops a day. Incidentally, it might be mentioned that the writer has used the cocculus in two cases where vertigo was a troublesome symptom. It was carried up to 12 drops daily in one case, and 15 drops in the other, with evident benefit.

It has been unfortunately the experience of many that the Fowler's solution would not be tolerated where the gastrointestinal irritation was to any extent acute, so that preparations containing arsenic or arsenic and iron suitable for hypodermic use have necessarily been indicated. A crying need

just now is for a non-toxic arsenic preparation less dangerous than atoxyl, and there is strong probability that it will soon be secured.

The simple erythematous rashes on up to sloughing conditions of the hands or feet may be alleviated or cured by the bland ointments, such as oxide of zinc ointment or a 2 per cent. ointment of boric acid. Avoidance of the sun's direct rays, or even very bright light, is advisable during the continuance of the erythema. For the intense burning of the hands and feet, so often complained of, compresses saturated with a mild solution of bichloride of mercury, ice cold, and applied at frequent intervals, will often afford marked relief.

For the sore mouth, a solution of thymol, one grain to the ounce of water, a little alcohol being used for a solvent, will generally prove sufficient. Also a 25 per cent. solution of boroglycerin is helpful. For the aphthous spots in the mouth or on the tongue, touching with silver nitrate (ten grains to the ounce of water) every other day is in most instances efficacious.

For the occasional constipation either castor oil or enemas will serve, drastic cathartics being out of the question.

For the much more frequent diarrhea the writer has obtained satisfaction from bismuth betanaphtol and resorcin given with the official mixture of rhubarb and soda as a vehicle. This failing, powdered opium, tannigen, or heavy doses of bismuth subgallate are indicated.

When there is a paucity or absence of free hydrochloric acid in the stomach contents, a lavage every alternate day with a 1-1000 solution of boracic acid, sodium salicylate, thymol, creolin, or ichthyol may be employed to advantage. When those medicated douches are used, however, it is well to start with a mild saline solution, then the medicated fluid, then conclude with plain water.

Special treatment of the mental symptoms, appearing as they do in such Protean shapes, will not be discussed in this paper, as it would lead into a branch of therapeutics in which the writer would defer to the alienists.

As a *dernier ressort*, several clinicians have used direct transfusion, either from a supposedly cured pellagrin, or from a healthy person. Though this method has met with varying results in different hands, and is fraught with many difficulties and dangers, we realize that desperate conditions require desperate remedies, and feel that under certain circumstances transfusion is entirely justifiable.

I take the liberty of quoting *verbatim* a portion of a personal communication from Dr. H. P. Cole of Mobile which fairly illustrates the present status of this procedure: "To date we have transfused 17 cases, these having been transfused for periods now of from two years to one month. Seven deaths and eleven recoveries. Only one case has had a recurrence. We have noted no greater benefits from donors who have had pellagra than from donors who never had the disease, though of course the cases are too few to make valuable statistics. No cases have been transfused except as a last resort, so, considering the types of cases, we feel that transfusion offers more by far than does any other procedure in the terminal stage. Many cases never come to necessity for transfusion, and we have had a number whom we refused transfusion, and who recovered under institutional and constitutional treatment. We have had two cases die on the way to us. That will give you an idea of the type we have to work on. It is difficult to tell just when to transfuse. Now we attempt the usual remedial agents persistently, and failing in this, we resort to transfusion. Cases who have lost their muscular reflexes are hopeless for any measure. Of the seven deaths, two might well be excluded, as there was no appreciable amount of blood transfused, the operation being attempted in very unsuitable surroundings. These two, however, are included. No ill effects have been noted from the operation, careful selection of donors as to hemolysis being essential, and care at operation to prevent acute dilatation of right heart. The most suggestive finding is this: All cases that get well show improvement within a day or so, and go right on to recovery. The fatal cases did not at any time after operation show any improvement. All recovered cases gained from five to eight pounds the first week."

In conclusion I wish to sound an optimistic note regarding the therapeutic outlook for pellagra. Within the last four months I have lost one case, and dismissed as apparently cured five. Five others are under treatment, seemingly doing well.

Many studious minds are focussed upon this disease just now, and we may confidently hope to find ere long a solution to the heretofore vexed question —how to treat pellagra.

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Antitoxic Action of the Bile.—Gustavo Padoa has made personal experiments with reference to the antitoxic qualities of the bile, making use of fresh feces from a patient sick with catarrhal enteritis for the tests, to which was added fresh ox bile or human bile obtained from a patient who had recovered with a biliary fistula. After reporting the experiments in detail he gives his conclusions. Ox bile in the proportion of 1-5 has an active antitoxic effect against the bacillus coli contained in feces. Human bile has the same effect, but to a much less marked degree. This power is lost when the preparation has been placed in the thermostat for 18 to 23 days. It is also nil when added to old cultures of bacteria. Even when the antitoxic effect of bile is marked there is no effect on the development of the bacteria, which are no less in number than before the test was made.—*Rivista Critica di Clinica Medica.*

Primary Febrile Herpes.—G. Bruno discusses the probability of the occurrence of herpes accompanied by fever as a primary disease, apart from the presence of another infection. He concludes that there is a true primary, febrile herpes, and that it is not very rare, but is often confounded with herpes zoster and symptomatic herpes. He gives the history of such a case observed by himself in the person of a man of twenty-four years of age, who was attacked suddenly with chills, fever, and delirium, and after two days developed a cutaneous eruption of herpes vesicles, arranged in groups along the course of the trigeminus. He had ocular disturbances also. If this disease is not the result of some specific microorganism it is probably due to an intoxication and endogenous origin; perhaps to toxins generated by the habitual inhabitants of the intestine, which for the time have become more virulent than usual. The diagnosis is easy after the eruption appears.—*Annali di Medicina Navale e Coloniale.*

Clinical Anaphylaxis.—E. Lesné defines anaphylaxis as the sensitization of an animal to an organic substance by injections of the substance. Later injections will then cause a reaction of the nature of fever, gastrointestinal symptoms, urticaria, etc. Anaphylaxis may be obtained to bacterial toxins, and to any material that is an albumose, or that resembles them in composition. Egg albumin, milk, oysters, clams, mushrooms, and other vegetable substances cause poisonous symptoms as a result of anaphylaxis. Some persons are not at all subject to anaphylaxis, while others are. The author thinks that in susceptible persons there is a profound alteration of the mucosa of the stomach. The symptoms are sudden intoxication, abdominal pains, vomiting, constipation, or diarrhœa, lowered arterial tension with collapse, and skin symptoms. Cyclic vomiting in children is of this nature.—*Annales de Médecine et Chirurgie Infantiles.*

MEDICAL RECORD.

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JUVENILE COURTS AND THE STUDY OF THE JUVENILE DELINQUENT.

ONE of the salutary results of the establishment of children's courts in metropolises should be a more intelligent study of the juvenile delinquent. The normal delinquent youth differs necessarily from the offender of defective makeup or degenerate stock. The boy criminal differs radically from the girl offender. Youthful offenders differ from adults of the same class. The children also differ, as to the relative frequency of certain offenses, according as they dwell in agricultural, manufacturing, or commercial communities.

Much interesting information along these lines is brought out by State Attorney Rupprecht, a practitioner in the children's court at Munich (*Münchener medizinische Wochenschrift*, July 26). In that city the children's court takes cognizance of all offenders between the ages of 13 and 18, inclusive. The lad or girl of healthy stock must at this period be regarded as potentially a criminal, because character and will are undeveloped, and experience—that best of teachers—has not yet had its innings. Desires are strong, overpowering; and inhibition is weak. Hence many offenders, absolutely free from taint, are merely the product of their environment. Such must not be confounded with defectives. Munich, as a city of superior educational facilities for the masses, and without certain drawbacks native to mill towns, has but a small contingent of youthful criminals. In a population of nearly 600,000 there are less than 500 serious offenses a year committed by juveniles. Naturally petty offenses—such as begging—multiply this total fivefold, but with these we are not concerned.

Theft is the great offense of youth. It overshadows all others so far that the latter appear almost freakish. Thus, but two boys were arrested in a given year for torturing animals; while the convictions for violence against the person, rape, pederasty, and subsisting on prostitutes were hardly more numerous. There were but few arrests for drunkenness. When we consider that the offenders in such cases are likely to be either defectives or boys near the superior age limit, these may almost be eliminated from the ranks of juvenile offenders proper. To return to offenses against property—in this case confined chiefly to theft: It appears that the boy steals in an unpremeditated fashion, while the girl has a plan. Boys tend to steal "junk"—not, it appears, to sell, but as raw material for making playthings. Girls tend to appropriate cosmetic articles.

We have heard much in the United States as to the dangers of moving picture shows in tempting boys to pattern after burglars and highwaymen. This theoretical position may be quite offset by the actual knowledge that in Munich boys steal in order to be able to visit these entertainments (which, for all we know, may be highly moral). The temptation to visit these attractions is so strong that even a "good" boy may not only forego his dinner, but pilfer the price of the entertainment. He will do as much to get hold of a Nick Carter or Sherlock Holmes story. The boys in Munich also steal in connection with deep-laid plans for visiting the frontier and fighting savages. But the Bavarian youth must be much more long-headed than the Anglo-Saxon in this respect, for he usually steals a horse and firearms before sallying forth. Of course, he robs the family strong box for the sinews of war.

In regard to shoplifting and pilfering by girls it is moving to note that they sometimes steal in order to make a present to a favorite school teacher. One took the flowers off a grave for this purpose.

When caught in the act of a theft, a boy usually confesses, repents, and refuses to betray his associates. A girl, Rupprecht says, lies until the last minute, and then endeavors to throw the blame on some one else. But boys almost always rob in bands, while girls usually act alone. A boy seldom robs his employer, but some outsider; the reverse is the case with girls, who, since they pilfer cosmetics, adornments, etc., must almost necessarily rob their mistresses. Of much less interest are the crimes of degenerates and defectives, who form a class by themselves. The chief value of Rupprecht's study is that it deals in the main with normal subjects, the policies advisable in dealing with whom have hitherto received comparatively little attention.

CULTIVATION OF THE LEPER BACILLUS BY CLEGG'S METHOD.

DURING a period of some years excellent experimental and research work in connection with leprosy has been in progress at the U. S. Biological Laboratory at Manila and at the Leprosy Investigation Station, U. S. Public Health and Marine Hospital Service, at Kalawao, Molokai, Hawaii. The material for such studies is ample in the Philippine Islands and in Hawaii, and naturally full advantage has been taken of the opportunities afforded. Clegg made a preliminary report upon the cultivation of the *Bacillus lepræ* at the sixth annual meeting of the Philippine Islands Medical Association, which was held at Manila on February 11, 1909, and reported in the Philippine *Journal of Science*, and in the same journal for December, 1909, he gives further results. In the first report it was stated that he had succeeded in cultivating, from the spleen and skin nodules of typical cases of leprosy, an acid-fast bacillus which grew upon agar in symbiosis with amebas. The amebas had been obtained from a

dysenteric stool and were cultivated with the cholera vibrio. "At the time of the first publication," states Clegg in his second report, "the acid-fast organism had been obtained in symbiosis with amœbæ from the spleen in two cases and from skin nodules in three other cases of leprosy, but had not been isolated in pure culture. Since then similar cultures have been obtained from leprous tissue in three additional cases, and from two of these the acid-fast organism has finally been isolated in pure culture."

Clegg has throughout his investigations used the greatest care to avoid experimental errors and is satisfied that the results of his work are to be relied on.

It is worthy of notice that the majority of lepers from whom the material for the cultures made by Clegg was obtained had tuberculous lesions in their lungs, but the tissues used for the cultures showed no evidence of tuberculosis. The animal inoculations described by Clegg prove that the acid-fast organism cultivated by him is not the tubercle bacillus. The following is a summary of his results: 1. The leprosy bacillus was first cultivated from leprosy material in symbiosis with other unidentified bacteria and amebas and later from other cases in symbiosis with amebas and the cholera vibrio. 2. By heating a symbiotic culture of amebas, cholera, and leprosy for half an hour at 60° C. and incubating the leprosy bacillus was obtained in pure culture. 3. The leprosy bacillus isolated in this manner grows readily on the ordinary laboratory culture media. 4. The bacillus is pathogenic for guinea pigs, subcutaneous inoculations having caused lesions which macroscopically and microscopically resemble the leprous lesions of human subjects.

The statement by Clegg that the leprosy bacillus could be cultivated artificially did not receive the attention that its importance deserved. In the first instance the difficulties in the way of solving the problem are so great that students were discouraged from making similar investigations. However, Donald H. Currie, Walter R. Brinckerhoff, and H. T. Hollmann, of the U. S. Public Health and Marine Hospital Service at Kalawao, Molokai, Hawaii, for some months have been conducting experiments of a like nature and have just announced in Public Health Reports, August 26, 1910, that their efforts have been crowned with success and that they have confirmed the work of Clegg in cultivating the *Bacillus leprœ* on artificial media. This is to say that they have been so far successful that an acid-fast bacillus has been grown on artificial media four times from three cases of leprosy, and one of these obtained in pure culture.

In summarizing their work these investigators state that they have each succeeded independently in establishing ameba-cholera-lepra cultures from cases of leprosy. Dr. Currie has obtained a stain in pure culture. The ameba-cholera-lepra cultures have been carried through from three to ten generations. The pure culture is now growing in its third generation.

This appears definite enough, and although perhaps further experiments will be required to prove the point absolutely, the conclusion may be come to that an acid-fast bacillus resembling the lepra bacillus as seen in human tissue can be isolated and grown in pure culture by the method of Clegg from the active skin lesions in cases of leprosy. The importance of this finding is obviously very great from the practical as well as the scientific points of view. If Clegg's conclusions are finally confirmed a very long step in advance will have been made in the study of leprosy and doubtless a new era opened in its treatment. It is gratifying to know that this progress is due to American scientific men.

TESTS FOR RENAL ADEQUACY.

The numerous tests introduced in recent years in respect to renal permeability and sufficiency have been employed almost exclusively in the case of surgical kidneys; in other words they are essentially differential in character. Since "medical" nephritis is said to be always bilateral, such differential tests cannot have any field of usefulness for internists. Few of the numerous tests thus intended to indicate the relative integrity of the two kidneys have shown any intimation of pathognomonic value. If they agree among themselves as to positive or negative findings such a coincidence is worth heeding, perhaps; but individual tests may not only be unsatisfactory in themselves; often they flatly contradict one another. It becomes evident, therefore, that the greater our number of trustworthy tests the greater the chance of a consensus in findings; and with a sufficient degree of consensus the element of chance or accident will be eliminated.

Wohlgemuth (*Berliner klinische Wochenschrift*, August 1) finds that three of the older tests possess value. These are cryoscopy, the phloridzin test, and the indigocarmin test, the first named being the most sensitive. To these he would add a diastase test, based on the fact that normal renal tissue excretes a diastatic enzyme, which fails to appear in the urine in direct proportion as the kidney parenchyma is compromised. The technique is based naturally on what we know of the detection of diastase in fluids in general. The urine is treated with solution of soluble starch 1-1000; and after exposure in the incubator for a variable interval to allow a digestive reaction the fluid is tested with an iodine solution in order to determine the degree of starch digestion.

The author has hardly gone far enough in his experiments to enable him to publish a full-fledged technique such as might be incorporated in a textbook. But whereas he required at the outset twenty-four hours for a test, he has recently been enabled to announce differential results in renal activity as early as the first half hour. This fact very likely influenced him to place his method on record. At the same time the test, requiring as it does a fractioning process, ought to be further simplified before introduction.

Surgical Treatment of Exophthalmic Goiter.

Perhaps as little is known of a beneficial treatment of exophthalmic goiter as of any disease. The surgeons claim that in operative measures lies the

only hope of permanent relief, while physicians do not appear to be able to point to any course of treatment which will insure successful and permanent results. A certain amount of scepticism may exist in regard to the favorable outcome of surgical procedure in Graves' disease, but surgeons can undoubtedly direct attention to the satisfactory issue of numerous operations. Zapffe in *Surgery, Gynecology and Obstetrics* states that the mortality from operations for exophthalmic goiter is exceedingly small and must be ascribed in most instances to ill-advised operations. When goiter develops with great rapidity early operation is contraindicated, as it is also in those cases in which there exists a cardiac lesion, with severe nervous disturbances, especially delirium, and when there are present degenerated heart muscle, irregular pulse, or low blood pressure. In Kocher's clinic 254 patients have been operated upon for exophthalmic goiter; of these 83 per cent. were cured, all were benefited, and but nine died. Krecke has collected figures referring to 888 operations in five clinics, the mortality rate being 9 per cent. He, however, has not seen the exophthalmos subside entirely in any case. Charles Mayo in the last two hundred operations has had a mortality of 5 per cent. Of 167 patients traced, 70 per cent. were improved, cured, or greatly improved, and 94 per cent. were cured, improved, or somewhat improved. Formerly, before the physiological importance of the parathyroids was fully appreciated, tetany followed in many cases of thyroidectomy, but it now occurs but rarely. Where the disease has so far advanced as to render necessary the complete removal of the gland Kocher has transplanted parathyroids with fairly good results.

Lumbar Puncture in Mental Diseases.

Lumbar puncture gives valuable information in many diseases of the brain and spinal cord, and its results in diseased conditions, and the information of diagnostic and prognostic value obtained thereby make this treatment worthy of further investigation. J. Roubinovitch and H. Qaillard, in an article on this subject published in the *Gazette des Hôpitaux* for June 28, 1910, give the results of some investigations made by them into the conditions of pressure found to exist in the spinal cords of patients suffering from mental disease of various kinds, but especially general paresis. Their investigations included tests made in over sixty individuals. They did not find the severe high tension of meningitis, but an increased tension relative to the normal. In general paresis the tension differs according as the test is made in a period of excitement or one of repose, or in the final state of marasmus. In periods of calm the tension is 10 to 15 centimeters; with a period of excitement elevation of tension begins, and when a condition of ictus epilepticus appears it rises to 19 to 23 centimeters. The authors were struck with the frequency of lowered arterial tension after lumbar puncture. In rare cases it is elevated one-half to three-quarters of a centimeter. The interest of these observations lies in its explanation of the cases of heart failure after lumbar puncture. It is observed especially in those whose nervous systems are seriously involved, as in dementia precox. It is much more marked in the aged than in the young, the former having arteriosclerosis. The evacuation of cerebrospinal fluid modifies the circulation, and different organisms react differently to this lowered arterial condition.

Corpulence in Adolescence.

The fat boy has always been an interesting study for the profession and laity alike. Sometimes he is fat in childhood and becomes thin after puberty. Other subjects retain their fat after that period has passed. Still others do not take on fat until puberty; such may remain obese for some years and then manage to lose their adipose by the time they have attained their majority. Cases of each sort will doubtless readily occur in the memory of the seasoned observer. Dr. Stern of New York, well known for his efforts to subdivide obesity into a number of distinct conditions, has written an article on youthful obesity for the *Berliner klinische Wochenschrift,* for July 25. Stern's researches take cognizance of all possible factors in fat metabolism, together with many alterations not usually considered under this head. Thus, he states that in specific obesity fat girls have long and luxurious hair; while in accidental obesity from diet, etc., this feature is not in evidence. Such documents, of course, bear chiefly on the subject of an innate and acquired obesity. Innate obesity naturally runs in families—is a familial affection. Whether surplus fat is inevitable or only accidental Stern is opposed to dietetic restrictions, which may prove an injury to the growing organism. At the same time modification of the diet, along with all other physico-therapeutic measures, must first be tried, and may prevail in accidental cases. If such measures fail he would use an anticorpulence prescription comprised of arsenic (sodium cacodylate), adonidin, and powdered thyroid gland.

The Alleged Mutation Between Gonococci and Trachoma Bodies.

As was to have been foreseen, the claim advanced recently by Herzog that trachoma bodies are only a transmuted form of ordinary gonococci has been answered promptly by Lindner *(Deutsche medizinische Wochenschrift,* July 14), who had recognized the coexistence of two parasitic forms without any intimation as to their ultimate identity. In the short communication by Lindner it does not appear that the theory of Herzog is actively opposed, but rather that certain obstacles must be removed before the theory can hope for recognition. Throughout Herzog is made to refute himself; so that the latter has rather to strengthen his own argument than to meet new obstacles from actively hostile sources. Much stress is laid on Herzog's admission that he could never cultivate gonococci from trachoma in the adult, nor even from the newly born (save in rare cases of probable mixed infection). Lindner is in fact satisfied to let the matter rest here. The footnote appendix of Herzog that he had succeeded at last in producing apparent trachoma bodies by inoculating adult eyes with gonococcus cultures, does not modify Lindner's opinion. Such brief allegations made on going to press naturally require some substantial corroboration. Halberstaedter, who is committed to the theory of the specific nature of the trachoma bodies, writing in the *Berliner klinische Wochenschrift* of August 8, sums up his views of Herzog's mutation theory as follows: Neither the morphological relations of the gonococcus in culture, nor inoculation experiments on apes, nor any findings to date as to our knowledge of trachoma, give us any support in claiming that the gonococcus is a mutation of the chlamydozoa.

News of the Week.

Library of the Academy of Medicine.—The president of the New York Academy of Medicine in a recent letter to the Fellows of the Academy calls attention to the necessity for prompt action in providing for the future growth of the library in particular, and rehearses the steps already taken toward the desired end. The urgency of the need is shown by a report made by the Library Committee last year, in which it was stated that calculations based upon the present available shelf room and the average rate of acquisitions for the last five years indicated that a halt in the activities and growth of the library would result not later than three years from January 1, 1910, even though use were made of various makeshifts. Acting upon this report, the president appointed a committee consisting of the officers of the academy, the ex-presidents, the chairmen of sections, and the members of the Library committee to consider the matter. From this committee in turn a Committee on Site and a Committee on Finance were appointed. The final report of the Committee on Site states that three possibilities for providing the necessary facilities were considered, the first being the enlargement of the present building by new construction from new foundations. After consultation with architects this plan was relinquished as inadvisable. The second possibility was the purchase of property elsewhere and the erection of a new building. This, while it at first met with approval, was finally abandoned because of the almost prohibitive cost of a suitable building, and the loss of facilities during removal. The third possibility was the acquirement of property adjacent to the present building to be used for stack and administration rooms with the idea of rearranging the present building at some later date. This, the most generally acceptable plan, proved also to be the most promising and economical, providing the increase in space without the necessity of removing from the convenient and central location now occupied. The committee was able to secure options on the property at 15 West Forty-third street and at 10 West Forty-fourth street for $120,000. It proposed that a mortgage be raised upon the present building at 4½ per cent. to pay for the new lots. This would entail an expenditure of $6,000 a year for interest and taxes on the two parcels. At a special meeting of the Academy on July 18 it was unanimously voted that the Academy immediately acquire both pieces of property and contracts were accordingly signed on the following day. The Committee on Finance is now planning to raise money by contributions from the members in order to diminish the amount of the proposed mortgage and every member is asked to give his vigorous and loyal support to the movement. For the present the Forty-fourth street property will, as soon as money is forthcoming for the necessary construction, be used for stack rooms, etc., since the lease on the other parcel runs until January 1, 1916. By that time it is hoped that plans will have been approved for a structure to cover the entire property now owned by the Academy, the construction of which can be so carried out as not to interfere with the activities of the Academy.

Efficient Quarantine.—Attention has been again called to the efficient quarantine in force at the Port of New York by the holding up of the S. S. *Lusitania*, which was detained over night until a case of sickness in the steerage could be investigated. Detention of one of the fast Atlantic steamships is not often necessary, and the incident caused much comment. There is but little chance that cholera will reach this country through New York.

New York's Census.—The population of the City of New York is announced officially at 4,766,883, an increase during the last decade of 38.7 per cent. During the previous decade the increase was 37.1 per cent. The largest increase per population was in the Borough of the Bronx, which has enlarged 114.9 per cent. In Brooklyn the increase was 40.1 per cent., and in Manhattan 26 per cent. The following are the figures for the last three counts are as follows::

Population.	1910.	1900.	1890.
New York City	4,766,883	3,437,202	2,507,414
Manhattan Borough	2,331,542	1,850,093	1,441,216
Bronx Borough	430,980	200,507	88,908
Brooklyn Borough	1,634,351	1,166,582	838,547
Richmond Borough	85,969	67,021	51,693
Queens Borough	284,041	152,999	87,050

Red Cross Aids Foresters.—Because men injured in the service of the Government while fighting forest fires in the Northwest cannot receive aid from the Government when their disabilities are so serious as to force them from the payroll, the Red Cross has appropriated the sum of $1,000 to cover hospital expenses in such cases. The money will be used under the direction of one of the assistant foresters for the relief of the civilian fire-fighters, many of whom were forced into the service by law, and for whom no provision is made in case of injury.

Fourth of July Victims.—The carefully compiled statistics of the American Medical Association show that the agitation for a sane Fourth has had some effect, a decrease in the number of victims being particularly notable in those communities which have passed restrictive legislation. The summary shows that this year 2,923 persons were injured, of whom 131 died. In 1903 the injured numbered 4,449, of whom 466 died. The total for the eight years is 37,526 persons injured in Fourth of July celebrations, with 1,662 deaths resulting directly from the injuries and from tetanus following the wounding. The eyesight was destroyed in 122 cases; 551 persons lost the use of one eye, and 432 were crippled by the loss of arms, hands, or legs, and 1,541 by the loss of fingers. The greatest reform was accomplished this year in Massachusetts where the injuries were only one-seventh of the number for the previous year. Missouri, New Jersey, and New York reduced their injuries to one-third, while the totals in Indiana, Iowa, and Wisconsin were larger than those of a year ago.

"Soothing Syrups" Barred.—The Philadelphia Association of Retail Druggists at a recent meeting adopted a resolution binding its members to discourage the sale of the class of preparations known as "soothing syrups," designed for the use of infants and containing habit-forming drugs.

Porous Plasters and Diplomacy.—The German Government has announced that, in accordance with the request of the United States Government, the tariff on porous plasters imported from this country into Germany has been reduced. The State Department last winter in the course of tariff negotiations called attention to the unfavorable treatment to which porous plasters manufactured by American firms were subject upon importation into Germany. They were then classified as "secret reme-

dies," and required to pay a duty ten times as high as that considered proper. The classification of the product has now been changed, and the tariff reduced accordingly.

Yonkers Hospital.—The North End Improvement Association of Yonkers, New York, has declared its intention of bringing before Governor Hughes the alleged unsanitary condition of the building used for the treatment of contagious diseases in that city. The association asserts that the hospital is a menace to health rather than a benefit.

"A Million for Tuberculosis."—This is the slogan adopted in connection with the sale of the Red Cross Christmas seals for 1910. The National Association for the Study and Prevention of Tuberculosis will cooperate with the Red Cross this year in the sale of the seals and will share in the proceeds. Because of criticisms of the use of the word "stamp," the stickers will be called seals and will be used on the backs of letters.

Leland Stanford Medical School.—Several additions are being made to the medical school at Leland Stanford University. Last year one wing of the museum building was set aside for the use of the Department of Anatomy under Prof. A. W. Meyer, and this year two other wings will be used. One will be used by the Department of Bacteriology under Prof. Hans Zinsser, formerly of the College of Physicians and Surgeons, New York, and the other will house the Department of Pharmacology, the head of which is Dr. Albert C. Crawford, until recently connected with the Bureau of Animal Industry. Both Dr. Zinsser and Dr. Crawford are recent appointees to the medical faculty.

Civil Service Examination.—The United States Civil Service Commission announces an examination to be held on September 14 to secure physicians to fill the following vacancies: One at Cahuilla, California; one at Pueblo Bonita, New Mexico; one at Santa Fe, New Mexico; one at Western Shoshone, Nevada, and one at White Earth, Minnesota. These positions pay $1,000 a year each, and are open only to men physicians between the ages of twenty and forty. Further information may be obtained from the United States Civil Service Commission, Washington, D. C.

Acute Poliomyelitis in Pennsylvania.—According to figures compiled by Dr. Samuel G. Dixon, Pennsylvania State Commissioner of Health, 443 cases of acute poliomyelitis were reported in forty counties of the State during the month of August. One hundred cases were reported from Northampton County, 96 from Lancaster County, 68 from Philadelphia County, and 52 from Lehigh County.

Typhoid Fever in Philadelphia.—For the week ended September 2 73 cases of typhoid fever were reported to the Philadelphia Bureau of Health. Many of these, it is believed, were acquired by persons while in the enjoyment of vacations out of the city.

Charitable Bequests.—By the will of the late Mr. Max Bamberger of Philadelphia, who died recently in Kissingen, Germany, the Jewish Hospital Association of Philadelphia receives $10,000, and $5,000 each is left to the following institutions of that city. Mt. Sinai Hospital, Jewish Maternity Hospital, Hebrew Orphans' Home, and Jewish Foster Home. The Jewish Hospital for Consumptives, Denver, Col., also receives $5,000. The residuary estate, estimated to be about $400,000, is to be used in erecting and maintaining a seaside home for Jewish children at Atlantic City, to be known as the Max Bamberger Seashore Home.

International Congress on School Hygiene.—The next meeting of the Congress is scheduled to be held in 1913 at Buffalo, N. Y.

The Michigan State Medical Society.—The annual meeting of this society will be held at Bay City on Wednesday and Thursday, September 28 and 29. Dr. George W. Crile of Cleveland will make the scientific address at the opening session.

The International Medical Association for the Prevention of War.—The organization of a society of medical men under the above title has recently been suggested, and an executive committee has been formed, Dr. J. Riviere of Paris being at its head. It is hoped that a congress may be held in Paris some time in 1911. In this country the association is represented among others by Dr. W. B. Snow of 329 West Fifty-seventh street, New York, and Dr. George Brown of Atlanta, Ga.

American Electro-Therapeutic Association.—The twentieth annual convention of this association will be held at Saratoga Springs, N. Y., September 13, 14, and 15, 1910. A full program of committee reports and papers on subjects relating to physical and electro-therapeutics has been arranged, and much serious work has been done in a determined effort to place work in the field of physical therapeutics on an exact scientific basis. There will be an accompanying exhibition of electrical apparatus. The medical profession is invited to attend. Headquarters will be at the United States Hotel. Assembly and exhibition halls are at the Hathorn Spring Building. The president of the Association is Dr. T. D. Crothers of Hartford; the secretary is Dr. J. Willard Travell, 27 East Eleventh street, New York City.

Association des Médecins de Langue Francaise de l'Amérique du Nord.—At the closing session of the fifth congress of this association, held on August 25, the following officers were elected: *Honorary Presidents,* Drs. J. J. Guerin and P. V. Faucher of Montreal; *President,* Dr. Henri Hervieux of Montreal; *Vice-Presidents,* Dr. A. Rousseau of Quebec, Dr. J. O. Ledoux of Sherbrooke, and Dr. Gauthier of Upton; *Secretary,* Dr. E. P. Chagnon of Montreal; *Treasurer,* Dr. B. C. Bourgeois of Montreal.

Dr. S. Nagayo of Tokyo died on Monday of this week. He was president of the Japanese Society for Gastroenteric Diseases, editor of the *Archives of Digestive Disorders,* a monthly journal in the Japanese language, and director of a sanatorium for the treatment of diseases of the stomach. Dr. Nagayo was chiefly instrumental in establishing the specialty of gastroenteric diseases in Japan, and labored in many other ways to advance the cause of scientific medicine in his country. In his death Japanese medicine suffers an irreparable loss.

Obituary Notes.—Dr. Harry Vroom Day of Butler, N. J., a graduate of the Medical Department of New York University in 1877, a member of the New Jersey State and Butler County Medical societies, died recently of cancer at his home, aged 57 years.

Dr. Francis Hart Stuart of Brooklyn, N. Y., died September 4 of heart disease. He was born in Logansport, Ind., and was graduated from the Long Island College Hospital in 1873. He was a

member of the American Medical Association, American Academy Medical and British Medical Associations, Brooklyn Pathological Society Obstet., Brooklyn Hospital, consulting physician of the Samaritan Hospital, and the University Club of the city of his residence. Of a busy temperament, with devotion to his duties, he made a reputation for himself as a clinical lecturer to students at the leading hospitals.

Dr. SAMUEL C. JOHNSON of Sharon, Pa., a graduate of the Jefferson Medical College of Philadelphia in 1879, died suddenly on August 28 while attending a patient.

Dr. ALPHONSE WETMORE of Clinton, Ia., a graduate of the Medical Department of New York University in 1848, died at his home on August 24, aged 90 years.

Dr. WALTER F. ATLEE of Philadelphia, a son of Dr. John L. Atlee, the distinguished surgeon of Lancaster, Pa., a graduate of Yale University in 1845, and of the Medical Department of the University of Pennsylvania in 1850, died at his home on August 19, aged 82 years.

Dr. JOSEPH A. SCROGGS of Keokuk, Ia., a graduate of the Rush Medical College, Chicago, and a member of the American Medical Association, the Iowa State Medical Society, and the State Board of Health, died at his home on August 24 of diabetic gangrene, aged 62 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

DENTAL AND MEDICAL REFORM—WHOOPING COUGH—BACILLURIA IN CHILDREN—LUNACY REPORT—ROYAL COLLEGE SURGEONS' MUSEUM—FAITH HEALING AND AN INQUEST—DOCTOR AND GUARDIAN'S DUTIES IN SCHOOL EXAMINATIONS—OBITUARY.

LONDON, August 19, 1910.

"Is it reasonable to suppose that an unqualified operator can by actual practice and experience ever acquire the knowledge and skill of the qualified dentist?" This is the question put in a leading article of *M. A. P.*, the enterprising journal so entitled, interpreted as "mainly about people." The question applies just as much to medicine and surgery, in fact, to the whole medical art, as to the dental branch. But just now this branch is prominently before the public in consequence of recent proceedings, and the leaders are more alive to the importance of further protective legislation than those of the profession as a whole. *M. A. P.* proceeds to demonstrate the danger to the public of permitting unqualified dentists to practice, dividing these persons into: (1) Honest and fairly competent; (2) honest, but incompetent; (3) unscrupulous or incompetent; (4) rank swindlers. The first class seems scarcely admissible, according to the subsequent logical statements of the article, for the writer sets out that there may be here and there a man whose lack of means prevented him after two or three years completing his training. But, he adds, "after all, why should they be allowed to practice?" And further, he continues, "a solicitous clerk may have passed all the necessary examinations, but is debarred from practice until his name has been enrolled."

I am citing a journal extensively read by society rather than our professional organs, as it indicates that the question of illegal practice has not been allowed to rest by the dentists, and so they have secured more attention than the doctors for their legislative demands. The medical journals have, of course, constantly advocated protection from quackery of all kinds. The *Medical Press and Circular* has been prominent in defense of the dental branch. The current number of the *Lancet* contains a letter from Mr. Morten Smale, who has long held the highest position among dental surgeons, is consulting surgeon to St. Mary's Hospital, the Royal Dental Hospital, dean of the school, and examiner at the Royal College of Surgeons, of which he is a member as well as dental licentiate. His wider experience convinces him that a new act must be obtained absolutely restricting practice to registered persons and containing a penal clause so worded as to prove effectual. He would, however, in order to pass the act more easily, I suppose, suffer existing unqualified ones to continue in practice if they can show some competence on examination. On this point I would refer him to the logic of *M. A. P.* As to a perfect penal clause I almost despair of the parliamentary draftsmen being able to frame one. Irregular practitioners will not call themselves dentists or similar terms. Only this week I passed in one suburb four brass plates inscribed "Mr. ——, artificial teeth." Need I say what that implies?

Whooping cough should lose most of its terrors if Dr. Essex Wynter's statements at the Children's Section of the Medical Association should be fully confirmed. It is true that many poor people let it run its course from a prejudice that nothing does any good, but they would be glad enough to see their children rapidly cured. Chloretone (2½ grains three or four times a day) is Dr. Wynter's remedy, and the paroxysms, he said, were practically subdued in three days. Dr. Zangger had contributed a paper on this disease in which he had spoken of it as a contagious disease of bacillary origin with reflex nervous symptoms. To meet the infection he gave quinine hydrochlorate. Next in efficacy he found euquinine, which is but slightly bitter and does not irritate the stomach. For the nervous complication he advised packs to the trunk at 52 to 60 deg. F. for one to four hours—a very powerful nerve sedative they proved. He had treated some 200 cases in the course of practice, and in severe cases the convulsive stage had been reduced to 20, 15, or sometimes 10 days. It was rare to have more than twenty paroxysms of coughing in the twenty-four hours under this treatment, and they diminished from day to day in number and also in intensity. He had no deaths and no complications. Yet it was after hearing this paper that Dr. Wynter made the statement I have quoted and congratulated Dr. Zangger.

At this meeting the set discussion was on infection of the urinary tract in children by bacillus coli. It was opened by Dr. Box, who said the condition might be acute or chronic. Other organisms were sometimes found, but the *B. coli* was most common. Occasionally they might excite few or no symptoms, but generally produced some inflammation of the mucous lining of the tract. This was frequently confined to the bladder, but might extend upwards. In such cases there would be feverishness of a typhoid type, preceded perhaps by rigor or convulsions. Tenderness over the region affected would occur, but diagnosis must rest on the presence of the bacilli in the urine, which was usually highly acid. For treatment its acidity should be neutralized, and it should be diluted by free drinking. He gave potass. citrate enough to keep the urine alkaline. Dr. Pardoe said he trusted rest in bed on milk diet, with diluents, alkalies, and sandal-wood oil as an antiseptic. Dr. Parkinson had seen improvement after injections of dead bacilli. Dr. Cautley said bacilli might abound in the urine without setting up symptoms, and he had little faith in drugs, though benzoates seemed to have some effect. Other speakers referred to the obstinacy of chronic cases, the want of uniformity in the organisms (various strains of the *B. coli* being found). One gave urotropin for weeks. Another observed that the *B. coli* grew in an alkaline fluid, but that increased phagocytosis, and so might be beneficial. The fact that *B. coli* is met with in other diseases (diphtheria and scarlatina) was also mentioned, as was a case treated by potass. citr. per rectum, with rest and milk diet.

The report of the Lunacy Commissioners shows, for the year up to January 1 last, a further increase of certified insane persons. But the increase is below that of the annual average during the decennium. It is also lower than any yearly increase since 1901. Some curious notes can be picked out from the tables, *e.g.* from that about occupation it appears that in those classed as professionals teachers furnish the lowest rate, viz., 7.9, but physicians have a rate of 12.9 per 10,000, lawyers 15.2, clergy 13.1. As to causes the commissioners consider the figures point in both sexes to an association of heredity with the insanity of adolescence, with that of mental stress, and that of influenza; in males with addiction to alcohol; in females with puerperal insanity and with epilepsy.

Prof. Arthur Keith, the Conservator of the Hunterian Museum, has issued an illustrated guide to this great collection, in which, as he says, the animal kingdom has been "ransacked" to show the meaning of its structure and working. The pathological department occupies a good deal of space in the book, and includes the recently acquired Nubian collection. Some of the exhibits have an interest outside the medical art, *e.g.* a cast of Livingstone's

broken arm which was crushed by a lion and a rib of Robert the Bruce showing a fracture, united. There is also in the guide a short history of the museum, always of interest. Dr. Wm. Hunter's anatomical school was a very important institution in the middle of the eighteenth century, and in that his brother John qualified and assisted in the demonstrations—later serving for a time as surgeon in the army. In 1763 he retired from the army and began practice in London, collecting specimens which interested him. In 1783 John Hunter bought two houses and built a museum for his collection, on which he spent his whole fortune, which before he died was some £70,000. When the British Government bought it they only paid £15,000 for it, and handed it over to the care of the Royal College of Surgeons. A further sum of £42,500 has since been contributed by the government towards the building of the present museum, which with its contents is estimated to have cost upwards of £500,000, mostly provided by the college.

A case of faith healing which did not heal has ended at Nottingham in an inquest on a body of a woman of fifty-eight who was said to be confined to bed for nearly three years without medical aid. The only other occupant of the house when she died said the deceased had a dislike to doctors, and had suffered from much pain and laid in one position all the time. She relied on faith healing. A medical witness said that when he called he could not persuade the occupants she was dead, as they told him "God had assured her she was not going to die." The jury returned a verdict of death from blood poisoning from self neglect, and censured two witnesses who had lived with the deceased.

The local government board has issued its conclusions on an inquiry respecting differences between Dr. Ross and the Brighton guardians. The doctor, they find, acted improperly in arranging for the transfer of some children from the schools to the workhouse infirmary in disregard of the views of the guardians. If he considered the resolution of the guardians detrimental to the children he should have made formal representation in writing to that effect. Still it is admitted children with serious illness in need of special treatment and continuous observation would be better in the infirmary, where there is a resident medical officer. A weekly examination of all the children is not necessary. A monthly inspection should insure detection of contagious diseases. A detailed examination of each child in apparent health need only be made at occasional intervals.

The death is reported of Mr. Robert Wm. Coe, at the age of eighty-eight, who was admitted a member of the Royal College of Surgeons in 1844 and to the Fellowship in 1852. He was for years lecturer on surgery at the Bristol Medical School, surgeon to the General Hospital, the Children's Hospital, and Lock Hospital. In due course consulting surgeon. He contributed some interesting articles to the journals and societies.

Dr. Frederick Weatherley, J.P., of Portishead has died at the age of ninety. His College and Hall diplomas are dated 1841. He was formerly surgeon-major in the volunteers artillery.

Dr. J. T. Faulkner, a distinguished Owen College man and M.D. Lond., has died quite suddenly, at the age of fifty-four, after attending a political demonstration and later joining in a dance.

It is sad to have to report such a tragedy as the death at the hands of his son of Dr. James Hamilton Nicholas, a retired major in the Royal Army Medical Corps. There seems to be little doubt that the son was insane. Meantime a coroner's jury has returned a verdict of murder, and the consequent measures will be taken.

Dr. Wm. P. Counsellor has died at Weymouth, at sixty-three. He practised for many years at Manchester, and had been M.O.H. in the Lancashire Rural District. He was M.R.C.S. 1873 and M.D., Durham, 1887.

Progress of Medical Science.

Boston Medical and Surgical Journal, August 25, 1910.

Lactic Acid Bacteria: What They Are and What They Are Supposed to Do.—Arthur I. Kendall states that in the restricted sense in which the term "lactic acid bacilli" is used in intestinal therapeutics only those organisms are regarded as true lactic acid bacteria which form lactic acid and smaller amounts of lower fatty acids, but which do not form putrefactive products from protein, and which do not produce gaseous products from the fermentation of carbohydrate. In addition to the proteolytic bacteria and the fermentative bacilli of the lactic acid type, there is a third group of intestinal organisms which is facultative with respect to protein and carbohydrate requirements. This facultative group is by far the largest of the three groups, and includes many of the best known of the intestinal flora, of which the *Bacillus coli* is an example. The effects of lactic acid therapy are summarized as follows: (1) Objectionable proteolytic activity, resulting in the absorption of a host of aromatic substances derived from protein decomposition by the action of proteolytic bacteria, may take place in the intestinal tract. (2) These aromatic compounds may be formed in the small or large intestine by the facultative or obligate proteolytic organisms. (3) The excess of protein in the diet of the host, or any factor causing stasis or impaired absorption of protein, appears to be the direct cause of this condition. The result is an unusual amount of available food which stimulates the development of these proteolytic intestinal organisms. (4) The addition to the diet of easily fermentable carbohydrate, together with the restriction of the protein, is of material assistance in reducing the output of these putrefactive products in many instances. (5) The beneficial action of the carbohydrate is twofold: First, the character of the metabolism of the facultative organisms tends to change from the putrefactive to the fermentative type, eliminating by the urine the putrefactive products referable to their activity; and, second, the lactic acid bacilli, either those given by the mouth or those normally present in the intestinal canal, or both, proliferate rapidly, forming considerable amounts of lactic acid and inhibit the further development of the obligate proteolytic organisms by rendering the medium in which they are growing unsuitable for continued development. (6) The proteolytic bacteria may be producing their harmful effects either in the small or large intestine; in the former case the introduction of the organisms of the bulgarian type may reasonably be expected to be of some benefit. If the proteolytic process is of the large intestinal origin, the normal lactic acid bacilli of the acidophilus type are indicated. If there is reason to suspect that these normal intestinal lactic acid bacilli are enfeebled or absent, it will be necessary to introduce fresh cultures by the mouth or the rectum. (7) While the primary object of introducing lactic acid bacilli is to inhibit the objectionable activity of proteolytic organisms, experiments seem to indicate that, in addition to the formation of lactic acid, other products associated with their development may be formed which also act beneficially. The nature of these products and the character of their action is not definitely known.

New York Medical Journal, August 27, 1910.

Oral Prophylaxis.—L. Ashley Faught says that it is freely conceded that the mouth and teeth should be kept clean, that neglect hurts the teeth and gums, and, ultimately, the general health; and patients are yet too frequently dismissed with some general advice about brushes, floss silk, and dentifrices, and as a result the hygienic care by the patient falls short between visits to the dentist. The object of this paper is to awaken both dentist and physician to a more serious view of the great importance of oral prophylaxis. Patients need to be instructed as to the importance of the active use of the teeth; they are the organs of mastication, and should be so used; that use means health. The teeth should be brushed on the lingual and palatal surfaces, as well as on the buccal and labial sides, with a rotary motion of the brush, brushing the gum as well as the teeth, from the gum toward the crowns of the teeth; not with a rotary motion in that direction and then in the reverse direction, but with a movement which shall be peculiarly always in the one direction only, the direction of tooth growth; the motion to follow the axis of the tooth, giving particular attention to the inside of the lower arch in the molar region. Great care should be taken to reach all the surfaces of the teeth situated well back in the rear of the mouth. The teeth should also be brushed backward and forward on the occlusal or chewing surfaces. During the brushing from time to time the mouth is to be rinsed with an antiseptic solution. Waxed floss silk should also be used by passing it between the teeth. This attention, after each meal and before retiring, should be sedulously given.

Hypothyroidism.—Robert L. Pitfield says this is a commonly overlooked disease; hypothyroidism may be so mild as to cause a few pains and aches, or so severe as to render the victim a bedridden invalid, ugly, perhaps, and miserable; and often a complete puzzle for the medical attendant. Not always is the patient myxedematous. He has seen nine cases, all in children; all had joint pains that were called rheumatism. The fat ones were thought to have Bright's disease, the thin ones nervous prostration. All had their ills wrongly diagnosed. He believes that this disease

should be classed among the nervous diseases, and not among those of the ductless glands. He reports four cases, two of them exhibiting the rarer symptoms of this disease; one was the premature menopause and the other synovitis of the knee. The patients were all neurasthenic. The relief afforded by thyroid is another prop to support the doctrine that neurasthenia is very rarely a primary disease.

Anemic Ulcers of the Throat.—Albert G. Pohly says that ulcers of the throat are either due to tuberculosis, syphilis, or angina Vincenti. He reports in detail three cases which were due in all probability to anemia. The ulcers in these cases are small, round, with a scanty secretion. These occurred in young women, and there was no history of either tuberculosis or syphilis. There was no glandular swelling.

Journal of the American Medical Association, August 27, 1910.

A Possible Differential Sign Between Cardiac Dilatation and Pericarditis with Effusion.—W. J. Calvert says that extreme dilatation of the heart is often difficult or impossible to differentiate from large pericardial effusions, and he gives a possible differential sign. In patients with large hearts the sternum is depressed, the entire liver is depressed, the right lobe of the liver is relatively elevated as to interspaces, the right lung is elevated and pushed outward and backward, thus giving a high position of the liver with a narrow band of lung-liver relative dullness. In pericarditis with effusion the liver is depressed, the right lung is pushed outward and backward more than upward, thus giving a low position of the liver with a narrow band of lung-liver relative dullness. The size of the liver is of no material importance. Two factors compose the differential sign—the position of the liver and the presence and position of the diminished area of lung-liver relative dullness. Of these the position of the liver is most important.

Neuralgias and Functional Disturbances Arising from Infections in and About the Tonsil.—Frank C. Todd emphasizes the following points in concluding his paper: 1. Pain and soreness in the neck in the region of the tonsils usually arise from diseased tonsils. 2. Neuralgias in the region of the tonsil, ear, side of head, neck, nose, teeth, gums, or antrum of Highmore, may be and frequently are caused by diseased tonsils. 3. Disturbances of function through pressure on or inflammation of nerves may manifest itself in hoarseness, in loss of voice, cough, difficult deglutition, or entrance of food into trachea, with regurgitation; or in defects in hearing, dyspepsia, and disturbed heart action. 4. Such diseased tonsils may not be and usually are not large or acutely inflamed. They must be carefully examined by the surgeon, who should pull them into view with a dull hook, determine whether the crypts contain detritus, whether the tonsils are sore to such manipulation, bleed easily, or otherwise give evidence of being diseased. 5. Such tonsils should be carefully and completely removed. 6. Relief of secondary infections usually follows immediately on removal, but sometimes only slowly if neuritis or secondary glandular involvement is present. 7. In certain cases paralysis may be permanent.

The Rôle of Surgery in Preventive Medicine.—Miles F. Porter suggests that by the removal of infection atria surgery may do much to prevent disease. That adenoids and diseased tonsils and gums are the port of entry for many serious infections is well recognized, but the etiological relationship that these conditions seem to bear to rare infections, such as noma and acute poliomyelitis, should also be considered. The removal of such deformities as club-foot hernia, etc., not only makes it possible for their possessors to lead much more hygienic lives, which conduces to greater physical strength, but effects a psychic improvement in such cases which is quite as important. All suppurating lesions and local tuberculous lesions should be treated not only in the interests of the patients themselves, but in the interests of the community. Deaths from brain abscess, meningitis, and thrombophlebitis, resulting from neglected middle ear disease, are all too common. By removing causes of irritation in the shape of gastric ulcers, lacerated cervices, phimoses, gallstones, kidney stones, warts, moles, and other nonmalignant tumors and causes of irritation, surgery can prevent more deaths from cancer than it can by the removal of cancerous conditions after such a diagnosis is possible. The writer quotes from authorities to show that the consensus of opinion favors cesarean section as giving better chances of life and health to both mother and child than can be claimed for ordinary obstetrical operations in the same class.

A Cutaneous Anaphylactic Reaction as a Contraindication to the Administration of Antitoxin.—W. L. Moss, believing that it would be desirable to determine in advance those cases in which a second administration of serum will precipitate dangerous anaphylactic manifestations, has made the following test in thirty cases. The skin of the inner side of the upper arm is cleansed with alcohol and dried with a sterile sponge, and 0.01 c.c. normal horse serum is injected intradermally. A positive reaction consists of an area of inflammation 1 to 2 cm. in diameter, which comes on within twenty-four hours and disappears in two or three days. The entire reaction is sometimes over within twenty-four hours, so that an observation should be made ten hours after the injection. The reaction is purely local. Of the thirty individuals tested nine had never received any form of antitoxin, and results were all negative; the remaining twenty-one had received antitoxin from four months to ten years previously. Ten of these gave positive reactions and eleven negative. The results did not seem to depend on the length of time that had elapsed since former injections. Of the ten positive reactions three gave much more marked reactions than the others, and it seemed possible that reactions of this nature might indicate danger from any further injection of antitoxin serum. The value of this test can be determined only by injecting therapeutic doses of antitoxin in individuals who give a positive skin reaction. Dr. Moss urges that where opportunities offer further investigations be made to determine the value of this test, as a means of knowing in advance those cases in which a second injection of antitoxin are contraindicated, and thereby preventing the lamentable accidents which sometimes now occur.

The Lancet, August 20, 1910.

A Case of Migraine Associated with Chlorine Retention.—Hubert Higgins bases this paper on records of observations made in a case of long-standing neurasthenia and migraine in a man aged forty-three years. The chief subjective sensations complained of were those of exaggerated fatigue, mental depression of an overwhelming, unreasoning kind, and headaches lasting as long as three days at a time, accompanied by the usual migraine symptoms. These symptoms were invariably and quickly removed by means of not more than seventy drops of phosphoric acid. On each occasion there was decided increase of indican. The main indications, as revealed by urinary analyses, were to secure dechlorination by as simple means as possible, and to administer magnesium, calcium, and phosphorus in the form of eggs. It was clear that the full remineralization ration (earthy and vegetable salts in addition to eggs and meat) produced too great a reaction, as it changed the day by night quotient from 1.1 to 0.7 in the case of urea, and from 1.0 to 0.6 in the case of uric acid. During the remainder of the time that the patient was under observation he was allowed rather more than his ordinary ration without vegetable salts. For twenty-three days out of forty-four there was a rigid chlorine free diet; on the other days he partook of the usual hotel fare, not adding any salt to it. Allowing a liberal estimate for salt used in cooking, while the patient was on ordinary diet, the total dechlorination was 309.63 grams. The permeability tests showed that there was no evidence of renal inadequacy. In this case the force which retained the chlorides in the tissues must necessarily operate in the cells themselves, and it was reasonable to conclude that retention was present in order to maintain the balance between colloids and crystalloids. The urea and uric acid analyses the author took as being an indication that the tissues reacted too strongly to the meat, and that in cases showing such an extreme reaction the meat ration should be reduced to a minimum and the proteid ration as well to half the normal quantity. During observations in this case the blood pressure had risen to 95 millimeters, and hence only 0.5 gram of calcium carbonate was given. This was increased or diminished according as the blood pressure rose or fell. Two grams of hydrate of magnesium and a small ration of iodine in combination were also given. The author urges the necessity of seeking out and demonstrating to cases of this class the physical causes of the psychical phenomena.

A Case of Rheumatic Arthritis Followed by Streptococcus Invasion.—G. R. Strong reports the case of a girl twenty-one years of age, who gave a history of an attack of tonsillitis and other symptoms which indicated that she was suffering from an attack of acute rheumatism, but against this was set a history of pain in the soles of the feet and lumbar fascia, the absence of cardiac signs and a characteristic appearance of the left wrist, which suggested gonococcic arthritis. Examination of fluid aspirated from the wrist and of a swab from the vagina failed to show

the presence of the gonococci. During the course of her illness the reaction to the salicylates left no doubt but that the case was one of acute rheumatism. Seventeen days after her admission to the hospital her temperature suddenly rose to 104° and she complained of sore throat, and a faint erythematous rash appeared on her chest and abdomen. Scarlet fever was suspected. A swab taken from her throat yielded streptococci and staphylococci. The urine was found to contain casts and much free blood and leucocytes. She now has a systolic murmur at the apex. Her condition immediately became grave and she died four days after the onset of these symptoms. The appearances at the autopsy were those of an intense septicemia and pneumonia. Death had occurred from toxemia. The pus from the pleura contained many streptococci. Sections of the lungs showed appearance of intense inflammation but not just that of pneumonia. The kidneys were enlarged, engorged, and bled on section. The points of interest in this case are: In the first place, was the illness of which the patient died a streptococcic infection or a very severe attack of scarlef fever? A streptococcus being frequently found in association with this disease is believed by some to be the actual cause of it. Where is the line to be drawn between scarlatina and streptococcic septicemia? Secondly, was the fatal illness a new infection or merely a relapse in the course of the disease from which the patient was suffering when admitted? The writer was inclined to the former view. Another point of interest was the pneumonia which was evidently only a part of the general infection.

A Note on the Abuse of Purgatives.—Herbert French thinks that in the recent discussion upon the treatment of constipation at the meeting of the British Medical Association it was not clearly brought out that a great deal of chronic constipation is actually due to the abuse, that is to say the injudicious use of purgatives during the preceding years. Even laxatives ought seldom be used, and then only with the greatest caution. The habitual use of laxatives during adolescence usually necessitates the resort to purgatives in early adult life, and as years go on stronger and stronger remedies become necessary, until none has the desired action. Instead of encouraging Nature's tendency to act once a day the use of a purgative forces the bowel periodically and leaves it inactive in the interval. There is no doubt that a great deal of the chronic constipation of to-day is due to deficiency of exercise and to the removal from our dietaries of many things which, being indigestible, used to pass through and increase the bulk of the residue. This constipation is accentuated by the abuse of purgatives. By the term indigestible we understand not a substance which produces indigestion but one which passes through the alimentary canal undigested, as the fiber of green vegetables and fruits and portions of husks in porridge and brown bread.

British Medical Journal, August 20, 1910.

The After-History of Forty Cases of Epithelioma of the Lip.—A. Rendle Short classified these cases according to the method of operation adopted. Of twenty-three cases where only one operation was performed and the growth removed by a V-shaped incision, the glands not being removed, fourteen cases are now well, four are known to have died of recurrence, two more have probably done so, and three have been lost sight of. In six cases where there was one operation only for the removal of the growth on the lip and of a palpable gland or glands, one case is probably cured, three died of recurrence, and two cannot be traced. Of three cases where there was removal of the growth and a complete clearance of all the submaxillary glands at the same time or soon after (although not palpably enlarged) two cases are well and one recurred. Of seven recurring cases operated on more than once, two are well, one has probably recurred, one patient died of pneumonia without recurrence, and three died of recurrence. The author concludes that when the glands are already infected only an extensive dissection will give the patient a reasonable chance of cure. He thinks that this extensive dissection ought to be carried out, even when the growth is small and no glands are palpable. The risk of the operation is not as great as the danger from recurrences. The lesson that a study of these cases teaches is that if the neck is to be cleared it must be done very thoroughly.

An Immense Renal Calculus.—George W. Ord relates the history of this case, which covers twenty years. The case is unusual because of the presence of calculi in both kidneys, the size of the large calculus, the comparatively small amount of discomfort and pain considering the size and irregularity of the stone, the extremely healthy appearance of both kidneys at the time of operation, and the separation of the calculus into two large and one small fragments. The calculi were removed from both kidneys at two separate operations. Those from the right kidney weighed 118 grams, had no nucleus, were bistre in color, easily friable and porous, with rough surfaces. The largest measured 3½ inches by 2 by 2 inches, and had been fractured about its middle some time previously, and a regular articulation had resulted, somewhat resembling an infant's kneejoint, patella included. The calculi were composed of calcium, sodium, and magnesium phosphate and carbonate. The calculi from the left kidney weighed 14½ grams. About two years and a half after these two operations the patient was again operated on, a right lumbar nephrolithotomy being done, and a short time after the right kidney was drained for intermittent hydronephrosis. The patient aborted about a month after this operation and died three months later.

A Simple Method of Removing Sebaceous Cysts.—H. Freeth describes the method which he uses, and which he considers more satisfactory than that in ordinary use. An incision is made, not over the cyst, but through healthy skin alongside it, parallel to and the same length as the shortest diameter of the cyst. The injection of a little eucaine solution along the line of the incision is all the anesthetic required. A small, blunt hook is then inserted into the incision and is worked around the cyst, tearing through the adhesions of the cyst wall, first on the superficial aspect, as that is where the cyst wall is the thinnest, and then on the deeper aspect, until the cyst is completely separated, when it can be delivered by pressure from above. A little collodion on the wound is all the dressing required. The advantages of this method are that the incision is through healthy skin, and where the cyst is oblong is shorter than the usual incision. Consequently, the union is quicker and more satisfactory and the appearance of the resulting scar better than when the incision is made through the altered skin over the cyst. A minimum amount of anesthetic is used, and in case the cyst is situated on the scalp very much less hair need be cut. The largest cyst that Dr. Freeth has removed in this way is about the size of a bantam's egg, but he would employ the same method in removing a very much larger one.

Berliner klinische Wochenschrift, August 8, 1910.

Significance of Ehrlich's Arsenobenzol Remedy in the Treatment of Syphilis.—Neisser and Kuznitzky, after praising the advantages of "606," go quite extensively into the subject of collateral effects. These are divided into local and general. Any unpleasant local effects are naturally avoided by using the intravenous injection. In intramuscular and subcutaneous injections a step forward has been taken by using the remedy in suspension in place of solution [the work of L. Michaelis and Wechselmann in this field is described; both the papers have been given in summary in previous numbers of the MEDICAL RECORD.—Ed.]. Under the intravenous method numerous collateral effects have been recorded, chiefly chills, fever, and vomiting. These symptoms are transitory and leave the patient intact. No arsenic has as yet been found in the vomitus. The temperature in these cases has often been high (up to 40° C.); and on one occasion herpes febrilis developed. That such effects are by no means attributable to the sudden introduction of an alien substance into the circulation is evident from the fact that similar symptoms have followed intramuscular injections; and then very promptly. The authors are inclined to the belief that all such manifestations, however produced, are due to the liberation of syphilitic endotoxins as a result of the sudden destruction of the spirochetes. The chief support for this belief is the fact that these toxigenic symptoms occur in active, but not in latent syphilis. The authors go extensively into our older knowledge of the symptomatology of sudden liberation of endotoxins as a result of mercurial treatment. This subject has a considerable literature. To come back to the new therapy, the authors conceive this to be indicated: (1) In all quite recent cases, in the hope of cure at a single stroke; (2) in any case which does not respond to mercury, and finally (3) in cases overtreated with mercury. A separate section should be made of parasyphilis. We do not of course know as yet whether "606" can prevent paresis and tabes dorsalis, but there is certainly no objection to its use as far as the former condition is concerned. It may be otherwise with tabes, in which the patient is perhaps preordained to opticus atrophy. This possibility can at present only be hinted at.

Pseudoapical Murmurs.—Allard writes very briefly

upon this very important subject, which is so deeply concerned with hasty diagnosis of incipient pulmonary tuberculosis. The author is a member of Prof. Minkowski's staff at the Breslau University Medical Clinic. Given that we obtain in a particular case auscultatory and percutory evidences of incipient phthisis, the question which arises concerns the negative interpretation of the phenomena. No doubt many murmurs heard in these examinations are extrapulmonary and due to contractions of the trapezius, scaleni, etc. Such auscultatory illusions should be corrected by percutory evidence. But all such sounds are not muscular in origin; for in some cases there is evidence that they proceed from a sort of creaking of the bones and joints. The late Dr. Rosenbach was active in this diagnostic field and laid down rules for distinguishing between pulmonary râles and muscular sounds. But the very pains he took with this subject illustrates its intrinsic difficulties. He, as well as others—including the author—sought to exclude muscular participation by a system of "holding" during which auscultation of the apices was being undertaken. No doubt in all routine examinations much can be effected by placing all the muscles concerned in a state of repose.

Münchener medizinische Wochenschrift, August 9, 1910.

Pancreas Intoxication.—Bergmann and Guleke have investigated the subject of systemic autointoxication from the pancreas, which has apparently been suggested in part from the fact that in aseptic autolysis of this gland certain toxins are formed; but more particularly from the pathological finding that in destructive disease of the organ certain fatal toxic phenomena are produced. The toxic action noted in any case is somewhat of the nature of trypsin poisoning, and may be antagonized in experiment by previous immunization with trypsin. Yet these toxic effects cannot be set down necessarily either to trypsin or any other individual enzyme when acting alone; that is to say, the picture differs in some respects from that produced by the injection of commercial trypsin into the blood. Another toxin is present, and this is believed in some quarters to be the digestive product of the pancreatic lipase. The rôle of this element in the intoxication is somewhat complex and is believed to represent a displacement in the blood of its calcium ions as a result of formation and absorption of the very soluble sodium soaps, which are formed from lipase digestion. While experimental trypsin death is said to represent a paralysis of the respiratory center, soap poisoning, when carried out experimentally, represents an acute cardiac death. In pancreas intoxication, however interpreted, we thus have two quite different lethal factors which act in conjunction. So many disease phenomena are nowadays explained by some sort of interference with soluble calcium ions that the refusal of the authors to commit themselves to any definite conclusions need occasion no surprise.

Treatment of Sciatica with Epidural Injections.—Blum refers by the term epidural injection to the anesthetization of the sacral nerve roots after they have left the cord, a resource for local analgesia discovered simultaneously by Cathelin and Sicard. When applied merely to relieve the pain of neuralgia, the method does not differ radically from perineural injections in the continuity of nerves. The author's paper is essentially a comparison of the two methods. The older of the latter is somewhat more readily carried out, but this drawback is more than offset by several points of disadvantage. The epidural injections, for example, affect a wider nerve distribution, and are less provocative of present and after pains. Blum has used the epidural method in over a thousand cases with a much smaller incidence of unpleasant consequences and sequelæ than has been shown by perineural injections. Paralysis of the peroneus has been noted occasionally under both methods. Nevertheless the conclusion of the author that the epidural method is the best routine procedure seems to be doubtfully asserted.

The Meiostagmin Reaction in the Differentiation of Tuberculosis According to Animal Species.—Gasharrini endeavors to show that this reaction is capable of the differentiation of human, bovine, and fowl tuberculosis from one another. The communication is very brief and based principally on experimental tuberculosis produced in guinea-pigs and rabbits by the various bacilli supposedly peculiar to each species of animal indicated. By following the usual technique a positive, specific reaction was obtained in four or five days after infection. The meiostagmin reaction has been used very largely of late in connection with the diagnosis of specific diseases; but this claim in connection with specific animal tuberculosis, seems stronger than any heretofore made.

Cryptogenetic Tetanus.—Stromeyer under this term refers naturally to the ancient tetanus rheumaticus, or tetanus not the result of a wound. It was thought that the discovery of the bacillus in 1884 had done away with this doubtful clinical affection; but the returns since have shown that the frequency of these paradoxal cases is in no wise diminished. It has naturally been asserted that the causal element in the two conditions differs radically; in other words, the cause of cryptogenetic tetanus is quite different from that of traumatic tetanus, just as the two clinical conditions are quite dissimilar. The possible chance of confusion in such cases is extraordinary. Thus a patient may behave clinically as a tetanus patient and yet recover. On the other hand, a patient ill of any affection whatever, may die under tetanic symptoms. The upshot of the paper is that trismus is a symptom, which may arise under various circumstances and be terminal in most. No other explanation seems possible among so many and varied symptoms.

Deutsche medizinische Wochenschrift, August 11, 1910.

Treatment of Phobias.—Cramer introduces certain more or less novel concepts under the head of symptoms and treatment of phobias. The German word "Angst," which is usually anglicized "phobia," means much more than the latter; it is employed, for example, in connection with subjective choking sensations, and similar sensations of undoubted organic origin; while we usually restrict the term phobia to subjective experiences which are not based on organ sensations. Cramer would use the expression "psychopathic fear" as an equivalent of what we term "phobia." He seems inclined to believe that the association of phobias with digestive disturbances is accidental. People with the same antecedents may be predisposed to both conditions alike. This seems a not unreasonable explanation of the frequent association of gastric insufficience with psychic insufficience. The prompt relief of both trains of symptoms after a brief change of surroundings is a sufficient document to show that both conditions depend wholly on a common cause. Much more significant is the relationship of the sexual life to phobias. But all that can be said is that the sexual element is operative chiefly in predisposed subjects. The most novel and unconventional position of the author is asserted in connection with the opium treatment of psychopathic phobias. From our native standpoint such a management, especially outside of institutions, would be self-condemnatory. The author appears to recommend it for pathological fear of all kinds. The dose of opium should be small at the outset, and gradually increased. It does, indeed, seem strange that a properly constituted authority should prescribe a graduated opium cure for any disease whatever, even if incurable. Yet there is no doubt that Cramer orders a full opium treatment for phobias, as if it were a specific. The nearest approach to such a course is in Flechsig's opium-bromide treatment of epilepsy; but in the latter the remedies are more or less alternated.

Sudden Blanching of the Hair.—Stieda revives the old more than suspicion that whitening of dark hair over night is in reality a sort of withdrawal symptom, due to sudden deprivation of the walnut stain or whatever dyestuff is in daily recourse; whence the frequency of alleged cases after incarceration. It is no longer believed by experts that psychic trauma has ever caused this transformation. Mental shock is extremely common; while blanching of the hair at a stroke is so rare that a list of alleged cases may quickly be compiled. It is true that psychic trauma may appear to cause blanching of the hair within a comparatively short time—a few weeks, perhaps—but the author deals only with alleged instantaneous cases. There is absolutely no evidence that such a sudden depigmentation has ever occurred or could possibly occur.

The Ehrlich-Hata Remedy in Complicated Syphilis.—Wechselmann, after the usual laudatory contribution to the virtues of "606," touches mildly on untoward effects of the remedy. A train of symptoms which might have erroneously been ascribed to arsenicism is explained by the supposition that the remedy may activate latent bacterial infection. Thus, if we suppose that a patient at the time of the injection chanced to suffer from a bacteriogenic angina or otitis media, the said injection might cause the complication to pursue a more active course. A number of complicating conditions of the most diverse kinds, but all such as are sometimes influenced by arsenical medication, remained unaltered. It is implied that at least one case of abortion has been ascribed to the drug.

Book Reviews.

Light Therapeutics. A Practical Manual of Phototherapy for the Student and Practitioner, with Special Reference to the Incandescent Electric-Light Bath. By J. H. Kellogg, M.D., author of "Rational Hydrotherapy," "The Art of Massage," etc. Member of the British Gynecological Society, the International Periodic Congress of Gynecology and Obstetrics, American and British Associations for the Advancement of Science, the Société d'Hygiene of France, American Society of Microscopists, American Climatological Society, American Medical Association, Michigan State Medical Society; Superintendent of the Battle Creek (Mich.) Sanatorium. Battle Creek: The Good Health Publishing Co., 1910.

This little book of 200 pages is an exposition of the light therapeutics as used at Battle Creek. Beginning with a discussion of the physics of light and the physiologic effects of it upon tissues, it then goes on to the therapeutic effects of light, both natural and artificial, upon the human body in disease. The arc light is discussed, but especial attention is paid to the incandescent light treatment by means of cabinets, though the photophor is also described. The various therapeutic measures of hydrotherapy, massage, friction, and air blasts which may be used in association with phototherapy are described. Under clinical phototherapy are taken up the various diseases which the author believes may be benefited by his methods of treatment, ranging from scarlet fever to diabetes and fractures. The book is well printed and profusely illustrated, and reviews concisely and completely the measures in general use in the modern sanatorium, going into sufficient detail to enable the reader to carry out the treatments by himself provided that he is the owner of the necessary paraphernalia.

Duodenal Ulcer. By B. G. A. Moynihan, M.S. (Lond.), F.R.C.S. (Leeds). Illustrated. Philadelphia and London: W. B. Saunders Co., 1910.

It is always a pleasure to review a book on a special subject written by a master, and the reader of this cannot help being infected by some of the enthusiasm of its author. In the chapter on history we learn that neither Curling (after whom the lesion is often called) nor Dupuytren were the first to call attention to the connection between burns and acute ulceration of the duodenum, but Long of Liverpool, in 1840. Moynihan attacks without mercy some of our most cherished ideas. "Acid dyspepsia," "hyperchlorhydria," "gastric neuroses" are ruthlessly tossed away. He says there is "no foundation in fact for this venerable fallacy," *i.e.* excessive acidity. He makes his diagnosis almost exclusively on the history-pain and discomfort in the epigastrium following about two hours after meals. The only physical signs to be looked for are tenderness in the midline of the upper part of abdomen and to the right, firm contraction and rigidity of the right rectus muscle, and a briskness of the right epigastric reflex. These are all of relatively small importance. Hematemesis and melena are complications whose occurrence should have been forestalled. The author affirms that in his experience the diagnosis of duodenal ulcer is made with a degree of accuracy not exceeded in the case of any other abdominal disorder. The treatment of chronic duodenal ulcer, he says, should be invariably surgical. His description of perforation is beautiful, and reads like a story. An appendix to the book contains a detailed statement of the cases operated on during nine years.

Scientific Living for Prolonging the Term of Human Life. The New Domestic Science, Cooking to Simplify Living and Retain the Life Elements in Food. By Laura Nettleton Brown. New York: The Health-Culture Co., 1910.

This book is written by one who would apparently like to join the ranks of the raw-food faddists, but still is a little too sensible to endure altogether that folly, with its unpalatable and unhygienic excesses. She therefore refrains from urging the exclusive use of uncooked foods, but comes pretty near it. However, some of the dishes she recommends, and for which she gives recipes, are not bad, and the author has done a service to her kind in giving little gastronomic comfort to the raw-fooders. She gets a little afield at times when she leaves the menus and begins to philosophize. For instance, in speaking of tea, coffee, wine, and tobacco, she especially remarks: "The purpose of such poisons in nature is to discipline the mind. Man has the privilege of deciding between things, thoughts, and actions that sustain life and those that induce death. He is strong physically, mentally, and morally in proportion to his decision to maintain life." The book isn't really so bad, for this is about the worst thing we have found in it, unless perhaps it is the author's diatribe against salt. Of the yeast germ, she says it is more plant than animal.

Studies from the Rockefeller Institute for Medical Research. Reprints. Volume X, 1910.

The publication of this volume marks the completion of the tenth year of existence of the Rockefeller Institute and the sixth year of its control of a laboratory of its own. To the usual collection of reprints of investigations is prefixed a complete list of the staff and extramural workers of the institution since its organization. An index of the first ten volumes is also added. The body of the report itself consists of fifty-five articles, comprising the work of the Rockefeller Institute published during the year 1909. The subjects cover practically all departments of scientific medical research, and are far too diversified to make a thorough review possible. Possibly the portion of the book of the greatest interest to the practitioner is that consisting of five articles by Flexner and Lewis upon poliomyelitis. A glance at the index for the first ten years of the reports impresses one most forcibly with the tremendous scope of the work which has been carried on under the auspices of the Rockefeller Institute and the immense amount which has been accomplished during the first decade of its existence.

The Diagnosis of Smallpox. By T. F. Ricketts, M.D., B.Sc. (Lond.), M.R.C.P., D.P.H.; Medical Superintendent of the Smallpox Hospitals and of the River Ambulance Service of the Metropolitan Asylums Board. Illustrated from photographs by J. B. Byles, M.B., B.C. (Cantab), F.R.C.S. (Eng.), D.P.H.; Senior Assistant Medical Officer at the Smallpox Hospitals of the Metropolitan Asylums Board. With 12 colored plates, 110 black-and-white plates, and 14 charts. New York: Funk & Wagnalls Co., 1910.

This book is of especial interest on account of the large collection of really superb photographs which are used as illustrations and of the theory which the author propounds and most ably discusses that in many cases the distribution of the rash in variola is due to the stimulation of external irritations, as the pressure of the hat band, belt, garter, the irritation of plasters, and many other causes. The text is clear, well written, and to the point. The various forms of smallpox are described, and especial attention is paid to differential diagnosis, some of the best illustrations being of cases not of variola, but of other conditions easily mistaken for it. The book confines itself to diagnosis, which is by far the most important feature in such a disease as smallpox. It is by far the best work upon the subject which has appeared recently, and should be owned by every man whose work brings him into contact with cases of variola. The volume is well printed, in large, clear type, superbly illustrated, and neatly bound.

The Excursions of a Book-Lover, Being Papers on Literary Themes. By Frederic Rowland Marvin. Boston: Sherman, French & Company, 1910.

This delightful volume is enriched by the many-sided personality and attainments of its author. Dr. Marvin is not only a writer of great charm and finish, but a Doctor of Divinity and a Doctor of Medicine, and therefore his point of view, not only of books, but of life and people also, is enhanced by the deep insight of a nature that has touched life at many points. In his book we find nothing of the cool monastic retreat from actualities too often characteristic of the book-lover who loves only books. And how he loves them! Outside and in, his "dearly beloved old pigskin tomes." As he says in his admirable foreword, "the gladness of many evenings is in these pages." The reader may take up this volume with an assurance that the promise of interest contained in the titles to the essays will not fail of fulfilment—"Literary Fame," "Book Dedications," "Shakespeare's Bones," "Holographs," "At Last the Silent Majority," each one both piquing interest and rewarding it. Of special interest to physicians is the essay entitled "The physician and his work," where is to be found quoted in full the statement of the physician who attended Washington in his last illness, which was published in the *Medical Repository* in 1800, about one year after his death, and in juxtaposition to this the comment upon it published in the Medical Record in 1900, just one hundred years later, which runs in part as follows: "The treatment of an old man, sick with a disease very exhausing to vitality, and so severe that the illness lasted but twenty-four hours, consisted in the abstraction of between two and three quarts of blood, the administration of about gr. xx of calomel and gr. vi of tartar emetic, an injection, with application of a blister. * * * The almshouse patient to-day has more rational treatment than the ex-president of the United States had in 1800."

Society Reports.

THE AMERICAN GASTROENTEROLOGICAL ASSOCIATION.

Thirteenth Annual Meeting, Held at St. Louis, Mo., June 6 and 7, 1910.

First Day—Monday, June 6.

THE PRESIDENT, DR. JULIUS FRIEDENWALD OF BALTIMORE, IN THE CHAIR.

Recent Events in the Development of Gastroenterology.—Dr. FRIEDENWALD delivered this, the presidential address (see page 270).

Stretching of the Cardia in the Treatment of Cardiospasm and Idiopathic Dilatation of the Esophagus.—By Dr. MAX EINHORN of New York. This was a detailed report of two cases of cardiospasm and three of idiopathic dilatation of the esophagus successfully treated by repeated stretching of the cardia by means of a metallic cardiodilator constructed by the author. The success of this treatment in these cases had induced him to try a similar method of treatment in pylorospasm, and in some cases of that condition he had apparently had good results by stretching the pylorus.

Duodenal Alimentation.—By Dr. MAX EINHORN. (See page 92.)

Cardiospasm, with Dilatation of the Esophagus.—Dr. JESSE S. MYER of St. Louis read this paper, in which he reported ten cases of cardiospasm, seven males and three females, treated by forcible dilatation from above. He emphasized the importance of early diagnosis and early relief of the spasm in order to restrict as much as possible the sac development. It was questionable, he thought, that a sacculated esophagus ever fully regained its normal tone; long after the spasm had been completely relieved, certain symptoms persisted because of this fact. Dr. Myer said that his experience with this series of ten cases led him to the belief that there was a congenital basis for the development of the sacculation. These individuals presented certain well-defined outward evidences which indicated a congenital tendency to a general asthenic state. That cardiospasm was of nervous origin seemed to be the general consensus of opinion. How or why it developed in certain persons, however, had never been satisfactorily explained. Many etiological factors had been considered in the previous case reports, but in none, perhaps, with the possible exception of trauma, had any essential connection been determined. For the development of cardiospasm, as for certain other conditions dependent upon nervous causes, there were probably necessary two factors, *i.e.*, a predisposition and an irritant. The dilator which Dr. Myer used in the stretching of the cardia in his cases consisted of a double rubber bag, with a silk bag inserted between them, and attached to the ordinary stomach tube having no opening in the end.

Tortuous Stricture Involving Three and a Half Inches of the Cardiac End of the Stomach Treated by Gradual Dilatation.—Dr. BERTRAM N. SIPPY of Chicago reported this case and gave a demonstration of the instrument he employed.

Dr. CHARLES G. STOCKTON of Buffalo said he had had some experience with cardiospasm and with its treatment by dilatation, and while he had succeeded in some instances, there were others in which the result was not satisfactory. He had had cases where he did not succeed in passing a dilator.

Dr. ALLEN ARTHUR JONES of Buffalo said the condition of cardiospasm was one of the most difficult that internists and gastroenterologists had been called upon to treat. Surgical interference in these cases was not altogether satisfactory. The only operation that had been feasible in most instances had not attacked the disease at all, but had simply been undertaken to short-circuit it and feed the patient through an artificial opening. For this operation, it might be said in its favor that some cases of cardiospasm were greatly improved by it, and it was possible in a few instances to allow the artificial opening to close, and thereafter the patient was able to take his or her food in the normal manner. In those cases, one could not help feeling that the condition was accompanied by some intermittent or continuous irritation, either direct or indirect, which gave rise to the spasm and closed the esophagus and cardia, and that the operation allayed the irritation and overcame the spasm.

Dr. JOHN A. LICHTY of Pittsburg believed we were coming more and more to feel that gastric ulcer was not a local disease; that it was rather a disease due to constitutional, nutritional disturbance, and if we must feed these patients by the rectal method or starve them, we were to that extent hazarding their chances of recovery by further interfering with their nutrition. Therefore, if this method of Dr. Einhorn's of feeding the patient directly into the duodenum by passing a tube through the pylorus proved successful, we had made a great step in advance in the treatment of gastric and duodenal ulcer.

Dr. A. L. BENEDICT of Buffalo said he had never seen a case of esophageal spasm which required any extreme treatment. One or two passages with an ordinary bougie, a little valerian, perhaps suggestion; at any rate, very mild measures were sufficient to relieve the condition. In his own experience, we had a very simple type of esophageal spasm which yielded readily to mild measures of treatment, or else we had to deal with a distinctly organic or at least mechanical obstruction.

Dr. EINHORN said that in his paper he had differentiated between cardiospasm and idiopathic dilatation of the esophagus. Cardiospasm was a frequent condition and was easily cured in many instances. It was a neurotic affair. With idiopathic dilatation of the esophagus, however, no matter how originally produced, we found a different picture. These patients were never cured with drugs or suggestive measures, and even the introduction of small-sized bougies would not cure them. When, however, we began to dilate forcibly, over-stretching the cardia and making it much larger than normal, then we might accomplish a cure. Cardiospasm and idiopathic dilatation of the esophagus were two entirely different conditions, and we should not mix them up.

Dr. JESSE S. MYER said he was not yet quite clear as to how Dr. Einhorn differentiated clinically between cardiospasm, with dilatation of the esophagus, and idiopathic dilatation of the esophagus. Dr. Myer said his own cases were all examples of cardiospasm with dilatation. If the cardiospasm were primary, then we were perfectly entitled to consider the condition as cardiospasm, with dilatation of the esophagus. Under those circumstances, however, we were not justified in calling it an idiopathic dilatation.

Thyroidism as a Causative Factor of Gastric Disturbances.—Dr. MAX BALLIN of Detroit read a paper on this subject, in which he offered the following conclusions: Thyroidism is a complex of symptoms caused by faulty secretion of the thyroid gland. Besides the principal symptoms (heart, nervous and eye symptoms and goiter), intestinal symptoms (diarrhea, vomiting, etc.) and disturbances of metabolism (loss in weight) were very important; more so, as the latter might occur early in the course of the disease and might be more pronounced than the former. Therefore, the diagnosis in those cases where the intestinal symptoms predominated might be difficult, and should be based upon accurate examination as to the existence of slight degrees of goiter, tachycardia and slight eye symptoms. As to treatment, surgical inter-

ference, if serum and medical treatment failed, would nearly always cure the intestinal symptoms; in fact, often earlier than the cardiac and eye symptoms. A suitable operation (ligation of the thyroid arteries, resection of the gland or enucleation of tumor from the gland) would be followed most frequently by a surprising gain in weight, and would check the acceleration of metabolism with its tissue waste.

Dr. JOHN P. SAWYER of Cleveland said that in view of the enormous frequency of thyroidism in the district in which he lived and in other localities, he did not feel that it was warranted that operative interference should be too frequently recommended. He had seen instances where large goiters pressed on the trachea and gave rise to pronounced symptoms of obstruction; yet they receded and were symptomatically cured under medical treatment. On the other hand, he could recall a number of instances that were operated on with only temporary relief. He was convinced that the best method of treatment in these cases was not yet generally known, but in most instances he would have grave doubts about recommending thyroidectomy.

Dr. J. H. STEALY of Freeport, Ill., said he had been on the lookout for cases of enlarged thyroid or hyperthyroidism for over twenty years, and up to ten years ago, in his section of the country, not five per cent. of these cases were ever diagnosed. Now about 60 per cent. were recognized. As to the operative treatment of these cases, he was in favor of removing the entire thyroid, with the exception of a small portion, say the size of a penny. He had removed the entire gland in a large number of cases, and up to the present time no symptoms of hypothyroidism had developed by leaving the parathyroids.

Dr. BALLIN, in closing, said we should save as much of the thyroid tissue as possible. Nobody to-day was in favor of complete thyroidectomy, which would lead to myxoedema. We should only tie as many arteries or remove as much of the gland as was necessary to overcome the symptoms.

Achlorhydria Hæmorrhagica Gastrica as a Symptom of Chronic Gastritis.—Dr. JAMES TAFT PILCHER of Brooklyn, N. Y., read this paper, which gave the result of his investigations made in the pathological laboratories at St. Mary's Hospital, in Rochester, Minn. He stated that there was a definite entity presented in the stomachs of some patients suffering from various intra- and extra-abdominal pathologic conditions, which was characterized by the absence of hydrochloric acid and the presence of "occult" blood. The condition was probably primarily affected through the agency of a reflex nerve stimulation, inhibiting first the production of free hydrochloric acid to only a moderate degree. This so modified the inhibiting factor of the gastric juice that the necessary conditions for the growth of pathogenic bacteria were furnished, chief among which were to be reckoned the streptococci and colon group, which were present in striking numbers. These direct irritations either themselves or in conjunction with the primary irritative factor, gallstones, appendicitis, pancreatitis, etc., perpetuated the pathological process until there was an achlorhydria produced. It was most probable that to the erosion following this irritation the presence of blood might be ascribed. In the one hundred stomachs examined at operation, atrophy was never present, nor was there, excepting in one case, any evident insufficiency of the pylorus. There was a general symptomatology accompanying this condition which was very suggestive. The test meal recovered was indicative of the pathological process in the stomach. There were indications in but seven cases observed that there was no secretion from the stomach mucosa. In others, the presence of mucus, the biuret reaction, and coagulation after activation would tend to show that there was still a moderate degree of enzymic action. The cases were therefore not "achylia gastrica." Many instances were shown which illustrated the progressive, established or retrogressive stages of this condition. Proof of the etiological factors had been demonstrated in the cases operated upon, deduced from their prompt and permanent recovery. The condition was relatively common, approximately one in every fifteen stomach cases examined.

Dr. MAX EINHORN of New York said that some years ago (MEDICAL RECORD, June 23, 1894) he published his first article on Clinical Observations on Erosions of the Stomach and Their Treatment, and five years later (*Journal of the American Medical Association*, May 20, 1899) his second article on Further Remarks on Erosions of the Stomach appeared. In those articles he reported a series of cases in which the presence of particles of gastric mucous membrane appeared in the stomach washings, and these, under the microscope, were found to contain glandular elements. In these cases, the absence of hydrochloric acid was also noted in some instances; in some there was complete achylia and in others hyperchlorhydria. In all of them there were various subjective symptoms of gastric origin, which, together with the small pieces of gastric mucosa, clearly indicated the presence of gastric erosions. The condition was found associated with catarrhal gastritis, sometimes of the alcoholic type. He never had a chance to get an autopsy on any of these cases, because all of his patients recovered under treatment, but he did not doubt that a similar condition existed in association with other troubles.

Dr. JOHN A. LICHTY of Pittsburg said the one point which interested him particularly in Dr. Pilcher's paper was the relatively large number of cases of achlorhydria or hypochlorhydria, and the few cases of achylia gastrica, and it seemed to him to be within the range of possibility that in the cases he examined the patients were under abnormal conditions, and did not secrete their normal gastric juice. Probably, in many of them, serious operations were contemplated; they were in a more or less perturbed state of mind, and this might have disturbed the normal gastric secretions.

Dr. JOHN P. SAWYER of Cleveland said it was well to keep in mind the fact that repeated examinations, at considerable intervals of time, were necessary in order to determine that given findings were essential or particularly peculiar to the pathological condition determined clinically, or perhaps afterward recognized as post-mortem.

Dr. A. L. BENEDICT of Buffalo referred to the unreliability of the blood tests that were employed for occult blood. There were quite a number of different substances that would oxidize guaiac and other things, and some authors gave such a large list, including the ferments, starch, mucus, and other substances liable always to be present, that it seemed we must check off our tests for occult blood before we could draw any reliable conclusions therefrom.

Dr. PILCHER, in closing, replying to Dr. Einhorn, said that in all the stomach washings he had made in these cases he had never been able to identify any cellular elements that could be referred to the stomach mucosa. He had never seen any clumps of cells or any cells which would in the least give one any idea of the condition of the gastric mucosa. As to the suggestion made by Dr. Lichty that the loss of acidity was possibly temporary and associated with a nervous condition of the patient, Dr. Pilcher said he did not think this was so. This so-called "nervous achylia" was very simply differentiated, and the experienced observer could in most cases tell immediately whether he was dealing with a real achylic stomach or a "nervous achylic" stomach if he would merely make a smear from his residue and stain it with any ordinary stain, and find out what the bacterial content was. In the normal stomach there were very few bacteria, and if we

were dealing with a case of nervous subacidity or complete acid due to the same cause, we would not find the enormous number of bacteria that were present in true achylia, nor would we find the pathogenic varieties which were so universally present under diseased conditions.

Observations of the Variability of the Composition of the Gastric Juice.—Dr. E. L. Eggleston of Battle Creek said that repeated test meals given the same individual under as nearly the same conditions as possible indicated a considerable variation in the acid and pepsin secretion, the secretion being no doubt influenced by psychic conditions. What might be termed the normal secretion in any individual fluctuated to a considerable degree, being influenced both by the mental condition and the kind of food taken. The state of mind—the mental condition—of the patient at the time of the test meal was decidedly unfavorable to normal digestion. As the ordinary test meal was not inviting, this also failed to arouse what Pawlow termed the "appetite juice," and the secretion obtained at the end of an hour might be very misleading. When possible, a specimen of the gastric ontents should be taken after the patient had eaten of food that was appetizing and under pleasant conditions. Aside from the psychic influences which ased a variation in the composition of the gastric secretion, it was possible to greatly influence it by the kinds of food taken. It was possible in this way to greatly increase the secretion, or to reduce it almost to *nil*. The author summarized his paper as follows: 1. That with the same food materials there may be quite a marked variation in the percentage compostion of the gastric juice, which will result from psychic influences. 2. Iced foods or beverages have only a slight inhibitory action on the gastric secretions. 3. Foods containing free fats in any quantity, when taken either at ordinary temperature or frozen, have a decided inhibitory effect on the gastric secretions. 4. Fruit juices, either frozen or at ordinary temperature, quite markedly increased the secretion. 5. Tincture of gentian compound seemed to have but little effect as a gastric stimulant.

Dr. J. C. Johnson of Atlanta said that when we considered the personal equation and variations in the vital equilibrium, he did not doubt for a moment that we could find a considerable variation in the acid and pepsin secretion, even in the absence of any evidence of ill health, but in order to determine the exact physiological value of such findings, they must be shown to be on an entirely physiological basis, and, at the same time, such findings must be more or less uniform.

The discussion was continued by Dr. Gustav Baar of Portland, Ore., and was then closed by Eggleston.

Some Experiences with the Einhorn Duodenal Bucket.—Dr. W. G. Morgan of Washington, D. C., in this paper reported in detail 19 cases in which he had used the Einhorn duodenal bucket for the diagnosis and localization of ulcers of the stomach and duodenum. He used both the thread test and the duodenal aspirator, and from his experience with these two methods he realized that Dr. Einhorn had given us means to employ which rendered the diagnosis in these cases comparatively easy and reliable. The application of the thread test was readily applicable to most cases, there being only here and there an individual who objected to the procedure. We could often watch the healing of the ulcer by the lessening of the length and amount of the blood stain upon the thread. Dr. Morgan said he had modified this test by substituting a small split shot inclosed in an ordinary gelatin capsule for the bucket devised by Dr. Einhorn, and he felt that it worked even better, as the patient seemed to experience less difficulty in swallowing it; furthermore, it cost much less to have a number of such tests going on at the same time. Dr. Morgan said that the number of latent ulcers, or ulcers giving few prominent symptoms, was larger than was thought, and that by the systematic use of the thread test many cases would be found that would otherwise escape recognition. The test, although sometimes disagreeable, was not seriously objected to, and should be instituted at the faintest suspicion of ulcer. Besides being able to localize the ulcer, we were enabled to say with more certainty how the case was progressing and when the ulcer was probably cured.

Dr. Max Einhorn of New York said he had employed the thread test in over seventy cases of ulcer of the stomach, and could subscribe to its usefulness. In cancer the method could be used advantageously in recognizing and localizing the presence of a growth; it did not tell us whether the growth was malignant or benign, but it indicated the site of the ulceration. He had also found it useful in cirrhosis of the liver, with varicosities and ulceration in the region of the cardia and lesser curvature, even before the occurence of hemorrhage.

Dr. James T. Pilcher of Brooklyn said he had tried the Einhorn thread method as an aid to diagnosis in twenty-five cases of ulcer of the duodenum and in ten cases of ulcer of the stomach, as determined at operation by Dr. Mayo, and its localization of the ulcer in the cases in which he had employed it had not always been quite as definite as one might infer from listening to Dr. Morgan's paper. In the first place, in ulcerations of the duodenum, the bucket did not seem to get beyond the point of the ulceration. In four or five of his cases, however, the ulcer was definitely located by the thread and bucket method, as subsequently proven by operation.

Dr. Morgan, in closing, said that this test was still new, and that it would take many hundreds of cases to properly estimate its value, but from his experience he believed it would prove to be one of the most valuable guides in the recognition of peptic ulcer.

Hyperacidity and Abdominal and Pelvic Surgery.—Dr. J. H. Carstens of Detroit read this paper (see page 318).

Dr. Allen A. Jones of Buffalo said that in considering this question we should be very careful in deciding what we meant by hyperacidity, and that it was an error to allow the patient to make the diagnosis for us. Many patients complained of extreme gastric acidity when they were not suffering from that condition at all. If we had a definite reason for feeling that the cause of the excessive acidity rested in some other organ than the stomach, such as the gallbladder or appendix, an operation was certainly indicated, but he protested against opening the abdomen with the idea, as Dr. McPhedran of Toronto had put it, of going on a roving expedition.

Dr. Gustav Baar of Portland, Ore., said he had found that excessive indican in the urine was frequently associated with hyperacidity, and when indicanuria was a constant symptom, he became convinced that it was an indication of the presence of an actual intra-abdominal lesion of the appendix or elsewhere.

Dr. J. C. Johnson of Atlanta said we either had to regard an excess of hydrochloric acid as an entity, or not regard it as such; it was either a disease or a symptom of a disease. In either case, the causes producing this pathological condition must operate in essentially the same way, and whatever the remedy might be, whether the knife, or alkalies or diet, the essential cause must be removed by the employment of the same factors whose perversion led to its development.

A Clinical Study of 600 Cases of Colitis.—By Dr. George D. Kahlo of French Lick, Ind. This paper embraced a résumé of 625 cases of chronic colitis, including both the inflammatory and secretory forms, the subject being treated entirely from the clinical standpoint. Statistics were given showing the sex, age, duration of the disease, and the relative frequency of prominent symptoms,

as also the occurrence of the more common complications. Errors in diagnosis often led to unnecessary surgical interference. The author believed that treatment should be directed to the local condition, as well as to the neurotic influences that had acted to produce the disturbed secretory function. In prescribing a diet, consideration should be given to disturbances of the digestive function and to the state of nutrition. The effect of mineral waters of the alkaline-saline group, both internally and locally, was also referred to, as were the influences of psychotherapy, massage, and hydrotherapy.

Dr. John A. Lichty of Pittsburg, discussing the treatment of these cases, said he was a great advocate of the warm oil enema, but more than that, he believed that the cure lay in the correction of the disturbance of nutrition, such as we often found associated with splanchnoptosis. If you fattened your patient and increased the amount of fat in the abdominal cavity, the mucous colitis would often disappear without any other treatment.

Second Day—Tuesday, June 7.

On the Adaptation of the Human Saliva to Diet.—Dr. Lafayette B. Mendel of New Haven read this paper (See page 340).

Further Observations on Alcoholic Gastritis and Its Relation to Experimental Gastritis in Animals.—By Dr. Nellis B. Foster of New York (see page 275).

Dr. Julius Friedenwald of Baltimore said that about five years ago he published a paper on the pathological effects of alcohol on rabbits, the work being done in the Pathological Laboratory of the Johns Hopkins University and Hospital, and the results of his work correspond very closely to those reported by Dr. Foster. The quality of alcohol taken by the rabbits varied very much according to the size and strength of the animal; certain rabbits were found to be so resistant that they seemed capable of tolerating daily intoxicating doses for an indefinite period.

Dr. G. H. Benton of Chester, W. Va., said that Dr. Foster spoke of stimulation in reference to the effect of alcohol on the gastric mucosa. The speaker thought this should be regarded as an irritation rather than stimulation. This particular application of alcohol produced an excretion of a thick, tenacious mucus, which was Nature's way of protecting the mucous membrane of the stomach.

The discussion was continued by Drs. Lichty, Johnson, Benedict, Charles D. Aaron of Detroit, and Nathan Rosewater of Cleveland.

Anthropometric Studies of the Osseous Proportions of the Human Body: With a View to Obtaining a Mathematical Expression for Enteroptosis.—Dr. John C. Hemmeter of Baltimore said that enteroptosis was not an abnormality limited exclusively to displacements of the abdominal viscera, but that the thoracic organs were also displaced as far as the diaphragm and the osseous limitations of the thorax would permit it. By radiographic and other methods of investigation the author had become convinced that enteroptosis was an expression of a general osseous, visceral, nervous, and vasomotor abnormality. Acquired enteroptosis was comparatively rare, and then only showed displacements in a few organs of the abdomen. In the acquired form, the thoracic organs, as a rule, were in normal position, and the osseous anthropometric proportions of the body were not found to be deviated from the normal, while in the inherited and more frequent type the thoracic organs were rarely in normal position; there were always several abdominal organs out of position, and the osseous proportions were decidedly abnormal.

Dr. Johnson said he was struck by the frequency with which Dr. Hemmeter had observed displacements of the thoracic organs. In his own observations, which were confined more especially to the abdominal organs, he had never yet failed to recognize some displacement or rather lack of proportion between the thoracic and abdominal organs in patients with enteroptosis or gastroptosis.

Dr. Gustav Baar said he was convinced that most cases of enteroptosis were acquired. The condition was rarely observed in children, at least in his experience, and he believed that the chief causative factor was the pressure of the corset in women or the trousers' strap in men. He believed that very few of these cases were congenital, and that ptosis of the thoracic organs was very rare compared with ptosis of the abdominal organs.

The discussion was continued by Drs. Friedenwald and Pilcher.

Chylous Cyst of Mesentery.—Dr. A. L. Benedict of Buffalo presented a report on a case of chylous cyst of the mesentery in a boy of six years, who was operated on by Dr. Charles E. Congdon. So far as the writer could ascertain, no other case had ever been recognized in Buffalo, although chylous ascites and chylothorax had. The largest series of cases in the literature amounted to twenty-five. Dr. Benedict had, thus far, collected about sixty-five cases, and had found three cases prior to Rokitansky's in 1848, which had previously been supposed to be the first authentic one. Two indubitable cases were found in the reports of the Paris Academy in 1710 and 1727. It had been declared that sugar was an essential constituent of genuine chylous effusions, Senator being quoted as authority. Dr. Benedict's case yielded no sugar, and he showed that Senator had been misquoted as considering sugar as anything more than a usual constituent; that sugar had been absent in other cases, and that, on purely physiologic grounds, it could not be considered an essential ingredient. A study of the etiology showed that obstruction of the receptaculum and thoracic duct was rarely a cause, and that, indeed, such obstruction would tend to immediate chylous ascites or chylo-thorax; also that the theory of embryonal rests was not supported by conclusive histologic evidence. From experimental results it seemed possible that any rise of abdominal pressure might operate, if not to produce the original cavity, at least to cause the development of a macroscopic cyst. Hence, the rather characteristic history of colicky pains might have both a diagnostic and an etiologic bearing, though the frequency of such pains in their association with cyst was too slight to let such a history influence us, excepting in a suggestive way. The physical diagnosis of abdominal cysts, by auscultatory percussion, tuning fork percussion, transillumination, etc., and the exclusion of certain common types of abdominal tumor were discussed. Without claiming that a positive diagnosis could be made, Dr. Benedict thought that in favorable cases operation could be undertaken with the fairly positive diagnosis of some sort of cyst, with the probable diagnosis of mesenteric cyst, and with at least the knowledge that there was such a thing as chylous cyst of the mesentery.

Dr. George W. McCaskey of Fort Wayne referred to a case which he saw about twenty years ago in which he made a diagnosis of pericardial effusion. This seemed justified by the muffled heart sounds and by the outline of the cardiac dullness given by percussion. A paracentesis was done, and chylous fluid was obtained. He believed the cases was one of chylous pericardial effusion.

Dr. C. F. Korssell of Chicago reported in detail a case of chylous ascites in combination with multiple, small chylous cysts. The largest cyst formation was found between the layers of the peritoneum in the transverse mesocolon, holding over one quart of oily chyle.

Dr. Benedict, in closing, said that in a recent review of the subject, he found a record of two cases of chylous cysts of the pericardium.

The Clinical Features of Metastases Involving the Nervous System Secondary to Cancer of the Stomach.—Dr. Henry L. Elsner of Syracuse said that metastases

due to malignant disease of the stomach and intestines as they involved the nervous system were exceedingly rare; not so rare, however, as had been supposed in the past. Thorough search would frequently uncover clinical manifestations which made their presence positive. These conclusions were confirmed by post-mortem findings. In occasional cases, metastases of the spine, brain, and periphery caused such intense suffering and their symptoms were so prominent as to mask partially or entirely the primary growth in the stomach or intestines. Cancers of the stomach might be so localized as to give rise to a few symptoms, while metastases springing from such growths might invade the nervous system, particularly the spine, and lead to a definite train of symptoms. Cancer of the stomach, more particularly, might remain latent during a number of years, during which time metastases followed which might occasionally invade the nervous system. It was important to differentiate the various manifestations associated with pernicious anemia, included under the "Lichtheim symptoms," and those due to invasion of the central nervous system, particularly the spine, secondary to cancer of the stomach or intestines.

The Relation of Gall-Bladder and Duct Diseases to Gastric Function, Based Upon Clinical and Experimental Observations.—Dr. J. A. Lichty of Pittsburg read a paper on this subject, in which he offered the following conclusions: 1. A lesion of the gallbladder and ducts may disturb gastric function. 2. This disturbance may consist of a hypersecretion of gastric juice, especially of the hydrochloric acid, and a diminution of gastric motility, and was in direct proportion to the extent of the pathology present. 3. So-called hyperchlorhydria should be looked upon as a symptom of some organic condition somewhere along the gastrointestinal tract, and should be treated symptomatically only when organic disease could be excluded with a satisfactory degree of certainty. In the experimental work referred to by Dr. Lichty, it was attempted to show in dogs whose normal gastric secretion had been determined that by placing infected foreign bodies into the gallbladder, a condition similar to cholelithiasis in the human being occurred, and a change in the gastric secretion and motility took place, much as was found clinically.

Dr. Allen J. Jones said that in not a few instances he had found that definite disturbances of secretion—not necessarily hyperchlorhydria—or of motion were associated with gallbladder disease. Furthermore, he agreed with Dr. Lichty that extensive or quite marked morbid conditions of the gallbladder, especially pericholecystitis with adhesions, were not infrequently associated with gastric disturbance. On the other hand, there were cases in which the cause of the gastric symptoms lay in the stomach itself rather than in a morbid condition of some of the other abdominal organs. We should also bear in mind that two or more morbid conditions may exist in the abdomen: the patient may have appendicitis or cholecystitis, and may also have an abnormal condition of the pylorus.

Dr. Fenton B. Turck of Chicago said he had no doubt that the infection of the gallbladder in dogs produced by placing an infected foreign body into that organ, influenced the secretion and motility of the stomach, but whether there were other factors associated with this had not been touched upon in this research by Dr. Lichty.

Dr. J. C. Johnson said that in dealing with cases of gallstones and gallbladder adhesions, we all knew that these conditions produced a certain train of symptoms, but what we wanted to learn was, how did they do it and why did they do it? Before gallbladder trouble, appendicitis or anything else could produce hyperchlorhydria, there must be a disturbance in metabolism of the secretory cells of the stomach.

Dr C. F. P. Korssell of Chicago said he had almost invariably found that patients with enteroptosis also suffered from hyperchlorhydria and indicanuria. By keeping this fact in mind, he had relieved many patients who were not benefited by having their appendix removed, or their Fallopian tubes amputated, or their uterus curetted, etc.

Dr. James T. Pilcher of Brooklyn called attention to the fact that we might have these gastric disturbances due to impaired metabolism of the nerve structures. That was really an organic ondition, not merely a functional one. We might have an actual change in the nerve, and in that case it could not be regarded as a functional hyperchlorhydria.

Dr. John P. Sawyer of Cleveland said that hyperchlorhydria seemed to be regarded by many as a continuing expression of an established disorder. Ought we, however, to regard it in that light? Hyperchlorhydria might be present for a considerable length of time in a given patient under a given set of conditions; at another time it might be absent, and the same patient may have an achlorhydria or a hypochlorhydria. We may have tremendous excursions in this respect due to psychical phenomena.

The discussion was continued by Drs. Benedict and Friedenwald, and was closed by Dr. Lichty.

Report of a Case of Inoperable Carcinoma of the Splenic Flexure of the Colon Treated with Neoformans Vaccine.—By Dr. Charles D. Aaron of Detroit. The case was one of tumor on the left side of the abdomen which upon exploratory incision proved to be inoperable. Under the use of neoformans vaccine there was an apparent disappearance of the growth and an improvement in all the symptoms.

Some Observations and Modifications on the Schmidt Test Diet.—By Dr. G. W. McCaskey of Fort Wayne. The author suggested three slight modifications in the Schmidt test diet. One was the advantage which might be gained by introducing into the diet very small cubes of raw meat which had been soaked in carmine solution for twenty-four hours. These might pass through the stomach in case the latter could not digest the connective tissue, and could be readily recognized macroscopically in the feces as small, red masses. He also advised repeating the test with one-half the quantity, approximately, perhaps, 1,200 calories, and if we still got the same results it would give us a clearer indication in regard to functional impairment. The third modification he suggested was to make it more inviting and palatable by substituting for the purées gruels, etc., properly prepared potatoes, and cereals.

The Rôle of the Bacillus Coli Communis in Disease.—Dr. Fenton B. Turck of Chicago in this paper presented some interesting facts on the rôle of the *Bacillus coli communis* in the gastrointestinal tract in producing lesions in the liver, kidney, stomach, and other organs.

THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held May 23, 1910.

The Vice-President, Dr. James F. McKernon, in the Chair.

The scientific session was held under the auspices of the Committee on Public Health and was devoted to a symposium on the hospital situation in New York.

Hospital Reorganization.—Dr. Charles L. Dana said that he did not come before the Society as an expert in hospital organization, but that as Chairman of the City Club he had had the opportunity of watching the work. In 1905, in an anniversary address, Dr. Gerster had presented in a very forcible way the necessity for hospital reform. In 1906 Mayor McClellan appointed a committee to make an investigation of the hospital system. The State Charities Aid Association in 1908 issued a report on hos-

pital conditions and since that time there had been a steady increase in the interest taken in the subject of hospital reform. The New York Academy of Medicine had appointed a Hospital Committee and valuable papers were presented by Dr. Goldwater and Dr. W. Gilman Thompson as a result of which the ambulance system was practically reformed, the bill only waiting the approval of the Board of Estimate. There was now a system of standardization of hospital supplies. Through a committee of the Charity Organization Society and the City Club an amendment of the city charter had been prepared providing for a system by which all hospitals would be coordinated and put on a systematic basis. This was a matter of great interest to the general practitioner, because there were about 160 hospitals in Greater New York and about 200,000 patients were treated annually. If each hospital had only three or four physicians in attendance there would be at least 1,000 practitioners directly interested in the work. There were 59 general hospitals, that was, hospitals taking in medical and surgical cases. There was each year a greater tendency on the part of the community to make use of these hospitals; people were more eager to go than formerly. In response to this greater demand the hospitals had changed their methods of administration. The medical work involved was radically different in ideals from that of a few years back. In the general hospitals there were about 10,000 beds, of which number the city supported about 3,000. The city also helped some of the tuberculosis hospitals. With the increasing and shifting population of the city it was becoming increasingly difficult to determine where to build hospitals and how large to build them. The city should take this responsibility, but as it was now organized this was impossible. The Department of Charities had nine hospitals, the Department of Health had six, and Bellevue and the Allied Hospitals had four. Each of these departments also had charge of tuberculosis hospitals and cared for tuberculosis patients. The result of this was confusion in administration. They were all doing the best that they could, but it was impossible to formulate plans for the future. There should be some single municipal power in charge. Reform would probably come in the shape of a bill amending the city charter by providing for a Hospital Department in charge of a Hospital Commissioner.

What Constitutes an Ideal Hospital.—Dr. S. S. Goldwater said that Sir Thomas More, in writing his Utopia, foresaw the needs of the New York hospitals. He stated that in the ideal community people would take more care of their sick than of others. There would be four hospitals without the city walls, each small cities in themselves. They would locate the hospitals so that contagious diseases could be isolated. They would be well stored with all things that made for the comfort and cure of the sick and the suffering would be so well attended that they would rather go there than to remain at home. Only after the best in the markets had been sent to the hospitals would the remaining people purchase their supplies. They could not to-day have a better ideal than this one given in the beginning of the sixteenth century by Sir Thomas More. Florence Nightingale's work for the hospitals had to do chiefly with sanitation. During her time conditions were such that the mortality rates were much higher in the hospitals than outside. Happily, sanitary requirements were now recognized and secured. Medical men wanted to see scientific progress, and if a hospital could show that nothing more was required of it. The hospital seemed to exist for the pathological laboratory. They should remember that the pathological laboratory existed for the hospital, not the hospital for the laboratory. There was also a false idea of economy; hospitals were apt to be compared on the basis of the cost of maintenance. The only true basis for comparison was that of work done. In some of the private hospitals the cost of maintenance was more than double that of several of the public hospitals. The work in the private hospitals was often so superior that it justified the increased cost. In establishing a new hospital a committee was usually sent to an older hospital where traditions had been established to find out how it was run and then they endeavored to duplicate conditions. The hospital that was settled in its way of doing things and is the slave of tradition was a dead hospital too often. The active and critical hospital was the better one. A hospital was no longer a place merely for the relief of disease, but social workers had come in and demanded that social justice be done. If social service work was to be done it should be done in addition to and not at the expense of the present hospital work. To sum up, the ideal of the hospital should be to promote economy and efficiency. They should produce results, and whether it cost much or little the work should be well done. There were a few defects common to many hospitals and deserving of consideration. Hospital reports consisted usually of statistical statements of work done. No hospital did all the work that it should do. Many applicants could not gain admission for one reason or another, and this rejected class received no help. There should be one person connected with each hospital whose duty it should be to advise those who were rejected as to where they should go. The hospitals should enumerate the things they had failed to do, as this would give philanthropists the knowledge of the needs that existed. It would help the Health Department to get appropriations for their work, for they had to care for the contagious diseases that were not admitted to general hospitals. There was not a single complete hospital in the city that was one that could accommodate all clinical groups that needed care. For instance a medical case with eye trouble could not be accommodated in an eye hospital, and if the case went to a general hospital there would be no regional specialist. Dr. Goldwater believed that there should be no special hospitals. The special hospital should be in close connection with the general hospital. The ideal hospital should include not only all the clinical groups, but these groups should be in close cooperation with one another. The hospitals should also report in regard to the number of transfers made. Dr. Goldwater referred to Dr. Gerster's plea for paid officials in the hospitals and said that he agreed that it was necessary to give salaries to certain workers. It was especially necessary that the physician who had charge of the admissions should be on a salary and also the radiographer and pathologist should have better salaries than they are now getting. Whenever they asked a man to work for a hospital in a way that did not help him in building up a private practice he should be paid for his time. The day-room represented a special need of the convalescent. It was a waste of capital to take the equipped beds needed for acute cases for the purposes of the convalescent. As hospital work had evolved there had come a need for a larger percentage of nurses. In Roosevelt from 55 to 58 per cent. of the population of the hospital were attendants and 45 per cent. were patients. The number of attendants tended to increase as hospital ideals were raised. Every hospital should have a reserve force of nurses. There was also great need of raising the standard of the other hospital helpers, such as scrub women, ward boys, etc. The public hospitals should pay this class of help as much as the private hospitals did. Men should be so recompensed that they could become decent members of society.

Hospital Accommodation for Infectious Diseases.—Dr. Hermann M. Biggs said that many did not appreciate the difference between a general hospital and a hospital for contagious diseases. The hospital for contagious diseases not only existed for the relief of suffering and the cure of disease, but primarily for the protection of the public

against contagious diseases. There was not sufficient hospital accommodation of this kind in this or any other American city. It was necessary to detain a patient until he was no longer a menace to the public. Since they took the patient without his desire the Board of Health has always felt that they were under obligations to give the best accommodation and food possible, and consequently they had to purchase the best supplies. The difficulties of management were greatly complicated and required special arrangements. There were many mixed infections, in fact the combinations in this respect were almost innumerable. They required a very high character of service and, happily, physicians had improved greatly. The division of the contagious hospitals began under Dr. Lederle's first service. Mayor Low gave his support and $2,000,000 was put at the disposal of the Board of Health for this purpose which was two or three times as much as they had ever had before. Another difficulty with which the contagious hospital had to cope was the difficulty of acquiring land. No one wanted a contagious hospital in his neighborhood. They now had three or four times as much land as they had fifteen years ago. In regard to sanatoriums for the tuberculous the difficulties were very great. The hospital capacity for tuberculous patients in 1902, including wooden buildings, was 500 patients; the recent hospital census showed that they were caring for 1,900 patients. This did not represent what they should be doing. There were large groups of cases for whom no one provided. Whooping cough had not been provided for at all. They took a certain number of cases of measles, when home surroundings were extremely unsanitary, but their facilities for this work were totally inadequate. Eight or ten years ago it was almost impossible to get patients to go to a contagious hospital, but now they went willingly. This was due to a change in management. Visitors were formerly not allowed unless the patient was dangerously ill. Dr. Biggs now believed that the danger of transmitting disease through a second person had been enormously overestimated and when they admitted a patient now they gave the relatives cards of admission and the visiting hours. This had greatly changed the attitude of the tenement population. The problem now was how to keep patients away. In England they allowed one bed for each 1,000 population; on this basis they should have 4,700 beds, while they had only about 1,500, or less than one-third of what they should have. They hoped in the near future to have three or four hundred additional beds, but they would still have far too few. They took a certain number of cases of tuberculosis which they were forced to take. They had taken cases that were insubordinate in general hospitals. The first cases they took were of this character. They would not obey rules in regard to expectoration, etc. It was right for the hospitals to exclude them, but they were the patients most dangerous to the public. Another difficulty of the contagious hospital was the enormous variation in demand. In the early spring they would have five or six hundred more patients than they had proper accommodations for, while in the fall they would have scarcely a hundred cases. They also had the problem of nursing that this variation involved. It was a great expense to carry nurses along so as to have them when they were needed. They no longer depended upon voluntary internes. All members of the staff were paid, even though some of the salaries were very small. The problem of the prevention of tuberculosis had resolved itself into removing the cases from home in many instances. The reports of the Board of Health showed that last year there were 41,000 cases of tuberculosis and during the present year there were 30,000 new cases. A large percentage of these should have sanatorium care. They should have 10,000 beds. When they first took a census of tuberculosis patients there were 600 in institutions, now there were 4,000. The city could not provide and maintain 10,000 beds at the cost of other hospital beds. The Board of Health had consequently purchased a farm at Otisville, where they provided only the most temporary sort of accommodations. While the climate was rigorous the patients were not unfavorably affected. They had begun with 30 patients and now had from 350 to 400. Dr. Biggs said that he had yet to see any case in which harm had been done by exposure to weather and he made this statement only after very careful consideration. They not only took incipient cases, but those in the second and third stages; the only ones excluded were those running a high temperature and likely to be bed cases. He believed that a hospital of the modern type was not only not necessary for them but was actually harmful. In the last stages they, of course, needed warmth and comfort. This should solve the problem of hospital construction for these cases. The cost of hospital accommodation, of procuring all that was necessary or desirable, would be $500 a bed. If they were to have fireproof construction this would mean an increase of 30 to 50 per cent. The patients should do the work of the hospital. At Otisville the ratio of employees to patients was 1 to 10. This was one of the best features of the plan. Dr. Biggs did not think this work of caring for tuberculosis cases should be left entirely to the Board of Health.

The Public Hospital in New York.—Robert W. Hebberd, former Commissioner of Charities, said that, except for overcrowding, the public hospital of New York city was excellent for the sick poor. Of late the administration had been spending more on the hospitals than formerly. There were two evils at present in the public hospitals: the first was overcrowding; there was hardly a hospital in the city not greatly overcrowded every winter. On Blackwell's Island, with a capacity of 600, they had 800 patients last winter. Every available bit of space was occupied. Because of this temporary shacks were suggested, but he thought they were out of place on Blackwell's Island. Consequently good buildings were put up and would soon be open. They did not find that the tuberculous patients on Blackwell's Island did as well in tents. They were mostly third stage patients. There was a great contrast in the condition of those in tents and those in the hospital. Those in the tents lost weight. Mr. Hebberd said that the fact was that a tuberculosis hospital was also a general hospital and needed the facilities of a general hospital. He believed that tuberculosis patients should have regulation hospital accommodations. The other great evil was the poor rate of pay given the hospital helpers. A law had been passed preventing convicts from caring for the sick, but this had little effect, as, at the price paid, only that class of help could be obtained, and the last state was worse than the former as they did not have the supervision over the help now that they formerly had over the convicts. In laying out plans for hospitals and putting up buildings he had sought expert advice from physicians who had given the subject time and study. He thought the Mayor should take an attitude toward the hospitals that would say "We are behind you and want you to do this work right. We will give you all the money you need, but you must account for it and you must do the work."

The Relation of Hospital Reform to Budget Reform.—Dr. William H. Allen of the Bureau of Municipal Research advised the city to segregate its needs so that the community would vote all that it ought to vote to meet its needs. The budget provided for the hospitals in four ways: it exempted private hosptials from taxation; it gave subsidies; it voted $2,000,000 to its own hospitals and to the Departments of Parks and Docks many millions more.

Dr. W. Gilman Thompson, in discussing this subject, said that this was a matter that interested all of the 5,000 physicians in New York City. While there were 62 gen-

eral hospitals, there was not one founded by medical men; there were in the city three medical colleges and not one of them in control of a hospital. There was indication of having cooperative stores which would be a great saving of expense to both public and private hospitals. The hospital situation had entirely changed in the past decade and buildings must be adapted to changed methods of treatment. There was now need of a large department for mechanical therapy and for radiography. This implied space in construction. We were getting very much behind in hospital construction and equipment. The physician could no longer make his diagnosis and let it go at that; he had to be supported by the pathologist, the microscopist, and the radiographer. They had entered on a new era and must meet new demands.

Dr. Biggs, in closing the discussion, said that he did not think Mr. Hebberd was referring to a different class of patients than the one to which he was referring. They did not need the equipment of a general hospital for patients in the last stages of tuberculosis. All one could do was to feed, nurse, and care for them until they died. Dr. Biggs moved that a committee be appointed to consider hospital needs and to present them to the Board of Estimate in the fall.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, Held May 12, 1910.

Dr. Eli Long, in the Chair.

This meeting was held under the auspices of the Section on Pediatrics with the cooperation of the New York Milk Committee.

The Milk Supply of Copenhagen.—Prof. Bernard Boggild, of the Royal Danish Agricultural College, Copenhagen, Denmark, told how they had solved the milk problem in Copenhagen, the capital of Denmark. This city was the commercial center of Denmark, and had a large trade in grain, wool, butter, leather, etc. In 1890 it had a population of 312,859; with suburbs, 373,123. The milk of Copenhagen was greatly adulterated at that time. G. Busck, a wholesale butter dealer and to-day one of the great merchants of his nation, some thirty years ago noticed that one of his workmen showed signs of concern and abstraction, and learned that the man was worrying about his baby, being afraid that he could not raise the baby unless good milk could be obtained for him. It seemed to Dr. Busck that Copenhagen, the commercial center of the world's greatest dairy trade, should abound in good milk. He then formed the Milk-Furnishing Society of Copenhagen with a capital of about $2,500. To-day the capital was about $150,000. No dairies, farms, or cattle were owned by the Society. This Society had been instrumental in purifying the entire milk trade of Copenhagen, and its influence had reached far beyond into the outlying countries, as well as to Norway, Sweden, and Germany. This Commission commenced operations in 1878; the real aim of its formation was education and sanitary protection; its official motto, "Pure Milk from Sound Cows." Forty farms, with about 5,000 cows, were under a rigid contract with this organization. The farmers bound themselves to feed their milch cattle on certain kinds of fodder, to turn them out to pasture during the season, and to report at once any disease among the animals, the employees, or the family of any one connected with the dairy. The Milk-Furnishing Society of Copenhagen guarded itself against selling not only infected milk, but milk that was even under suspicion of being infected. The dairy-farms were models of cleanliness. Prof. Boggild showed on the screen the well groomed cattle, the well kept stables, the large and small farms, the milkers, the dairies, the wagons used for transportation of the milk, the milk cans with special arrangements for keeping the milk cool, etc. The cattle were groomed before milking. No dry-sweeping of the stables was permitted. The milkers, usually girls, were dressed in special costumes, and the milking force was supposed to use soap, water, and towels frequently. Immediately after milking, the milk was strained, poured into sterilized receptacles, cooled, and placed in a cool chamber. Usually the milk reached the consumer before it was twelve hours old. The milk was only sold in sealed glass bottles. All milk vending was under the supervision of the Board of Health. No dealer could go into the business, nor could any farmer peddle milk, without formally notifying the sanitary police. Occasional visits by the inspectors of the Board of Health and constant supervision by the sanitary police served to keep the dealers up to the prescribed standard. In 1880 out of every one thousand deaths in Copenhagen 219 were of children under one year; in 1890 this figure had been reduced to 198, and the figure was larger than it should have been because of a pandemic of grippe and diphtheria. From 1902-1906 the ratio of infant mortality to total mortality was but 144 in a thousand.

Problems of the Dairymen.—Mr. Raymond A. Pearson, New York State Commissioner of Agriculture, of Albany, N. Y., said that the dairy industry was not only important in Denmark, but in all the countries where dairies existed, but they had imported not only a plan of work and methods from Denmark, but they had even in this country adopted some of their sons who were now occupying permanent and important places in the State. With regard to the problems confronting the dairymen, he called attention to the fact that there were nearly 200,000 farms in the State of New York on which were dairy cows. There were more than 1,500,000 dairy cows in the State. If one should ask the dairyman, "What is the chief problem confronting you?" the majority of them would reply that the chief problem was how to make ends meet. For a long time dairying had not been a highly profitable industry in this State. One might ask why men remained on the dairy farms and continued in this line of work. Many had ceased; there had also been a decreasing number of cows in some sections. But the reason more men were not giving this work up was because they had their capital invested and they could not see how they could change their occupation with their money tied up. Mr. Pearson said he did not wish his hearers to believe that dairying was not profitable on all farms; on some farms they made a good profit. At the same time they were not receiving a fair remuneration for the work done and the capital invested. Some of the farmers to-day were even drawing on their capital. Then again there was a decrease in the fertility of the farms; this was not universal, but it did obtain in certain parts of the State. He asked why the conditions were different to-day from what they were ten years ago. The price of milk had not increased, but the cow's feed, grain, and by-products had gone up in price considerably, even advancing from fifty to seventy-five per cent. during the last half a dozen years. The price of hay had doubled in a very short time. The farmers were grappling with many problems, and they were making strong efforts to increase the yield of milk the cows were giving. The farmers were studying how to increase the strain of their cattle. In the treatment of bovine tuberculosis, the State of New York was rendering a great deal of aid; under the present State law a farmer believing that his cow or cows were tuberculous and wishing to have the State veterinarian, can have one visit and examine the cow or cows free of charge; but the farmer, in return for this service, must sign an agreement that he will keep his herd free of tuberculosis. Last year the State expended $150,000 in this work. This year a larger sum

of money would be available. The farmers had learned that the tuberculosis problem was one that never would be solved until they themselves took active steps toward the solution of it. Another problem confronting the farmer and dairyman was how he might meet the new demands along sanitary lines, the demands of the consumer, the demands of the physicians, the demands of the health officers, the demands of those who made the laws in the interest of public health. It was interesting to note that the consumer was not up to the dairyman when it came to recognizing the real importance and value of better sanitation in dairies. Mr. Pearson, in closing, said he would like to see in this State a movement that was comparable to the movement so widespread in the State of Maine. There it had been made a criminal offense to sell milk obtained from tuberculous cows or from cows that responded to the tuberculin tests.

Raw Milk.—Dr. George W. Goler of Rochester said that Rochester received daily 80,000 quarts of milk from 8,000 cows on seven hundred farms from a maximum distance of 60 miles in three directions. Thirteen years ago the first systematic attempt to improve the milk supply was made under municipal direction. This was done by extending milk inspection into the country, by increasing the number of sanitary inspectors in the city, by making occasional bacteriological examinations of the milk taken from wagons at the time of delivery and by establishing summer milk stations in charge of trained nurses for the sale at cost of milk in nursing bottles for babies. In 1900 systematic bacteriological examinations of the milk were begun and a statement was issued to producers and retailers that milk containing more than 100,000 bacteria per c.c. would be considered evidence that there was something wrong with the production and handling of the milk. The Health Bureau of Rochester is now trying to improve the quality of all of the market milk. The milk inspector is not only an inspector but a teacher and he strives to impress the milk producer with the elementary rules of dairy cleanliness. He shows not only that clean milk has a hygienic value in promoting health and prolonging life, but that the application of the rules had an economic value in prolonging the lives and usefulness of cattle, in saving unnecessary labor and in securing a better market and a more equable share of the profits in the milk business. They endeavored to inspect eight hundred farms from two to five times annually, to collect yearly 3,000 samples for chemical and 1,000 samples for bacteriological examination. They were endeavoring to exercise such a watchful care over the milk that it would be fit for use by children. The inspector carried a score card which insists on four general provisions: a drained barn and yard; not less than three square feet of light per cow; window ventilation from windows hinged at the bottom; the general provisions of cleanliness of stable, cow, milker, cans, and utensils, and upon a milk room separate from the stable. He attempted to explain to the farmer that it was possible to build, and equip a milk room with cement floor, running water, boiler, sinks, sterilizer, and storing box for three hundred dollars. He also showed that it was possible to build a model icehouse holding 30 tons of ice at a cost of not more than seventy-five dollars. The cost of their work did not exceed $6,500 per annum, including the expense of summer milk stations. The cleanliness of the market milk might be shown by taking the average bacterial count of 5,000 samples of milk in the last five years. Forty-five per cent. of the samples contained less than 100,000 bacteria per c.c. Of the 60,000 quarts received into the city 6,000 quarts were pasteurized by two companies. In a way the effect of clean milk on the health of the city might be gauged roughly by the number of epidemics of scarlet fever, diphtheria, and typhoid traceable to milk. During the past ten years there had been one outbreak of scarlet fever with 27 cases and one death; one outbreak of diphtheria with ten cases and one death; and three outbreaks of typhoid fever with 50 cases and five deaths. Last year they began to determine how many of their retailers were selling milk capable of producing naked eye lesions of tuberculosis in guinea pigs. The reacting time of the animals had not yet expired so that they were not prepared to report fully on the work. They had tested or had secured applications for testing more than 20 per cent. of the cattle supplying Rochester and there had been between one and two hundred cattle condemned and killed. The testing had been done by the State Department of Agriculture. In the thirteen years from 1884 to 1897 inclusive, during which no systematic milk work was done, the total number of deaths under one year of age was 6,306; the deaths between one and five years of age were 3,304, making a total of deaths from birth to five years of age of 9,610. For the thirteen years' period from 1897 to 1909, inclusive, the total number of deaths of children under one year of age was 4,641, and deaths from one to five years of age 2,080, making a total of 6,721. In the first period not all the deaths were reported; in the last period they had reported the death of every child born at term who breathed. The mortality showed a diminution of 30 per cent. for the last period. They had endeavored to raise the standard of all market milk. If the producers knew that the milk was to be treated in any way they would not be so careful to keep dirt out of it.

Bovine Tuberculosis.—Dr. William H. Park, Department of Health, New York City, said that the part assigned him in the symposium was the amount of tuberculosis in man and in cattle. It required some time before the disease could be eradicated in cattle and even in the best herds they found cases of tuberculosis which must be cleaned out. It was a serious problem for the farmer, that when a certain percentage of his cattle had been eliminated, say six, seven, eight, or ten per cent. he must buy more cattle. In this State it was almost impossible to obtain cattle that were free from tuberculosis; a certain percentage of them would become infected year by year, and this of course meant a loss to the farmer. Wherever one went in this State tuberculosis would be found among the cows. The farmer would of his own accord eradicate tuberculosis among the cows if he could. Cows with tuberculous udders were rare; yet if one cow had tuberculous udders, she could contaminate the entire milk supply. Dr. Theobald Smith of Boston and others had demonstrated the differences between the bacillus that caused bovine and human tuberculosis. Bovine tuberculosis in man was always a negligible quantity. The bacillus from cattle grew with great difficulty in the ordinary media; that from the human grew with great rapidity in ordinary media. They now had other methods to determine whether they were dealing with the bovine or human bacillus of tuberculosis. Dr. Park presented some interesting charts. The first chart was from the reports of German, English, and other observers. It showed the number of bovine and human tuberculosis cases and other points of interest, as follows: There were 491 cases, the largest number being of the pulmonary type and all human, none bovine in either children or adults. In the cases of cervical adenitis there were 8 cases of the human type in patients over sixteen years, 10 of the human type between the ages of five and sixteen, and 12 of the bovine type, while under five years 7 were of the human and 7 of the bovine types. Among the generalized cases, in adults over sixteen, 6 were of the human type; between the ages of five and sixteen, 3 were of the human and 3 of the bovine type; under the age of five, 11 were of the human and 15 of the bovine types. With meningitis, in those over sixteen years, there were 20 cases of the human type: between

the ages of five and sixteen, there were 8 of the human and 1 of the bovine type; under five years there were 37 of the human and 1 of the bovine type. With bones and joints involved, there were, in those over sixteen years, 16 of the human type; in those between sixteen and five years, there were 15 of the human and 1 of the bovine type; of those under five years, there were 14 of the human type. The abdominal cases showed in those over sixteen years 6 of the human type; between the ages of sixteen and five, there were 3 of the human and 6 of the bovine type; under five years there were 4 of the human and 9 of the bovine type. In a second chart containing over 400 cases there were in those above the age of sixteen, of the pulmonary type, 278 of the human type; among those between the ages of sixteen and five there were 8 of the human type; in those under five years there were 5 of the human type. In the cases of cervical adenitis there were in those over sixteen years 10 cases of the human type; in those between sixteen and five years, there were 23 of the human and 8 of the bovine type; in those under five years, there were 5 of the human and 12 of the bovine type. Among the generalized cases there were, among those over sixteen years, 2 of the human type; in those between sixteen and five years there was 1 of the human type; in those under five years, there were 13 of the human and 5 of the bovine type.

With meningitis, among those over sixteen, there was 1 of the human type; among those under five years, there were 32 of the human and 2 of the bovine type. With bones and joints involved, there was 1 among those over sixteen years; between the ages of sixteen and five there were 10 of the human type; under the age of five, there were 6 of the human type. The abdominal cases showed that in those over sixteen years, there was 1 of the human and 1 of the bovine type; among those between sixteen and five years, there was 1 of the human and 1 of the bovine type; under five years there were 3 of the bovine type. Dr. Park emphasized the fact that bovine tuberculosis was a negligible quantity. Six-tenths of one per cent. of bovine tuberculosis occurred among the adults, whereas 27 per cent. occurred among the children. He believed that the whole milk should be heated at the homes; then it is a safe and wholesome product. The aim was to get milk that was clean. The pasteurization of milk was a question for each city to decide for itself.

Dr. Roland G. Freeman said that he was interested particularly in the pictures showing the cow stables and in comparing what they were doing in Denmark with what to-day they were doing in this country. The movement for clean milk started in Denmark long before it started in this country; it was started there in 1878, whereas here it was not started, that was the real movement for clean milk, until 1890. The work of milking cows by women was a great improvement and done far better and cleaner than when it was done by man; women's hands were not so difficult to keep clean. With regard to the bacterial control of milk, any test without an inspection of the milk was worse than useless.

Dr. A. Jacobi said that what had been told them was that the best milk was still doubtful milk; even the so-called certified milk could not be called an absolutely clean milk. All milk, in order that it might be made safe for feeding infants and children, must be pasteurized; this was a fact that had been known for years and years. The only safety for the children of the present, not for the children of the future, was in the use of boiled milk. The milk should be placed over the fire and brought up to the boiling point; when it began to bubble it should be removed. Any milk prepared in this way he considered safe for infants and young children. Until New York City could obtain better milk the only safety lay in bringing the milk to the boiling point.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Michigan State Board of Registration in Medicine.

Ann Arbor, June 14, 15, and 16, 1910.

ANATOMY.

1. Give the origin, insertion, and action of the rectus femoris.
2. Describe the scapula, and name the muscles attached to it.
3. Describe the collateral circulation after ligature of the common carotid artery.
4. Describe the inferior maxillary bone, and name the muscles attached to it.
5. Describe the deep palmar arch, and give its formation.
6. On examination of the under part of the brain, what structures and anatomical features will you observe?
7. Give the arterial and nerve supply of the pharynx, and mention the openings into it.
8. Describe the great superficial petrosal nerve.
9. Describe the solar plexus and give its situation.
10. Describe the knee joint.

HISTOLOGY AND EMBRYOLOGY.

1. Describe the blood.
2. Does fetal blood and blood pressure differ from that of the mother? If so, how?
3. Describe the structure of the lungs.
4. Give the histology of the thyroid gland.
5. Describe the kidney.

PHYSIOLOGY.

1. What are the manifestations of cell life? Metabolism? Explain significance, and give classification.
2. Name the nerve centers which regulate intestinal peristalsis. Describe their action.
3. Name end products resulting from digestion of the three principal types of food, and explain how and by what channels they enter the circulation.
4. What is the physiological significance of the patellar reflex, and through what nerves is it accomplished?
5. Name the varieties of blood that circulate through the liver. State the source and give the function of each.
6. What purpose is served in boiling starchy foodstuffs, and when can a given amount be said to have been completely digested?
7. Why do we breathe? What sounds are heard on listening to the chest? Where is the respiratory center located?
8. Give three examples illustrating the value of a knowledge of physiological chemistry.
9. Describe the special function possessed by each nerve factor concerned in a vasomotor action, and state how either affects arterial tension.
10. What changes take place in the composition of blood as it passes through the kidneys?

CHEMISTRY AND TOXICOLOGY.

1. Name the constituents of the atmosphere. Is air a mechanical mixture or a chemical combination of its constituents, and why? What part does carbonic acid play as regards vegetation? State the laws of gaseous diffusion.
2. Give the equations showing the action of sulphuretted hydrogen on solutions of copper sulphate and on alkaline hydroxide; also equations covering the production of carbon dioxide.
3. What is the difference between atoms and molecules of the elements? What volume does the molecule occupy in the gaseous state? Give examples.
4. Give the characteristics of good drinking water, with method of determining same.
5. Name the more important of the petroleum products and their uses.
6. Name three aromatic hydrocarbons, with formulæ.
7. Describe the groups of the compound proteids.
8. Give a list of the xanthin and creatinin groups of leucomaines.
9. Symptoms and treatment of poisoning by poison ivy. What active principle is involved?
10. Symptoms and treatment of poisoning by strychnine.

MATERIA MEDICA AND THERAPEUTICS.

1. Name the toxic and physiological action of atropine and morphine.
2. What is the true and toxic action of calomel and iodide of potassium?

3. What are the potassium salts used in medicine?
4. What are depresso motors? Excito motors? Oxytoxics? Mydriatics? Alteratives? Give examples of each class.
5. Give examples of drugs which affect the heart action, their doses, and principal actions.

PATHOLOGY.

1. Mention some of the determining causes of disease.
2. Explain the effect of overfeeding upon the body.
3. Mention and define the forms of hemorrhage.
4. What constitutes fatty infiltration? Give etiology and favorite seats.
5. Describe the phenomena of inflammation in vascular tissues.
6. Osteoma: Give general appearance, seats, and structure of.
7. Define glioma. Give its seats, minute structure, and nature
8. By what term do we designate the destruction of red-blood cells? Give etiology.
9. Etiology and pathological anatomy of aneurysm.
10. What is the condition of the kidney in chronic interstitial nephritis? How is the urine affected?

BACTERIOLOGY.

1. Describe the *Bacillus typhosus*, and briefly tell how you would differentiate it from *Bacillus coli communis*.
2. Describe fully the organism recognized as the cause of syphilis.
3. Define immunity, active and passive, natural and acquired.
4. Describe fully the different modes of multiplication in bacteria, and spore formation.
5. What are bacterial enzymes?

PRACTICE OF MEDICINE.

1. Describe the characteristic symptoms and course of scarlet fever.
2. Discuss the diagnosis, symptoms, and treatment of whooping cough.
3. Discuss pericarditis and its treatment.
4. Describe a method of anesthesia you prefer for your patients.
5. Describe the symptoms present in: (*a*) Carcinoma of the stomach; (*b*) gastric ulcer; (*c*) duodenal ulcer.
6. Outline the management of a case of lobar pneumonia.
7. Give in detail your advice to a young patient in the earliest stage of tuberculosis.
8. Mention some drugs which lower blood pressure, and give a theory of their action.
9. Give the therapy of acute cystitis.
10. Mention some complications which may follow typhoid fever.

OBSTETRICS.

1. What is "hour-glass contraction"? How would you overcome it to remove adherent placenta?
2. Describe placenta prævia, and how would you treat it during labor?
3. How would you manage a face presentation?
4. Give the cause, treatment of puerperal eclampsia, insanity, and septicemia.
5. How would you diagnose a shoulder presentation, and its correction?

GYNECOLOGY.

1. Describe the uterus, its shape, dimensions, cavities, parts, openings, structure, lining, membranes, secretions, ligaments, nerves, etc.
2. Describe the vulvovaginal glands.
3. What are the causes of downward displacements of the uterus?
4. What is the organ most frequently affected in tuberculosis of the pelvis?
5. What are the symptoms of extrauterine gestation?

SURGERY.

1. Give the most approved methods of treatment of hemorrhoids.
2. Describe fully the best method of procedure in case of recurring dislocation of the sternal end of the clavicle.
3. What signs and symptoms are always present in fractures? What are usually present?
4. Describe the best management of penetrating wounds of the skull caused by gunshot.
5. Give full description of operation of thyroidectomy.
6. Give the conditions under which resection of the bowel should be undertaken.
7. What is general anesthesia? How is it produced? What are the dangers to be avoided, and how?
8. Under what condition should the common carotid be ligated? Describe the operation.
9. What is surgical shock, and how would you relieve it?
10. Under what circumstances should appendicostomy be resorted to? Give technique of operation.

HYGIENE.

1. What is the difference between disinfectants and germicides, and how do they severally act in preventing the spread of contagious and infectious materials.
2. What disease-carrying bacilli may be conveyed to the system by the ingestion of milk? What are the microscopic characteristics of such bacilli?
3. Mention three satisfactory disinfectants, and give indications for their use.
4. What deleterious gases accumulate in imperfectly ventilated sleeping rooms?
5. Name five diseases requiring quarantine regulations, and state the time necessary for each.

EYE, EAR, NOSE, AND THROAT.

1. Describe, in detail, how you would treat a chemical burn of the eyeball.
2. Give indications and contraindications for tracheotomy and intubation.
3. Give causes, symptoms, prognosis, and treatment of chronic suppurative otitis media.
4. Differentiate between trachoma and conjunctivitis. Give prognosis and treatment for trachoma.
5. Describe, in detail, the syphilitic conditions that may be found in the nose and throat.

MEDICAL JURISPRUDENCE.

1. Define: (*a*) Medical jurisprudence; (*b*) expert testimony; (*c*) civil malpractice; (*d*) criminal malpractice.
2. Give post-mortem appearances due to: (*a*) Asphyxia; (*b*) drowning; (*c*) strangulation.
3. Describe a proper medical investigation in a suspected case of homicide.
4. How would you determine whether a wound or burn was inflicted before or after death?
5. What is insanity? Distinguish between intellectual and moral insanity.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

MICHIGAN STATE BOARD OF REGISTRATION IN MEDICINE.

Ann Arbor, June 14, 15, and 16, 1910.

ANATOMY.

1. RECTUS FEMORIS. *Origin:* Anterior inferior, spine of ilium; and groove above the brim of the acetabulum. *Insertion:* Into the patella. *Action:* It helps to extend the leg upon the thigh and aids in supporting the pelvis and trunk upon the femur.

2. See Cunningham's "Anatomy" (1909), page 183; or Gray's "Anatomy" (1908), page 172. The *muscles attached* are: Subscapularis, supraspinatus, infraspinatus, trapezius, deltoid, omohyoid, serratus magnus, levator anguli scapulæ, rhomboids major and minor, triceps, teres major and minor, biceps, coraco-brachialis, and pectoralis minor.

3. After ligature of the common carotid artery the collateral circulation is: (1) The superior thyroid (of external carotid) with inferior thyroid (of subclavian); (2) the profunda cervicis (of subclavian) with the arteria princeps cervicis (of occipital); (3) the transversalis colli with the occipital; (4) branches of the two vertebrals, with branches of the two external carotids; (5) by the circle of Willis.

4. See Cunningham's "Anatomy" (1909), page 142; or Gray's "Anatomy" (1908), page 122. The *muscles attached* are: Levator menti, depressor labii inferioris, depressor anguli oris, platysma myoides, buccinator, masseter, orbicularis oris, geniohyoid, geniohyoglossus, mylohyoid, digastric, superior constrictor of pharynx, temporal, internal and external pterygoids.

5. See Cunningham's "Anatomy" (1909), page 836; or Gray's "Anatomy" (1908), page 660.

6. *On the under surface of the brain* there are: (1) *In the middle line:* Longitudinal fissure; Rostrum and peduncles of corpus callosum; Lamina cinerea; optic commissure; Pituitary body; Infundibulum; Tuber cinereum; Corpora albicantia; Posterior perforated space; Pons; Medulla. (2) *On each side of the middle line:* Frontal lobe; Olfactory bulb, tract, and roots; Anterior perforated

space; Fissure of Sylvius; Optic tracts; Crusta; Temporal lobe; Hemisphere of cerebellum.

7. PHARYNX. *Arterial supply:* Ascending pharyngeal, pterygo-palatine, superior or descending palatine, superior thyroid, descending palatine, and tonsillar. *Nerve supply:* From pharyngeal plexus (from vagus, glossopharyngeal, and sympathetic) and from external and recurrent laryngeal nerves. *Openings:* Two posterior nares, two Eustachian tubes, mouth, larynx, and esophagus.

8. See Cunningham's "Anatomy" (1909), page 687; or Gray's "Anatomy" (1908), page 1048.

9. See Cunningham's "Anatomy" (1909), page 712; or Gray's "Anatomy" (1908), page 1091.

10. See Cunningham's "Anatomy" (1909), page 297; or Gray's "Anatomy" (1908), page 336.

HISTOLOGY AND EMBRYOLOGY.

1. The blood is a fluid tissue composed of cellular elements (red corpuscles, white corpuscles, and platelets) and intercellular substance, or liquor sanguinis, or plasma. The *red blood corpuscles* are biconcave discs, about 1-3200 of an inch in diameter; they are nonnucleated, and there are about 4,500,000 or 5,000,000 of them in each cubic millimeter of blood. They are elastic and soft, and their shape is changed by pressure, but is promptly regained on the removal of the pressure. Their color is yellowish. They contain hemoglobin.

The *leucocytes,* or *white blood cells,* are spheroidal masses, varying in size, having no cell wall, and containing one or more nuclei; there are about 7,000 to 10,000 of them in each cubic millimeter of blood. They differ much in appearance, and are divided into: (1) small mononuclear leucocytes, or lymphocytes, (2) large mononuclear, (3) transitional, (4) polynuclear, or polymorphonuclear, or neutrophile, and (5) eosinophile. They are all more or less granular, particularly the last two varieties named. They are probably formed in the spleen, lymphatic glands, and lymphoid tissues. Their fate is uncertain; it has been asserted that they are converted into red blood cells; they play a part in the formation of fibrin ferment; they are sometimes converted into pus cells.

The *platelets* are very small, colorless, irregularly shaped bodies; about one-fourth the diameter of a red cell. They vary in number from 200,000 to more than 500,000 per cubic millimeter.

2. *Fetal blood* has a lower specific gravity; the red cells vary greatly in size and shape, are nucleated, and are deficient in hemoglobin; the white cells have a different proportion of their various kinds, the mononuclears preponderating. With regard to *fetal blood pressure,* nothing definite is known.

3. See Cunningham's "Anatomy" (1909), page 990; or Gray's "Anatomy" (1908), page 1403.

4. See Cunningham's "Anatomy" (1909), page 1217; or Gray's "Anatomy" (1908), page 1490.

5. See Cunningham's "Anatomy" (1909), page 1138; or Gray's "Anatomy" (1908), page 1426.

PHYSIOLOGY.

1. The *manifestations of cell life* are: Movement, ingestion, assimilation, excretion, growth, irritability, and reproduction. *Metabolism* is the entire series of changes that occur in a cell or organism during the processes of nutrition. It is of two kinds: (1) Assimilative, or constructive (anabolism); and (2) destructive (katabolism).

2. Intestinal peristalsis is regulated by: (1) The vagus, which stimulates; and (2) branches of the sympathetic system, by the solar and lumbar plexuses, and the splanchnics; the effect of the sympathetic system is inhibition. (3) The rôle of the plexuses of Auerbach and Meissner is not known.

3. *Proteids* are converted into proteoses and peptones in the stomach, and in the small intestine (by the action of pepsin and trypsin, respectively).

Carbohydrates are converted (slightly) into dextrin and sugar in the mouth, by the action of the ptyalin of the saliva; also in the small intestine (by the action of amylopsin) into maltose.

Fats are emulsified and saponified in the small intestine by the action of steapsin. Bile also has some slight effect on starches and fat.

The products of digestion find their way into the blood by two routes: (1) By the blood-vessels of the gastrointestinal tract, which unite to form the portal vein, and (2) by the lymph vessels of the small intestine, which converge to empty into the thoracic duct. The water, inorganic salts, proteids, and sugar go by way of the portal vein to the ascending vena cava; the fats go by way of the thoracic duct to the junction of the left subclavian and internal jugular veins.

4. The patellar reflex is generally present in health. The afferent nerve is the anterior crural; the efferent nerve is also the anterior crural.

5. In the liver there is the blood in: (1) The *hepatic artery* (branch of celiac axis) which supplies Glisson's capsule, walls of the bile ducts, and in general serves for the nutrition of the organ. (2) The *hepatic vein,* which empties into the inferior vena cava; it arises in the liver, and takes the blood away from the liver. (3) The *portal vein,* which takes the absorbed products of digestion from the gastric, splenic, superior mesenteric, and inferior mesenteric veins to the liver.

6. *Boiling* breaks the starch grains, bursting the cellulose, and thus allowing the digestive juices to come more readily in contact with the granulose. The conversion of the starch into sugar takes place more rapidly.

A given amount of starch may be said to have been completely digested when no starch is left, it having all been converted into sugar. In the test tube this can be ascertained by the iodin test showing the absence of starch, and Fehling's test showing the presence of sugar.

7. The object of respiration is the interchange of gases in the lungs, so that oxygen may be introduced and carried to the tissues, and carbon dioxide may be expelled from the body. Two respiratory sounds are heard on listening to the chest, the inspiratory and expiratory. The respiratory center is located in the medulla.

8. *Three examples of value of knowledge of physiological chemistry:* (1) That albumin is coagulated by heat; (2) that glucose will reduce alkaline copper sulphate solution; (3) that pepsin will only exert its proteolytic action in an acid medium.

9. The nerves concerned in a *vasomotor* action are: (1) The *vasoconstrictor,* which causes constriction of the blood-vessels and increase blood pressure; and (2) the *vasodilator,* which causes dilatation of the vessels by inhibiting the action of the vasoconstrictors, and lower blood pressure.

10. As the blood passes through the kidneys it loses: Water, salts, urea, carbon dioxide, and extractives.

CHEMISTRY AND TOXICOLOGY.

1. The *constituents of the atmosphere* are: Oxygen, nitrogen, carbon dioxide, water vapor, ammonia, argon, etc. Air is a mixture, and not a definite chemical compound. *Proof:* (1) The composition is not constant; (2) the proportion of its constituents bears no relation to their atomic weights; (3) when air is absorbed by water and then expelled, the ratio of the nitrogen and oxygen is not the same as in the original air; (4) when oxygen and nitrogen are brought together in proper proportions there is no chemical action, nor is heat given off or absorbed, and yet the resulting mixture has all the properties of air. Carbon dioxide is the food of vegetables, and is by them utilized for the building up of complex organic compounds. *Diffusion of gases:* If two gases be brought in contact with each other they will quickly mingle so as to make a uniform mixture. A similar diffusion will take place if they are separated by a porous membrane or partition. *Graham's law of diffusion* is: The velocity of diffusion of different gases is inversely proportional to the square roots of their densities.

2. $H_2S + CuSO_4 = CuS + H_2SO_4$
$H_2S + KHO = H_2O + KHS$
$CaCO_3 + 2HCl = CaCl_2 + CO_2 + H_2O$
$2NaHCO_3 + \text{heat} = Na_2CO_2 + CO_2 + H_2O$
$2CO + O_2 = 2CO_2$

3. An *atom of an element* is the smallest particle of that element which can enter or leave a chemical reaction. A *molecule of an element* is the smallest particle of that element which can exist free.

The formula weight of the molecule of a gas in grams occupies a volume of 22.4 liters. Thus O_2 represents 32 grams of oxygen, which will occupy 22.4 liters; and NH_3 represents 17 grams of ammonia, which will also occupy 22.4 liters.

4. *Characteristics of a good drinking water:* (1) It should be clear and limpid. Cloudy and muddy waters should be avoided. (2) It should be colorless. A greenish or yellowish color is usually due to vegetable or animal matter in solution or to organisms. (3) It should be odorless; especially free from sulphuretted hydrogen or putrefactive animal matter. (4) It should not be too cold, but should have a temperature of from 46° F. to 60° F. (5) It should have an agreeable taste; neither flat, salty, nor sweetish. A certain amount of hardness and dissolved gases give a sparkling taste. It should contain from 25 to 50 c.c. of gases per liter, of which 8 to 10 per cent. is carbon dioxide and the rest oxygen and nitrogen. (6) It should be as

free as possible from dissolved organic matter, especially of animal origin. (7) It should not contain too great an amount of hardness. A certain quantity of saline matter is necessary, however, to give it a good taste. It should not contain over three or four parts of chlorine in 100,000 parts of water.—(From Bartley's *Chemistry.*)

5. *Petroleum products:* Cymogene (used in ice machines); rhigolene (used to produce cold, and as an anesthetic); gasolene and petroleum ether (used for making "air gas"); naphtha (used as a solvent for fats and rubber); benzine (used for varnishes and paints); kerosene (used for illuminating purposes); lubricating oil (for lubricating machinery); paraffin (for making candles).

6. *Three aromatic hydrocarbons:* (1) Benzene C_6H_6; (2) Phenol, C_6H_5OH; (3) Salicylic acid, $C_6H_4OH.COOH$.

7. Compound proteids are composed of a single proteid united to some non-proteid body. The chief groups are: (*a*) *Hemoglobins*—decomposable into an albumin and a crystalline pigment or chromogen. (*b*) *Nucleoproteids*—yield nucleic acids and native albumins on decomposition. Nucleohiston, etc. (*c*) *Glycoproteids*—decomposable into a reducing substance and a native albumin. Mucin, mucoids, phosphoglycoproteids.

8. *Xanthin group of leucomaines:* Adenin, hypoxanthin, guanin, xanthin, heteroxanthin, paraxanthin, carnin, pseudoxanthin, spermin. *Creatinin group of leucomaines:* Creatin, creatinin, xanthrocreatinin, crusocreatinin, amphicreatinin.

9. Poison ivy. *Symptoms of poisoning:* "When applied to the skin it causes, after a few hours, an intense itching and burning, followed by swelling of the skin of the affected parts, with papular eruption or slight vesication, terminating after a few days in desquamation."

Treatment: "An alcoholic solution of lead acetate usually gives prompt relief. If itching is severe it may be combined with opium. Painting the parts with ichthyol is successful with many, as is the application of fluid extract of grindelia robusta. Weak alkaline solutions have given excellent results."—(Riley's *Toxicology.*)

The *active principle* is toxicodendrol.

10. *Symptoms of poisoning by strychnine:* A sense of suffocation, thirst, tetanic spasms, usually opisthotonos, sometimes emprosthotonos, occasionally vomiting, contraction of the pupils during the spasms, and death, either by asphyxia during a paroxysm, or by exhaustion during a remission. The symptoms appear in from a few minutes to an hour after taking the poison, usually in less than twenty minutes; and death in from five minutes to six hours, usually within two hours. *Treatment:* "The convulsions are to be arrested or mitigated by bringing the patient under the influence of chloral or chloroform as rapidly as possible; the stomach is to be washed out, and the patient is to be kept as quiet as possible." (Witthaus' *Essentials of Chemistry.*)

PATHOLOGY.

1. *Determining causes of disease:* Traumatism, temperature (heat, cold, burns), electricity, environment, poisons, autointoxication, food, parasites, and micro-organisms.

2. *Effect of overfeeding:* Indigestion, disturbed metabolism, increase of urea, increase of fat or glycogen, obesity, fatty infiltration or degeneration, gout, diabetes, anemia.

3. *Hemorrhage* is the escape of all the constituents of the blood from the heart or blood-vessels. *Forms:* According to the source of the flow, it may be *cardiac, arterial, venous,* or *capillary.* Arterial hemorrhages may be *primary* (occurring at the time of injury), *intermediate* or *reactionary* (occurring within twenty-four hours of the injury), and *secondary* (occurring later, even some days after the injury). *Petechiæ* are minute, circumscribed hemorrhages, generally subcutaneous; when larger, they are called *ecchymoses,* or *extravasation,* or *sugillation;* a *hematoma* is a collection of blood in a solid tissue.

4. *Fatty infiltration* consists in the deposition of fat from the circulation between the cells of which a tissue is composed. *Etiology:* Heredity, excessive nutrition, digestive disorders, lack of exercise, anemia, alcohol, diminished oxidation, high external temperature. *Seats:* Beneath skin and serous membranes, in the fascia, in areolar connective tissue, mesentery, omentum, liver, heart, and kidneys.

5. See Rose and Carless' "Surgery" (1908), page 31; or Da Costa's "Surgery" (1908), pages 73 and 76.

6. Osteoma. *General appearance:* There are two forms, exostoses and osteoma proper. The former has its surface irregular and nodular, and has the consistency of bone. The latter is more rounded and lobulated. *Seats:* Bone, cartilage, connective tissue near the bones, serous membranes, and organs such as parotid gland and testicle. *Structure:* Osteoma resembles bone tissue, but cartilage is apt to be mixed with it. Softening and other secondary degenerative changes may occur, and other tumors are apt to be associated with it (chondroma, fibroma, and sarcoma).

7. Glioma. *Seats:* Brain, spinal cord, and retina. *Structure:* It consists of cells containing rounded or oval nuclei, with very little protoplasm, and fine protoplasmic extensions which interlace and form an intercellular reticulum, giving a granular appearance. The number of the cells and the density of the intercellular network vary. As a rule, the cells are larger than neuroglia cells, and sometimes they contain several nuclei. The tumor is generally quite vascular, and occasionally teleangiectatic vessels may be observed. *Nature:* It is benign, but dangerous, on account of pressure; growth is slow, but it may become sarcomatous.—(From Stengel's *Pathology.*)

8. Destruction of red blood cells is called: Hemocytolysis, or hemolysis. *Etiology:* It occurs in the liver; it may result from burns, also from infections and toxic agents (such as potassium chlorate); malaria, pneumonia, and other diseases may cause it.

9. See Rose and Carless' "Surgery" (1908), page 307; or Da Costa's "Surgery" (1908), pages 359 and 356.

10. See French's "Practice of Medicine" (1907), pages 902 and 903; or Osler's "Practice of Medicine" (1909), pages 695 and 697.

BACTERIOLOGY.

1. *Bacillus typhosus* is a rod-shaped organism, with rounded ends, is from 2 to 4 microns in length, and about three-fourths of a micron in breadth; it does not stain by Gram's method, but stains with all the anilin dyes; it has flagella, no spores, is aërobic and facultative anaërobic, and is motile.

To distinguish the typhoid bacillus from the colon bacillus: (1) On gelatin plates, the colonies of typhoid develop more slowly than those of colon bacillus. (2) The colon bacillus causes fermentation with production of gas in media which contain sugar; the typhoid bacillus does not. (3) The colon bacillus produces a strong acid reaction and coagulates milk within twenty-four to forty-eight hours; the typhoid bacillus does not coagulate milk. (4) In peptone solution the colon bacillus produces indol; the typhoid bacillus does not. (5) The typhoid bacillus gives the Widal reaction with typhoid serum; the colon bacillus does not.

2. The cause of syphilis is the *treponema pallidum.* It is a very slender spiral, about 4 to 20 microns in length, with very close and regular turns, the curves vary in number from three or four to twelve or twenty. At each pole is a fine flagellum. It can move forward and backward, and also rotate on its axis. It is not settled whether division is transverse or longitudinal. It has not yet been cultivated on artificial media.

3. *Immunity* is the power of resistance of cells and tissues to the action of pathogenic bacteria. Immunity may be either natural or acquired.

Natural immunity is this power of resistance, natural and inherited, and peculiar to certain groups of animals, but common to every individual of these groups.

Acquired immunity is this resistance acquired: (1) By a previous attack of the disease caused by the bacteria, or (2) by the person being made artificially insusceptible. The conditions which give immunity from the pathogenic action of bacteria are: (1) A previous attack of the disease; (2) inoculation, with small quantities of bacteria, so as to produce a mild attack of the disease; (3) vaccination; (4) the introduction of antitoxins; (5) the introduction of the toxins of the bacteria.

Active immunity follows an attack of a certain disease and secures immunity for that alone; or it follows inoculation of a virus weaker than necessary to cause the typical disease; or it follows inoculation by bacterial products apart from the organisms themselves.

Passive immunity is the term applied to the effect of a serum derived from an immunized animal and injected into one not immune.

4. Bacteria multiply by fission. A bacterium about to divide seems to be larger than normal, and if it is a coccus it becomes more ovoid; changes occur first in the nucleus, and the bacterium just falls in two. It has been calculated that a single bacterium could, by fission, produce two in one hour. Fortunately, they seldom obtain food enough to keep up this process for any length of time.

Spore formation is not so much a method of multiplication as of continuance of the life of the individual bacterial cell; it is a process by which the organism enters a stage in which it can better resist certain deleterious influences, such as high temperature, desiccation, lack of nutrition. It occurs chiefly in bacilli. There are two forms: *Endospores* and *arthrospores.* The former are true spores.

5. *Bacterial enzymes* are enzymes or ferments produced by bacteria, and which cause certain of the chemical ef-

fects supposed to be due to the bacteria. The curdling of milk is due to a bacterial enzyme rather than to a micro-organism directly.

PRACTICE OF MEDICINE.

1. See French's "Practice of Medicine" (1907), page 317; or Osler's "Practice of Medicine" (1909), page 132.

2. See French's "Practice of Medicine" (1907), page 202; or Osler's "Practice of Medicine" (1909), page 149.

3. See French's "Practice of Medicine" (1907), page 557; or Osler's "Practice of Medicine" (1909), page 775.

4. See Rose and Carless' "Surgery" (1908), page 1323; or Da Costa's "Surgery" (1908), page 1031.

5. *Gastric ulcer* is generally caused by injury or bacteria, is most apt to occur between the ages of twenty and forty-five; after eating there is pain localized in the stomach, vomiting occurs soon after eating, hematemesis is common, there is localized tenderness over the stomach, and examination of the gastric contents shows an excess of free HCl.

Gastric carcinoma does not usually occur before forty years of age, is more common in males, the pain is localized and constant, vomiting is copious and occurs some time after eating; the vomitus contains "coffee ground" material; hemorrhages are common; a tumor may be palpated, and examination of the gastric contents shows absence of free HCl and presence of lactic acid; severe anemia and cachexia are also present.

In *duodenal ulcer* the pain is apt to be more to the right, and to occur at an interval of two or three hours after meals; the hemorrhages will be intestinal, and the blood will be passed by way of the bowels, and not vomited. In many cases the symptoms are identical with those of gastric ulcer.

6. See French's "Practice of Medicine" (1907), page 174; or Osler's "Practice of Medicine" (1909), page 189.

7. See French's "Practice of Medicine" (1907), page 391; or Osler's "Practice of Medicine" (1909), page 352.

8. *Drugs which lower blood pressure:* Amyl nitrite, sodium nitrite, spirit of nitrous ether, nitroglycerin. They act by producing dilatation of the blood-vessels.

9. See Rose and Carless' "Surgery" (1908), page 1192; or Da Costa's "Surgery" (1908), page 1135.

10. *Complications which may follow typhoid fever:* Relapses, indigestion, constipation, diarrhea, perforation of intestine, peritonitis, hepatic abscess, cholecystitis, gallstones, hypertrophy of spleen, paralysis, typhoid spine, neuritis.

OBSTETRICS.

1. See Williams' "Obstetrics" (1909), page 664.

2. See Williams' "Obstetrics" (1909), pages 809 and 815; or Hirst's "Obstetrics" (1909), pages 572 and 577.

3. If the chin is presenting anteriorly, expectant treatment may suffice; but care must be taken to observe that the chin does not rotate backward. Spontaneous version may occur, and the presentation becomes a vertex one. Failing this, or as a means of favoring this, postural treatment, such as Walcher's position, has been recommended. If, in spite of this, engagement has not occurred, cephalic version is indicated, care being taken not to rupture the membranes. If this is not successful, podalic version should be tried. If, after all these manipulations the child is still alive and the head is engaged, symphyseotomy is indicated; if the child is dead, craniotomy should be performed.

4. PUERPERAL ECLAMPSIA. The *causes* may be: Uremia, albuminuria, imperfect elimination of carbon dioxide by the lungs, medicinal poisons, septic infection; predisposing causes are renal disease, and imperfect elimination of the skin, bowels, and kidneys. The line of *treatment* laid down by Edgar is as follows: For *preventive treatment:* (1) The amount of nitrogenous food should be diminished to a minimum; (2) the production and absorption of poisonous materials in the intestines and body tissues should be limited and their elimination should be aided by improving the action of the bowels, the kidneys, the liver, the skin, and the lungs; (3) the source of the fetal metabolic products and the peripheral irritation in the uterus should, if necessary, be removed by evacuating that organ. The *curative treatment includes:* (1) Controlling the convulsions (by chloroform, veratrum, or chloral); (2) elimination of the poison or poisons which are presumed to cause the convulsions; (3) emptying the uterus under deep anesthesia, by some method that is rapid and that will cause as little injury to the woman as possible.

And see Williams' "Obstetrics" (1909), pages 915 and 852; or Hirst's "Obstetrics" (1909), pages 256 and 764.

5. See Williams' "Obstetrics" (1909), pages 790 and 802; or Hirst's "Obstetrics" (1909), pages 426 and 433.

GYNECOLOGY.

1. See Cunningham's "Anatomy" (1909), page 1187; or Gray's "Anatomy" (1908), page 1498.

2. See Cunningham's "Anatomy" (1909), page 1198; or Gray's "Anatomy" (1908), page 1495.

3. CAUSES OF DOWNWARD DISPLACEMENTS OF THE UTERUS: (1) *Pressure from above* (pelvic or abdominal tumors, ascites, tight or heavy clothing, straining at stool, muscular exertion, fecal accumulations, habitual overdistention of the bladder); (2) *weakening and relaxation of the uterine supports* (subinvolution, senile atrophy of pelvic floor, abnormally large pelvis, increased weight of uterus, puerperal traumatisms, pressure from above, traction from below); (3) *increased weight of uterus* (congestion, subinvolution, metritis, pregnancy, fluid in the endometrium, uterine tumors); (4) *traction from below* (vaginal cicatrices, falling of pelvic floor, contraction and congenital shortening of vagina, tumors of cervix or vagina).—(From Dudley's *Gynecology.*)

4. In tuberculosis of the pelvis the organ most frequently affected is the Fallopian tube.

5. "When extrauterine pregnancy exists there are: (1) The general and reflex symptoms of pregnancy; they have often come on after an uncertain period of sterility; nausea and vomiting appear aggravated. (2) Then comes a disordered menstruation, especially metrorrhagia, accompanied with gushes of blood, and with pelvic pain coincident with the above symptoms of pregnancy; pains are often very severe, with marked tenderness within the pelvis; such symptoms are highly suggestive. (3) There is the presence of a pelvic tumor characterized as a tense cyst, sensitive to the touch, actively pulsating; this tumor has a steady and progressive growth. In the first two months it has the size of a pigeon's egg; in the third month it has the size of a hen's egg; in the fourth month it has the size of two fists. (4) The os uteri is patulous; the uterus is displaced, but is slightly enlarged and empty. (5) Symptoms No. 2 may be absent until the end of the third month, when suddenly they become severe, with spasmodic pains, followed by the general symptoms of collapse. (6) Expulsion of the decidua in part or whole Nos. 1 and 2 are *presumptive signs;* Nos. 3 and 4 are *probable signs;* Nos. 5 and 6 are *positive signs.*"—(*American Text-Book of Obstetrics.*)

SURGERY.

1. See Rose and Carless' "Surgery" (1908), pages 1145 and 1151; or Da Costa's "Surgery" (1908), page 1014.

2. See Rose and Carless' "Surgery" (1908), page 618; or Da Costa's "Surgery" (1908), page 586.

3. See Rose and Carless' "Surgery" (1908), page 470; or Da Costa's "Surgery" (1908), page 435.

4. See Rose and Carless' "Surgery" (1908), page 751; or Da Costa's "Surgery" (1908), page 712.

5. See Rose and Carless' "Surgery" (1908), page 900; or Da Costa's "Surgery" (1908), page 1072.

6. *Indications for resection of bowel:* Strictures of intestine, gangrene of intestine, extensive injury of intestine, tumors of intestine, tuberculosis of intestine, injury to the vessels supplying intestines, some cases of intussusception, and artificial anus.

7. See Rose and Carless' "Surgery" (1908), page 1325; or Da Costa's "Surgery" (1908), page 1034.

8. INDICATIONS FOR LIGATURE OF COMMON CAROTID: Wounds of either common carotid, external carotid, or internal carotid (and branches of the two latter); in aneurysms; to limit the growth of inoperable tumors, as a temporary procedure. For the operation, see Rose and Carless' "Surgery" (1908), page 331; or Da Costa's "Surgery" (1908), page 415.

9. *Shock* is the name given to a sudden and general depression of the vital powers, due to some strong stimulation (such as injury or emotion) acting on the vital centers in the medulla, and producing vasomotor paralysis. *Treatment:* Place the patient in the recumbent position, with the head low; apply warmth to the body; administer a stimulant, and give a hot saline infusion; morphine, hypodermatically, may be necessary for the relief of pain.

10. *Appendicostomy* is performed to irrigate the colon in cases of chronic ulcerative colitis or chronic dysentery, and in chronic constination. For technique of the operation, see Da Costa's "Surgery" (1908), page 916.

HYGIENE.

1. *Disinfectants* are agents which restrain infectious diseases by destroying or removing their specific poisons; some are germicides, as chlorine; others act by dilution or removal, as soap and water, and fresh air. *Germicides* are agents which destroy bacteria and their germs.

2. The following disease-carrying bacilli may be con-

veyed by milk; Tubercle bacillus, Klebs-Loeffler bacillus of diphtheria, typhoid bacillus, cholera bacillus.

The *tubercle bacillus* is rod shaped, is from 1½ to 3½ microns in length, and about one-third to one-half a micron in breadth, is a strict parasite, is not motile, and has no flagella. It is slightly curved, does not form spores, is not liquefying, is aërobic and nonchromogenic; it resists acids; it grows well on blood serum; stains well by Ehrlich's, Ziehl-Nielsen's, or Gabbett's method; it is Gram-positive.

The *bacillus of diphtheria* is from 2 to 6 microns in length and from 0.2 to 1.0 micron in breadth; is slightly curved, and often has clubbed and rounded ends; occurs either singly or in pairs, or in irregular groups, but does not form chains; it has no flagella, is nonmotile, and aërobic; is noted for its pleomorphism; it does not stain uniformly, but stains well by Gram's method and very beautifully with Loeffler's alkaline-methylene blue.

The *typhoid bacillus* is a rod-shaped organism, with rounded ends, is from 2 to 4 microns in length, and about three-fourths of a micron in breadth; it does not stain by Gram's method, but stains with all the anilin dyes; it has flagella, no spores, is aërobic and facultative anaërobic, and is motile.

The *cholera bacillus* is a spirillum, actively motile, and with a flagellum at one end; it is curved, has rounded ends, and is about half the length of the tubercle bacillus; it stains readily with ordinary anilin stains, but not by Gram's method; it is easily cultivated on the usual media; it has but slight power of resistance; it liquefies gelatin, and does not produce pigment.

3. Burning is the best disinfectant; then moist heat and dry heat; carbolic acid and mercury bichloride are excellent except in the presence of albuminous material, when chloride of lime or formalin are better; formaldehyde and sulphur dioxide are both good disinfectants.

4. Carbon dioxide; crowd poison; volatile matters from foul mouths, decayed teeth, and the digestive tract; aqueous vapor from the respiration and skin; products of combustion of illuminating substances.

5. *Five quarantinable diseases:* Cholera, yellow fever, smallpox, plague, typhus. For *length of time*, see index to these diseases in French's or Osler's "Practice."

EYE, EAR, NOSE, AND THROAT.

1. *For chemical burns of the eyeball:* The treatment consists in the complete removal of the caustic substance as soon as possible. Solid particles are removed with cotton or forceps. Then the conjunctival sac is washed out with solutions which tend to neutralize the corrosive substance or render it insoluble. In the case of lime, mortar, or caustic alkalies, we flush out with a solution of boric acid; or we may wash out the eye with oil. If the corrosive agent consisted of an acid, the eye is irrigated with a weak solution of sodium bicarbonate. Subsequently we use cold compresses, atropine, and sometimes a bandage. After the loosening of the eschars, we must separate the adhesions frequently. Symblepharon often occurs notwithstanding the greatest care."—(May's *Diseases of the Eye*.)

2. *Tracheotomy is indicated* in diphtheria when intubation does not relieve and the symptoms are urgent; to remove foreign bodies from the larynx that cannot be treated by simple methods; to provide passage for air, in growths, tumors, or abscesses pressing on the larynx and interfering with the proper supply of air; and for edema of the glottis when the intubation tube cannot be introduced.

Intubation is indicated in any obstruction of the larynx which prevents a sufficient amount of air from entering the lungs, such as croup, edema of the glottis, spasm of the larynx, any form of paralysis that lessens the lumen of the larynx, chronic stenosis. *Intubation is not indicated* for the removal of a foreign body, nor for any obstruction too far down to be reached by the shaft of the tube.

3. See Rose and Carless' "Surgery" (1908), page 882.

4. In *conjunctivitis* there are no granules with subsequent cicatricial changes.

Trachoma is an inflammatory condition of the conjunctiva, accompanied by hypertrophy, granule formation, and subsequent cicatricial changes.

Treatment "consists in an attempt to reduce the inflammatory symptoms and secretion, and to check and remove hypertrophy of the conjunctiva, thus shortening the duration and diminishing the liability to conjunctival cicatrization and to sequelæ. This is accomplished either by the use of certain irritating applications, or by mechanical (surgical) means. *Irritating applications:* Sulphate of copper in the form of a crystal or pencil is the favorite local application. Nitrate of silver (1 or 2 per cent. solution), gylcerole of tannin (5 to 25 per cent.), and the alum stick are also employed. *Mechanical (surgical) treatment* includes expression, grattage, excision, curetting, electrolysis, *x*-rays, and galvano-cautery."—(May's *Diseases of the Eye*.)

Prognosis is not favorable; the condition may last for years, and complete recovery is not common.

5. See Rose and Carless' "Surgery" (1908), pages 822, 830, and 871.

MEDICAL JURISPRUDENCE.

1. *Medical jurisprudence* is the application of the knowledge of any of the branches of medicine to the problems and requirements of the law.

In *expert testimony* the witness may give his *opinion* on facts or supposed facts as noted by himself or asserted by others. *Theoretically* this can be done only by those perfectly familiar with the subject in question; but *practically* any (or almost any) physician with a license to practise is accepted as an expert witness.

In *ordinary* testimony the witness testifies only to *facts* which he has seen, or heard, or with which he has become acquainted by personal observation.

Malpractice is a failure on the part of a medical practitioner to use such skill, care, and judgment in the treatment of a patient as the law requires; and thereby the patient suffers damage. If due to negligence only, it is *civil* malpractice. But if done deliberately, or wrongfully, or if gross carelessness or neglect have been shown, or if some illegal operation (such as criminal abortion) be performed, it is *criminal malpractice*.

2. In *death by asphyxia:* Very commonly punctate ecchymoses are visible on the conjunctiva, face, neck, and chest. They are considered by Tardieu to be more frequent in strangulation than in asphyxia from other causes, or than in cases of overstraining, which likewise may lead to them. In the subcutaneous cellular tissue, and in the fascia of the muscles above and below the hyoid bone extravasations are frequently found, as well as on the external surface of the thyroid cartilage and trachea. The lungs vary as regards their vascularity; but on the surface it is common to find pseudomembranous patches, which are due to the rupture of some of the superficial air cells and collection of air bubbles under the pleura. In the substance of the lungs congested patches, or apoplectic extravasations, are often found, varying in size, but larger than those usually found in suffocation.

In *death by drowning:* The surface is pallid, the face appears tranquil, the eyes and mouth being partly open. The skin often has the appearance known as gooseskin, and, if the body has lain upwards of twelve hours in the water, that of the hands and the feet is sodden by imbibition. The most important external sign is the presence on the mouth and nostrils of a fine froth (possibly blood stained), composed of air, mucus, and the medium in which drowning took place; if the body remains three or four days in water, the froth disappears. Exceptionally, fragments of weeds or other small objects may be found tightly grasped in the hands. On opening the thorax the lungs, gray in color, with reddish staining, are seen to be very voluminous, a condition known as ballooning, partly due to infiltration of the lung tissue with some of the medium in which drowning took place, and partly to true edema. The lung substance is inelastic and pits on pressure. On section, fluid and froth resembling that found on the lips exude from the divided air passages. Minute subpleural hemorrhages are not infrequently present, and the pleural cavities may contain fluid. The stomach often contains water or other liquid which was involuntarily swallowed during attempts at respiration. Occasionally some of this fluid is forced by vital action into the intestines. With one exception, the remaining appearances are those met with after death from asphyxia. The exception is constituted by the blood, which is not only dark colored and fluid, as is usual after death from asphyxia, but is also diluted by the imbibition of water from the stomach and lungs.

In *death by strangulation:* The blood is of a dark color, owing to complete reduction of the hemoglobin. The proportion of carbonic acid is increased, and owing to its excess the blood coagulates slowly or imperfectly; hence it remains fluid or forms few and soft coagula. The large veins, the pulmonary artery, and the cavities of the right side of the heart may be distended with dark fluid blood, but this is by no means necessarily the case. The left side is usually empty or nearly so. The lungs may be congested, but are often pallid and anemic, though the dependent parts usually exhibit appearances of hypostatic engorgement. The abdominal viscera, especially the kidneys, are often congested. The appearance of the brain varies; it may be anemic or more or less congested. Special signs characterize special modes of causation of asphyxia.—(From Quain's *Dictionary of Medicine*.)

3. The physician should note the body; and the surroundings, conditions, and circumstances under which it is found. If the body is in a building, he should observe the position and arrangement of furniture, etc., blood, position of body, arrangement of clothes, position and character of weapons, footprints, and finger marks. The body should be examined for signs of violence (wounds, bruises, blood spots); lividities; the presence of rigor mortis, etc. The physician should keep his suspicions to himself, hear all he can, observe all he can, say nothing, and communicate with the coroner or medical examiner.

4. A *wound inflicted during life* is generally characterized by hemorrhage, coagulation of the blood, eversion of the edges, and retraction of its sides. It may also be inferred that the wound was inflicted during life if any of the following are noticed: The presence of inflammation, swelling, pus, or gangrene on the edges of the wound, or if there is any sign of beginning cicatrization.

In *burns* produced *before death:* There is usually a blister, with a bright, red base, and containing a serous fluid, which is albuminous; occasionally there will be no blister if there has been excessive shock; also, there will be a red line of demarcation between the injured and the uninjured parts, and this, being a vital process, is only developed during life. In *burns* produced *after death* there is no true blister, no red base, and gas only is present in place of the serous fluid.

5. According to Taylor, the term insanity is applied to those states of disordered mind in which a person loses the power of regulating his actions and conduct according to the ordinary rules of society. In all cases of real insanity the intellect is more or less affected.

Intellectual insanity refers to those forms which are characterized by hallucinations and delusions, but in which the patient knows right from wrong.

Moral insanity refers to that condition in which the moral perceptions are blunted, and the patient cannot judge a question of right and wrong. As a rule, moral insanity is accompanied with some intellectual disturbance.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION	
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan. ..
Arizona*	Ancil Martin, Phoenix	Phoenix	Oct. 3
Arkansas	T. Murfee Brinkley	Little Rock	Nov. 8
California*	Chas. L. Tisdale, 329 Butler Building, San Francisco.	Los Angeles	Dec. 6
Colorado	S. D Van Meter, 1723 Tremont Street, Denver	Denver	Oct. 4
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov. 14
Delaware	I. H. Wilson, Dover	Dover	Dec. 13
Dist. of Col'bia	Geo. C. Dyer, Washington	Washington	Oct. 11
Florida*	I. D. Fernandez, Jacksonville	Palatka	Nov. 9
Georgia	T. H. Goss, Athens	Atlanta	Oct. 11
Idaho*	W. F. Howard, Pocatello		Oct. 4
Illinois	I. A. Egan, Springfield	Chicago	Oct. —
Indiana	W. T. Gott, Crawfordsville	Indianapolis	Jan. 10
Iowa	Louis A. Thomas, Des Moines	Des Moines	
Kansas	A. Dyken	Topeka	Oct. 11
Kentucky	J. N. McCormack, Bowling Green	Louisville	
Louisiana	E. L. McGehee, New Orleans	New Orleans	Oct. 18
Maine	F. W. Searle, Portland	Portland	Nov. 8
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec. 13
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Sept. 13
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Lansing	Oct. 11
Minnesota	W. S. Fullerton, St. Paul	St. Paul	Oct. 4
Mississippi	S. H. McLean, Jackson	Jackson	Oct. 11
Missouri	Frank B. Hiller, Jefferson City	Jefferson City	
Montana*	Wm. C. Riddell, Helena	Helena	Oct. 4
Nebraska	C. A. Carr, Lincoln	Lincoln	Nov. 9
Nevada	S. L. Lee, Carson City	Carson City	Nov. 2
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	Jan. 3
New Jersey	H. G. Norton, Trenton	Trenton	Oct. 18
New Mexico	J. A. Massie, Santa Fe	Santa Fe	Oct. 10
New York	C.F.Wheelock, Univ.of State of New York, Albany	New York, Albany, Syracuse, Buffalo	Sept. 27
N. Carolina	B. K. Hays, Oxford	Charlotte	June 14
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	Oct. 2
Ohio	Geo. H. Matson, Columbus	Columbus	Dec. 13
Oklahoma*	F. P. Davis, Enid	Guthrie	Oct. 11
Oregon	B. E. Miller, Portland	Portland	Jan. 3
Pennsylvania*	N. C. Shaeffer, Harrisburg	Philadelphia, Pittsburg	Dec. ..
Rhode Island*	G. T. Swarts, Providence	Providence	Oct. 6
S. Carolina	H. H. Wyman, Aiken	Columbus	June 13
S. Dakota	F. W. Freyberg, Mitchell	Watertown	Jan. 11
Tennessee	C. A. Abernathy, Pulaski	Memphis, Nashville, Knoxville	May 28
Texas	R. H. McLeod, Palestine	Palestine	Nov. 22
Utah	R. W. Fisher, Salt Lake City	Salt Lake City	Oct. 3
Vermont	W. Scott Nay, Underhill	Montpelier	Jan. 10
Virginia	R. S. Martin, Stuart	Lynchburg	Dec. 20
Washington*	T. C. McFadden, Seattle	Spokane	Jan. 3
W. Virginia	H. A. Barbee, Point Pleasant	Charleston	
Wisconsin	J. M. Beffel, Milwaukee	Milwaukee	Jan. 10
Wyoming	S. B. Miller, Laramie	Laramie	Oct. 12

* No reciprocicity recognized by these States.

† Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of September 3, 1910:

	Cases	Deaths
Tuberculosis Pulmonalis	523	141
Diphtheria	185	12
Measles	82	5
Scarlet Fever	64	4
Smallpox	—	—
Varicella	3	—
Typhoid Fever	169	22
Whooping Cough	29	15
Cerebrospinal Meningitis	7	8
Malarial Fever	—	—
Totals	1,062	207

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, during the week ended September 2, 1910.

CHOLERA.

PLACE.	DATE.	CASES.	DEATHS.
Germany, Spandau Near Berlin.	Aug. 29	2	1
India, Bombay	July 19-26	..	3
Calcutta	July 3-9	..	11
Negapatam	June 18-July 1	..	48
Java, Batavia	June 9-16	40	30
Philippine Islands:			
Manila	July 3-9	20	15
Provinces—			
Batangas	July 3-9	5	1
Bulacan	July 3-9	63	43
Nueva Ecija	July 3-9	16	13
Pampanga	July 3-9	10	10
Pangasinan	July 3-9	152	140
Rizal	July 3-9	6	4
Russia, general	July 10-16	7,295	3,300
July 17-Aug. 5, cases 32,715, deaths 14,424.			
Astrakhan, government—			
Astrakhan	July 10-16	110	41
Baku, government	July 10-16	69	34
Baku	July 10-16	18	9
Bessarabia	July 10-16	25	8
Black Sea Province	July 10-16	29	19
Don, territory	July 10-16	1,208	595
Rostov on Don	July 10-16	207	65
Kharkov, government	July 10-16	491	184
Khazan, government	July 10-16	21	6
Kherson, government	July 10-16	316	114
Odessa	July 10-16	60	35
Kief, government	July 10-16	47	16
Kostroma, government	July 10-16	9	8
Kuhan, territory	July 10-16	1,449	797
Kursk, government	July 10-16	36	22
Moscow, government—			
Moscow	July 10-16	3	1
Nizchninovgorod, government	July 10-16	41	16
Orel, government	July 10-16	3	2
Padolien, government	July 10-16	5	1
Pensa, government	July 10-16	2	2
Poltava, government	July 10-16	230	101
Rjasan, government	July 10-16	62	24
St. Petersburg, government	July 10-16	1	1
St. Petersburg	July 10-16	37	12
Samara, government	July 10-16	297	143
Saratov, government	July 10-16	318	127
Simbirsk, government	July 10-16	47	14
Stavropol, government	July 10-16	128	67
Tambov, government	July 10-16	106	32
Taurida, government	July 10-16	448	166
Kertsch	July 10-16	107	49
Terek, territory	July 10-16	122	65
Tiflis, government—			
Tiflis	July 10-16	102	36
Tchernigov, government	July 10-16	94	24
Ufa, government	July 10-16	1	1
Vitebesk, government	July 10-16	2	..
Yekaterinislav, government	July 10-16	1,040	450
Trans-Caspian, territory		..	1
Tula, government	July 10-16	1	1
Yaroslav, government—			
Yaroslav	July 10-16	3	2
Straits Settlements, Singapore	July 3-16	11	10

YELLOW FEVER.

Brazil, Manaos	July 23-Aug. 6	9	9
Para	July 31-Aug. 6	13	8
Ecuador, Guayaquil	July 16-31	6	3
Mexico, Merida	Aug. 26	..	1

PLAGUE.

Ecuador, Guayaquil	July 16-31	6	1
Egypt, Alexandria	July 9-Aug. 2	7	5
Port Said	July 27-Aug. 2	9	2
Provinces—			
Assiout	June 17-Aug. 4	5	1
Galioobeyeh	July 3-29	2	1
Menouf	July 13-22	2	2

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Original Articles.

PSYCHOLOGICAL STUDY OF GANGS.

By SIEGFRIED BLOCK, A.M., M.D.,

BROOKLYN, NEW YORK.

In order to deduce conclusions for scientific investigation it is necessary to make a standard "normal" and then note by how much observations differ from this "normal." This is very difficult to determine when we investigate the psychological make-up of human beings. To state that the Columbia freshman is "normal" is hardly fair to the vast majority of the population who are so much inferior intellectually. To grant that this majority with proper education can be brought on a par with the freshman is a rash presumption and must be proved before it can be accepted. Therefore the author prefers to omit any reference to a "normal," and on what is definitely established as fact proposes to investigate from a psychological point of view a group of individuals whose lives are almost in direct contrast to that of a Columbia freshman.

For this purpose one hundred young men members of recognized "gangs" of about the same age as the freshman (17 to 22 years) have been chosen as subjects and tested with the same tests as are regularly given at the university. These subjects were obtained in the following manner: For several years the writer has been connected with the Children's Courts and thus became acquainted with the boys who belong to these "gangs." From these boys the names and addresses of older members of their "gangs" were obtained, and to these an announcement of four cash prizes was made to be divided as follows: one-half point was to be given for each fellow brought to be tested and one-half point for each test actually taken, and one-half point for the highest efficiency in each test. It was insisted that only "gang" fellows would be accepted and that the examiner could find out by examination if dishonesty had been used to get an outsider into the competition. If so, nothing was said, but one-half point deducted.

The last proviso was made only to make the result as exact as possible, but it could not be perfectly controlled. With so many precautions it became necessary to employ nine distinct "gangs," because each one would tire of the monotony of the idea or had some other more interesting engagement, or for the more important reason, they had suspicion that these tests would be kept for future use, somewhat on the order of the rogues' gallery pictures or Bertillon system of measurement of criminals.

Definition.—What is a gang? Many authors have described gangs from either the sociological or the layman's side and it is to be regretted that so little psychological work has been done in this particular. In order to appreciate their importance, their origin, and formation, and their ultimate power a verbatim extract of "The Boy Problem" by Wm. Byron Forbush, Ph. D., page 56, Chapter 3, will aid. He says under "Ways in Which Boys Spontaneously Organize Socially": "The Interests of Infancy are all in the home. This is the parents' unhampered opportunity. During boyhood the home shares with the school the boy's time, but with the development of his social instinct by means of play, new acquaintanceships begin to use the crevices of his time. First he plays at home with a companion or two, then he ventures forth to the ballfield and swimming-hole with a larger group; finally his journeys are farther, his stay is longer, the group is more thoroughly organized, and a mob spirit is apt to arise which passes from unorganized play and sportive frolic to barbarous and destructive deviltry, and we have in the city and country the organized 'gang.' Accounts of doings of these gangs from the comparative innocence of property destruction and hoodlumism to organized theft, assault, and murder appear in the press daily. Hardly less dangerous in tendency are many clubs which more quietly meet indoors."

A recent report of the University Settlement of New York City calls attention to candy stores as informal social centers which lead to the poolroom, the saloon, the cheap show, and the clubroom, and to the "recreation clubs," where a younger member reports, "They have kissing all through pleasure time, and use slang languages," and the members are from 14 to 18. "They don't behave nice between young ladies."

Dr. Henry D. Sheldon's "Questionaire" shows that out of 1,034 responses of boys 10 to 16 years 851 were members of such societies. In "The Young Malefactor" Travis (page 142) states, speaking of the gang instinct and the formation of gangs, "It is such children adventurous, lawless, idle, and truant that naturally form gangs. The other school comrades being at work, these are isolated and form a little clan. Often a whole gang is brought to court and with the gang some not belonging there who happened to be caught with them. It is a well-known fact that either adults or children will do things by gangs which no single member would dream of doing alone. Gangs indulge in pitched battles on the city streets, annoy pedestrians, insult passing women, incite each other to lawlessness and in some cases form little criminal societies pledged to testify in favor of any who are caught and to 'stick by the gang' in every possible way. This is not morbid or inherent viciousness, as is proved by the fact that more than once a remarkably 'tough' gang has been enlisted, every member in useful work."

The best description of the formation and the

*From original research work made under the auspices of Columbia University, Department of Psychology, April 15, 1910.

political power of gangs is given by Robt. A. Woods in "The City Wilderness" (page 114), Chapter 6, entitled "The Roots of Political Power": "The importance of the 'gang' as a social factor which the politician manipulates has never been fully appreciated except by the politician. It is a sufficiently commonplace trait of human nature for people to associate themselves together in groups and cliques according to attractions of congeniality. The force, however, seems to work with great intensity in the tenement-house districts. Without pausing to inquire the reasons, I shall describe the structure of the gang, and later show its relation to ward politics. The tendency begins among children. Almost every boy in the tenement quarters is a member of a gang. There are certain characteristics in the make-up of all gangs. To begin with, every gang has a 'corner' where its members meet. This 'hang-out,' as it is sometimes called, may be in the center of a block, but still the gang speaks of it as the 'corner.' The size of the gang varies from 5 to 40. As a rule, all the boys belonging to it come from the immediate vicinity of the corner. Every gang has one or more leaders, for, as one of the boys expressed it, the leader says 'Come, and the push move.' As a matter of fact, if the gang is at all large, it has two or three leaders. In order to show the different kinds of leadership, let me describe the qualities possessed by different types in a large gang.

"First of all, there is the 'gang's bully.' He is the best 'scrapper' in the gang. Many a hard-won battle has paved the way to this enviable position, but the position, often obtained with some difficulty, is not a sinecure. The 'bully' not only has to defend his gang, but also his title against the ambition of some growing member of the gang. Next there is the 'gang's judge.' All matters of dispute are finally submitted to him. If no agreement is reached, the boy who has gained this honor has gained it, not by election, but by selection. The boys have gradually found out that he does not take sides, but is fair-minded. Finally, there is the 'gang's counsellor.' The boy whom the gang looks to for its schemes, both of pleasure and of mischief. In small gangs the 'bully' may be both 'bully' and 'counsellor.' Sometimes this happens in larger gangs—here is the 'Ward Boss' in embryo.

"Nightly the gang drifts to their corner, not by appointment, naturally. The ensue idle talk, 'jawing' matches, and rough jokes. Nearly every gang has 'talent,' one or two members that can sing, dance, perhaps a quartette or two buck dancers, a jewsharp, and a 'funny man.' I am referring to boys over 14. The songs are always new ones; old ones are scorned. Not infrequently the singing, the horse-play, or dancing is interrupted by the roundsman. At the sight of the brass buttons there is an excited call of 'cheese it,' the singing, etc., is suddenly stopped, the gang dissolves and flees down alleyways or to doorways, and curious hiding places and reappears only when the 'cop' is well down the street. It sometimes happens that members are arrested for standing on the corners, for insulting passers-by, or for other offenses. As a rule, the other fellows raise the money to pay the fine. To reimburse themselves or the one who loaned the money, a dance is run or a raffle is held. To show still further the tenaciousness of gang life, the influx of Jews has caused many of the Irish to move away from the South End, but the boys on Sunday may still be found with their gang at their 'corner.' Fully half are fellows who live at Highlands at the edge of Roxbury. I know a boy in High School—he will graduate next year—who moved to Dorchester, but comes regularly to the old 'corner' on Sunday afternoon. No new friends can supplant the old ones.

"It is interesting to know what becomes of the various gangs when they are a little older (17 or 18). The more respectable gangs club together and hire a room. The vicious prefer to use what little money they have on carousing. If by chance they get a room, their rowdyism will cause their ejection, either by the landlord or by the police. Consequently, they have to fall back on the corner or some saloon as their meeting place. They always try to seek a back street or wharves unfrequented by the police. Not infrequently these gang connections are tenacious in the case of older men, who sometimes meet in the back of some store to play 'forty-five,' but more often would be found in some saloon. In numerous cases a saloon serves as a club room for one or more of the gangs of these older men, who are loyally devoted to it. Many of them will walk by a saloon thirsty, in order to reach a particular drinking place with enough money to secure the proprietor's welcome.

"At this point it is necessary to give an account of the young men's clubs, in order that the important part that these clubs play in ward politics may be seen, for all this network of social life is taken in hand by the politician. As I said before, the gangs which coalesce and form these clubs are the most respectable ones. Such a club opens up the freedom of the district socially to them. Each gang composing it is likely to have a candidate for the principal offices and the first election is frequently a source of quarrel between the rival gangs which breaks up the club before it is properly started. There are about eight of these clubs in the particular section which I know best. The dues range from 25 cents to 50 cents per week, and the club usually pays from $25 to $35 per month for the room. Nearly all the clubs have a common program. In the first place, each club, without exception, gives a ball every winter. The tickets invariably sell for 50 cents. These balls are important social functions in the districts. As a rule, each club has a 'social' once a week. This is a dance of a lower type, being interspersed with comic and humorous songs, etc. About the same girls go from one social to another. * * * The worse dance halls are nearly allied to the clubs. This clientage is made up, though not distinctly, of gangs. Consequently, at nearly all the balls the dancers are known to one another, and have more or less loyalty for the hall. At one hall a large group of fellows attend, nearly all of whom have stylish light coats and dudish attire, even if they do not know where the next meal is coming from. In winter their mistresses support them. In summer these men go to Nantasket and to the beaches, and in the fall they take their gambling outfits to fairs at Brockton and elsewhere.

"The description thus far of the 'gang,' the social club, and the dance hall shows that the politician does not need to deal with the individuals. Ready at hand are these social centers for him to make use of."

And so the story goes on till ultimately we have corrupt political bosses and their allies.

The following essential factors of both groups must be considered in order to make a comparison:

1. Heredity. 2. Early life and education. 3. Environment. 4. Examination, physical and psychological.

Heredity.—A, Class of parent (stock); A, Family history neuroses, insanity, etc.; B, Drunkenness in parents; B, Age of death of parents.

The vast majority of Columbia freshmen come from good family stock. Poverty is no sign of real psychological caliber of the family. The mere fact that study is encouraged often at a great sacrifice is proof in itself of an ambition to reach a higher plane in life. Even if a student must "work" his own way through college he must support himself alone. Only in the rarest cases does the home make any demands on his income, and in such cases there is a surplus over the actual necessities of life, or the fees, cost of books, carfares, etc., could not be paid. If the money for the tuition, etc., is borrowed from a relative or a good friend, this benefactor must recognize a good reason for the loan; that is, either a certain responsibility on the part of the borrower and his family that it shall be repaid, or it is actually a gift. In the last case some reason for the gift must be appreciated, thus placing the individual on a scale above that of the average gang members.

In the case of gangs the rule is that the boy must become a wage earner as soon as possible, and were it not for the enforcement of the law, the majority would leave school long before they became of age. It is a surprising fact that many are either entirely illiterate or barely capable of reading, writing, and doing simple arithmetical sums.

If we inquire into the family history of the gangs we find in a large percentage (46) of the cases one of the parents is a drunkard. I have not the actual statistics, and, on account of liability to misstatements in order to hide the truth, the proportion of Columbia freshmen whose parents drink to excess can only be estimated, but it is fair to assume that it is rare to find a drunkard parent and almost impossible to find both parents thus afflicted. It is accepted that drunken parents cannot take care of a home and children as well as sober ones. A drunkard also is more liable to beget offsprings who are defective in one way or another. Among these may be mentioned epileptics, cardiopaths, mental defectives, sexual perverts, idiots, and criminals. Thus we have, excluding poverty at the outset, before birth, one cardinal cause for the differences.

In analogous ways we can compare parents who are criminals. Comparatively, it is rare to find a criminal parent of the freshmen, and how common it is to be found of the gang member. Reliable statistics could not be obtained, but one-half of those examined state that a near relative had been arrested.

In the history record it was noted that 17 had near relatives—brothers, sisters, parents, uncles, aunts, or first cousins—who had what seemed to be epilepsy. A history of insanity was given in five cases and four cases of mental deficiency in near relatives, and 18 had fathers who had "violent tempers," especially when drunk. Only one-half of the boys "really loved their parents." These figures are very different from what we knew we would find on examining the history of the Columbia freshman's family. In Paris, says Travis, 47 per cent. of the prisoners have indigent parents. Münsterberg, in "On the Witness Stand" (page 242), states, "When a school for criminal boys was carefully examined it was found that of 200 boys 127 were deficient in the direction of hysteric emotion, or in the direction of epileptic disturbance. In 85 one or both parents were drunkards, in 24 cases the parents were insane, in 26 epileptics, and in 20 others suffering from other nervous causes. Not the criminal tendency was born with the poor children, but the insufficient capacity and resistance of the central nervous system, and this was their inheritance from abnormal and degenerate parents."

One of the most important points to be considered is the age of marriage. Ellis, in "The Criminal," states that fathers under 20 beget especially weak children, and from 25 to 40 beget the strongest. Many of those examined were married and state that their parents married young also. I could not ascertain the ages in all cases at which the parents married on account of the ignorance of the subjects, but the average of 83 cases stated the marriage age of the mother was 19.9 years and of the father was 21.15 years; quite a contrast to the freshmen, whose mothers' average age of marriage was 22½ years and the fathers' 27½ years; hence the degenerate offspring with criminal tendencies in so many cases. Ellis states that over 90 per cent. of criminals can trace some defect in near relatives. The exact percentage was not sought in either of the groups examined. It is a simple matter to obtain answers to such questions from prisoners, but exceedingly difficult from persons at liberty.

As a summary to the question of heredity, it must be recognized that the average freshman has much in his favor.

Environment and Early Education.—Closely allied to heredity in modifying a person's life is environment. It has often been disputed which is the more important. The "big brother" movement of the Probation Associations of the Children's Courts has as its foundation the importance of environment, the idea being that a total stranger to the prisoner who promises to take an interest in the boy or girl as a "friend" or "big brother" will seek to furnish the aid which is either missing or not properly given at home. Many children have thus been set on the path of honesty and decency.

The writer has helped many children in this way and personally knows of a large number of others who have been similarly assisted. This plan is in vogue in some form wherever there are Children's Courts. As a rule, too much is expected of the "big brother" movement, and although many a boy may change from one "big brother" to another until the right man for the particular case in hand is found, many individuals are not at all amenable to the treatment. One case may serve as an example to show that environment is not always the most important factor to be noted.

A boy of 16 was sent to the writer, and after an interview with the family, for some reason, the family objected to the boy being influenced by the writer, and another "big brother" was found whom the boy and family liked very much. The parents are in comfortable circumstances and have four other children who have never been arrested. They do not live in a tenement district where gangs are most often established. This "big brother" gave the boy employment in his office and paid him a very good salary, so that money would be no object for the boy to steal. When the boy wished to go to the theater the "big brother" went with him. New associates were obtained by having the boy join a gymnasium far out of the neighborhood where the boy had his former playmates. Every evening

after work the boy was in the company of the "big brother," and the "big brother" made it his business to see that the boy reached home each night. This boy really loved his new chum. The habits of the boy became more cleanly; he acquired many essentials of etiquette and seemed to be entirely changed. After several months, a former friend, and now for some reason an arch-enemy of the boy, told the "big brother" of thefts the boy and his gang had been making while under the "big brother's" surveillance. Upon investigation, these proved to be true, and all the extraordinary efforts were in vain. The "gang" instinct still had the boy.

Since then the writer has again carefully inquired into the family history and finds that, although at the beginning it was given as "negative," it is now known that one near relative is insane, one epileptic, a brother a sexual pervert, a sister is a musical genius, and the mother is very neurasthenic. This case is one of the many which prove that environment is not by any means the *prime* factor causing the differences in the two groups considered.

The error lies too often in the examiner and the reason for such difference is not given. The fact that the vast majority of the fathers of Columbia freshmen are business men, either large or small, or are skilled laborers, is also at a variance with the second group. Of the cases examined only in one case was the father a grocer, and in two skilled carpenters; all the others, 97 per cent., had parents whose means of livelihood could be classed as unskilled; 14 had no work at all and 38 had no fathers, while 9 were orphans. Of 100 Columbia students questioned, the results were unskilled labor 3 per cent. (farmers), father dead 3 per cent., and mother dead 5 per cent.

The income of the parents of the students being higher, they are more able to give their children proportionate assistance. The appreciation of education of a class, almost all of whom belong to skilled laborers or higher, is naturally more than might be expected in the second group.

The parents, themselves, having had more education, having better means for procuring it, and knowing better its advantages in the struggles of life, surely encourage their children in this direction. The result of the schooling a freshman has had in comparison to that of "gang members" (most of whom can hardly read or write) causes differences in the choice of friends. The average freshman would hardly seek an illiterate as a confidant, while the gang member doesn't want a friend with "highfalutin" ideas.

Each trying his best to do as the rest of his class does, often at great sacrifices, the freshman broadens his mind and studies, and the gang member practices pool, cards, dice, pugilism, etc. Each tries to excel and win admiration of his companions; as a result, the savant is the ideal of the student and he does not know of the race-track tout, the prize-fighter, etc., who has won the foremost praise in the minds of members of the second class.

Less money means poorer homes. Poorer homes have less comforts and joys in them and naturally drive the occupants to the streets; here they meet their gangs. If it is inclement weather, a poolroom or a saloon will give good shelter. Here they mingle with the vile habitués of a cheap slum bar or den and acquire their lowly habits and desires. In the "Young Malefactor" (page 122) Travis says: "Poverty causes delinquency." The New York Juvenile Asylum reports that poverty often pushes a boy out of his home and initiates him into the offender's life. Paris reports over 47 per cent. of the children arrested were poverty-stricken. The Superintendent of the House of Refuge finds cold and hunger a frequent cause for theft. The 27th Annual Report of Elmira Reformatory states: "Poverty prevents a boy from learning a trade; his ragged clothes often bar him from employment." Jacob A. Riis, in "The Battle of the Slums," under the title of the "Genesis of the Gang," says: "Less than 15 per cent. come from good homes and only one in 66 had good company. The boys take to the street because the home has nothing to keep them there. To lock them up in the house would only make them hate it more. The gang follows the line of least resistance."

Therefore, to sum up, the environmental differences of the two groups may be mentioned as: (1) Home. (2) Poverty. (3) Poor guardianship of poorly trained parents. (4) The early death of one or both parents. (5) Occupation of the parents. (6) Immediate surroundings—as the cheap saloon, poolroom. (7) Poor education and illiteracy, thus cutting some of the pleasures of the better group from those which could otherwise be enjoyed by the second. (8) Association with people of a lower strata makes the individual ignorant of what takes place in the more cultured division of civilization; hence the lack of high ideals and aspiration for such culture. This makes the desire of education for one class and takes it away from the other.

Psychological and Physiological Examination.—On account of the differences in education of both classes and especially the large amount of illiteracy in these subjects, some of the regular university tests were omitted and others added to take their place. For example, it seems almost impossible to make the subjects appreciate exactly what was meant by "threshold of pain;" therefore, after trials with 14 subjects, the algometer tests were purposely omitted. In its place the time estimation tests were added. Satisfactory coordination of the subject could not be obtained in the association tests and they were also omitted.

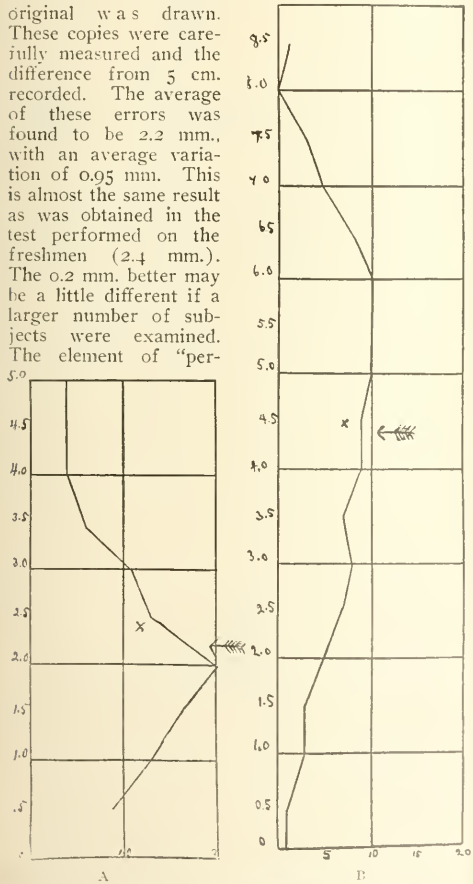
The following questions were asked at the outset of each examination: (1) Name? (2) Age? (3) Father alive? (4) Mother alive? (5) If father's dead, how old were you at his death? (6) If mother's dead, how old were you at her death? (7) At what age did father marry? (8) At what age did mother marry? (9) Father's business. (10) Does your father drink? (11) Does your mother drink? (12) Any near relative epileptic, insane, criminal, imbecile? (13) Are you married? (14) Tattooed? One or both arms? Other parts of body?

Tattoo marks are remnants of a barbaric custom. Explanations of these marks can be found in any book dealing with "degeneracy" or allied subjects. They occur frequently in criminal and other defective classes. For that reason I made it a point to investigate this matter in both these groups. I have never found a single student in the tank room of Columbia tattooed, except the fraternity men, who have their insignia tattooed over their heart or high up in the arm. This latter custom of college secret orders is compulsory, and can hardly be compared to the marks of individual egotism so extensively displayed. Of the one hundred gang members examined 14 per cent. were tattooed on the left arm; 8 per cent. on the right arm; 10 per cent. on both

arms, and 4 per cent. on other parts, a total of 36 per cent. The marks were usually nude figures, serpents, national flags, and initials.

After these questions were satisfactorily answered, the following tests were employed in the order given: (1) Estimation of size—5 cm. line. (2) Steadiness test—rod in a hole, 1 min. (3) Speed test—tapping, 100 taps and 1 min. (4) Accuracy test—rod in a hole, 1 min. (5) Strength of hand; (*a*) right, (*b*) left. (6) Tactile sensation—touch compasses. (7) Accuracy and speed test; (*a*) marking 100 A's, "A test," (*b*) dotting 100 squares, (*c*) dotting 100 dots. (8) mental imagery; (*a*) auditory, (*b*) visual. (9) Estimation of time, 1 min., ½ min. (10) Naming 100 colors. (11) Memory; (*a*) auditory for numerals, (*b*) visual for numerals, (*c*) retrospective for line 5 cm. (12) Eyesight. (13) Hearing.

Perception of Size.—This was the first test given. A line 5 cm. in length was shown to the subject and he was asked to reproduce it as nearly as possible. That the element of optical illusion might be avoided, the same size and kind of paper was used as that on which the original was drawn. These copies were carefully measured and the difference from 5 cm. recorded. The average of these errors was found to be 2.2 mm., with an average variation of 0.95 mm. This is almost the same result as was obtained in the test performed on the freshmen (2.4 mm.). The 0.2 mm. better may be a little different if a larger number of subjects were examined. The element of "personal equation" in the measurement also changes the result somewhat, but, on the whole, it may be said that in this test both subjects were equal.



A B

Fig. 1.—A is the curve showing the perception of size test. The vertical distance represents the number of millimeters that the line drawn by the subjects varied from 5 cm. and the horizontal distance represents the number of individuals tested. B is the retrospective memory test. The arrow indicates the average for gang members the cross the average for students.

The subjects were asked to remember the length of this line until all the other tests were completed, and then required to reproduce it again. This was the "retrospective memory" test. Measurements were made in the same way. The average error was 4.4 mm., with an average variation of 1.5 mm. The students showed an average error of 4.5 mm. Here again, if the small size of the groups and the matter of personal equation are taken into account, the results are quite similar. There was almost an hour's time between the first test and the "retrospective memory" test.

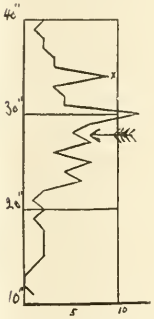


Fig. 2.—Curve showing the number of seconds required to make one hundred taps by one hundred gang members. The horizontal lines represent the number of gang members, the vertical distance the number of seconds. The average is indicated by an arrow for gang members and a cross for the students.

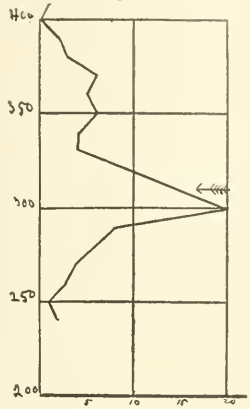


Fig. 3.—Curve showing the average number of taps made per minute by one hundred gang members. The horizontal distance represents the number of gang members and the vertical distance the number of taps. The average is marked with an arrow.

Steadiness.—For this test a brass rod 10 cm. in length and 3 mm. in diameter, attached to a wooden handle similar in construction to a screw-driver handle, was used. This brass rod was put into a series circuit with a battery and electrical counter and a brass plate. In the brass plate was a hole with a diameter 2 mm. more than the rod. The object was to stick the rod in the hole about 3 or 4 cm., without touching the side of the hole. Each time the side of the hole was touched, the circuit was closed, and the electrical counter registered an error. Special precautions were taken that the subject did not come in contact with the table or instruments with any part of his body except by the means already noted. The average errors for the "gang members" was 81.59 errors for 1 minute. They varied very much in this test, the best making only 9 errors and the worst 300.

Speed Tests.—The "tapping test" was used for this purpose. A rod, as was used for the steadiness test, but only 2 cm. in length, with the same handle as was used in the previous test and in a similar circuit, was used for the speed tests. The method was to touch the brass plate with the brass rod without touching the instrument or the table with any part of the body. Each time the current was closed the counter registered the contact. The object was to make as many contracts as possible for 1 minute. The time was taken when 100 taps were made. This averaged 29.9 seconds, with an average variation of

4.9. The average per minute was 322.1 taps, with an average variation of 29.4 taps. The students did not do so well; they required 34 seconds to make the hundred movements. The writer is unable to give any reasons for this difference.

The Three-Hole Tests.—The same apparatus as was used in the tapping and steadiness tests was used in the "three-hole test," and there was also used an equilateral triangle of brass with holes at each angle, about the same size as the hole or opening used in the steadiness test. The three holes were about 75 cm. apart and differed from the previous test in that the current was not closed unless the brass rod touched the bottom of the holes. The bottom was about 10 mm. below the surface of the brass, and the method was to take the brass rod (also used in the "steadiness test") and place it as quickly as possible in each of the three holes, without having the body touch the table or instrument. An electric counter registered when the rod touched the bottom of any of the holes, the requirement being to place the rod in as many holes as possible within a minute. The average per minute was 80.04 holes and the average variation 0.5 holes. This shows the inability of gang members to do accurate work quickly, as is also borne out by the other accuracy tests described hereafter.

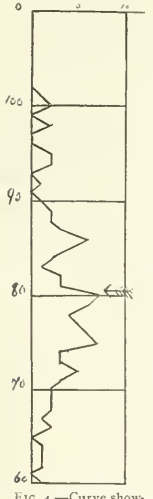


FIG. 4.—Curve showing the number of holes into which the gang members placed the rod per minute. The horizontal distance represents the number of individuals; the vertical, the number of holes. The average is indicated by an arrow.

Strength.—A dynamometer was used for this purpose. The arm was held away from the body and the subject asked to exert his full power. Three trials with each hand gave right hand 31.0 kg. as an average, with an average variation of 3.4 kg. This is decidedly less than the strength of the freshman who could press 36.3 kg. The left hand did not vary so much from the students, 32.5 kg. for the gang members and 33.5 kg. for the students. If we note that so many of the second group are left-handed, thus making the average for the right hand weaker and the average for the left hand stronger, part of the difference may be explained. It is an established fact that criminals and other degenerates cannot squeeze a dynamometer any better than normal persons, although popularly they are supposed to be stronger, and it is quite in keeping that a group of individuals who may be classed midway between the degenerate and the normal should have a strength showing between the two.

Sensation Areas.—These tests were made with two points of a pair of touch compasses, one centimeter apart, and also with one point of these compasses. Each hand was tested in the following manner: After describing exactly what was desired, the subject was asked to place the hand, first the right and then the left, on a table, and the back of the hand was touched with the two points, and he was then asked to say "one" or "two," according to how many points he felt. Each hand was tried in this order, 2, 2, 1, 1, 2, and the number of times that correct replies were given were noted.

Twenty-two per cent. made 4 or 5 correct replies for the right hand and 30 per cent. made 4 or 5 correct replies for the left hand. The students did very much better, 63 per cent. having made 4 or 5 correct replies. If we allow for the hardness of the skin of the hands from manual labor and the

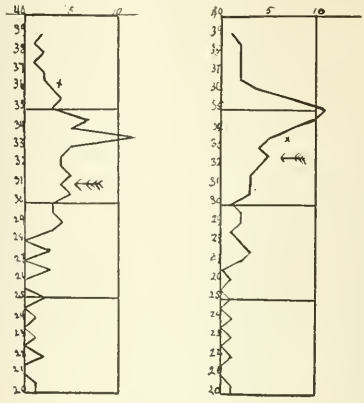


FIG. 5.—Curve showing the kilograms indicated on a dynamometer. The vertical distance shows the number of kilos., the horizontal the number of gang members. A is the right hand, B is the left. The average for gang members is indicated by an arrow and for students by a cross.

dirt, paint, etc., there is a question whether the college boys did so much better as these figures indicate. There is probably some difference, but it is quite difficult to state the amount exactly. The average of the 100 subjects was 2.7 times, with a variation of 0.9 for the right hand and 2.6 times, with a variation of 1.3, for the left hand.

Marking 100 Letters.—One hundred capital "As" are irregularly arranged among five hundred letters in printed lines. The subject was asked to place a dot over each "A" as quickly as possible. One point was to be given for speed and one for accuracy. The average time for going through the test was 115.4 seconds, with an average variation of 10.6 seconds. The average error was nine omissions, with an average variation of 6.9. The average time for the freshmen was 100 seconds. That the freshmen who read and write so much more should excel in a test in which they have had so much allied practice is to be expected. The figures for the errors of the freshmen are not given, but these also in all probability are much less for the same reason. Wisslar reported an average of only three omissions in a similar test given to forty-two Barnard students. The average time in the last was 91.4 seconds, due probably to the causes given.

Marking 100 Accurate Movements.—In accuracy tests the gang members are much inferior to the freshmen. Several tests were tried, some of which would hardly count for accuracy tests in the freshmen trials.

Dotting 100 Squares.—One hundred 1-cm. squares are arranged in rows of ten, thus making a large square 10 cm. by 10 cm. The subject, at a given signal, is required to place a dot as quickly as possible in each square without touching any line, and without putting more than one dot in a square or without leaving any square undotted. Each dot that touched a line, a square without a dot or each square with more than one dot was counted an

error. Credit was also given for speed. The subject was not permitted to touch the paper or table with any part of his body, except the hand holding the pencil. The average time for the contingent of "gang members" was 49.6 seconds and the average variation 11.0 seconds. The average error was

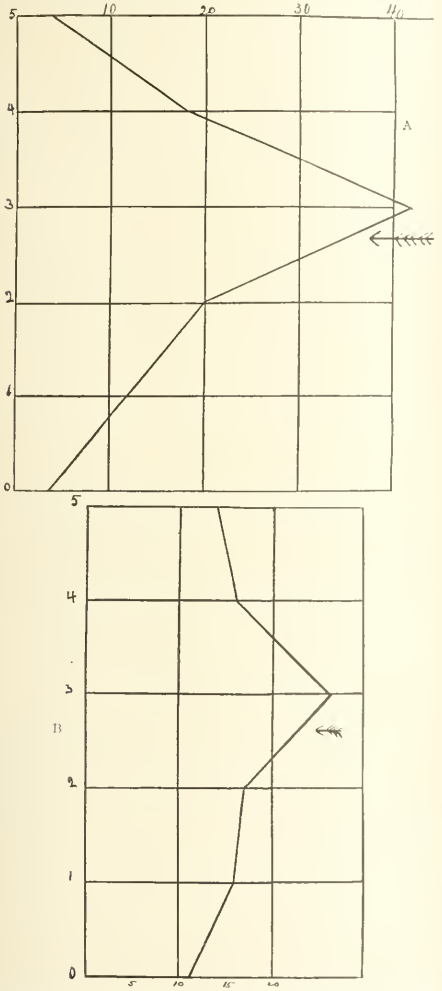


Fig. 6.—Curve showing the number of times one hundred gang members were correct with the touch compasses. The horizontal distance represents the number of subjects; the vertical, the times correct. The average is indicated by an arrow. A is the right hand, B is the left.

10.6 seconds and the average variation for the errors was 8.5 seconds, as contrasted with the average time for the students, *i. e.*, 34 seconds. The second accuracy test was very similar; this was dotting one hundred dots.

Dotting 100 Dots.—A 10-cm. square containing 100 dots 1 cm. apart were to be touched with a pencil at a given signal as quickly as possible, the same rules holding as in the previous test. Every dot not covered by a pencil dot was counted as an error and the distance the pencil dot was from the printed dot was measured. The average time for the students was 49 seconds, and the average error was 0.6 mm. The gang members took 54.04 seconds and the average variation of 9.3 seconds. The average error was 1.6 mm. and the average variation 6.3 mm. This, again, was very much worse than the students.

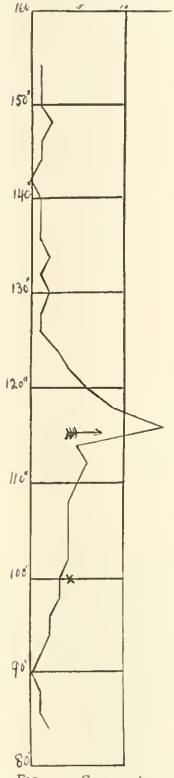


Fig. 7.—Curve showing the number of seconds required to mark one hundred capital "As." The vertical line shows the number of seconds, the horizontal the number of individuals. The average for gang members is indicated with an arrow, and by a cross for students.

Mental Imagery.—The "Imagery Blank" employed at the Columbia Psychological Laboratory was used, but only the following questions were asked, on account of the class of subjects examined, and even with these questions often an extended explanation had to be given: (1) Can you call to mind better the face or the voice of a friend?

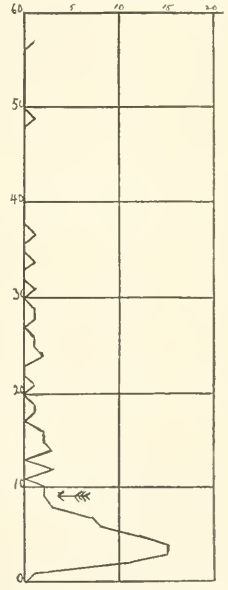


Fig. 8.—Curve showing the number of omissions made in dotting 100 As. The vertical distance represents the errors and the horizontal the number of individuals. The average is indicated by an arrow.

(2) When "violin" is suggested do you first think of the appearance of the instrument or the sound made when it is played?

Only two lists of answers were recorded; the first was called "imagery by visualization," that is, those who recognize a friend by his face or a violin by its shape. The second was called "auditory imagery"—recognizing a friend by his voice or violin by its sounds when it is played. The gang members averaged 54 per cent. for the visual and 46 per cent. for the auditory imagery. The average for the freshmen could not be obtained, but for the distinct visualization 83 per cent. is the figure given in contrast to 23 per cent. for auditory imagery distinct. Therefore it is likely that the two almost equal results of the gang members would be very much overbalanced by the visual imagery of the freshmen. Attention is again called to the fact as noted under "hearing" that gang members meet in

the dark, etc., and thus *live* more by their ears than by their eyes.

Perception of Time.—The subject was seated in a chair in a room with the examiner, and as far as possible no outside noises were permitted to distract attention from the work at hand. After resting a few moments the subject was told at the word "start" to begin to reckon a minute, and when he thought the minute was exactly over to say "now." The time was recorded with a stop-watch. After a few minutes' rest he was told to try to estimate one-half minute in the same way and begin at the word "start," and when finished to say "now." The time was recorded as estimation for one-half minute. The entire process was then repeated, thus giving two answers for the minute and two for the half-minute. The average result was remarkably accurate and at least disproved the notion that individuals who waste much time and are idle finally lose its exact mental measurement. In other words, it is often believed that idleness, irregular hours for meals, sleep, and work without feeling of responsibility to any one must eventually dull or paralyze this "time-thought" faculty from lack of use or practice. So it is with most of our mental phenomena. Perhaps it may be explained that subjects of this age have not wasted time long enough to cause such a dwarfing of this power; or perhaps students who are so frequently in a hurry and hampered for time getting away at top-notch speed, not to be late in the morning; eating as quickly as possible so that a half-hour can be spent in the library, on the athletic field or in consultation with a professor; at night finishing study in a hurry to get to dances, to make social calls, to attend students' meetings, etc., causes them to become hypersensitive from constant irritation in this particular. The conclusion seems to prove this fact, for the average time of 30 students for guessing 1 minute was 49 seconds, with an average variation of 6 seconds, much shorter than 60.8 seconds, with an average variation of 6.2 seconds, for the gang members.

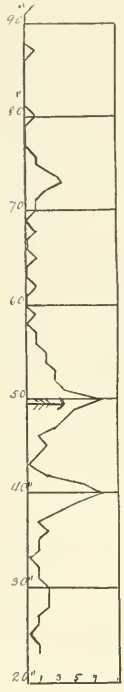


Fig. 9.—Curve showing the number of seconds required to dot one hundred squares. The vertical distance shows the number of seconds and the horizontal distance the number of subjects. The average is indicated by an arrow.

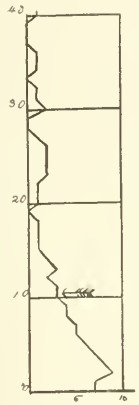


Fig. 10.—Curve showing the average number of squares that had more than one dot or a dot touching one of the sides of the squares. The vertical distance shows the number of such errors. The horizontal the number of individuals. The average is indicated by an arrow.

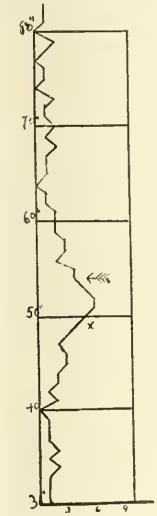


Fig. 11. — Curve showing the number of seconds required to dot 100 dots. The vertical distance represents the number of seconds, the horizontal shows the number of individuals. The average is indicated with an arrow for gang members and by a cross for students.

The most remarkable fact is that 19, or almost 10 per cent., estimated exactly 60 seconds, and 34, or 17 per cent., of the guesses were only 1 second out of the way. That is, 27 per cent., over one-fourth, were not more than 1 second wrong. In one-half-minute trials 30 students estimated 38 seconds, in contrast to the 100 "gang members," who averaged 28.5 seconds and had only 4.2 seconds as an average variation. Here, again, 33 exact guesses of 30 seconds were made, and 87 or 43.5 per cent. of the guesses did not vary more than one second from the exact 30 seconds.

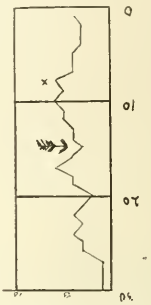


Fig. 12. — Curve showing the average number of seconds the subjects were away from the 100 dots. The vertical line represents the average number of mm. errors; the horizontal, the number of subjects. The average is indicated with an arrow for "gang members." Cross shows average for students.

Making 100 Colors.—A square piece of white cardboard on which were pasted 100 small colored squares, each separated by a square piece of the same size as the colored paper, arranged very much like a checkerboard, with colors of about the same intensity and arranged so that the two like colors would not follow each other—blue, yellow, green, red, and gray—was used for this purpose. The object was to begin at the top left-hand corner and name the colors as quickly as possible, reading from left to right on the first line, from right to left on the second, left to right on the third, etc., continuing in zigzag order, credit being given for speed. The average time was 80.49 seconds, with an average variation of 3.8 seconds, in contrast to the students, who took 85 seconds. Very likely the difference in eyesight had something to do with this difference, the total result being about the same as the other speed tests—somewhat in favor of the "gang members."

Memory Tests.—Just as important as accuracy tests are memory tests to distinguish the higher

mental faculties of various groups. As in accuracy, the memory tests show much better results for the freshmen than for the gang members. The following were the tests employed: Auditory memory, visual memory, retrospective memory.

Auditory Memory.—A printed set of numbers arranged in vertical columns of 4, 5, 6, 7, 8, and 9 digits in each column were used for this test. The same set of numbers were also used for making the freshmen tests. The object was to repeat the numbers as they are read, first 4, then 5, then 6, etc., until a point was reached where the numbers could not be remembered. If a slight error was made the test was tried with the second number in the column where such error occurred. If this happened again the third was tried, etc. The idea was to find out the *most* numbers that could be repeated perfectly. The average for the students in this test was 7.6 numbers remembered, while the gang members only remembered 5.9 numbers. The average variation for the gang members was 1.2, an average variation of more than 20 per cent. Practice in memory work, especially memory work as hearing instructors make explanations, somewhat similar to this test, is one of the main reasons for this difference.

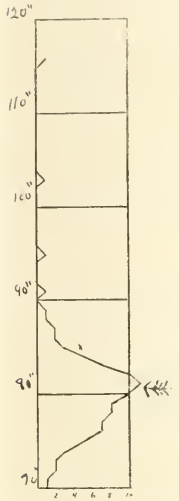


FIG. 14.—Curve showing the number of seconds required to name one hundred colors. The vertical distance represents the number of seconds, the horizontal the number of individuals. The average is indicated by an arrow for "gang members" and by a cross for students.

Visual Memory.—The objects used were three sets of white cards about the size of playing-cards. Each set had eight cards on which was printed in large black type digits about 25 mm. high. The numbers were shown at about the rate of three in two seconds, and when a set was completed the subject was asked to write down as many numbers as he remembered in the order they appeared. The three sets were always shown in the same order and each card in each separate set was shown in the same way at each test. Set No. 1 had the numbers 3, 9, 5, 2, 6, 8, 7, 4. Set No. 2 had the numbers 8, 5, 2, 7, 4, 6, 3, 1. Set No. 3 had the numbers 5, 1, 6, 2, 7, 3, 4, 8.

The results of the trials with the students were average correct, 6.9, almost one number less than in the previous test, auditory memory. The gang members had only 5.4 correct, with an average variation of 0.8, thus corresponding with the students, about one number less than in the auditory memory test. The numerals were so large and distinct that a small amount of "myopia" may be discarded.

Retrospective Test.—This was the last test and, as previously described, was to draw the 5-cm. line first shown from memory.

Vision.—In the vision test it seems that these "gangs" are a little better than the students. The reason is probably that eye disorders are more prevalent in the students from long-continued eye-strain. The result was for vision of the right eye, 72 cm. or over, 22 per cent. The college student only had 15 per cent.; 61.52 cm., 56 per cent., about the same in both groups; 44 cm. and under 22 per cent. The last is much less than the college student, in whom 33 per cent., or one-third, can see farther than 44 cm. This seems to be one argument in favor of the theory that myopia results from reading.

In *left eye* about the same result was noted: 72 cm. and over, 30 per cent., as contrasted with about one-half as many, 16 per cent. of the students; for the middle class, 61.52 cm., 60 per cent. in both groups, while only 10 per cent. could not see more than 44 cm. In the second group, 24 per cent., or nearly one-fourth, of the students were thus afflicted.

One of the most remarkable features of eyesight noted was that only 3 per cent. of 100 students had strabismus, while 24 per cent. of the gang members had it in the following proportions: Left eye only, 11 per cent.; right eye only, 9 per cent.; both eyes, 4 per cent. Some of the students may have had marked strabismus as children, but have had it corrected. The fact that this is one of recognized stigmata of degeneration and shows such difference in the two groups is quite important. In the same way it was found that 7 per cent. of the gang members were left-handed. This is also a recognized stigma showing the degenerate marks on gangs. It is generally accepted that from 2 to 4 per cent. of students are left-handed, about one-half the number that appear in gangs.

Hearing.—The hearing was tested with a watch which could be distinctly heard four feet from the subject (a regular dollar Ingersoll). If it could not be heard three feet from the subject the ear

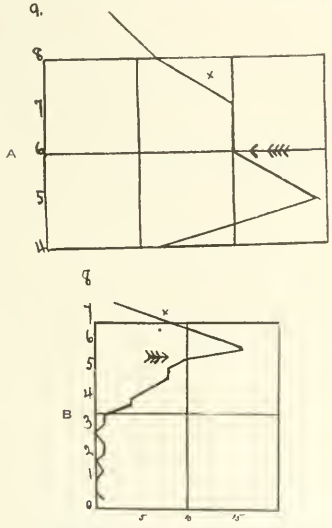


FIG. 15.—Curve showing the number of numerals heard and remembered. The vertical distance shows the number of numerals, the horizontal the number of subjects. The average is indicated by an arrow for gang members and by a cross for students. A indicates the numerals heard and remembered; B shows those seen and remembered.

was considered "abnormal." The students had 3 per cent. faulty hearing on the right side and 2 per cent. on the left, while four times the amount of the gang members were thus afflicted, 12 per cent. had abnormal right ears and 8 per cent. had abnormal left ears. If the constant use of eyes causes a weakness in them, and this fact is used as an explanation for the visual differences in these two groups, it is only fair to assume that those individuals who meet after dark hearken to footsteps of the policeman, pass a great deal of their time singing and telling jokes, in other words, live with their ears, have "near-hearedness," in contrast to the students who live with their eyes and have "myopia" or "near-sightedness."

Conclusions.—Although 100 is too small a number to make any sweeping statements, we are justified in noting the great variability in our subjects and the marked inferiority in accuracy, memory, hearing and tactile sensation in contrast to the Columbia freshmen. The "gangs" have in their favor only eyesight, speed, and estimation of time, and if a large number of subjects is taken different results may be obtained. When the finer faculties, as memory and accuracy, are taken into account, the students are by far superior. It is these qualities which make real class distinctions, and develop human endeavors in so marked a contrast to the rest of the animal kingdom.

In other words, the theoretical and practical results of heredity and environment are again demonstrated and the problem which presents itself to us is to assist the members of the "gangs" to the higher level of the freshman. This can be done only by removing the causes of the inferiority. The heredity cannot be altered, but the environment can and must be changed.

Jacob A. Riis, in the *Atlantic Monthly*, Vol. 84, page 301, writes: "The dangerous hours, when the 'gang' is made, are from 7 to 9, between supper and bedtime. This is the gap that the 'gang' fills out. * * * It is by the Boys' Club that the street is hardest hit. In the fight for the bad it is that which knocks out the gang and with its own weapon—the weapon of organization."

With such a purpose in view, Missions, Men's and Boys' Clubs, Y. M. C. Associations, etc., have been founded, the plan being to remove the boy from his evil surroundings which promote evil desires, which in turn so often father criminal tendencies. These places are made as attractive as possible so that the individual seeks them in preference to the street.

Experience and investigation of this problem prove beyond a doubt that many of the worst boys do not go to the club, and the few real vicious ones that do are not the most frequent callers. The same may be said of the Salvation Army, Volunteers of America, and other kindred church movements. As a rule, they claim that they save 50 per cent. or more of the cases they undertake. They, too, often overlook the fact that perhaps only 1 per cent. or even less of their members belong to the class which really would have become vicious without their generous assistance.

These numbers exclude discharged prisoners who may have reformed in prison and who would have remained so out of it without such organizations. So many boys who can neither be called members of a vicious gang or criminal are found in these clubs. They enjoy the attractions laid to catch the others. Here lies the fallacy of the statistics of these organizations, and their beneficence to mankind has been grossly overestimated.

The "Farm School" plan is a much better one. If a boy wishes he is taken from the city and placed on a farm after a course in elementary farming. The temptations of a big city are so far distant, the wholesome air, the good food, added to the removal of the friends to such a distance, offer a good way of changing the environment. The writer has known of at least four cases in which real vicious criminals have become honest, hard-working farmers. I would go even further and offer only one remedy to solve this problem. In every arrest where it is proved that the cause for the legal breach was due to "gang" environment, directly or indirectly, despite protestations of friends or relatives, an indeterminate sentence to the country should be enforced.

An attempt to run away from the farm is punished by a longer stay. After a time the prisoner will accuestom himself to the farm work and forget

the city, in which place his plans of life were incompatible. A city or State farm would not be nearly so desirable as one without the least semblance of a prison. Every farmer is anxious to get cheap help and positions are easily found; a free register could be arranged for such a purpose.

The benefits from such a plan socially and economically to such a country as this are almost beyond the limits of this essay to enumerate. (1) The congested districts would become somewhat relieved of overcrowding, especially of the immoral and evil spirits. (2) The farms would be better cultivated and the help cheaper. (3) The food supply would become greater and its cost less. (4) The succeeding generations would benefit by the improvement in the present one. (5) Many of the "workhouse" regulars would be taken care of, and the city relieved of their cost of maintenance.

This form of treatment is especially applicable to the juvenile delinquent. His character is more easily moulded and his health more quickly improved, as is shown by the report of Travis in the "Young Malefactor." On page 148 he states ("A Study in Juvenile Delinquency): "The maximum period of juvenile delinquency is from 14 to 16 years—the age of puberty. At this time not only the sex passions come into consciousness, but other impulses. The child is in general more susceptible, more nervous, and more easily influenced for good or bad than in any other period of life. One proof of this is to ask for a show of hands of those in a church audience converted at the age of 14 to 16. It is remarkable that 50 per cent. are converted at this period. At the Illinois Penitentiary 58 per cent. of the inmates committed their first offense before 25. At Elmira 89.9 per cent. of the inmates began their offenses before 20. In France 57.5 per cent. of those arrested are between 13 and 16. At Jamesbury, N. J., 60 per cent. are between 13 and 16; most are 15." Judge Lindsay claims that 20 per cent. of city boys are arrested. Cady, averaging all available data, concludes the average of the delinquent boy is 14.09 and the girl 14.71 years.

If only actual amount of work done on the farm would grant permission to return to the city, and then only if the prisoner works or he will be sent back, no such explanations for not working would be given as Speranza (page 163) found in 225 criminals under 25 years: Forty-eight said in essence, "We are good for nothing;" 25, "Our father does not work;" 22, "Work is fatiguing;" 14, "Begging is work;" 6, "Why work every day?" 10, "You make more by stealing;" 36, "We got along nicely by begging;" 8, "We haven't time to work;" 18, "Our employers discharged us; how can we work?" 19, "My father said only fools work."

Another proof of the value of this method of treatment can be realized if we note what Travis states in "A Study in Juvenile Delinquency" (page 132): "In the city life less track can be kept of the children, goods are more easily displayed and stealing becomes easier. Also playing in the city streets, the formation of gangs and their attendant phenomena of delinquency appear so clearly as to be formulated in the law that juvenile offenses spring up in direct proportion as the population increases. Less than 2 per cent. of delinquents come from the country, and 20 per cent. of the city boys between 10 and 16 years become offenders. Even when the centralization is temporary this law holds: Paris had twice the usual number of boys arrested during the exposition. At the St. Louis Fair girls were lured from their homes and there is suspicion that a certain society had raised $250,000 for supplying girls for immoral purposes."

TABLE SHOWING SUMMARY OF COMPARISONS

Name of Test		Average of 250 Students.	Average of 100 "Gang Members"	Average Variation of 100 "Gang Members."
Vision:				
Right Eye		15%		
72 cm. and over		15%	22%	
61 cm. to 52 cm.		52%	56%	
44 cm. and under		33%	22%	
Left Eye				
72 cm. and over		16%	30%	
61 cm. to 52 cm.		60%	60%	
44 cm. and under		24%	10%	
Strabismus		2–4%	24%	
Hearing:				
Right ear abnormal		3%	12%	
Left ear abnormal		2%	8%	
Sensation Areas:				
Correct 4 or 5 times		63%	22% right hand 30% left hand	
Correct 3, 2, 1 or 0 times		37%	78% right hand 70% left hand	
Strength:				
Right hand		36.3 kg.	31.03 kg.	3.4 kg.
Left hand		33.5 kg.	32.5 kg.	3.2 kg.
Steadiness (Errors)			81.6 errors	
Marking 100 letters:	Time	100 sec.	115.4 sec.	10.6 sec.
	Errors		9.09 errors	6.9 errors
Naming 100 colors:	Time	85 sec.	80.49 sec.	3.83 sec.
Speed Tests:				
Making 100 movements				
" 100 taps		34 sec.	27.9 sec.	4.9 sec.
Tapping for one minute			322.1 times	29.4 times
Making 100 Accurate Movements:				
Dotting 100 dots:	Time	49 sec.	54.04 sec.	9.4 sec.
	Errors	0.8 mm.	1.6 mm.	6.3 mm.
" 100 squares:	Time		49.55 sec.	11.1 sec.
	Errors		10.55	8.3
Three-Hole Test:				
Number per minute			80.04	6.9
Perception of Size (Errors)		2.4 mm.	2.2 mm.	0.1 mm.
Perception of Time:				
One minute		49.0	60.8	6.2
One-half minute		38.0	28.0	4.2
Memory:				
Numerals heard and remembered		7.6	5.98 cor.	1.2
Numerals seen and remembered		6.9	5.4 cor.	0.85
Retrospective (Error)		4.5 mm.	4.4 mm.	1.5 mm.
Imagery:				
Recognized by vision			54%	
" " audition			46%	
Mother alive		95%	74%	
Father alive		97%	62%	
Father skilled laborer		97%	3% (were farmers)	
Marriage age of Mother		22½ yrs.	19.9 yrs.*	
Marriage age of Father		27½ yrs.	21.15 yrs.*	

*83 cases

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THE METHOD OF SIMPLE EXTRACTION OF THE LENS.

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It seems to me that a paper on the extraction of cataract at present would be something like "carrying coal to Newcastle," as the subject has been written on and discussed for many years. But of late we have heard so much of the method of Major Smith's operation for the removal of the lens in its capsule that the time has come when the ophthalmic surgeons of this country should present their personal experience in this most important operation. From this personal testimony we may decide what method has been most successful in their hands; what have been their final results as regards the acuity of vision after the operation, and what have been the many complications arising during the various steps of the operation. On this subject we have had few papers and methods of operation, except those referring to the work of Smith of India and of the few who have attempted to follow that method in this country. I say this country, as, so far as my information extends, the method of removing the lens in the capsule has not met with a very cordial reception in England or the Continent.

Now as this subject has been presented to us so fully by Green, Wurdeman and others, in what seems to me a very favorable light, a just criticism of the method may not be out of place at this time. As I understand it, we have had very minute instructions as to the extraction of the lens in which, it seems to me, the assistant plays the most important part, and secondarily that the lens must be made to turn on its horizontal axis, so that the lower part of the lens may first present at the section, when we rupture the zonula by the pressure on the lower part of the cornea by the strabismus hook. Clark calls these cases, in which the lens turns, the intumescent (tumbler) cases. But does the lens perform the revolution? It may in some cases, yet, as I understand it, the lens fails to perform this step and is simply pressed out of the section by the direct pressure of the hook placed on the lower part of the cornea. I have been informed and seen it stated that the lens fails to make the turn in more than 75 per cent. of the operations. If this be true, then we may say that the operation is simply the old and, in my opinion, the classical operation of simple extraction without the cystotomy, in other words, a large section of the cornea, a rupture of the zonula by pressure and the extraction of the lens in the capsule. Now, this is no doubt a new procedure in the technique of this operation and the serious question is forced upon us: Shall we attempt it in our private and hospital work? Personally I cannot answer the question, as I feel the full force of reading the excellent and interesting papers on this subject, and the time may come when I shall attempt it, as the statistics presented to us by others with the remarkable acuity of vision that is claimed and the absence of a possible secondary operation, seems very enticing; at the same time the reported loss of vitreous compel one to hold back his approval until we can more fully understand just how and what the method will do.

Now one cannot justly condemn any procedure unless he is fully conversant with it and has seen the operation performed, and I must plead ignorance to both of these conditions, as I have not seen the operation performed, and I am only conversant with it from the published articles and discussions I have had and read; so I cannot claim to have any fair opinion, either for or against, but my object in this paper may be said to ask the opinion of the profession as to their individual methods of operation for senile cataract and to place before you my own method of operation and the results of that method during the past few years. Many years ago, now more than thirty, when I first commenced my work in the field of ophthalmology at the Manhattan Eye and Ear Hospital under the service of the late Drs. C. R. Agnew and D. B. St. John Roosa, we had only one operation in vogue at that time, namely, the combined operation of extraction of the lens with an iridectomy, many times called the Von Graefe operation, simply because we used the Von Graefe knife. This was the method in almost universal use and the one that I was taught in those days. But we lost many eyes—about 6 to 8 per cent. —and in 1887 I devised a new method of removing the lens without an iridectomy, and after a number of successful operations I published a paper on the subject in the *New York Medical Journal,* read before the Pan-American Congress in 1893. But at that time the subject of the "Simple Extraction" was rapidly coming before the profession, and the excellent results of Hermann Knapp's operations and his paper before the Section of Ophthalmology of the American Medical Association in 1892 brought the simple extraction rapidly into vogue, and I discontinued my own method, as probably too complicated for general use, and myself performed the simple extraction as so well presented by Knapp.

During these years my records show forty-seven operations, performed with the aid of the iris retractor to draw back the iris towards its periphery, so as to gain the advantages of an iridectomy without the traumatism of the iris, and after the extraction of the lens the iris was replaced without a coloboma. But after this series of operations, though without a failure and with good acuity of vision in a large majority, I gave up the method for the much more simple one of the simple extraction, which at that time was meeting with the approval of many operators. Consequently I have seldom performed the combined operation, or that with iridectomy. My records show eight operations with iridectomy, and then not from choice but because the existing conditions compelled me to remove a portion of the iris membrane, due to a shallow anterior chamber or to cutting the iris at the time of making the section.

Therefore in presenting this paper I have had a twofold purpose—that is to say, I wish to present my own views of the Smith operation as I understand it from the various reports published in the past, though I candidly acknowledge I have never attempted the method; and also my own experience in the removal of the sclerosed lens for the restoration of the sight. One may ask the question: How many operations shall we perform before we can come before the profession with our statistics, as it has been said we should have at least one hundred operations before we can judge of the value of any procedure? But considering the enormous number of operations reported by Major Smith, by which the lens has taken two distinct routes in its exit from the lens fossa, I fear that my own few operations will have but small consideration; on the other hand, I am encouraged to present this work

from the fact that our writers in this country present much smaller numbers, and so I may claim your indulgence in presenting the statistics of my last seventy-five operations, and I trust that by so doing I may learn and know the experience of other operators in this country. As previously stated, when I first commenced my work on the eye we were taught only one method of the removal of the lens—the so-called Von Graefe method—but in which the late Dr. D. B. St. John Roosa used to say "all that was left of Von Graefe's method was the knife." And this was very true, and in the natural order of change many sound modifications have been introduced, but in giving us this knife we have the most useful instrument in the extraction of the lens. Now, this Von Graefe knife is the most important instrument in the hands of the surgeon, as it is the only instrument by which you can make a perfect section of the cornea, and one that will tend to heal very rapidly. During the last few years I have wandered from the usual method of operation, and propose in this paper to present my present method and my statistics in reference to the same, taking from my case books the last eighty-six operations. I have selected this number simply for comparison with the last report by Greene of the Smith operation.

As the aim and purpose of this paper has been to present to this Section my personal experience in the removal of the sclerosed lens of old age, I may state that during my work in the field of ophthalmology I have not followed any special beaten track, but have endeavored by personal experiments to improve the technique, and the final results as to the acuity of vision in this most important and interesting operation. In my early work I did not know of anything more pleasing and instructive than to watch Dr. Ch. R. Agnew operate for senile cataract. His confidence, technique and success commanded my admiration, and his teaching has always been of service to me. But the profession must move onward, Agnew has passed away, and though his operations were very beautiful, yet in those days our loss was 6 to 8 per cent. At that time, also, every surgeon in nearly all cases performed the combined operation, that is to say, the iridectomy with extraction. Now these, practically, two operations performed at the same time on an eye which can hardly be considered a perfectly healthy one were possibly the cause of the high percentage of loss. So I left the old method and devised the Iris Retractor, as before stated, with which I drew back the iris and so made the exit of the lens very easy without the formation of a coloboma of the iris. (*New York Medical Journal*, Oct. 28, 1893.) Following up this method I have the records of fifty operations without the loss of a single case by suppuration. But I noticed that my cases did have a tendency to iritis more frequently than I wished. After this series of operations had been performed I had several in which the lens came out very easily without the use of the retractor, and my attention was drawn to the study of the simple extraction. At that time Herman Knapp was advocating the simple extraction with what he called a peripheral capsulotomy, but though I liked that method of opening the capsule I did not follow his suggestions in reference to the section, but did follow a method which to-day does not bear the *name of any author*, nor do I know when I conceived the idea of making the section as I do now. At the meeting of the Section on Ophthalmology in 1907, Weeks of New York read an historical paper on the "Incision for the Extraction of Cataract," and in which we find an illustration of the shoulder incision, and the statement that "the shoulder thus formed gives better support to the flap and a subsequent good healing with slight danger of prolapse of the iris is assured." This is the nearest explanation of the incision as I make it, but it is not the same as I will describe it. Let me say at first that, while I do not claim the incision as original with myself, yet I am unable to find any mention of it in the books at my inspection, yet I consider it one of the best, and one that is adapted to the most rapid healing. I will not dictate the preliminary preparation of the patient, nor of the eyes, as that is too well known to all my hearers, except as far as I never use atropine *before* the operation. Now—as to the section, I use a large and rather long Graefe knife, and make the puncture and counter-puncture about in the horizontal meridian of the cornea so that the upper or cutting edge of the knife will just clear the superior edge of the pupil. The *point* of the knife is then carried rapidly forward and upward, so that one side of the section of the cornea is made by one clean and smooth cut: the knife is now drawn backward and the heel of the blade carried upward, cutting the other side of the section clean and smooth. The cutting edge of the knife has now reached the superior edge of the cornea, and I now turn the knife on its long axis about one-fourth of a circle, and with one clean cut the section is completed wholly within the corneal border. In this way we completely avoid the to and fro movement of the knife, which would give us an irregular cut surface. Our next step is the opening of the capsule, and for some years I did the operation which Herman Knapp called the peripheral capsulotomy, by which the capsule was divided "from the nasal to the temporal side" behind the iris, near its periphery and parallel to the corneal section. This method I was very much pleased with. But I wanted to carry the section of the capsule all around—in other words, I wanted to make a complete peripheral capsulotomy. This, however, could not be done with the instrument then in use, as the cutting edge of the small knife would injure the pupillary edge of the iris, so I devised the cystotome, described in the *Ophthalmic Record*, August, 1900, page 382. This instrument is a single needle point set at right angles to the shank of the instrument. With this I found I could make a complete circle, with the cystotome carrying the needle point beneath the iris and about two or three millimeters beyond the pupillary edge—in other words, a complete peripherical capsulotomy. I have found no difficulty in making this large opening in the capsule, though in two cases it seemed as if the lens and capsule had moved somewhat as the needle point made its circuit under the pupillary edge. In all cases where this cystotome was used the lens made a rapid and clean exit. If this procedure does separate the center of the anterior capsule of the lens, it should tend to diminish the necessity for the many discissions now performed. Lang of London tells me he performs a discission in all cases without regard to the acuity of vision, but with this method of capsulotomy my statistics show that a secondary operation is very seldom needed. My next step is the removal of the lens, and this also is one of the most important steps, as I do not like the stroking of the corneal surface with the spoon, but placing one small spoon at the upper edge of the section, the other spoon is placed on the lower part of the cornea, and without being moved

from that position, steady pressure is made directly downward in the direction of the center of the eyeball. By this procedure we see the upper edge of the lens slowly tipping toward the section, until it comes into the pupillary space, and then the lower spoon is carried forward to complete the expulsion. Any remnants of the cortex that may remain are gently pressed out by depressing the upper edge of the section with the small spoon and very slight pressure below. I do not approve of excessive attempts to remove these small portions, as I prefer to leave them, as I have seen many of them naturally absorb, and if they do interfere with the visual acuity, I prefer a discission to any forcible expulsion. The toilet of the wound simply consists of replacing the iris, should it fail to return to the anterior chamber after the expulsion of the lens. This is done with a small spatula, the eye is carefully washed with a solution of boracic acid or salt and the eye closed. Both eyes are bandaged for two or three days, and the operated eye is kept covered with the bandage for eight to ten days.

Since I gave up the use of the iris retractor I have the records of nearly one hundred cases of simple extraction and of eight combined operations. Leaving out the combined operations and three in which I met with some special complications either at the time of the operation or during the healing process, some of which are reported in this paper, I present sixty-eight operations by the simple method. Of these I report twenty-one operations in which I did the complete peripherical capsulotomy with the final results as noted in these tables.

Total number of operations by the method of simple extraction with shoulder incision and the partial and complete peripherical capsulotomy.

My first series comprises 47 operations with the shoulder incision and the partial peripherical capsulotomy: 5 cases, V—20/15, with glasses; 12 cases, V—20/20, with glasses; 9 cases, V—20/30, with glasses; 4 cases, V—20/40, with glasses; 3 cases, V—20/50, with glasses; 3 cases, V—20/70, with glasses; 4 cases, V—20/100, with glasses; 1 case, V—20/200, with glasses; 2 cases, V—good vision, not tested; 3 cases, no report; 1 case, V—0, failure.

Complications arising during the operation or afterward: Vitreous loss, 1 case; iridectomy necessary, 1 case; discission, 9 cases; incarceration of iris, 3 cases; prolapse of iris, 3 cases; hemorrhage in anterior chamber, 1 case; iritis, 1 case. Two cases gave a diabetic history at time of operation.

My second series of cases comprises 21 operations with the shoulder incision and the complete peripheral capsulotomy with the needle point capsulotome: 2 cases, V—20/15, with glasses; 3, V—20/20; 3, V—20/30; 6, V—20/40; 2, V—20/50; 3, V—20/70; 2, V—20/200. With the following complications: Prolapse, 2 cases; iritis, 1 case; discission, 3 cases; hemorrhage in anterior air chamber, 1 case, and 1 patient with a successful operation on both eyes was diabetic.

Operations performed during the time of the above *and not reported* in this series, but which presented some complications, and while they may reduce the percentage, yet they show the incidents that may occur in any series of cases:

No. 124. This man had very poor perception and restricted field before operation. After removal of the lens he could see objects.

No. 127. This man did well until the fifth day after the operation, when he struck the eye a hard blow in the morning, ending in prolapse of the iris which was cut off four days later. Good perception, but no final test.

No. 122. In this case the house surgeon put atropin in the eye some hours before operation. This dilated the pupil to an extreme extent, yet after the operation the pupil did not respond and remained fully dilated when the man was last seen. No report of vision.

No. 112. This man having lost the right eye from a previous extraction, I removed the eyeball and did a preliminary iridectomy on the left. Healing being prompt and clean, I proceeded to remove the lens. The operation was smooth, but three days after I had suppuration with total loss. As this man was in the hospital all the time, it is hard to understand the source of infection in this case.

No. 104. This woman had a smooth operation, but three days after when pulling the bed clothes, her hand slipped and struck the eye. This was followed by suppurative iritis, ending in complete closure of pupil. Her field was so poor, I did not attempt to open the pupillary space.

Conclusion.—This paper is therefore presented as my personal experience in the operation for the removal of senile cataract and as all my operations have not followed any special method, it may have some interest. We may then ask what is the result of this personal experience? I would state that it does not seem to me essential that an iridectomy should be considered as a part of the operation for senile cataract, unless some unforeseen condition arises during the operation, to render the formation of this coloboma of the iris necessary. We find this condition in those people who may contract the lids at the time of the section so as to push the iris against the edge of the knife and the iris must be cut to complete the section. I have also found the same condition in three cases of very shallow anterior chambers, in which we can seldom make the shoulder incision, as I have described it, without wounding the iris. I also think that this section of the cornea is an improvement on the old method of the to and fro movement of making the section. Both of the above considerations I note are included in the advantages of the Major Smith method. Furthermore, it seems to me that the complete peripheral capsulotomy has some points of interest, as if the anterior capsule is lacerated in a complete circle the center of the capsule must come out with the exit of the lens, and, if so, we must have less necessity for the secondary operation. While I have not been able to prove that the center of the capsule has come out during my last operations, yet, as far as my observations have extended, it seems to me that my cases have required less secondary operations than those of other operators, as I understand that secondary discission is generally required in about 60 per cent. by the usual operation. But all this remains to be proved by the experience and by the results of other operators. I have not dwelt on the after-treatment of my cases, as in all this work I have followed the excellent suggestions of others, and in case a discission was needed, I have always tried to follow the suggestions of Zeigler and made the triangular opening in the capsule, a procedure that I think is an excellent one, and an advance in the performance of this delicate operation.

Finally, I present this paper in the hope that my personal experience in this most important operation may be useful to others in the domain of operative surgery in ophthalmology, and close with the words of A. E. J. Lister at the Bombay Congress, 1909:

"I repeat, however, let us be careful before we accept any dicta by any ophthalmologist, however distinguished he may be, on this important subject, unless supported by a series of cases, by an account of the operations performed, especially a statement as to whether the capsule was left behind or not, and if iritis or iridocyclitis followed."

164 East Sixty-first Street.

DEATHS IN CHILD-BIRTH.

By FREDERICK S. CRUM, Ph.D.,

NEWARK, N. J.,

ASSISTANT STATICIAN THE PRUDENTIAL INS CO. OF AMERICA.

An accurate statement of the ratio of deaths in child-birth to the total number of confinements in the general population is difficult and perhaps impossible. The accurate statistics are limited to those found in hospital reports and the hospital statistics may differ considerably from those of practitioners in the general population. Hospital statistics, too, are practically limited to urban populations and the rural communities might show quite different returns.

During five years there were 7,598 confinements recorded in the In-door Department of the Society of the Lying-in Hospital of New York City. During the same period there were 337 deaths of mothers during confinement, or a fatality ratio of 4.4 per 1,000 of total confinements.

In the In-door Department of the Lying-in Hospital of Boston during a recent five-year period there were 60 deaths in child-birth out of a total of 3,546 confinements, or a fatality ratio of 16.9 per 1,000 of total confinements. In the Boston Hospital the experience for practically the same period has been nearly four times as bad as that recorded in the New York Hospital. In the Boston Hospital a considerable proportion of the cases are difficult ones and this is probably the main reason for the high ratio of fatal cases. On this point the following quotation from the report of the hospital, for the year 1907, is of interest. "Many of the cases received for treatment have been of especial difficulty, and it is getting to be more and more the practice to send to the Hospital patients who are in a precarious condition, and patients who have been treated unsuccessfully outside and whose recovery is despaired of."

DEATHS IN CHILD-BIRTH OF MARRIED WOMEN
New South Wales, 1893–1905.

Previous Issue.	Number of Confinements.	Deaths in Child-Birth.	Ratio of Deaths to every 1,000 Confinements.
0	98,531	810	8.2
1	79,173	358	4.5
2	64,115	349	5.4
3	51,759	292	5.6
4	43,385	287	6.9
5	33,069	225	6.8
6	26,263	195	7.4
7	20,245	178	8.8
8	14,610	160	11.0
9	10,027	93	9.3
10	6,499	63	9.7
11	3,764	48	12.8
12	1,992	35	17.6
13	988	10	10.1
14	488	7	14.3
15 and over	362	5	13.8
Not stated	1	2	
Total	453,262	3,117	6.9

In the absence of reliable data for this country, the statistics of Australia may be of some interest. There an effort is made to collect statistics on this subject in such detail as really to serve a useful purpose. In New South Wales such data have been registered and compiled for a period of thirteen years, 1893-1905. These are of special value because they indicate the varying fatality ratios, according to the number, if any, of the previous confinements. The foregoing table presents the summary of these statistics:

According to this table, "the risk of death at the first confinement is higher than at any subsequent one up to the eighth. It is least at the second, but not much higher at the third. A most important consideration, therefore, so far as the risk of child-birth is concerned, is the number, if any, of the woman's previous issue."

Another factor of great importance in any consideration of the risk of death in child-birth is the age of the mother. In Western Australia the statistics are given in detail and the following table will be of special interest:

DEATHS IN CHILD-BIRTH OF MARRIED WOMEN
Western Australia, 1903–07.

Age of Mothers.	Number of Confinements.	Deaths	Ratio of Deaths to every 1,000 Confinements.
Under 20	1,075	4	3.7
20–24	7,266	28	3.9
25–29	10,625	57	5.4
30–34	8,842	53	6.0
35–39	5,348	41	7.7
40–44	1,634	17	10.4
45–49	135	1	7.4
Age not known	6	1	....
Total	34,931	202	5.8

This table indicates that the risk of death steadily increases with the advancing age of the mother. In this table, however, no distinction is made of the previous number of confinements, which, as the New South Wales statistics show, is a factor of considerable importance. From the data for Western Australia it is possible to calculate the fatality ratios of first confinements by ages of the mothers and the facts are summarized in the following table:

DEATHS IN CHILD-BIRTH OF MARRIED WOMEN
(First Confinements.)
Western Australia, 1903–07.

Age of Mothers.	No. of First Confinements.	Deaths	Ratio of Deaths to every 1,000 Confinements
Under 20	910	4	4.4
20–24	3,576	20	5.6
25–29	3,015	20	6.6
30–34	1,319	14	10.6
35–39	427	5	11.7
40–44	76	1	13.2
45–49	2	..	....
Total	9,325	64	6.9

The average fatality ratio of first confinements is shown to have been 6.9 for all married women in Western Australia during the five years, 1903-'07, for which the information is available. The chances of death during confinement of mothers without previous issue increase steadily with advancing age and the ratio of deaths to 1,000 confinements varied from 4.4 for mothers under twenty to 13.2 for mothers of ages forty to forty-four.

While it is not possible to state what proportion of confinement cases in the United States, or in any State, or in any given city, are likely to prove fatal, it would seem to be reasonable to assume that the ratio for all married mothers would vary from 4 or 5 to 10 or 15 per 1,000 of all cases. The variation in the ratios would depend upon the average age of mothers and especially upon the pro-

portion of the total confinements which were first confinements. Taken one with another, it is probably not far from the truth to assert that from 5 to 10 confinements out of every 1,000 are fatal to the mothers in this country at the present time.

A SUPPURATIVE ADENITIS UNDER THE STERNOCLEIDOMASTOID MUSCLE TREATED WITH STREPTOCOCCUS VACCINE.

By F. OP. De BEECK, M.D.,

NEW YORK.

This is the first time I have had the occasion of employing streptococcus vaccine. The venture was crowned with a result that was as surprising as rapid and that induced me to relate my experience, glad of the opportunity of making, even to a small extent, a contribution to biological therapy. The simple history of the case will enable one to comprehend the curative value that I attribute to the vaccine better than the most learned dissertation.

It is as follows: Mrs. X., aged 30, had been afflicted for eight days with a tumor situated on the left side of the neck, the illness being preceded by a sore throat about March 6. I was called to see her on March 12. There was a large swelling on the left side of her neck which was painful to the touch, a restriction of maxillary motion, and a temperature of 39.8° C. (103.6° F.). The tumor was hard, the skin red, and there was no fluctuation. There were also a swelling of the sternocleidomastoid, dysphagia, and vomiting.

After having tried the usual remedies in vain, to bring about a resolution, I made an incision along the posterior border of the sternocleidomastoid and reached the abscess after having incised the deeper fascia. The abscess was drained. In a few days the cavity filled up, the temperature returned to normal and all swelling had disappeared. I considered the case cured. This was on March 23. On March 28 I was again summoned to my patient. The swelling had reappeared, the temperature was 40.2° C. (104.4° F.), the rigidity of the jawbones pronounced, and the vomiting not infrequent. The swelling extended to below the clavicle, the submaxillary, submental, and thyrohyoid glands were indurated and the posterior part of the neck the site of an erysipelas. This was the state of affairs, when I had recourse to the streptococcus vaccine. I made an injection of ten millions of the bacteria at 9 o'clock in the evening, when the temperature was 40.5° C. (104.9° F.). The patient passed a good night.

The following is a record of the temperatures: Monday, March 28—9 P.M., 40.5° C. (104.9° F.) (injection); 12 M., 39.8° C. (103.6° F.). Tuesday, March 29—8 A.M., 38.4° C. (101.1° F.); 11 A.M., 37.8° C. (100° F.); 5 P.M., 37.4° C. (99.3° F.); 8 P.M., 37.2° C. (99° F.). Wednesday, March 30—8 A.M., 36.8° C. (98.2° F.).

All of the symptoms improved rapidly, the erysipelatous vesicles dried up, the swelling of the neck disappeared, and the patient was again able to take nourishment; everything returned to the normal.

On March 30 I administered 30,000,000 and on April 2 I made a last injection of 40,000,000. These injections were not followed by any reaction.

On April 6 I was sent for in haste. During the night the patient had been seized with vomiting and a fever of 40.2° C. Again there was a marked swelling at the left of the neck, pain, dysphagia, etc. I diagnosed another abscess. I made an injection of 40,000,000 bacteria. It was 5 o'clock in the afternoon. The temperature on April 6, at 5 P.M. was 40.2° C. (104.4° F.) (injection); 8 P.M., 38.9° C. (102° F.); April 7, 8 A.M., 37.5° C. (99.5° F.); 12 M., 37.1° C. (98.8° F.); 7 P.M., 36.6° C. (97.9° F.).

Again the swelling, pain, difficulty in swallowing, and vomiting disappeared. I made another injection of 40,000,000 on April 9. This time I was again of the opinion that the patient had entirely recovered when, on April 15, in going to see her infant, suffering with the same trouble, I found the mother confined to her bed, having again a swollen neck, but with symptoms less pronounced, the temperature only being 38° C. (100.4° F.). I gave her another injection of 40,000,000 and the next day her condition had returned to normal. I have decided to continue these injections, for the present, every four or five days, for some time. Under the circumstances I am absolutely convinced that it was the vaccine that cured my patient. I may remark that between the different attacks of the disease the patient was quite well and did not complain of any other trouble, moreover, that the ailment reappeared about six days after the last injection.

The child, aged 5 years, also presented a suppurative adenitis, following a sore throat, with a temperature of 39.4° C. (103° F.). I made three injections of 5,000,000 each. At the end of six days the temperature was normal and the adenoplegmon underwent resolution.

350 West Fifty-sixth Street.

AINHUM COMPLICATING UNCINARIASIS AMERICANA IN AN AMERICAN WHITE GIRL.

By FRANK L. ESKRIDGE, M.D.,

ATLANTA, GA.

This case is considered worthy of report because of its being unique—certainly cases of this type infrequently come under the observation of the clinician of varied experience and largest clientele—and because of the rarity of the disease, ainhum, in this country.

The disease ainhum was first described by da Silvia Lima of Bahia, Brazil, in 1867. The observations made later by other writers are similar to the original ones made by this authority. Ainhum is distinctly a tropical disease of unknown etiology and heretofore reported in the negro race only. The disease is characterized by a painless amputation of one or more joints of one or more toes by a trophic process. This process is carried out by the formation of a slightly constricting band, or furrow, at the digitoplantar fold of either toe. This band or furrow becomes in time more pronounced, firmer, and more and more constricting, until the confined portion of the toe enlarges and loses its natural shape. Inflammation and subjective symptoms are markedly absent except in the infected cases. In those cases occasional pain is felt. The constricting band continues to narrow, tumefying the toe, until finally only a small pedicle remains, from which the toe usually sloughs off (unless surgically removed), leaving a smooth amputated surface. The amputated base heals nicely. When ulceration takes

place, as in this case, the ulcer assumes a resemblance of a necrotic ulcer with a distinct nauseous odor.

As advanced by Unna, the condition is a sclerodermic callosity, with ring formation, producing a stagnating necrosis. The tumefaction indicates a stagnation, resulting in degeneration, retraction, and finally disappearance of the phalanges. The disease sometimes covers a period of several years.

Case.—Patient Miss V. H., aged 12, American born, was first seen by me at my office, November 1909, having been brought from one of the mill sections by Miss Ethel Hill, a district nurse. Her skin presented a waxy appearance of a dirty, muddy hue—typical Florida complexion—accompanied by the lack-luster of the eyes.

Previous History.—She had had the usual diseases of childhood. In 1906 occasional chilly attacks appeared. During the intervals between attacks she was entirely free from trouble except the foot condition.

Family History.—Her mother and father are living; the mother has nephritis; the father has a suspicious history of syphilis and hook-worm. Four brothers and five sisters are all sickly. The patient is the youngest child.

Personal History.—There is a neurotic taint; the sleep is good; she still has chills, though not so pronounced; the appetite is fair; bowels are constipated; she becomes tired and has malaise in the afternoons; there is an insatiable thirst. At six months of age a bleb or blister was noticed to appear on the left foot just above the digitoplantar articulation of the second toe, which soon broke down, forming a constricting band around the second toe. This process continued over a period of several years, resulting in the complete loss of the second toe and involvement of the third. At this time the foot presents a complete loss of the two toes, with the fourth toe confined in a constriction, having lost its natural appearance and shape, as shown in the illustration, while the great toe presents a deep callous plantar ulcer. Inflammation extends to the arch of the foot.

Examination.—The weight is 62 pounds; height, 4 feet 3 inches; temperature, 98.4°; pulse, 100; respiration, 20; hemoglobin, 40 per cent.; red corpuscles, 2,700,000; white cells, 58,000. There is edema of the feet and legs; the lungs are negative; over the heart is heard an anemic murmur; the tongue is furred and coated.

Urine.—The specific gravity is 1.014; the reaction, acid; albumin, negative; sugar, negative; indican in abundance; microscopic examination, negative.

The stool shows the presence of hookworm eggs.

The patient was placed upon weekly doses of fifteen grains of thymol for six doses given at night after a day's fasting, followed by the administration of an ounce of magnesium sulphate the following morning. After the sixth dose the stools showed no signs of eggs. The patient's family refused surgical interference with the foot, so it was treated along antiseptic lines with marked improvement resulting. The ulcer has practically healed, and while spontaneous amputation of the fourth toe is expected, after its healing the patient will have good use of the foot, requiring, however, a special shoe.

This case is doubly of interest because of the nature of both diseases, and because of the appearance of ainhum in the Southern States and in an American white child.

Ainhum is frequently met with in negroes in Brazil, India, and Africa, and occasionally in the Southern States, but I have been unable to find a report of a case heretofore in the Caucasian race.

301-2-3 Century Building.

AN IMPROVED PHARYNGOSCOPE.

By AUGUST L. BECK, M.D.,

MAMARONECK, N. Y.

Efforts are continually being made in the direction of invention and improvement of appliances for diagnostic and therapeutic purposes in all branches of medicine and surgery, the results of which are varying, and although all are not at first entirely successful, improvements follow rapidly in their wake. Oftentimes excellent contrivances are set forth only to fall into oblivion simply because of being beyond the pecuniary means of the average physician. Economic laws, such as demand and supply and the costs of labor and material, too often unduly influence the success or failure of the particular device. With full knowledge of these facts, together with others which will be hereinafter mentioned, I have endeavored to produce an instrument meeting all requirements without sacrificing any useful quality or any of its simplicity. In fact, adaptability, simplicity, and economy have been my very aim.

That the pharyngoscope, for the first model of which we are indebted to Dr. Harold Hayes, is rapidly gaining recognition and being more universally employed, is now an assured fact. With increasing and more general use of the pharyngoscope recourse to employment of the instruments of the Killian and Jackson types will be less frequently necessary except for purposes of inspection of the more deeply situated air-passages. Instances where the use of a local anesthetic is necessary are exceedingly rare. Difficulties experienced in the use of the Hayes pharyngoscope suggested to me certain modifications and improvements aiming chiefly at simplicity, thereby materially facilitating the manipulation of the instrument and widening the scope of its usefulness. The suggestions were made to Mr. R. Wappler, the maker, who kindly consented to carry them out.

The modified instrument is smaller, having one tube for carrying wires to the lamp and one tube for the telescope. This constitutes practically the whole instrument. The telescope tube has a wider diameter or bore than any yet made. No handle

was attached for the reason that in a large number of patients its use as a tongue-depressor handle causes marked gagging, so much so that further attempts to examine the patient at that sitting meet

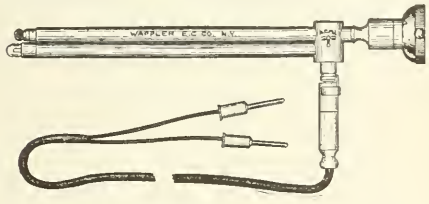

Fig. 1.

with very little if any success. Its absence enhances delicacy of manipulation and favors avoidance of contact with any of the sensitive parts of the mouth or pharynx. One great secret in its successful use is care in not touching any part of the anatomy of the posterior portion of the buccal cavity and pharynx, notably the soft palate and posterior portion of the tongue in the region of the circumvallate papillæ and lingual tonsil. Gagging is not frequent nor marked when the uvula is touched, providing these precautions have been observed. The posterior pharyngeal wall is also not often extremely sensitive. Sometimes a patient will in closing the lips around the instrument bring the soft palate and dorsum of the tongue in contact with resulting gagging. In such cases permit the patient to leave the lips parted with all the muscular structures relaxed. Care must be exercised in the manner of inserting the instrument into the mouth. A good way is to place the lamp extremity on the anterior part of the tongue at the same time resting the barrels or tubes upon the lower incisor teeth, the mouth being moderately open, then gradually pushing it backward along the dorsum of the tongue until the extremity reaches a point from ⅛ to ¼ of an inch from the posterior pharyngeal wall. The parts are then ready for inspection, the small ball on the eyepiece indicating the position of the lens at the distal extremity. In the majority of cases when the lens is directed upward an excellent view of the nasopharyngeal vault, nasal choanæ, and both Eustachian tube orifices may be obtained, as well as any abnormal conditions present. In many cases a better view of the orifices of the tubes may be obtained by rotating the lens from 20 to 45 degrees to either side of the perpendicular.

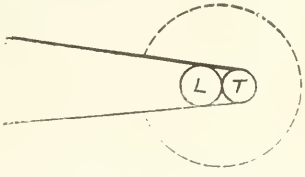

Fig. 2.—L, lamp; T, telescope; dotted line shows arc that can be examined without disturbing the position of the instrument. Is accomplished by rotating the telescope tube only.

This instrument having only one lamp gives a brightly illuminated and unobstructed view of one entire side of the pharynx without the necessity of rotating the whole instrument, as shown in the diagram:

On the other hand, the absence of a handle permits of rotating or reversing the entire instrument so that a view of the opposite side may be obtained in a similar manner. However, I have found that it is better to withdraw the instrument and reinsert it in the manner already described with the tubes in the opposite relationship to each other. By so doing the possibility of gagging is avoided.

Although the telescope itself is a comparatively large one, thereby exposing to view a large area, the diameter of each of the two tubes is approximately only ¼ of an inch. This makes the width of the intraoral portion ½ an inch, the actual combined width of both tubes. The importance of this reduction in size of the instrument as a whole is readily appreciated in examining children, and especially so in patients with greatly enlarged tonsils. This also applies to a similar condition in adults and in cases with peritonsillar abscess. It should be remembered that it is not necessary that the patient close the lips over the instrument, as this act is very often not conducive to perfect relaxation of all the muscular structures. This relaxation of the muscles of the pharynx is best obtained by allowing a distance of from ½ to 1 inch to intervene between the upper and lower incisor teeth aiming to have the mandibular joint as free as possible from muscular restraint. At the same time have the tongue lie passively on the floor of the mouth with its tip resting against the inner or posterior sides of the lower incisor teeth. The patient is then told to breathe quietly through both nose and mouth, thus overcoming the tendency for contraction of the muscles of the soft palate and favoring relaxation of same. In this way I have made perfect examinations. Dribbling of saliva is sometimes annoying to the patient, but does not interfere with the examination. Regarding the trouble encountered from condensation of moisture, I wish to point out that the clouding of the lens system during expiratory puffs does not occur at the distal or intraoral end of the telescope but upon the eye-piece or proximal end. This may be obviated by adjusting a pasteboard or mica shield at the proximal extremity of the instrument, which will at the same time protect the examiner from the breath of the patient. This has already been suggested by Dr. Hayes. Any distortion of the images of the parts under examination is due to malposition of the instrument and is easily corrected by remedying this. As with the old method where mirrors and reflected light are used, somewhat more difficulty will be experienced in cases where there is a large, thick, muscular tongue. A tongue depressor placed on or near the base of the tongue causes gagging and when placed more anteriorly causes crowding downward and backward of the structures near the base, thus interfering materially with sufficient elevation of the epiglottis. In this way marked obstruction is produced.

It is not the purpose of this article to cite cases examined and conditions seen by means of the pharyngoscope, but simply to enumerate some of the difficulties which attended its employment in my hands and to point out the advantages of the new instrument. For diagnostic purposes alone the pharyngoscope offers the simplest and easiest method of making examinations of the upper air passages. Improvements in the direction of invention of attachments for making topical application and also to the invention of instruments that can be employed with the pharyngoscope in position will probably suggest themselves as time goes on. It should be borne in mind that the smaller and simpler the instrument the easier will be its manipulation and the less disagreeable to the patient.

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New York, September 17, 1910.

PSYCHIC GASTRIC JUICE IN MAN.

It is occasionally objected that Pavloff's discoveries concerning the gastric and other digestive secretions in dogs, which may be demonstrated at will on his animals with permanent fistulæ, need not apply to man, whose physical development is so far in advance of that of quadrupeds, however much agreement there may be in other than the psychic factors of digestion. It is conceded, we believe, that such uniformity as may be demonstrated in this respect among dogs is not to be expected in man. Fistula findings in the latter are but seldom procurable and the subjects are seldom healthy. It is doubtful if a treatise on stomachic digestion could be built up from such findings. Even Beaumont, so lauded as a physiologist, must be judged rather as a pioneer in experiment, as a man capable of recognizing an opportunity to be improved, and as a tenacious observer who followed up his advantages, than for his discoveries, which held good only for his particular subject and led to a vast amount of erroneous teaching, such as that all digestion was accomplished in the stomach, that the gastric secretion was produced by mechanical irritation by the food, and that the acid present united chemically with the food to form salts.

Hertz and Sterling have recently had an opportunity for the study of psychic gastric juice in a gastrostomy patient (*Deutsche medizinische Wochenschrift*, August 4, 1910). This subject had an esophageal stricture from swallowing concentrated lye. This was progressive and after three years a gastrostomy was performed. The stricture was treated, and the patient nourished by both routes. Recently he had masticated his food and introduced the pulp into the gastric fistula. At the time of the experiments the latter had been in existence seven years. Five years after the accident (hence two years after the gastrostomy) he went through a severe attack of empyema, which necessitated a resection of some ribs. The cause of the patient's coming to his present consultation was a second attack of empyema. It was after his convalescence from the latter that the experiments were undertaken. These were as far as possible parallel with those of Pavloff on dogs.

The few chemical substances which when introduced into dogs' stomachs cause a flow of chemical gastric juice so-called had no such action on this man's stomach. Nor did mastication of sapid substances cause the flow of an "appetite juice." Furthermore, there was not the intimate correlation in the simultaneous presence of appetite and a flow of gastric juice. Apparently either might exist without the other. The authors are far from attacking Pavloff's findings or conclusions. They believe that there is some looseness in the use of the word "appetite," and that better definitions are needed. They refuse to generalize from their findings in an isolated subject. Most of our readers will doubtless continue their belief in Pavloff's demonstrable teachings as underlying our general knowledge of digestion, however much these may seem to be contradicted by individual findings in mankind. Pavloff's teachings as to psychic gastric juice harmonize fairly well with what we know empirically of digestion and appetite in the healthy. At the time of their publication it was repeatedly claimed that they were not only not new to savants, but that laymen, even when untaught, were partly conversant with them. If anything these teachings were adopted too readily, and have served as a bulwark for numerous dietetic specialists, both medical and lay. If they are ever disproved it will hardly be through the agency of isolated experiments in human fistula subjects.

CARDIAC NEUROSES VS. CONDITIONS SUGGESTING GRAVES'S DISEASE.

Within recent years there has been gradually evolved the conception of a group of ailments presenting one or more of the familiar symptoms of exophthalmic goiter, in which, however, on account of the incompleteness of the clinical picture, the diagnosis of the latter condition is not permissible. To this group of cases Stern has lately applied the term *"Basedowoid."* As a clinical entity this has many features in common with the cardiac neuroses, from which in most instances differentiation has been impossible. Both are the result of an inherited degenerative tendency, and, developing gradually, are first rendered manifest by severe bodily or mental stresses. Of the many subjective symptoms that are identical in both groups, cardiac palpitation is the most prominent; next in frequency come dyspnea and a sense of oppression in the chest. Both conditions present many psychic manifestations, such as hyperexcitability, anxiety, impatience, hypochondria, insomnia, a sense of weakness, *globus hystericus*, dizziness, and a general mental depression. Occasionally there are fainting spells and sometimes the patient complains of indefinite pains in various parts of the body. Objectively both groups have the same clinical picture; there are the general stigmata of degeneration, increased cutaneous vasomotor excitability to mechanical and psychical stimuli, and seborrhea, loss of hair, hyperidrosis, salivation, and extensive dental caries. The tendon reflexes are increased, while those of the mucous membranes are diminished. The facial phenomenon and tremor of the lids and of the outstretched fingers are found in both groups of cases. Either the heart is normal or its action is exaggerated, with an indistinct first sound. Most of these

symptoms, including cardiac palpitation and respiratory difficulties, are manifestations of an increased excitability of the automatic nervous centers, while the remaining symptoms, including tremor and increased tendon reflexes, are attributed to an augmented activity of the sympathetic system. *Basedowoid* alone has a thyreogenous component which in some cases is sufficient to enable one to differentiate this condition by virtue of the presence of exophthalmos or of a struma that may be almost imperceptible.

Such being the similarity of the symptoms presented by both groups of cases, the discovery of a method that would enable one to determine to which group any particular case belongs would be a valuable addition to our diagnostic resources. Success in this direction has apparently crowned the efforts of Bernhard Aschner, who reports his interesting results in the *Zeitschrift für klinische Medizin,* Vol. 70, Nos. 5 and 6. His method consists in the subcutaneous injection of ¼ to ½ mg. of adrenalin. In cases of *Basedowoid* this is followed by an acceleration of the pulse, cardiac palpitation, dilatation of the pupils, pallor, trembling, nausea, a rise of temperature of from 0.5° to 1° C., a sensation of dryness in the mouth, slight headache, dizziness and, within two or three hours, the appearance of glycosuria. None of these manifestations occurs after the injection of a similar dose of adrenalin in normal individuals or in those presenting cardiac neuroses. The simplicity of this method and its ease of application particularly commend it in the diagnosis of cases frequently encountered in general practice.

TUBERCULOSIS AND POVERTY.

The question of tuberculosis has once again been threshed out in a fairly thorough way at the recent conference on the disease held in Edinburgh. Of course, in the discussion the mode of infection was very much to the fore and eminent authorities from different parts of the world retraversed that now well-worn ground. Perhaps the general attitude of the meeting was expressed by Prof. Sims Woodhead when he stated that in his opinion the infection was most frequently introduced through the air-passages, but that the alimentary canal was sometimes infected. Woodhead, however, strongly deprecated the tendency so often evinced nowadays of jumping at conclusions from insufficient premises. He said that caution was necessary in drawing conclusions from experiments, especially with the smaller animals, to determine the question of the avenues of infection in tuberculosis, for most of the experimental animals were mouth breathers. A paper was presented by Professor Bartel, of Vienna, in which he said that the chief result of recent investigations was that we had to admit our ignorance. Immunization experiments had demonstrated the importance of predisposition and to prevent infection the body must be strengthened. Several speakers at the conference professed opposite views as to the avenues of infection. Dr. T. Shennan of Edinburgh gave details of 1,085 post-mortem examinations in the Edinburgh Royal Hospital for Sick Children, and stated that 38.8 per cent. had died from tuberculosis and 82.0 per cent. of these had their lymphatic glands affected. He thought that much of this was due to bovine infection by the agency of milk. Drs. Fordyce and Dickson said that abdominal tuberculosis was very prevalent among children in Edinburgh and was due to infected milk. Thus, although no new facts were brought to light at the conference, the matter stands where it stood before, that the results of investigations and of clinical experience seem to show that the main avenue of tuberculous infection is by inhalation, but that a certain part of the infection originates in the abdominal regions and that many cases of infection of the lungs have come from the ingestion of infected food.

The most instructive portion of the discussion on tuberculosis in Edinburgh was that which dealt with the methods suggested for ridding the world of the disease, or, at any rate, for effectually scotching it. Now, it is obvious that poverty is a fertile, if not the most fertile, means of spreading and continuing consumption. As Dr. John McVail of Glasgow pointed out, it is a question whether phthisis is a cause of pauperism, or pauperism a cause of phthisis, and the answer broadly speaking is that phthisis causes pauperism in one generation and pauperism causes phthisis in the next. To a very large extent, then, tuberculosis is a workingman's question. In the first instance occupation is a potent cause of phthisis. There are some employments, such as steel filing, stone mason's work, labor in coal mines, the manufacture of some kinds of pottery, which in varying high degrees favor the contraction of the disease. Likewise, what is known as sweat-shop labor, undertaken under the most unsanitary conditions, so common in New York City and in other parts of this country, is a palpably frequent cause of its spread. But, indeed, little argument is needed to prove that workers of nearly every description are from the very nature of their callings rendered peculiarly open to the attacks of tuberculosis. Further, as a rule, their home life is against their recovery and very favorable to the dissemination of the disease. In the towns, too, often the workman's house is small, ill-ventilated, badly lighted, and overcrowded. The soil is particularly advantageous to the spread of the disease and the consequence is that if it does not sweep the district like wildfire it slowly and steadily makes its fateful way.

The successful treatment of every disease demands that it be attacked in its early stages. In consumption early treatment is absolutely essential to success. In the light of modern knowledge tuberculosis is, to all intents and purposes, always curable if it is dealt with promptly. The malady becomes less and less amenable to treatment with every day that passes until by the time that the patient is generally disabled hope of recovery has gone. But in the case of the working man, nine times out of ten, the application for medical aid is made too late. For many reasons which appear to him sound he does not want to leave his work, and, as Dr. Nathan Raw remarked at the Edinburgh Con-

ference, so far as the extinction of consumption is concerned the workingman and his wife are utterly hopeless. The problem would not be so serious were it not for the fact that the workingman suffering from tuberculosis in his overcrowded home in an overcrowded district is a menace to the community. If the disease went no further than the patient, it could be grappled with more or less easily, but when the sick man is a center from which infection is freely carried and finds favorable soil, the solving of the problem seems to present insuperable difficulties. Consumption will never be eradicated until practical methods are everywhere introduced of early diagnosis and of successful treatment of the disease among the poor. The first step toward this desirable consummation is the universal establishment in civilized countries of improved housing, improved workshops, and improved schools.

Some of the speakers at the Edinburgh meeting were in favor of the State taking up the matter of tuberculosis in the working classes, contending that the task is too formidable to be overcome by private enterprise. In any event, the conference will have served its end if it has succeeded in driving home the truth that in order to extinguish tuberculosis the disease must be attacked in its strongholds, the workshops and homes of the poor.

Lead Poisoning and Lung Affections from Working in Potteries.

Two reports have been issued in Great Britain dealing with the dangers to health attending those who work in pottery manufactories. The menace to health from this kind of employment is due to the use of lead compounds in making pottery, rendering the workers liable to lead poisoning, and to the injury to health arising from the inhalation of dust. The inhalation of dust of flint and clay is known as potter's rot. Dr. Russell reported that no less than 52 per cent. of potters over fifty showed signs of lung disease, and according to Dr. Shafflebotham bronchitis caused forty-four times more deaths among pottery workers than among the general population. The liability to and the contraction of plumbism is a far more serious matter among pottery workers than are the dust-caused diseases. The pottery processes in which lead is used employ in Great Britain about 7,000 workers, and of these 100 or thereabouts are attacked by lead poisoning every year. The evil, however, is much larger than the figures of cases indicate. Many cases of lead poisoning are concealed. In addition to the actual tabulated cases, the evidence tends to show that the general health of a considerable number of workers is impaired. Many of the pottery workers are girls and married women, and a grave consideration of the question is the effect of lead poisoning upon maternity. Thirty-one out of 121 mothers who were lead workers previous to marriage had miscarriages, and 21 out of 70 mothers who worked at lead processes after marriage were subject to miscarriages. Lead poisoning is a very insidious form of poisoning and in the large majority of cases exerts an injurious influence upon the worker. Of course, a tired or under-nourished worker is more prone to be poisoned than a healthy individual and for this reason it is essential that those who work in lead pottery manufactories should be as well nourished as possible. The British report recommends that employers should supply their employees, especially the delicate ones and the girls and women, with milk or milk and cocoa before they commence work and at intervals after. But Miss Gertrude Tuckwell, the only woman inspector who signed the report, makes a more sensible suggestion—that taking into consideration the fact that pottery can be made without lead glazing the use of lead should be prohibited in its manufacture. A British labor paper, commenting on the matter, makes the humane recommendation that lead-glazed pottery should be boycotted. It is now beginning to be widely recognized and appreciated that human life and health are of more value than the amassing of riches, and the time is not far distant when this wise principle will be acted on.

Trichinosis.

Though human infection with *Trichina spiralis* is a matter of deep concern to the sanitarians of various parts of Europe, the disease in this country is, as a rule, considered to be so rare as to attract very little attention from either clinicians or sanitarians. That this neglect of a disease so important and so serious as trichinosis is the cause of many mistaken diagnoses is emphasized by two articles appearing in the August number of *The American Journal of the Medical Sciences*. In one of these W. Gilman Thompson reports fifty-two sporadic cases seen by him in New York City during the past six years, and in the other Henry Albert reports a sharp epidemic which occurred among the students of Iowa College in 1907. Trichinosis is a disease easily overlooked by one not constantly on the watch for it, but diagnosed with the utmost ease by one keeping the condition in mind. Though often mistaken for typhoid fever such an error should be corrected in the course of a few days. The sudden onset with fairly rapid rise of temperature, the exquisite muscular tenderness, the peculiar form of diaphragmatic dyspnea, the slight puffiness of the eyelids and face, and edema of the ankles and possibly corneal hemorrhages, all associated with marked prostration, make up a symptom complex which should invariably suggest the presence of trichinosis. As soon as the possibility is suggested the difficulty is past, as the confirmation of the diagnosis is a matter of simplicity. The most positive proof of the infection is of course the finding of the *Trichina spiralis* in the muscle of the patient; the simplest is a differential count of the leucocytes. With a series of symptoms as above described the presence of over 15 per cent. of eosinophiles in the blood is practical proof of trichinosis, whereas a normal eosinophile content as distinctly excludes the disease. That Thompson in his own private and hospital practice has during the past six years seen fifty-two cases of trichinosis is probably not a matter of luck, but rather due to the fact that he has been constantly upon the watch for the disease and has recognized it when he has seen it. The comparative immunity which has been believed to exist in this country to trichina infection, owing to the fact that raw ham is but rarely eaten here, is shown by Albert to be a false security, for in his epidemic in Grinnel the ham eaten had been boiled. As this "boiling" process as carried on by the dealers consists in keeping the hams in vats for several hours, it would be expected that the parasites would be killed. On

investigation, however, it developed that the temperature was but rarely raised above 200° F. and in many cases did not exceed 170° F. Such "boiling" apparently does not render it a safe food and makes it of vital importance that all ham before it is eaten should be recooked in the house.

The Permanent Slow Pulse.

P. Rostaigne of Paris recently discussed the permanent slow pulse in an article published in the *Medical Press and Circular*, July 20. Adams, in 1827, was the first to describe the pathological permanent slow pulse and the question has come to the front again recently. As a rule the pulse rate in these cases is from thirty to forty pulsations a minute, but it is sometimes even slower than this. In a general way examination of the heart does not reveal anything abnormal in respect of the orifices, but Stokes, who, together with Adams, described the pathological condition known as Stokes-Adams' disease, called attention to a peculiarity of the heart that is sometimes met with. Between the audible heart contractions a dull, muffled sound is heard, which he regarded as an abortive systole represented only by auricular contraction. It follows that the heart sometimes splits up the systole into two parts, a superior auricular, and an inferior ventricular, which occasionally misses fire. Rostaigne shows that Stokes' observations are borne out by the present conception of the pathogenesis of permanent slow pulse. Permanent slow pulse is an affection that runs a long course. As a rule it lasts for several years, but the prognosis is always grave, indeed fatal. Since Charcot's time and up to a recent date, the Stokes-Adams' syndrome has been regarded as a consequence of disturbance of the circulation in the medulla, that is to say, the central nervous system was credited with a preponderating rôle in regulating the heart beat. In view, however, of recent physiological and anatomical researches, the myogenic theory has taken the place of the neurogenic, the conception of cardiac automatism is now generally admitted, and little or no importance is attached to the medulla as the seat of origin of the disturbance of cardiac rhythm. The symptoms observed in the course of permanent slow pulse are now referred to a lesion of His's bundle, and what is more important is the fact that syphilitic lesions have been found at the root of the mischief. As Rostaigne remarks, this is quite a novel conception and justifies our anticipating recovery, in many of these cases of permanent slow pulse, as a result of mercurial treatment.

Ophthalmic Migraine and Frontal Sinus Disease.

While sick headache, with or without such ophthalmic symptoms as scintillating scotoma and narrowing of the visual field, is as a rule an essentially neuropathic manifestation, cases are undoubtedly accumulating in which the eye manifestations may be shown to be due to organic disease in either the nasal fossæ or the sinuses; this is especially apparent when a condition like ophthalmic migraine, which has little tendency to spontaneous recovery, yields permanently to measures directed to the intranasal condition. Oertel of Düsseldorf reports in *Berliner klinische Wochenschrift*, of June 13, an interesting case in which a chronic catarrhal inflammation of the right frontal sinus caused increasingly repeated attacks of ophthalmic migraine. In this particular case there were no scotomata nor was there any retraction of the visual field; but there was marked asthenopia at the height of the migrainous attack. Various explanations have been advanced to account for such cases, and most of these deal with a reflex mechanism, although opinions differ as to how this becomes operative. Oertel inclines to Zarrikow's theory that accumulated secretions in the frontal sinus, or edematous saturation of the mucosa of the middle turbinate, or both conjoined, comprise the nerve endings, and thus determine the migrainous attack as a purely reflex phenomenon. In this type of cases drainage of the frontal sinus brings about a prompt recovery from the migraine. Both ophthalmologists and rhinologists seem inclined to accuse empyema rather than chronic catarrhal inflammation of the sinus, but experience shows that one condition may readily pass into the other and that nasal ophthalmic migraine need not necessarily suggest an empyema.

News of the Week.

Health of the Canal Zone.—In submitting the report of the sanitary department of the Isthmian Canal Commission for July, 1910, Dr. Gorgas points out that while the death rate among employees and among the total population is a little larger than for July of last year, it is still smaller than for any other preceding July. For employees the figures given are as follows:

Year.	Force.	Number of deaths.	Rate.
July, 1905	11,277	45	46.11
July, 1906	28,041	151	64.71
July, 1907	38,298	112	35.09
July, 1908	44,938	55	14.68
July, 1909	45,875	31	8.10
July, 1910	51,871	51	11.80

For the total population the figures for this and preceding Julys are:

Year.	Total population.	Number of deaths.	Rate.
July, 1905	41,084	237	69.22
July, 1906	74,777	422	67.72
July, 1907	103,333	357	41.48
July, 1908	121,607	295	29.11
July, 1909	135,871	207	18.29
July, 1910	153,186	287	22.48

Among the white employees there were 12 deaths, an annual average per thousand of 10.37; among the colored employees, 39 deaths, an annual average per thousand of 12.32. No cases of yellow fever, smallpox or plague originated on or were brought to the Isthmus during the month.

In Panama the inspection of buildings in reference to the harboring of rats has been completed, and it has been found that over 50 per cent. of the houses are suitable for harboring rats and possibly for their propagation. The city cannot, therefore, be considered in a satisfactory sanitary condition as regards a possible invasion by plague and plague-infected rats. Inspection has also been made of all roof gutters in the city which are breeding places for mosquitoes, since yellow fever is another disease which constantly threatens Panama. More than 50 per cent. were found to be in unsanitary condition, and persistent efforts will be made to have these changed as soon as possible. In addition to these inspections the usual routine work has been carried on.

Smallpox on Steamship.—A case of smallpox was discovered on the Atlantic liner *President Lincoln*, which arrived in New York on September 7. The steamship was detained at Quarantine until all the unvaccinated third cabin and steerage passengers were vaccinated. The patient was removed

to the hospital, and the occupants of the steerage compartment in which she had traveled were sent to Hoffman Island for observation.

Diphtheria in New York.—In the monthly bulletin of the New York State Department of Health a study is reported of the mortality in cases of diphtheria in New York. Attention is called to the larger mortality in New York City as compared to the State. The figures representing deaths per 100,000 of population:

	1908.	1909.
State of New York	28.9	27.5
City of New York	37.1	38.0

The conclusion is drawn that the mortality, which is excessive in both cases, is due to the neglect to make proper use of diphtheria antitoxin, a contention which is supported by the following comparison up to 1905:

	1902.	1903.	1904.	1905.
State of New York	37.7	39.2	38.4	28.4
City of New York	53.0	56.0	57.0	38.0
City of Paris	20.0	15.0	9.0	6.0

International Pure Milk League.—Under this title an organization was recently formed by a number of women in the City of New York at a meeting in the Hotel Astor. The league will devote itself to the investigation of the sources of milk supplies and the production of clean, pure milk at prices within the reach of persons of moderate means. In New York the league will cooperate with the Department of Health in any measures looking to the betterment of the milk supply.

Massachusetts' Oldest Man.—Patrick O'Hearne, said to be the oldest man in Massachusetts, died at his home in Worcester on September 8, aged 105 years.

Health Budget.—The Department of Health of New York City has made a request for an appropriation of $4,076,578 for the year 1911. This is $1,328,855 more than the department was granted for 1910. The principal increases asked for are as follows:

Division of the chief clerk	$48,949.50
Division of child hygiene	320,545.00
Division of contagious diseases	113,150.50
Division of general sanitary inspection	57,210.00
Division of milk inspection, city and country	60,510.00
Laboratories, research and vaccine	101,759.00
Division of hospitals	486,056.00

The Sale of the Ehrlich Preparation.—A dispatch to the New York *Times* of Sunday last gives an account of a meeting of American physicians in Berlin at which Dr. Marks, one of Ehrlich's assistants, announced that preparation 606 would be put on sale in this country in November. He said, as has already been stated in the MEDICAL RECORD, that the manufacture of the remedy is protected by international patents, but added that the profits of the sale would not go to Ehrlich, who is already immensely wealthy, but would go one-half to Speyer House, a research institution in Frankfort, and the other half probably to the manufacturers. At the conclusion of Dr. Mark's announcement the physicians present unanimously adopted a resolution recognizing the justice of Ehrlich's guaranteeing himself a legal control of his remedy by taking out international patents.

Protest Against the New Drug Law.—Representatives of many of the druggists' associations of New York met on September 6 at the College of Pharmacy and passed a protest against the recent ordinance of the Board of Health prohibiting the sale of medicines containing morphine or opium or their derivatives, except on a physician's prescription. A committee was appointed to consult with the Board of Health and attempt to effect a compromise. The druggists declare that the ordinance is too indefinite in not stating in exactly what quantities morphine can be sold, and that it restricts the sale of only some of the preparations containing morphine.

Gifts to Charities.—By the death of Mrs. Clara L. Dotger, a number of legacies provided for in the will of her husband, Andrew J. Dotger of South Orange, N. J., who died in 1905, are released. Among these are gifts of $10,000 each to the German Hospital of Philadelphia and the Orange Memorial Hospital.

Announcement has been made of the gift of $500,000 to the Evanston (Ill.) Hospital Association by Mr. George W. Patten. The money is to form an endowment fund for the Evanston Hospital to be known as the Agnes and Louise Patten Fund, in memory of the donor's mother and sister.

The First Trials of 606 in New York.—Dr. M. S. Kakels of this city has been using the Ehrlich-Hata remedy at the Lebanon Hospital in a few selected cases during the past two or three weeks. A preliminary note describing the remarkable results obtained by him will appear in the next issue of the MEDICAL RECORD.

Dr. George Francis Heath, who died in 1908, was remembered at the convention of the American Numismatic Society, of which he was the founder, on September 7, when the president of the Association made an address in appreciation of his life and work.

The Seventh International Tuberculosis Congress will be held in Rome September 24 to 30, 1911, under the patronage of the King and Queen of Italy. The Secretary-General is Professor Vittorio Ascoli, and the President Professor Guido Baccelli. The Congress will be in three sections, that on etiology and causes of tuberculosis; on pathology and therapeutics, both medical and surgical; and on the social defence against tuberculosis. The names of the presidents of these sections will be announced in the near future. The National Association for the Study and Prevention of Tuberculosis states that the American Committee will be able to announce that the number of tuberculosis agencies in this country has tripled in the three years since the last International Congress, and that more than twice as much money is being spent in the fight against consumption by private societies and institutions, and also that the appropriations for tuberculosis work by federal, state, municipal, and county authorities have quadrupled.

The Utah County (Utah) Medical Society at its regular meeting at Provo on August 29, elected Dr. H. G. Merrill to fill the office of secretary and treasurer made vacant by the resignation of Dr. Frederic Clift.

The Central Oklahoma Medical Association will hold its annual meeting at Chickasha on October 4. Dr. E. D. Ebright of Enid, Okla., is the secretary of the organization.

Obituary Notes.—Dr. ELY VANDEWARKER, a retired physician and former School Commissioner of Syracuse, N. Y., a graduate of the Albany Medical College in the class of 1863, a veteran of the Civil War, a member of the American Gynecological Society, and of the New York State and Onondaga County Medical Societies, and consulting surgeon to the Syracuse Hospital for Women and Children, and the Central Hospital of New York, died at his

home on September 6, after a long illness, aged 69 years.

Dr. Edward L. Pearce of Louisville, Ky., a graduate of the Medical Department of the University of Louisville in 1886, a member of the American Medical Association and the Kentucky State and Jefferson County Medical Societies, formerly surgeon for the Illinois Central and the Louisville Legion, died at his home on August 23.

Dr. James Meredith Matthews, a retired practitioner of Reading, Pa., a graduate of the Jefferson Medical College of Philadelphia in 1840, died at his home recently, aged 94 years.

Dr. James H. McInerny of New York, a graduate of the Yale Medical School in the class of 1891, a member of the New York State and County Medical Societies, and assistant surgeon to the General Memorial Hospital, died of heart disease at his summer home in Mount Vernon, N. Y., on September 5, aged 40 years.

Dr. James Nevins Hyde of Chicago, Ill., a graduate of the Department of Medicine of the University of Pennsylvania in the class of 1869; a member of the International Dermatological Congress, the American Dermatological Association, the British Medical Association, the American Medical Association, and the Congress of American Physicians and Surgeons, a corresponding member of the Berlin and Paris Dermatological Societies, and the Chicago Medical Society, dermatologist to the Michael Reese, Presbyterian, and Augustana Hospitals of Chicago, and Professor of Skin, Genito-Urinary and Venereal Diseases in the Rush Medical College, died suddenly on September 6 at his summer home at Trout's Neck, Me., aged 70 years.

Dr. Ferdinand A. Steffen of College Point, N. Y., a graduate of the University of Griefswald in 1882, died of apoplexy at his home on September 9, aged 53 years.

Dr. William E. Pole of Philadelphia, Pa., a graduate of the Jefferson Medical College in the class of 1890, died on August 29, aged 42 years.

Dr. James Cowan, a pioneer settler of Portage la Prairie, Manitoba, a graduate of the Medical Department of Victoria College in the class of 1862, died at his home on September 1, aged 70 years.

Dr. David W. Vander Burgh of Fall River, Mass., a graduate of the Department of Medicine and Surgery of the University of Michigan in the class of 1866, a veteran of the Civil War, and a member of the Massachusetts Homeopathic Medical Society and the American Institute of Homeopathy, died at his home on August 29, aged 68 years.

Dr. Harold L. Barnum of Sedalia, Mo., a graduate of the Hahnemann Medical College of Philadelphia in the class of 1902, died suddenly at his home on August 30, aged 36 years.

Dr. Timothy D. Sullivan of Calais, Me., a graduate of the Bellevue Hospital Medical College, New York, in the class of 1884, a United States Special Pension Examining Surgeon, and a member of the Maine Medical Association, and of the Portland Medical Club, died at his home suddenly on September 2.

Dr. Stuart A. Ashton of Ballston, Va., a graduate of the University College of Medicine of Richmond in the class of 1902, a member of the Virginia Board of Health, died of paralysis in Washington on September 9.

Dr. Simeon S. French of Battle Creek, Mich., a graduate of the Geneva (N. Y.) Medical College in 1842, died on September 10, aged 94 years.

Obituary.

EMILY BLACKWELL, M.D.

NEW YORK.

Dr. Emily Blackwell, a sister of the late Dr. Elizabeth Blackwell, in conjunction with whom she founded the New York Infirmary for Women and Children, died at her summer home, York Cliffs, Me., on September 8. Dr. Blackwell was born in Bristol, England, in 1826, but removed with her family to this country in 1832. Her struggles to obtain a medical education were indicative of the prejudices of the time. In 1851 she was refused admission to the Geneva Medical School, from which her sister had been graduated two years before, although the authorities were compelled to admit that the presence of Elizabeth Blackwell "had exercised a beneficial influence upon her fellow students in all respects." In succession ten medical colleges refused to enter her as a student, but finally she was permitted to pursue her studies at the Bellevue Medical College in New York, and a year later the Rush Medical College of Chicago consented to admit her to its classes. This permission was later withdrawn, however, because of the censure of the Illinois State Medical Association. At length the Cleveland Medical College, the Medical Department of Western Reserve College, admitted her, and in 1854 she received the degree of doctor of medicine from this institution. After further study abroad Dr. Blackwell returned to practise in New York, and together with her sister undertook to enable other women to enter their profession. It was decided that the greatest need was for a hospital in which women might obtain the experience not offered to them elsewhere, but the proposal to open such an institution, in which the attending physicians should be women, was met by a storm of disapproval. All difficulties were, however, overcome, and in 1865 the New York Legislature granted a charter to the New York Infirmary for Women and Children, a number of eminent men physicians acting as a consulting board. In 1868 the Woman's Medical College was opened in connection with the Infirmary, and the first class was graduated in 1870. In 1899 the college courses were discontinued. Dr. Blackwell remained on the consulting staff of the Infirmary until her death.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

MEDICAL WORK IN WAR—KING EDWARD'S HOSPITAL FUND—CEREBROSPINAL MENINGITIS—ABDOMINAL OPERATIONS—PTOMAIN POISONING—GASTROENTERITIS—RESTRICTED DIET IN SKIN DISEASES—OBITUARY.

London, August 26, 1910.

Medical work in war has been illustrated this week by a series of tactical operations extending over three days and having as object the training of the R. A. M. C. units and hospital staffs after the manner of the military maneuvers. There was accordingly a sham battle and a realistic display as far as could be of the actual work of the army medical service in collecting the wounded on the field and transferring them to railhead. Here a new unit of the medical service, a clearing hospital, was established, as in the South African War. There was a congested condition of the field hospitals after a heavy engagement. So this clearing hospital plan was adopted and the maneuvers tested its efficiency. It seems to have given satisfaction to the military officers who commanded the troops engaged, who belonged to the regulars. Major-General

Sir H. Rawlinson, director of the operations, and Surgeon-General Balstie closely watched the proceedings. Perhaps the hardest day was Tuesday, when 1,345 were passed through the clearing hospital. The total for the three days was nearly 2,000. It is generally said that no department of the army has more studied and profited by the lessons of the last war than the R. A. M. C.

King Edward's Hospital Fund has issued the annual report concerning the accounts of 99 London hospitals. This gives an account of the expenditure and contributes to economy. The reduction of cost since the issue of these reports has been continuous and it may perhaps be that so much has been done that the same rate can hardly be expected. Taking everything into consideration it would appear that about £6,000 represents real progress in the direction of increased economy during the year 1909.

An outbreak of cerebrospinal meningitis in Leicestershire is creating anxiety. It began in one of the villages of the Vale of Belvoir but rapidly spread to others, ten being already infected. The first announcement was soon followed by the report of a death and four have been notified up to date. This morning it is stated that three cases have also occurred in Nottingham, one of which died last night. Three years ago there was a severe outbreak in this town. At both places the medical officers of health are exercising all their authority and are advising the inhabitants to take other precautions which they have not power to insist upon.

Considering the opinions expressed by some of our surgical authorities as recorded in your reports of the B. M. A. it may interest your readers to notice some outside views, such as those strongly emphasized by Professor Dieulafoy. Dr. Bradshaw of Liverpool doubts whether a differential diagnosis between gastric and duodenal ulcer is practicable unless exceptional conditions assist and when the so-called triad of symptoms (pain, vomiting, and hematemesis or melena) is present there is abundant room for doubt. Vomiting of blood and melena may be due to other causes. The relation of gastric ulcer to appendicitis seems more doubtful than does colitis, which has too often served as a cover for mistaken diagnosis and consequent unnecessary operation. When no ulcer has been found it is assumed that the appendix is the seat of the disease—just as when that part has been removed and found normal the error is attributed to muco-colitis. Very similar remarks may be made about cancer of the stomach, which causes some 5,000 deaths a year in this country. It was said that in the early stage the disease was only local and should be diagnosed before a tumor can be felt. But how? We might set up another triad (anorexia, anemia and debility), but who would recommend operation on these? They are common to so many lesions. In cases much more advanced mistakes have been many. The "leather bottle" stomach, long regarded as cancerous, is now held to be a fibromatosis. Microscopic examination has shown that in a considerable proportion of resections performed the disease was not cancerous.

Prof. Dieulafoy—I quote a Paris authority rather than any London neighbors—in a lecture at the Hotel Dieu which he has just published, reiterates with great force his opinion that many unnecessary operations have been performed for appendicitis—upon patients who were suffering for the most part from muco-membranous enterocolitis. When the exercised appendix was found normal an attempt to set up the defence of a microscopical inflammation is severely dealt with. He details no less than seventeen cases of useless appendicotomy, in all of which the patients continued to suffer just the same as before the operation. He adds that during the current year he has saved no fewer than fifteen persons from being operated on for appendicitis which had no existence.

Many cases of illness attributed to ptomain poisoning have been reported from Cheshire and Wales. Three deaths have taken place in about eighty cases. All the cases are said to have followed eating pork pies. In one inquest the jury gave a verdict of ptomain poisoning according to the doctor's evidence.

The patients seem to have suffered from acute gastro-enteric derangement and inflammation. I saw one lately in London which suggested serious illness and as a typhoid case had been visited by the patient's medical man feared that it might be contract disease. But it recovered in a few days and no bacterial examination had been made; or it would have been interesting to look for paratyphus and compare the case with those of Dr. Bainbridge, of the Lister Institute, who has related an outbreak of gastroenteritis due to *Bacillus paratyphosus B.* affecting fourteen persons. They were seized with vomiting, diarrhea and pyrexia (temperature 101 to 103 F.). No other symptoms suggestive of typhoid. Some of the patients made a very slow recovery; in fact, convalescence generally was delayed and the circulation in three so weak as to threaten failure. Three specimens of feces were examined. In two a bacillus was found practically identical with paratyphosus B. Blood from six patients agglutinated this as well as standard strains. No single article of food had been eaten by all the patients, the cases had not occurred in one household, and the dates of attack differed. So food seemed excluded. The possibility of a typhoid carrier was suggested and one person who was not attacked and whose blood agglutinated *B. paratyphosus,* was thought a possible carrier. But then attacks of gastroenteritis caused by this bacillus have not previously been recorded in this country.

I hear that the dermatologists are not particularly pleased with their section at the late meeting. Some appear to have been left out and think it was intentional. But I do not enter into the matter which would scarcely interest you. In this section the paper of Dr. Bulkley on a very restricted diet was welcome. You are, of course, familiar with his views, as some of them have been fully stated in your own columns. Here they are not quite so well known. He was able to assure us that his restricted diet, which he has been using for four years, has given striking results in lichen planus, dermatitis herpetiformis and urticaria. Acute eczema had rapidly yielded to the plan. A patient is confined to rice and white bread and butter for five days; milk, coffee, tea, cocoa all being excluded. Then a moderate mixed meal at midday permitted—the morning and evening meals being unchanged. A few days later some relaxation of the rule at breakfast is permitted, but the evening meal is to remain the same for a good while. He emphasized the importance of cooking the rice in water and never in milk. It should be cooked slowly and left uncovered over the fire until dry and flaky and should be eaten with butter and salt, masticating it well. Water would be taken as desired. Later milk might be permitted before the evening milk.

Dr. Unna commended Dr. Bulkley's plan as rational and far more practical than giving a patient a list of foods to be avoided.

Dr. Hartzell doubted the use of vegetarian diet in psoriasis and whether we could found a diet for eczema on scientific principles.

Dr. Eddowes found the new lactic acid treatment of use. Dr. Wild held that we have only opinions about diet in skin diseases—no rules really based on physiological knowledge. Dr. Bulkley's low diet would benefit patients who had been too well fed, but hospital cases were usually ill nourished and improved with better feeding. Dr. Walsh said alcohol, some drugs, as iodine and copaiba, and toxins, were excreted through the skin as well as other organs. Dr. Knowsley spoke of gout and the ill effects of alcohol on the skin. Dr. Bulkley in reply said his views were the result of experience in private practice. The uncertainty of hospital experience in skin cases was notorious.

The death of Dr. David Howard Reynolds, J. P., is reported at the age of 68. He was M. O. H. for Pembroke, Surgeon to the Infirmary, a magistrate for the Borough. He qualified in London 1865 and Edinburgh 1867.

Dr. Beresford N. Earle has died at 66. He was physician to the Royal Hants Hospital and M. O. H. or public analyst for Winchester.

Sir Constantine Holman died on the 18th inst., full of years and honor. He reached his 80th year through a strenuous life as a general practitioner and as one always before the professional public as promoting all its benevolent institutions. He was treasurer of the Epsom College Medical College, and for several years also of the British Medical Association. He took M.D., St. Andrews, in 1851. He was knighted in 1904.

A Diagnostic Sign of Whooping Cough.—Apest regards the superficial ulceration of the prenulum linguæ, sometimes seen in pertussis, as pathognomic of this disease. The ulceration is situated in the median line, on the free border of the prenulum, it is usually linear, and is sometimes covered with a false membrane. In 252 cases of pertussis the ulceration was present in 111.

OUR BERLIN LETTER.

(From Our Regular Correspondent.)

THE VIRCHOW MEMORIAL—A NEW KAISER WILHELM ACADEMY—RETIREMENT OF SENATOR AND OLSHAUSEN.

BERLIN, Aug. 25, 1910.

If I begin this letter with the recently unveiled memorial to Virchow, it is because I am certain as to its general interest, so many times has it been asked "why has it taken so long for Berlin to erect a worthy memorial to the greatest of its medical men?" Two tendencies in the Memorial Commission have pulled in different directions. One rejected entirely the design of the sculptor that the memorial should be conceived essentially as an allegorical glorification of his subject, while the other would depart directly from the eternal monotony of a sitting or standing figure. The two opposing forces compromised on a middle course; but before this compromise could be effected years elapsed. The site, as such, is well chosen. On the Karlsplatz, at the entrance, so to speak, of the Charité, where he spent the greater portion of his life and where he passed by innumerable times, Virchow's memorial is now erected. Perhaps a more restful spot would have seemed appropriate, so that to this great spirit some moments of meditation might have been consecrated by the public, undisturbed by the ever-passing street traffic. Yet it is exactly amid the rushing life of the hour that Virchow's memorial belongs, for his labors essentially concerned the public; here he sought his kind as selectman and as state and parliamentary representative.

Upon a firm pedestal a powerfully conceived male figure strives, with his entire musculature tense, against a monster. The latter raises its head with a menacing and baleful air, yet the man appears the stronger. The next moment would see the creature dead upon the ground. It would hardly be possible to imagine the multiform life of Virchow in a simpler or more beautiful manner. Whatever Virchow did represented a struggle against the powers that be. In order that the spectator may understand whom the design commemorates Virchow's image, in relief, is placed on the front face of the pedestal. The inspired features of the savant find here their lifelike counterpart. But in addition his actual professional activity finds its expression on the memorial. Upon the side facing the Charité Virchow is represented in the act of instructing a number of physicians at the autopsy table.

Pedestrians in the Friedrichstrasse—one of our great business and traffic thoroughfares—were quite recently astonished at a spectacle not common in this quarter. At almost any time of the day one might see at the Friedrichstrasse Bahnhof, at the intersection point of the most hurried thronging, young men leaning out from the windows of a large, plain building, and viewing with cheerful quietude the rushing traffic in the streets beneath. These were none other than the pupils of our military medical teaching institute, the Kaiser Wilhelm Academy. Recently the new structure, which is seated behind the Charité, has been occupied after a five-year building period, and now appears in brilliant attire. At the dedication exercises the Emperor and Empress took part along with the representatives of military and medical Berlin. The exercises which attended the laying of the keystone were very brilliant. The Emperor himself spoke with his three hammer strokes the words: "To ease the dying; to strengthen the healthy; to destroy pestilences." The words placed over the entrance of the building were also chosen by the Emperor: "Scientiæ, Humanitati, Patriæ." The entire buildings are arranged about a court bright with verdure, in which the memorial to the founder of the institution—Goerke—stands. A majestic gate with standing figures of Hygiea and Aesculapius on either side leads the visitor into the main building, which stands upon the street and contains an aula intended to accommodate 600 persons, museums, assembly rooms, and the far-famed library with its 67,000 volumes. The Casino lies adjoining the main building. Its ground floor is for the students, while two upper floors are intended for the sanitary officers. Dining, reading, and amusement rooms, with turning and fencing rooms, are located in the Casino. The dormitories are provided with accommodations for 300 students, two of whom usually share a living and sleeping room, although a single student may occupy one room if desired. Lecture rooms and laboratories occupy special buildings, and are unsurpassed models of their kind.

With the end of the semester just closed two Berlin physicians have left forever their teaching chairs—Hermann Senator and the gynecologist Robert Olshausen. In the great auditorium of the University Poliklinik the last lecture of Senator was heard on the occasion of the close of his forty-two years' activity as a teacher, this constituting an impressive ceremony.

After an address of parting delivered by Professor Richter, the oldest assistant, Professor Krause sketched the evolution of Senator's career, and emphasized the number of fields in which the latter had shown itself fruitful in works of fundamental importance. Senator had always been especially popular as a teacher. The number of his students had never been equaled by any Berlin professor. The speaker expected in the future that many more scientific achievements would follow the inexhaustible activity of Senator. With a voice tremulous with emotion Senator himself outlined a retrospect of the development of scientific medicine during the second half of the last century, in the course of which he emphasized especially the great deeds of other renowned physicians, as Garrod, Charcot, and Koch; so that the speaker in his modesty understood how to divert all progress to the credit of others.

Olshausen in his last address drew a comparison before a numerous audience between the present state of medicine and that of fifty-eight years before, when he began his studies. He sketched the early days of gynecology, especially at the time when the first laparotomy was performed. After addresses by his successor, Bumm, and an assistant, Olshausen thanked all in moving words.

NEURALGIA FOLLOWING THE USE OF SOLID CARBON DIOXIDE.

To the Editor of The Medical Record:

Sir:—Though much has been written about solid carbon dioxide, no reference has been made as to its action upon the nervous system. We find that its mode of preparation, its mode of application, and its uses have been described. At Lebanon Hospital (service of Dr. Gottheil) we have repeatedly used the CO_2 for lupus erythematosus, nævi, epitheliomata, etc., and mostly with excellent results; but in two cases treated there, and also in one treated in private, it was noticed that when the CO_2 was applied it caused a distinct neuralgia. In one case (Mr. M. B.) where the carbon dioxide was applied to a lupus of the cheek, a neuralgia lasting about 12 hours was produced. This gradually wore off, and reappeared, but less severe, after the second application. This later attack lasted about two hours; but it did not recur at the third and subsequent applications. In another case (Mrs. M. R.) the CO_2 being used on a lupus of the upper lip, there appeared a neuralgia affecting the whole upper jaw and extending into the ear; but this lasted only a few minutes. In this patient each and every application was followed by a similar attack of short duration (from 5-10 minutes). In a third (private) case, nævus of the lower lip, where the CO_2 was applied to the mucosa, a sharp neuralgia lasting about 10 minutes occurred. As no second application was necessary in this case, we do not know whether the phenomenon would have recurred. These cases are interesting as they are the only ones we have encountered in the many we have seen in which neuralgia followed the use of the solid carbon dioxide.

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Progress of Medical Science.

New York Medical Journal, September 3, 1910.

The Treatment of Epilepsy with Hypodermic Injections of Rattlesnake Venom (Crotalin).—Ralph H. Spangler presents a preliminary report of 11 cases of epilepsy injected with this solution, made up of crotalus venom, ½ grain; glycerin, 50 minims; distilled water, 200 minims. Five minims of the solution contains 1/100 grain of the venom. He usually starts with 1/200 grain and gradually increases the dose, the largest dose being 1/12 grain. From his observations of these cases the following conclusions are drawn: (1) The number of cases have been too few, and the time they have been under treatment and observation too limited to arrive at positive conclusions. (2) In each case, however, the attacks have been modified as to severity and the intervals between the attacks lengthened. In one patient who had been subject to convulsions for six months there has been no recurrence since crotalin injections were begun. (3) The local reaction varies with individual susceptibility, and as a rule the oftener the injections are given the less marked

the local reaction. (4) There has been no depressing effect noticed on any of the vital functions of the system, but in all cases a feeling of well-being is described. (5) The physiological action of the venom on the nervous system needs further study and investigation.

Ichthyol.—Robert H. M. Dawbarn relates an instance in which mercurial ointment containing 25 per cent. ichthyol as a diluent was applied over an orchitis and acted as a violent irritant. After discussing the case with dermatologists and reading the literature on the subject it occurred to Dr. Dawbarn that ichthyol, being the fossilized remains of great masses of fish, it was quite possible that in prehistoric times, as well as at the present time, there would be among so many fish some of a poisonous nature. The writer could see no reason to assume that such animal poison necessarily would die out into innocence. Indeed, it might become even more virulent in time. Ptomains and toxins which are volative do not escape readily from within the earth and disappear as one might perhaps expect.

A Few Facts Concerning the Causes of Failures in Adenoidectomies.—J. Vernon White refers to the differences in construction of the nasopharynx in adults and in children; in children the measurements are all lessened and the vertical diameter is relatively shorter than in adults. He believes that a disregard of these differences of construction is a common cause of failure to relieve patients after adenoid operations. Peculiarities in the shape of the space on either side of the rostrum of the sphenoid bone and the location of the fossa of Rosenmuller and its relation to the Eustachian tube should be carefully noted and the operator should make sure that no vegetations are present in these localities, or if present, that they are thoroughly removed. This should be done by means of the finger, as there is danger of too much bruising or tearing of the tissues with the instruments ordinarily used. The condition known as Thornwald's disease should be looked for and treated if it is found to exist. With these precautions many of the failures hitherto so common will be a thing of the past.

Alcoholic Amnesia, with a Clinical Report of a Case.—N. S. Yawger says that among the various forms of mental disturbance is diminution or loss of memory. This may result from different causes, an important group being due to intoxications, and the particular intoxicant concerned in the case he reports is alcohol. This was a very grave case of complete alcoholic amnesia, and he feels reasonably sure that the psychic treatment which the man received almost daily for several weeks shortened very materially his illness, and perhaps saved him from permanent mental disability.

The Journal of the American Medical Association, September 3, 1910.

Blood-Pressure Apparatus.—C. F. Hoover criticises the dependence placed on blood-pressure determinations by laboratory apparatus in clinical work. Since the sphygmomanometer has been devised, there seems to be a general concession by clinicians that endovascular blood-pressure can only be measured by instrumental means and that finger palpation is misleading. He admits the difficulty of determining the pressure by the radial or brachial artery. The only artery which really serves for this purpose is the femoral, which gives practically the lateral pressure on the abdominal aorta and lies on the pubis under the mastery of the finger. It has lately, however, been apparent that either high endovascular pressure does not tax the heart so severely as we formerly believed, or that measurements have been misleading. He illustrates his view by reports of cases and experiments showing how fallacious or inefficient instrumental work in this line may possibly be. During the past four years it has been his practice to estimate the arterial pressure by palpating the femoral artery, and afterward to use the blood-pressure apparatus. A little practice will enable one to estimate the blood-pressure very accurately. In pressure between 150 mm. Hg. and 250 mm. Hg. he finds that there is rarely a disparity of more than 20 mm. between the digital and instrumental estimates, and as a rule the disparity is within 10 mm. He does not wish, he says, to discourage the use of a blood-pressure apparatus; it is a very valuable instrument, but its chief value consists in teaching us how to palpate the arterial pulse. No instrument can take the place of the finger, nor can any instrument teach as much about the pulse as can be learned by palpation.

Typhoid Fever Problems.—W. F. Dutton criticises the United States Government for its ineffective work in regard to the prevention of typhoid, as compared with that against some other diseases. It has been a comparatively recent thing for States and municipalities to take up this subject, and it has been especially neglected in the rural districts. In northern Canada, during 1909, typhoid appeared to be generally epidemic, especially in the mining regions. The only preventive measures used are the occasional disinfection of stools and urine with chloride of lime or bichloride of mercury, and the boiling of drinking water. Contaminated springs and wells are not condemned, but are cleaned out, sprinkled with lime or salt, and used again. Dutton has personal knowledge of wells that have been the source of typhoid for years, but any reference to them as a means of infection is received with apathy by the consumers of the water. Present day problems concern first the individual; second, the community, and third, the State. The individual in health may be the means of carrying and distributing typhoid germs, and Dutton believes that through errors of diet the colon, paratyphoid, or typhoid bacilli may generate typhoid. The individual must be educated to know the perils and avoid them. The problem of the community is a little more difficult. There may be many sources of infection and the situation may be complicated by restricted powers of control. A commendable procedure, however, is the isolation of bacillus carriers until microbes are no longer found in them, especially when they are persons employed as teachers, nurses, cooks, or employees in bakeries, dairies, restaurants, etc. Hospitals especially should regulate their subordinate staff and physicians should keep a record of all typhoid cases and systematize the record of carriers of the bacillus. The prevailing idea that healthy persons cannot be brought under control like other carriers needs serious consideration. The State is the great supervisor of medicine and public health, and Dutton mentions especially the work done in Pennsylvania in this regard. The water supply in small towns and rural districts presents a more difficult problem than that in larger cities, and he illustrates the sanitary methods that should be used in such communities. Municipal sanitation has taken a forward step in the disposal of garbage. The present method of constructing cesspools and vaults is faulty and needs strict regulation. The insect problem is also one to be considered. Vaccination against typhoid is in its infancy, but Dutton believes that it has a future and will become effective and valuable. He holds that the State should be the supervisor of all water supplies for cooking and drinking purposes. It should specify the sources and how they are to be protected and otherwise prevent all violations of hygienic or sanitary rules.

Subnormal Temperature in Infancy.—H. W. Cheney asks if we have not as physicians been too prone to disregard subnormal temperature and consider fever alone as of clinical importance. He points out that the condition of low temperature is usually a serious one, especially in infants and the specially recorded cases were generally fatal. The conditions of regulation of body temperature are far from perfect in infants, and slight causes produce greater disturbances than in adults. Insufficient heat production may be due in young children to starvation or stenosis, infantile atrophy or athrepsia, to prematurity and inanition, and these are far more likely to affect young infants than such other causes as diarrheas or disturbed central heat regulation or drugs, anemia, diabetes, etc., which affect adults. It is needless to emphasize the fact that great care must be used in taking and recording temperature in infants. The rectal temperature is undoubtedly the most reliable and this was used in the case reported. The child was a babe 3 months old when first observations were made. For nearly 3 months the temperature was more or less subnormal, one day going as low as 89° F. and frequently reaching 92° and 93°. It was the exception for it to go up to 98° F., and only once did it go above it. Small amounts of whiskey reduced the temperature; hot water bags and hot water baths did not elevate it. The child's father was an alcoholic. When it left the hospital it was slowly gaining in weight, but the temperature was still subnormal. The author thinks that this would fall under the head of subnormal temperature, due to insufficient heat production. The child was not active and resembled a premature infant. It lacked the life and vigor of a normal child. There is no doubt, he says, that the condition of inanition had much to do with the low temperature. Its weight varied from 4½ pounds on admission to 5½ on discharge, though the age at the latter was 7½ months. Cheney suggests the question whether there is anything in this condition analogous to the so-called hibernation of animals, but the subnormal temperature and inactivity are the only points of resemblance. There was no lowered respiration or heart beat in this case and food was taken regularly.

Vocal Cords in Goiter.—J. Matthews reports observations on the vocal cords in 1000 cases of goiter examined during the past 2 years. About 95 per cent. of the patients were operated on, and were examined before and reexamined after operation. After describing the motor nerve supply of the larynx and the liability to pressure from goiter, he summarizes his findings. There were 17 cases of paresis of both cords, 93 of the right cord and 162 of the left in the total of 289 partial or complete paralyses in 272 individuals of the 1000. Total paralysis of the right cord occurred 18 times; of the left, 30 times. Partial or complete abduction paralysis of the right occurred 50 times; of the left, 83 times. Partial loss of both motions of the right occurred 38 times; of the left 62 times. Bilateral tensor paralysis occurred in 4 cases. The paralyses were more frequent with enlargement of the right or left lobes. That of the median lobe alone was seldom accompanied by affection of the cords. The average frequency of symptoms of pressure on the nerves was directly proportional to the size of the lobes, but there were exceptions. Paralysis occurred sometimes when the lobe was not palpable, and in some cases with tremendous enlargement there was no affection of the cord. In 100 consecutive cases of nongoiterous patients there were 4 cases of paralysis. The position of the lobes was important. In goiters of the same size the cords were affected more frequently in cases with lobes located near the clavicle, especially if the goiter was wholly or in part intrathoracic. Firmness was likewise important, small, hard lobes being more likely to cause paralysis than large, soft ones. Long duration of goiter seems to increase the liability, both from its greater size and the long-continued pressure. Men are about three times as liable as women to paralysis from goiter of the same type. Exophthalmic goiter does not differ materially from other types in its effect on the cords except in extreme cases in which the general wasting of muscular tissues aggravates the condition. The age of the patient has no demonstrable relation to pressure on the recurrent laryngeal nerve except so far as goiters of large size and long duration occur in older individuals. No cases of recovery from total paralysis after operation are recorded, but in cases of short duration or when edema is a factor, there may be recovery. The importance of careful laryngoscopic examination is emphasized. It is essential to the prognosis of postoperative lesions, and might show the possibility of repairing damage by nerve suturing.

Stammering.—G. Hudson Makuen classifies stammerers as follows: First, those nervous children with any speech abnormalities; second, the beginning stammerers with hesitancy of speech; third, the complete stammerers, who know their defect. There are, therefore, three stages: the prodromal, the acute, and the chronic. For the first, the time to cure stammering is before it begins. Stammering is an acquired defect of an acquired faculty, and we should not let a stammerer hear others stammer when learning to talk. Ideation and oral expression are new to the child, and they do not acquire their normal automatic action, if ill guided. The treatment should begin at the kindergarten age, and the ideal place should be in a special hospital school away from relatives who, unfortunately, often lead the patient into the very fault they are trying to avoid. The treatment of the second stage, that of hesitation and frequent repetition of sound, is similar to that of the first with some additional measures. It is cruel to send such a child to school, and, as a rule, he should be kept in an atmosphere of good speech and drilled in all the elements of speech, together with respiratory, phonatory, and articulatory exercises. His defect should not be mentioned to him. In the fully developed defect the patient is apt to be discouraged as to his relief or to look to quacks. If he has weak will power he must be shown how to strengthen it. If he lacks attention and concentration or has grown morbidly introspective and self-conscious he must be shown how to get out of these conditions. He must learn self-control before he can control his speech. As regards specific methods, mental gymnastics, voice culture, and speech culture must form the basis of every rational treatment. The patient must learn the exact musculature of speech. One difficulty is that he tries to use the articulatory mechanism alone, apparently ignorant of the fact that the vocal mechanism should be used. In singing, he uses the latter, and therefore rarely stammers. It is a good practice, Makuen says, to drill in phonetic reading and what Dr. Bell calls syllabification. The individual must be taught to regard the organs of speech as an instrument on which he must play as he would play on a piano, and he must have the same facility that the pianist has with his fingers. Finally, as has been said, there are those who stammer and those who are stammerers, meaning, Makuen supposes, that we all stammer to some extent. But the stammerers are those who are conscious of their difficulties. A stammerer must learn that he can be cured. There is a field here for psychical treatment. Simple elocutionary measures may cure some, but there are some people so organized that it is very difficult for them to overcome the defect.

British Medical Journal, August 27, 1910.

Remarks on Some Points in the Treatment of Gastric Ulcer.—Charles Bolton points out that the series of cases of gastric ulcer treated by different methods that are constantly being published for the purpose of demonstrating that some particular method of treatment is the best are of little value because they fail to take into account the subsequent condition of the patient with regard to relapses of the symptoms. The diagnosis of gastric ulcer presents great difficulties and acute and chronic ulcer are usually not distinctly separated by the observer. Absolute freedom from symptoms during the intervals is in favor of acute ulcer, and the presence of some form of indigestion is in favor of chronic ulcer. Even though absolutely free intervals occur in chronic ulcer, it will be found that the patient is unable to eat a full diet. In regard to the treatment of acute ulcer, the writer agrees that perforating ulcer should be handed over to the surgeon at the very earliest possible moment. In case of hemorrhage the patient should be kept at absolute rest in bed, and morphine should be administered subcutaneously. After twelve hours has elapsed rectal feeding may be commenced, consisting of peptonized milk and glucose every six hours, the rectum being washed out each morning. When the bleeding has stopped for three days feeding by the mouth may be started and a simple enema given every other day. At the end of a week saline aperients are begun. The author does not employ rectal feeding in gastric ulcer under any other conditions. The patient is allowed to drink lime water frequently by teaspoonfuls. The really difficult point to settle is into what degree of danger should the patient be allowed to enter before the surgeon is called in. If a patient vomits two or three pints of blood and after an interval the clot breaks down and a similar amount is vomited, the case should be operated upon. In doubtful cases the most important point to take as a guide is the amount of the initial loss of blood. The most favorable diet is the milk and egg diet of Lenharz. The patient should be on a more or less full diet at the end of a month. The author has not found bismuth of any particular value, but sometimes uses dilute hydrocyanic acid, 5 minims in two teaspoonfuls of water for vomiting. The treatment of chronic gastric ulcer should be conducted on the same plan as that for acute ulcer, but should cover a much longer period of time. It is more necessary to give an alkaline fluid by the mouth in chronic ulcer as a large number of cases have hyperacidity. Iron should not be given until after the first six weeks. The icebag is used during hemorrhage, and hot poultices for the relief of pain at other times. Probably more than half the cases of true chronic ulcer should be treated surgically, but a three months' medical treatment should be tried first and prophylactic treatment should be adopted in all patients who have recovered from gastric ulcer.

Hepatic Abscess Following Acute Appendicitis.—Leonard A. Bidwell states that the occurrence of hepatic abscess after acute appendicitis is a very rare complication, and has usually been discovered at post mortem and that the abscesses were multiple, while in the two cases which he reports both were discovered during life and treated by operation. One of the cases was fatal, and he had the opportunity of examining the liver a week after opening the abscess and there was no evidence of another liver abscess. In these two cases the interval between the commencement of the disease and the detection of the abscess was eight weeks and four and one-half weeks, respectively. Both cases were apparently convalescent, with a normal temperature for the first fortnight after the operation on the appendix. In one case the abscess followed an operation for an appendix abscess, which was opened about three weeks after the initial attack and was thoroughly localized; in the second case the operation was performed for a perforated appendix with localized peritonitis within forty-eight hours of the onset of the disease. There is little doubt that the poison is carried to the liver by means of the portal vein, and that the abscess results from pylephlebitis. It is difficult during life to distinguish between hepatic and subphrenic abscess. The writer describes his method of opening and draining these abscesses and says that there is little

danger of trouble with the pleura, but there may be more danger of risk of infecting the subphrenic space; this occurred in the first case and was responsible for the fatal termination.

A Cause of Death After Operation for Appendicitis.—Herbert H. Brown calls attention to the frequent fatalities following operations for appendicitis, especially in children and in cases of localized abscess where the greatest care in operating has been exercised. He had lost four or five cases in this way in quick succession. In operating he had packed the inflammatory swelling around the appendix with gauze to shut off the peritoneal cavity. As pus escaped it was immediately mopped up with gauze. He continued this sponging until the abscess cavity was clean and dry. In studying these cases he had considered Nature's methods, and found that there are three lines of defense by which an organism defends itself against bacilli. The first line is the lymph agglutination of mesentery, intestines, etc., around the appendix, which prevents infection of the peritoneal cavity; the second line of defense is more important; it is the layer of lymph covering the surface of the intestine and omentum, and forming the wall of the abscess cavity; the third line is the blood itself, which protects by the formation of antibodies in the serum. In the cases to which the author refers the second line of defense was removed by too vigorous sponging and probably some infective material was rubbed into the surface of the unprotected abscess wall, causing an acute septicemia, and death resulted from invasion of the blood by the bacteria. According to this theory, the moral is obviously not to hurry to operate unless an operation can be performed within the first twenty-four hours. When a definite abscess has formed wait till after the first week, keeping the patient under close observation. Be contented to drain the cavity or use gentle flushing at the time of the operation. Above all things, if operating early, simply evacuate the pus without touching the abscess wall and leave the appendix to be dealt with later.

Berliner klinische Wochenschrift, August 15, 1910.

Alcohol in the Causation of Hepatic Cirrhosis.—Klopstock states that in alcoholics the general resistance to infectious diseases is lowered, as abundantly shown by the incidence of pneumonia, erysipelas and Asiatic cholera. Alcoholics are in the same manner exposed to infectious gastroenteritides of more or less doubtful nature, which cause a lowered resistance of the liver. The latter becomes unable to fulfil its disintoxicating function and becomes itself the seat of organic disease. Statistics show that in the great majority of alcoholics cirrhosis does not develop, and it is practically impossible to produce it experimentally. When cirrhosis does occur we find it often associated with enlarged spleen and a low degree of peritonitis. Such lesions cannot be set down as due to alcohol, although they may coexist with alcoholism. The association of hepatic cirrhosis, splenomegaly and chronic peritonitis argues a peculiar cause which is quite independent of alcohol. The abuse of the latter simply causes a sort of diathesis, through which patients are rendered less resistant to infection. The horse is subject to an endemic cirrhosis which may be hypertrophic or atrophic; this is ascribed to overfeeding with hay, which contains various toxic substances. Cattle in Nova Scotia have been attacked by an epidemic cirrhosis, associated with ascites and enlarged lymph nodes. Cirrhosis may be produced at will in certain animals by injection of any one of a great variety of microbes, some of which are naturally nonpathogenic. It would appear that any toxin, bacteriogenic or otherwise, may, when persistently exhibited, produce hepatic cirrhosis in animals.

Pulsus Paradoxus and Compression of the Subclavian.—Riebold states that pulsus paradoxus has been clinically important since Kussmaul pronounced it pathognomonic of chronic mediastinopericarditis. Since that period the phenomenon has been observed in connection with a great variety of different conditions. A physiological type is explained by negative pressure within the thorax, due to the act of inspiration, which gives rise to a slight fall of blood pressure. This type is demonstrable only by the sphygmograph. The phenomenon is regarded as practically the same for the two sides, although a difference appears in forced breathing. In pathological pulsus paradoxus the falling in blood pressure which constitutes the phenomenon becomes apparent to the finger. The author wishes merely to record that in his opinion certain cases (one of which he reports) have a purely mechanical cause, to wit: compression of the subclavian artery between the clavicle and first rib. It has long ago been shown that such compression may occur in deep breathing. A pulsus paradoxus due to such compression is revealed by elevating the shoulders of the patient, which separates the clavicle from the first rib. The author calls attention to the unwisdom of examining only the radial artery in pulsus paradoxus. The carotid should always be tested as well. When both vessels give an inspiratory intermittence, which disappears on raising the shoulders, the pulse is no longer paradoxal, but its cause is sufficiently explained. It then becomes a compression pulse.

The Fluoroscopic Screen as an Aid to the Removal of Foreign Bodies from the Bronchi and Esophagus.—Freudenthal evidently regards several cases of such removal as possessing world-wide interest, since he has recorded them in the *Wochenschrift*. The operators were F. Huber, R. T. Morris, and the author, respectively, all of New York. Two of the cases have been reported in medical journals of the United States. A third, undertaken by Freudenthal himself, consisted of removal of a nickel from the middle third of the esophagus (in the cases of Huber and Morris, a tack and pin, respectively, had been removed from a bronchus). Freudenthal's patient was but a year old. The screen, held by an assistant, showed the position of the coin, which was quickly extracted with forceps. It is conceded that the coin was removable by the old "blind" process, but the screen enabled the operator to save time and avoid bungling; and in the case of so young a patient he could hardly have availed himself of the esophagoscope.

Deutsche medizinische Wochenschrift, August 18, 1910.

Causes of Bromine Retention and Chlorine Displacement in the Blood Serum.—Frey, assistant to Prof. Kionka, of Jena, explains this phenomenon briefly by stating that these bodies—salts of chlorine and bromine—appear in the urine in the reciprocal relation in which they exist in the blood. The urine makes no distinction in their elimination. Hence, if there is poverty of chlorides, as in a salt free diet, flooding with bromides leads to a strong accumulation of the latter, which acts more rapidly than with a diet normal in salt. Conversely, when a patient has become bromized, and the remedy is stopped, the exhibition of chlorides hastens bromine elimination. Ten per cent. of the quantity of combined halogen injected is eliminated by the kidneys, so that if a single ordinary dose of sodium bromide is ingested much more chloride will be eliminated.

Syringomyelia in Mother and Daughter.—Goldbladt finds this coincidence of interest both as a contribution to recorded cases and as throwing some possible light on the disease. The cases themselves are interesting, because right-sided exophthalmus, a very rare symptom, was present in the daughter (but one prior observation is on record). Enophthalmus is fairly common. The exophthalmus was transitory, recurrent and doubtless connected with some fault of innervation in the sympathetic of reflex origin. About seven instances of familial syringomyelia were all that could be found in literature, the author's cases making eight. While the author believes that some necessary connection underlies the syringomyelia and exophthalmus, he goes no further than the intimation that the pathology of the sympathetic needs revision. Clinical and experimental findings do not agree. If we assume that the syringomyelia irritated the cord centers with which the sympathetic is connected, the symptoms should have been different. There should have been certain pupillary symptoms. On the other hand, atrophy of the facial muscles of the right side seemed to point to a paretic condition of the sympathetic.

Case of Purely Sensory Polyneuritis Alcoholica.—Pelz describes the case at length and sums it up as follows: A man who had been a heavy drinker for several years, and who before this history had suffered from arsenical polyneuritis, began to complain of severe pains in the hands and feet, with paresthesia and anesthesia. Occasionally he complained of the girdle feeling. There were no paralytic phenomena. He had the general symptoms of chronic alcoholism. There was loss of electric excitability and of the patellar and Achilles reflexes. The symptoms pointed to alcoholic polyneuritis or tabes dorsalis. The latter was gradually eliminated, chiefly because of the intact sphincters, but also by reason of other differences. Lumbar puncture gave a negative result. Ataxia was wholly absent, but its appearance might have been delayed. The case certainly could not be reckoned as one of so-called "false tabes," sometimes seen with toxic polyneuritis of any sort. This clinical type exhibits both ataxia and paralyses. The author is forced to regard his case as one of purely sensory alcoholic polyneuritis, one of the rarest of affections.

Book Reviews.

A Manual of Midwifery: for Students and Practitioners. By Henry Jellett, B.A., M.D. (Dub. Univ.), F.R.C.P.I., L.M.; King's Professor of Midwifery in the School of Physic, Trinity College, Dublin; Gynecologist to Sir Patrick Dun's Hospital; President of Obstetrical Section of the Royal Academy of Medicine in Ireland; late Gynecologist and Obstetric Physician to Dr. Stevens' Hospital, Dublin; ex-Assistant Master, Rotunda Hospital; late Extern. Examiner in Midwifery, Royal University of Ireland; late Censor and Examiner in Midwifery, Royal College of Physicians, Ireland; late University Examiner in Midwifery and Gynecology, Dublin University; late Vice-President of the British Gynecological Society. With the assistance in special subjects of: W. R. Dawson, M.D., F.R.C.P.I., Medical Superintendent Farnham House, Dublin; University Examiner in Forensic Medicine, Dublin University. H. C. Drury, M.D., F.R.C.P.I., Physician to Sir Patrick Dun's Hospital, and formerly Physician to Cork Street Fever Hospital, Dublin. T. G. Moorhead, M.D., F.R.C.P.I., Physician to the Royal City of Duhlin Hospital; late Chief Demonstrator in Anatomy, School of Physic, Trinity College, Dublin. R. J. Rowlette, M.D., Pathologist to the Rotunda Hospital and to Dr. Stevens' Hospital, Dublin; Lecturer on Pathology, Queen's College, Galway. Second Edition. With 17 plates and 557 illustrations in the text. New York: William Wood & Co., 1910.

In the second edition of this book the original text has been revised and brought in line with the recent advances in obstetrics. A number of new drawings have been introduced, and additional chapters added dealing with "Scopolamine-Morphine Anesthesia During Labor," "Pubiotomy," and "Vaginal Cesarean Section." In a chapter entitled "The Autointoxications of Pregnancy" are grouped acute yellow atrophy, hyperemesis gravidarum, and eclampsia. The book has been divided into ten parts, each section containing anywhere from two to ten chapters. In the first two parts are found chapters dealing with obstetrical anatomy, asepsis, antisepsis, diagnosis, and the obstetrical armamentarium. The remaining sections consider the physiology of pregnancy, of labor, and of the puerperium, the pathology of pregnancy, labor, and of the puerperium; obstetrical operations and the infant. In dealing with the pathological conditions incident to pregnancy the author gives in full various methods of treatment and states his preference.

The book is lucid in its description and concise and definite in its statements, making it extremely valuable for ready reference.

The Practical Medicine Series. Under the General Editorial Charge of Gustavus P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School, and Charles L. Mix, A.M., M.D., Professor of Physical Diagnosis in the Northwestern University Medical School. Vol. I, General Medicine. Edited by Frank Billings, M.S., M.D., Head of the Medical Department and Dean of the Faculty of Rush Medical College, Chicago, and J. H. Salisbury, A.M., M.D., Professor of Medicine, Chicago Clinical School. Vol. II. General Surgery, Edited by John B. Murphy, A.M., M.D., LL.D., Professor of Surgery in the Northwestern University, Attending Surgeon and Chief of Staff of Mercy Hospital, Wesley Hospital, St. Joseph's Hospital, and Columbus Hospital; Consulting Surgeon to Cook County Hospital and Alexian Brothers' Hospital, Chicago, Ill. Vol. III. The Eye, Ear, Nose, and Throat, Edited by Casey A. Wood, C.M., M.D., D.C.L.; Albert H. Andrews, M.D., and Gustavus P. Head, M.D. Chicago: The Year Book Publishers, 1910.

We welcome the first three volumes of the 1910 edition of the "Practical Medicine Series." The series is an abstract of the literature of the past year, and through its use one may be able to keep up with the advances in the various fields of medical activity.

Volume I deals with the progress in general medicine. It covers diseases of the respiratory organs, of the circulatory and blood-making organs, of the blood and blood vessels, infectious diseases, diseases of the ductless glands, metabolic diseases, and diseases of the kidneys.

Volume II treats of the advances in general surgery. In the part devoted to anesthesia and analgesia the advantages and disadvantages of scopolamine and morphine have been discussed at some length. There are also articles on venous, arterial and spinal anesthesia, including Jonnesco's method. Under "Operative Technic" are two very interesting articles: One by Roswell Park, entitled "The Next Twenty-five Years in Surgery," and "Some Foreign Notes," by R. L. Dickinson.

Volume III is devoted to the diseases of the eye, the ear, and the nose and throat. The contents of the book are about equally divided among the three specialties. Treatment, improved methods of diagnosis, and the advances in operative technique are discussed, and new instruments are described.

The Metaphysics of the Nature and in the Conception of the Soul: Its Habitat? By Joseph Clements, M.D., Member of the American Association for the Advancement of Science. Boston: The Roxburgh Publishing Co. (Inc.).

In this little book the author gives his ideas of the origin, nature, and the location of the soul. He argues that the soul is independent of the physical, except in so far as the physical is used to express the characteristics of the soul. The author claims that the origin of the soul is in the human infant, and that heredity and environment play the most important part in the soul's development. To quote from the book: "The dawning soul is a plastic thing, and the mother-rôle and power in the immediately after-birth time is of marvelous effectiveness in psychic manipulation."

The Religio-Medical Masquerade. A Complete Exposure of Christian Science. By Frederick W. Peabody, LL.B., of the Boston Bar. The Hancock Press, Boston.

During the past ten years the author of this little book has devoted a large portion of his time to an investigation of the subject of Christian Science, and especially of the life history of its founder, Mrs. Eddy. As the attorney in nearly every lawsuit which has been brought against the sect or its leaders during the past decade it has been his duty to attempt to learn the truth as to the new religion, and as a result of careful reading of every word of Mrs. Eddy's writings, and of large numbers of personal letters, as well as of many hours spent in detective work as to her past life, Mr. Peabody may well be considered to know more about the inner workings of Christian Science than any other living person, except the founder of the religion and the small coterie by whom she is now surrounded in her prison house in Boston. In the present book Mr. Peabody has published the results of his years of investigation. He has not minced words. He has shown up the inconsistencies between Mrs. Eddy's own disreputable past and her comparing herself to the Christ. He has shown how her inspiration from God was a plagiarism from Quimby, and he has shown the purpose of it all—the collection of the shekels of the faithful. He furthermore dwells upon the modern version of the Salem witchcraft—malicious animal magnetism. Mr. Peabody is not afraid to say what he thinks. He courts libel suits. In his first expose, written nearly ten years ago, he asked that he be sued, and the request is repeated in the present book. The book is vituperative in character; immeasurable greed, sham religion, and foulest fraud are terms in frequent use. The purpose of the book is to show how thousands have been duped by "the greatest get-rich-quick concern ever conceived." The book makes decidedly interesting reading. It is to be hoped that some follower of Mrs. Eddy will take up the gauntlet and sue the author for libel. It would be interesting to see him present his proofs.

Spa Treatment. Selection of Patients and the Choice of A Suitable Spa. By Neville Wood, M.D., M.R.C.P. *"Ille terrarum mihi præter omnes angulus ridet."* London: Adlard and Son, 1910.

In this small book the author discusses the class of patients suitable for spa treatment, and the choice and climatic value of the different spas. He also considers the air, exercise and diet, the thermal influences, the value of mineral waters, and the aims and limitation of spa treatment.

Grundriss und Atlas der speziellen Chirurgie; von Prof. Dr. Georg Sultan. ii Teil mit 40 farbigen Tafeln und 261 zum Teil zwei—bis dreifarbigen Abbildungen nach Originalen von Maler Schmitson, Berlin. München: J. H. Lehmann's Verlag. 1910.

This book, like others of its class, depends for its value almost entirely upon the number and quality of its illustrations. Outside of these it contains little new or original, but it may be said of many of them that they contain more information than could possibly be put into text. The colored plates are very beautiful and are wonderfully well done. The others also are praiseworthy. The work forms the 37th volume of Lehmann's so-called hand-atlases.

Society Reports.

AMERICAN ORTHOPEDIC ASSOCIATION.

Annual Meeting Held in Washington, May 3-5, 1910.

Our Relations with the Cummunity, Especially with Medical Men.—Dr. Augustus Thorndike of Boston in his presidential address made a plea for orthopedic surgeons to take greater interest in the work of other members of the medical profession, and to try by every means in their power to interest other physicians in the work of the orthopedic surgeon.

Pott's Disease; Causes of Paraplegia and Their Bearing Upon Treatment.—Drs. Charles F. Painter and George C. Moore presented this paper, which began with a discussion of the various causes for the paralysis occurring in the course of Pott's disease, both in theory and as the result of actual observation. A study was made of the clinical phenomena, and of the behavior of the cases with and without treatment; also of museum specimens and of pathological material. A consideration of the rationale of the treatment, conservative and operation, was then taken up, and the following conclusions reached: Scoliosis occurring in Pott's disease should be regarded not as a regrettable incident in the course of the disease, but as an evidence of the activity of a tuberculous process. This fact should cause redoubled efforts on the part of the physician to control the underlying disease. So long as this exists, one should be cautious in giving a prognosis as to the cure of the condition. In seeking to relieve this condition, one should be guided by the character of the symptoms, and be loath to permit operative interference until further and more convincing evidence has been obtained that surgery can play any part in the cure of these conditions.

The Advantages of Braces Over Plaster Jackets in Pott's Disease.—Dr. Henry O. Feiss reviewed the evidence for and against plaster jackets, and found that they had many disadvantages. As regards fixation, he thought that a brace would do everything that a jacket could do. A brace can be readjusted to suit changes in size, and they are lighter than the plaster jackets. The parts are accessible, when braces are worn, so that the patient may be bathed. The jacket can be removed by the mother almost as easily as a brace, and the temptation to remove it is greater. The mother should be thoroughly instructed how to adjust the brace, which meets all the mechanical requirements, and is lighter, cleaner, cooler, and more scientific than the plaster jacket.

Support for the Spondylolytic Spine Obtained by Healing in Steel Bars Attached to the Vertebræ.—Prof. Fritz Lange, M. D., of Munich, said that the kind of metal used was of much importance. In this minor operation, designed to immobilize four or more of the vertebræ, he used steel wires, 5 mm. thick and 10 mm. long, which had been carefully plated with tin. The operation is applicable only in the early stages of the disease, before the appearance of deformity or when the deformity is slight. The wires employed have tin knobs at their upper and lower ends, and a thread is tied under the knobs, to prevent sinking. Provision is also made to fasten the apparatus to the spine. He believed that his new operation would give the best chance for spondylitis to be healed quickly and without great pain.

Dr. Newton M. Shaffer said that if in Pott's disease the trauma of respiration could be eliminated in the dorsal region, a long step in the right direction would have been taken; but that Pott's disease below the respiratory region required very little support. If the patient were studied before the support was applied it would be found that he made an effort to limit respiration in the affected area.

Dr. S. J. Hunkin agreed with Dr. Feiss that in a great majority of cases the steel braces could be applied with more efficiency than could the plaster jackets, but he did not think that a plaster jacket was heavier than a steel brace, if properly made.

Dr. Charlton Wallace said that all orthopedic surgeons should aim to give the patient the benefit of whatever treatment was the best, no matter whose it was. The treatment for Pott's disease should be selected according to the stage of the disease. He thought that the main object of the treatment, relief from the superincumbent weight, could best be accomplished by putting the patient to bed on a frame or some other reclining apparatus; but, as those who loved children hated to see them put to bed for several years, it was important to secure some proper method of ambulatory treatment. He thought it was foolish to claim that the spine could be absolutely immobilized, and considered the plaster jacket advantageous in controlling spinal movement in the early stages of the disease, after the patient had been taken from bed. He said that these jackets can be made to weigh as little as a pound to a pound and three-quarters. When the patient had become convalescent, he thought that the brace could be advantageously employed, but he did not believe that anyone could instill into the mothers a knowledge of the principles of orthopedic surgery within the few minutes allowed for consultation. He considered Prof. Lange's method of treatment hazardous, although admirable in the hands of an expert. He himself would be afraid to try it.

Dr. David Silver thought that the choice between jackets and braces depended upon which the particular orthopedist could handle best. He believed that the correction of the deformity should be accomplished during the period of recumbency, and not by means of the jackets or braces. The orthopedist should attend to changing the braces himself, and not allow the parents to touch them.

Dr. Ansel G. Cook said that the orthopedist should remember that he has a human being to treat, who sometimes needs the bed and sometimes fresh air. There were times when the jacket was better than the brace, and other times when the brace was very much better than the jacket.

Dr. H. Augustus Wilson said that the removal of the superincumbent weight was merely one of many means to the end. If this weight interfered with the circulatory activity it should be removed; and if recumbency in bed did not interfere with circulatory activity it was essential for a certain period of time. He had seen many cases cured without resort to apparatus, and considered the form of apparatus of minor importance, the constitutional treatment being of great importance. He believed it questionable whether Prof. Lange's method of treatment would be of much use to the ordinary orthopedic surgeon.

Dr. Robert S. Lovett thought that one should recognize the fact that neither the jacket nor the brace is thoroughly efficient mechanically for the removal of the superincumbent weight. Great as were the objections to the treatment of Pott's disease by means of recumbency, he considered it the only efficient surgical treatment for tuberculosis of the spine. Comparing treatment by means of braces and treatment by means of jackets was, in his opinion, comparing two relatively inefficient methods.

Dr. Reginald H. Sayre thought that in a rather larger number of instances than Dr. Painter had appeared to believe the superincumbent weight and a bending forward of the spine constituted large factors in the production of hemiplegia. He did not think that the use of the recumbent position, unless supplemented with longitudinal traction or hyperextension, would give adequate support. He considered a plaster jacket without a jury mast as often a very inefficient support. The mast should have a chin support and exert pressure against the anterior part

of the neck, to keep the upper part of the body well bent backward. He considered the difficulty in keeping the bones at rest insuperable. Dr. Lange's method, he said, should not be undertaken by anyone who had not very skilful technique. While he thought that it might be useful in suitable cases, he did not believe that in badly kyphosed cases the requisite amount of support could be obtained in this way.

Dr. B. K. McKenzie said that if treatment by means of recumbency must be given in a house, he was not sure whether he would choose it in preference to efficient mechanical support with a brace or jacket. The patient should live out of doors, day and night, and when the sun shone he should be directly exposed to its rays.

Dr. G. G. Davis said that for a number of years he had felt that the main drawback of orthopedic surgery was that the cases were too long under treatment. Inasmuch as Dr. Lange had carefully tried this operative method, Dr. Davis was of the opinion that a fair trial should be given it. It should receive consideration as being one of the measures in the direction of shortening the period of treatment.

Dr. James K. Young considered that a field for the operation of laminectomy existed in those cases in which the paralysis had lasted for a year or eighteen months, there being no improvement in the symptoms, or symptoms of abscesses having been verified by means of the *x*-ray.

Dr. Albert H. Freiberg said that treatment by means of recumbency was one of the very oldest methods used in cases of Pott's disease. It had gone out of use for a while, but was returning to favor. When patients with tubercular joint disease were put to bed they at first made a great improvement, but if the treatment by means of recumbency were continued longer than three months the patients began to retrograde. To prevent this retrogression the open-air treatment and the care of the patient's regenerative processes must be added to the recumbent treatment. Regarding Professor Lange's ingenious method Dr. Freiberg said that if the application of the splints were delayed too long they would be applied when the spine was no longer able to respond by the production of new bone tissue in the place of that destroyed by the disease.

Dr. Emil S. Geist said that it had struck him that as these incipient cases of Pott's disease are usually in children, the future growth of the spine should be considered, if Dr. Lange's steel bars were to remain attached to the vertebræ.

Dr. Painter, closing the discussion, said that he considered sclerosis the keynote to the treatment of Pott's disease by laminectomy. When the proliferation of connective tissue took place within the pia, laminectomy would do no good, although it would relieve a considerable part of the pressure. When the granulating process had produced changes outside the dura only, the paralysis could be relieved when the scar tissue had sufficiently shrunk. The paraplegic conditions that should not be touched under two years could not, he said, be relieved at the end of that time. The patients that got well did so because the process was outside the dura.

Dr. Fiss, closing, said that he believed recumbency to be the best treatment for Pott's disease, when it could be carried out. He had not said that the principles of plaster jackets were wrong, but that they could be carried out more accurately and scientifically by means of braces. He thought that it would be as difficult to teach the mother to put on the braces in the later stages of the disease as in the earlier.

Dr. Lange, closing, said that the operation recommended by him should be carried out as early as possible, the object being to secure the healing of the process before much destruction of tissue had occurred. He would not, however, hesitate to employ his method in cases in which the disease had progressed farther. In the case in which the longest time had elapsed since the operation, two years, he had not been able to observe by means of the *x*-ray that the vertebræ in the part of the spine spanned by the wires were smaller than those immediately above and below the point operated upon. Should he observe any interference with the growth of the spine, he would remove the steel wires after the disease had healed.

Treatment of Structural Scoliosis.—Dr. Walter Truslow stated that in his opinion the greatly embarrassing and often health depleting conditions of the severely scoliotic patient should be vigorously attacked. He did not consider either prolonged rest or vigorous gymnastic treatment adequate to overcome structural changes. He thought that there was considerable room for improvement in methods of treating these cases, and that an analysis of the deformity into its component elements, with regard to the degree of each, would lead to a better understanding of the cases in hand, and would point out the method of correction to be used. Frequently changed plaster-of-paris jackets with large windows were employed because of their cheapness and the adaptability of the material. He presented some advances in the technique, and reported distinct improvement in some patients with severe deformity.

Apparatus for the Treatment of Scoliosis During Sleep.—Dr. Fritz Lange exhibited a brace that he had devised for this purpose, thus preventing patients from losing at night all the good that they had acquired in the daytime.

Dr. Sayre said that patients that are badly deformed could not be cured, but that a good deal could be done for them. He considered that in a good many instances the orthopedist did not apply the force in the right way. He should exert a rotating force upon the vertebræ, in order to turn them; but he usually applied the force laterally. He considered Dr. Lange right in saying that to apply correction to the spine during the day and leave it to get crooked during the night was a very useless procedure. Regarding the length of the apparatus, Dr. Sayre said that if it stoped at the axilla it would leave the upper part of the body very much unprotected. He thought that enough stress had not been laid upon the necessity for preventing patients from becoming scoliotic by the use of traction to the head for a long time.

Dr. Freiberg exhibited an instrument for measuring the degree of scoliosis. It combined in one instrument measurements that had formerly required two, and was cheaper for Americans to obtain than the imported instruments.

Dr. Truslow, closing the discussion, said that he was glad that Professor Lange had felt the necessity for the fixation treatment. It seemed to him that the tendency of the times was certainly toward fixation in the treatment of this condition.

The Relation of Poliomyelitis to the Community with Reference to Etiology and Prevention.—Dr. Robert W. Lovett read an exhaustive paper on this subject, illustrated with charts containing statistics gathered from the Massachusetts epidemic that occurred last year. The following facts were mentioned: Outbreaks of infantile paralysis have greatly increased in various parts of the world within the last five years, in a measure not to be explained in any way by the increased interest in the disease. It is apparently more prevalent in warm than in cold countries. From the northern part of the United States more cases have been reported than from other parts of the world. We do not know by what channel the disease enters the body, nor how to prevent its spread. Careful investigations have been made, including a house-to-house canvass in infected districts, made by competent

medical men, giving their whole time to the investigation. The data given in the charts were merely submitted as part of an unfinished investigation, and no conclusions were drawn from them.

The Clinical Aspects of Poliomyelitis: Types; Communicability; Mortality.—Dr. L. Emmet Holt said that the disease varied greatly in its communicability at different times, and that these differences could not yet be reconciled. It often demands strict quarantine. Healthy persons may be carriers of infection, which may occur at a considerable time after contact with active cases. There is no evidence of the existence of any other medium of contagion than contact with persons suffering with the disease or those exposed to it. The author thought that a new name for the disease should be sought, and suggested the term epidemic myelitis or epidemic myeloencephalitis.

Experimental Epidemic Poliomyelitis and Its Relation to Human Beings.—Dr. Simon Flexner presented a report on the experimental study of poliomyelitis in monkeys, giving facts relating to the spontaneous disease in man. Dr. Flexner considered the active agent to belong to the class of filterable viruses; that is, viruses of ultramicroscopic size. There is no evidence of its being possible to cultivate it outside the body. The experimental disease is not only identical with the spontaneous in respect to its clinical appearances, but also in respect to its pathological lesions. The animal inoculated with the virus may remain in good health for sixty days afterward, when unmistakable symptoms of the disease appear. The chief seat of the disease is in the nervous system, and the membranes of the nose and throat become infected from proximity to the membranes of the brain and cord. Dr. Flexner thought it probable that the virus left the body through the nasal excretions, and entered the bodies of other persons through the same route. One attack confers immunity in the monkey and the blood of immunized animals will neutralize the virus. The blood of children recovering from poliomyelitis also possesses this power. The disease may be diagnosticated in the monkey by means of the cerebrospinal fluid, some time before the appearance of symptoms. It is a much more fatal disease in monkeys than in human beings, but these animals are not naturally subject to it, a certain amount of traumatism being required in order to allow the virus to gain entrance.

Paralysis of the Neck and Diaphragm in Poliomyelitis.—Dr. Irving M. Snow said that neck paralysis in combination with loss of power in the extremities was not unusual in poliomyelitis, but that isolated neck paralysis was extremely rare. Paralysis of the diaphragm was scarcely mentioned in treatises upon poliomyelitis, except in connection with the fatal type of Landry's paralysis. The author, from his study of the literature existing upon the subject, drew the following conclusions: (1) Cervical poliomyelitis affecting the origins of the phrenic and spinal accessory nerves is rare, but in the two reported cases recovery occurred. (2) Paralysis of the neck muscles occurs occasionally in epidemic poliomyelitis and severe Landry's paralysis. The prognosis is favorable as to restoration of function: some improvement always takes place. (3) a paralysis of the diaphragm is exceptionally seen in poliomyelitis; and although this is dangerous, recovery is possible.

Pathology of Poliomyelitis.—Dr. Israel Strauss said that the rapid disappearance of the extensive paralysis often present, even in sporadic cases of poliomyelitis, was probably due to a subsidence of the inflammatory edema that had interfered with the conductivity of the nerve fibers, a similar condition being found in the collateral edema causing paraplegia in Pott's disease. Many of the cells at any particular level of the cord would be either not at all or very slightly affected, and would probably undergo a rapid restoration of function. Sporadic cases rarely have symptoms referable to the meninges, probably because the virus is not virulent enough to cause the final infiltration of the fatal cases. The extent of the paralysis gives no idea of the extent of the lesion. The bulbar cases may have cord involvement, and yet no symptoms of it. In every case in which the cord is affected there are some inflammatory changes in the bulb, even though no symptoms are present. Dr. Strauss based this conclusion upon the fact that even in those cases in which death is due to respiratory failure an examination of the bulb shows an increasingly intense inflammation extending up into the basal ganglia, and yet causing no other symptoms than paralysis of the motor nucleus of the nasal and glossopharyngeal nerves. In the vast majority of cases the physician is handicapped by his inability to recognize the disease.

The Treatment of Poliomyelitis.—Dr. Fritz Lange said that in the early stage of the disease one should try to prevent the extension of the seat of the infection into the spinal column, and that holding the affected organ still was a most important requirement for speedy recovery. After the acute stage had passed, a second task devolved upon the orthopedist, to assist the restoration of the paralyzed muscles and prevent the occurrence of contractions. The nourishment of the affected muscles by the blood could be favored by the application of stimulation; but Dr. Lange warned physicians against the use of rough, hard massage, or of hard apparatus. He said that most patients were content with the relief afforded by the use of apparatus, and would not submit to operation, but that he had not seen undoubted success obtained by operative treatment. Patients are often troubled by stiffness of the foot in walking over irregular ground, and he had therefore sought an operation that would retain the movements of the foot to 90 degrees, and only restrain the dangerous sinking of the foot beyond this point. In performing this operation he had used artificial ligaments of silk; and he thought that the results would be good. Transplantation of the tendons takes the place of arthrodesis. He said that the chief advantages of his operation, which he described in detail, were perfect asepsis and the fact that, with careful after treatment, the patients were able to walk without apparatus or danger of relapse, and with normal function of the transplanted muscle. He thought that the profession would soon learn to distinguish better between the indications for arthrodesis and those for transplantation of tendons. The latter operation, having already brought benefit to countless patients, might be considered among the greatest advances in orthopedic surgery.

Dr. Bernard Sachs said that although much more than anterior poliomyelitis was present in this disease, as shown by pathological conditions, he thought that it would be well to retain this designation because it was so well known, and because the lesion was so largely in the cord. He considered the time given to massage and electricity in the treatment of this disease to be practically wasted. He could not say that this method of treatment did harm, but he had never seen any definite good done by it, and he believed that more good would be done by the early institution of orthopedic measures. He also trusted that both the bloodless and the bloody surgery would be applied, and thought that the sooner this was done the better would be the result. The so-called atypical forms of this disease being so rare as compared with the typical, he did not believe that one should allow one's conception of the disease to be disturbed by the occasional occurrence of atypical cases.

Dr. H. Winnett Orr said that he had been endeavoring to collect as much information as possible regarding the epidemic of poliomyelitis that had recently occurred in

Nebraska. He had reports of over six hundred cases, concerning two-thirds of which he had been able to obtain definite information. He had summarized this information in a little chart, which had been included in a pamphlet giving a statistical table of cases treated in the Nebraska State Orthopedic Hospital. He distributed copies of this pamphlet among the members, without further comment.

Muscle-Group Isolation and Nerve-Anastomosis in the Treatment of Paralyses of the Extremities.—Dr. Nathaniel Allison and Dr. Sidney L. Schwab considered briefly the position now occupied in the treatment of the paralysis of the extremities by peripheral nerve surgery as compared with that of muscle and tendon transference, and laid stress upon the importance of tabulating cases of paralysis of the extremities in terms of nerves, rather than in terms of muscles or deformities. They then gave a list of the types of paralysis that offered a suitable field in which to employ nerve anastomosis and muscle group isolation, and dwelt upon the value of a combination of these two procedures. Cases of athetosis and spasticity were treated by muscle group isolation only; flaccid paralyses, by muscle group isolation and nerve anastomosis, and cases with complicated tic movements, by induced paralysis. Illustrative cases of each of these groups were cited.

Dr. Schwab said that alcohol injections in spastic cases are not curative. All that the authors had attempted to do by means of them was temporarily to throw out of action the antagonistic muscles. Meanwhile, the opposing group of muscles was exercised, so that by the time the original nerve had regenerated the muscular force had been somewhat transferred to the opponent group. He also stated that under this mode of treatment the patient could be gotten out of bed within a few daysy, and there was no necessity for the use of a plaster cast. In the cases of flaccid paralysis the condition was more hopeful of future cure than by any other method. While cases of tic might not have the same amount of orthopedic interest, these cases could be attended to better than ever before by surgical treatment. While the nerves were alcoholized and there was complete anesthesia to touch and pain, no trophic disturbances appeared.

Dr. McKenzie asked for some particulars regarding the technique of the operation and the strength of the alcohol.

Dr. Davis said that alcohol injection of nerves was similar in its effects to division of nerves, the nerves resuming their functions in each case. If the nerves did not resume their functions absolutely after the alcohol injections this method of treatment was an advance; but Dr. Davis did not think that a sufficient number of good results had yet been shown to demonstrate that regeneration of the alcoholized nerves did not take place entirely, or to what extent it failed to return. Regarding treatment by nerve anastomosis, he said that a longer time must elapse before its value could be determined.

Dr. Virgil P. Gibney said that if the authors could destroy the action of these muscles for even a few months the opposing muscles could be developed in the interval, which could not be done when a plaster cast was worn. The children's education could also be progressing. He considered this method a wonderful advance in the therapeutics of spastic paralysis.

Dr. Walter G. Stern said that whatever operation might be done the athetosis would return after a while. Even if the arm were amputated below the shoulder the shoulder would move.

Dr. Allison, closing, said that they had varied the strength of the alcohol to a certain extent. It must be at least 50 per cent., and they had used straight alcohol. Some cases had a more lasting paralysis than others, and Dr. Allison thought that the percentage of alcohol might have something to do with this.

Further Observation on the Operative Treatment of Paralytic Talipes of the Calcaneus Type.—Dr. Royal Whitman described his operation, which he said was the only one that is a direct remedy for the deformity, as well as the disability. Although most effective in proportion to the relative degree of deformity, it might be used with advantage in early cases and in other types of deformity. Removal of the astragalus was the key to the operation.

Dr. Gibney said that he had always been struck with the utility of the limb after this operation. The patients walked well, and it was seldom that after long intervals they had to wear any apparatus at all.

Dr. Henry Ling Taylor did not know of any operation that gave better results in a weak foot, in properly selected cases.

Dr. E. H. Bradford said that in the hospital with which he was connected they had tried all methods for the correction of this condition. They had performed Dr. Whitman's operation in the best manner they could, though perhaps not in a manner to meet with his approval.

Operative Treatment of Deltoid Paralysis.—Dr. E. H. Bradford discussed the various methods of treatment of deltoid paralysis, and enumerated the advantages of periosteal insertion over muscle to muscle insertion. He then considered the limitations of trapezium transference, and concluded with the histories of six cases upon which he had operated by his method.

Dr. Philip Hoffmann, opening the discussion, asked what was Dr. Bradford's strong objection to arthrodesis, stating that he had had a case of this kind in which some forward and backward motion of the shoulder was retained.

Dr. David Silver asked whether in the case that Dr. Bradford had followed for ten years there was any deformity in the neck.

Dr. Whitman said that he would not expect so much as Dr. Bradford from this operation, although he had obtained a great improvement in the function of the shoulder.

Dr. Bradford, closing, said that the advantage of his operation was that free motion could be obtained, which was not possible after arthrodesis. He was in favor of preserving as much motion as possible in the joint. There was no deformity of the neck evident in his case. The reason that he expected so much was that in surgery one expects the impossible.

The Indications for and the Uses of Vaccine Therapy in Orthopedic Diseases.—Dr. Charles F. Painter, after a careful discussion of the subject, concluded that there was no well-established theoretical ground for the belief that in gonorrheal and tuberculous joint infections vaccine could play a curative rôle. Very little progress had been made as regards either the diagnosis or treatment of chronic nontubercular infections. The complement binding reaction in the diagnosis of syphilitic bone and joint infections had stood the test of practical experience very well. There was reason for thinking that the future treatment of these conditions would be much facilitated by vaccine and serum therapy, although the results of this were not yet even comparable to those obtained from the use of Marmorek's serum in the treatment of tuberculous arthritis. The efforts of the members of the association should be directed to the perfection of methods of putting into practice a test for which there seemed to be so much theoretical and experimental justification; but statistics, however favorable, would be undesirable, unless there was indisputable ground for the claim that the results recorded could be obtained under no other form of treatment.

Tuberculin in the Treatment of Tuberculous Joint Disease.—Dr. John Ridlon gave the details of these investigations, which were first by Wright's opsonic method, and later by the so-called clinical method. His conclusions were that tuberculin administered by the clin-

ical method in harmless doses was useless; and that in larger doses it was dangerous.

Dr. Gibney said that he wished to present an optimistic report on the subject. During the past winter his staff at the hospital had used streptococcus and staphylococcus serum in tuberculous sinuses, but had not used tuberculin. In six of these cases the sinuses got perfectly well, but he quite agreed with Dr. Ridlon that thee patients would improve under almost any form of treatment at first.

Dr. Young said that very good results had been obtained in Philadelphia in the treatment of sinuses with serums made from whatever germs were found present in the case. He considered it important to use the autogenous method and the opsonic index, and not to employ the clinical method.

Dr. Albert H. Freiberg said that tuberculin was merely a means of calling forth in the body the production of an increased amount of toxin, and not the toxin of the tubercle bacilli. In order to cure tuberculosis by the vaccine method, it would be necessary to use the toxin of the tubercle bacillus. At the same time, he thought that tuberculin was not getting a fair test, because bovine, and not human tuberculin, should be employed in cases of joint tuberculosis. He considered Marmorek's serum very efficient but it was hard to get and expensive.

Dr. Clarence L. Starr said that in Toronto no good results had been obtained from the use of tuberculin in joint or sinus cases. He considered the opsonic index absolutely valueless, as in children it often varied from autointoxication. He had used staphylococcus serum, and occasionally streptococcus, in mixed infections, and had obtained sufficiently good results to warrant a continuance of the treatment. It did not seem to make any difference in the result whether indifferent or autogenous vaccine was employed. He was inclined to be skeptical regarding the frequency of bovine tuberculosis in joint lesions, as he thought that these cases differed materially from human infections.

Dr. S. J. Hunkin thought that the results obtained from the use of vaccines in the treatment of bone tuberculosis were purely dependent upon the temperament of the person employing them.

Dr. Painter, closing, said that he had purposely refrained from saying anything about mixed infections, but that he believed that the only satisfactory results had been obtained in that sort of cases.

Further Observations on the Pathology of Joint Tuberculosis, and Practical Deductions Therefrom.—Dr. Leonard W. Ely read this paper (see page 147).

Dr. Young said that the occurrence of two diseases, syphilis and tuberculosis, in the same person was of interest, because he had seen tuberculosis in individuals that had previously had syphilis.

Dr. N. M. Shaffer wanted to know whether the initial lesion was in the synovial membrane or in the bone marrow.

Dr. Fred H. Albee thought that it was unnecessary to remove all the infective material in the knee joint, in order to obtain good results.

Dr. Wallace Blanchard said that he had been surprised at the number of cases of old resection of the hip joint that had come to him with a history of having been healed for two or three years. He very much questioned whether excision of the hip joint modified the progress of the disease, except temporarily. It more than quadrupled the deformity.

Dr. Davis wished to know whether Dr. Ely would at once resort to resection when he had made a diagnosis of synovial tuberculosis in an adult. Dr. Davis understood that the resection performed by Dr. Ely was merely an arthrodesis in which the cartilage was removed to secure immobility.

Dr. Ely, closing, said that Dr. Young had not understood him aright. He had thought that the case was one of syphilis, and then that it was osteomyelitis, but it turned out to be tuberculosis. He stated that it was equally common for the disease to start in the synovia and in the marrow. When it started in one it might not involve the other, but it usually did so before long. He could not diagnose the synovial from the bony type, though he could make a fairly good guess in regard to this point. He thought that the synovial disease was characterized by much less atrophy, milder symptoms, less tendency to deformity, and a slower course. When he had made a diagnosis of synovial tuberculosis, he would recommend that the joint be put up in plaster for six months, owing to the possibility of an erroneous diagnosis, and would tell the patient that at the end of that time he would probably have to resect the joint.

Osteochondritis Dissecans.—Drs. Albert H. Freiberg and Paul G. Woolley stated that Koenig had maintained the existence of osteochondritis as a distinct entity and as the cause of joint mice, excepting those produced by arthritis deformans. They reported a case in which operation and pathological investigation furnished corroboration of Koenig's views, but in which certain new aspects were added. The great interest in their case lay in the fact that three varieties of joint changes were found going on in one joint at the same time, apparently depending in their reciprocal relation upon the vascular changes. The authors did not think that the types of chronic deforming joint affections could be looked upon as separate and distinct diseases. They believed that the future would disclose the etiological factors that determine the prevalence of this or that type in a given case.

Dr. Painter did not think that the *x*-rays exhibited were suggestive of the appearances in the ordinary cases of chronic hypertrophic osteoarthritis, but said that they might have been the result of the vascular changes that were present at the same time.

Dr. Woolley said that he did not think that they had proved anything by the small amount of work that they had done, but he did believe that they had some basis for supporting the work of Wollenberg. It was interesting that in this one case they had found changes that appeared like those described by other men in various forms of atrophic and hypertrophic joint disease.

Dr. Freiberg said that he had not meant to convey the impression that these appearances were like those usually seen in radiograms of hypertrophic arthritis. The interesting point was that they had a case in which free bodies of one kind had formed and apparently were still forming, and in which a second kind of free bodies had apparently formed on other occasions. When they came to examine the changed synovial membrane of these joints, they found chronic changes in accordance with the changes described by Wollenberg in cases that were typical of hypertrophic arthritis. It seemed to the authors that these two things must be brought into correlation, and that some explanation of this character was to be found for these cases in the osteochondritis dissecans of Koenig.

Syphilis of the Bones, and Its Bearing Upon Hypertrophy and Atrophy.—Dr. S. L. McCurdy stated that syphilis was a factor in the majority of cases of bone disease of all varieties. The growth of the bone and its regeneration after destruction, as well as hypertrophies and atrophies, were considered by the author, who suggested a reclassification, with the causative factor as the basis, rather than the pathological end. He stated that in tuberculosis of the bones the bones are always atrophied, while in syphilitic bone disease they are always hypertrophied and also eburnated, with exostoses. There is always a spindle enlargement, and not only a hyperostosis, but an endostosis. He thought that Charcot's disease was

in many instances syphilitic, because it melted away under constitutional treatment. Sabre tibia he considered to be always syphilitic. The objects of operation in syphilitic bone disease are to liberate pus, to relieve pain, and to remove sequestra. One should excise, but never destroy tissue. He approved of the use of iodide of potash, but not of mercurial enunctions, and thought that mechanical treatment should be employed just as in ordinary tubercular bone disease.

Dr. Leonard W. Ely thought that syphilitic joint disease in cases of tuberculosis might exist, but that it was comparatively rare. Neither did he consider the therapeutic test decisive. He also considered the statement that the lesions of tuberculosis are always atrophic to be an error.

Dr. McCurdy had not expected that many would agree with him, but thought that the statistics that he had compiled were sufficient to warrant him in continuing his plan of treatment. When he had used iodide of potash he had usually cut short the course of the disease.

Coxa Vara.—Dr. Wallace Blanchard reported two cases of sadly deforming coxa vara, giving the histories and showing skiagrams. He thought that these cases might help to clear up some questions of differential diagnosis. He objected to the statement that coxa vara is due to tuberculosis, as he had found rhachitic coxa vara greatly in excess of all other types. This might, however, have been due to his special line of work, the correction of knock-knees. Treatment of the deformity during its progress he considered very unsatisfactory; but when the disease has run its course osteotomy for the elevation of the head of the femur and for the relief of the adduction deformity gives good results.

Dr. Davis suggested that possibly Dr. Blanchard's first case might have been analogous to cases of subluxation of the wrist, in which the wrist becomes distorted, especially the lower end of the radius. This disease occurs in adolescents and young adults, and is probably due to rickets.

Report of Five Cases of Fracture Dislocation of the Shoulder.—Dr. A. R. Shands said that the literature on this subject was very meager. His cases all occurred during the first five months of 1909, and three of them within one week and in nearly the same community. The operation on one of these cases was the most difficult that he had ever performed. He said that if he should ever have a similar case he would make an incision through the axilla, so as to enable him to do a quicker and better operation, with more ease.

Dr. J. D. Griffith asked what the condition of the deltoid was after this incision had been made, and how Dr. Shands escaped dividing the posterior circumflex nerve.

Dr. Davis said that in some operations that he had done either from the axilla or along the anterior edge of the deltoid, the exposure was not satisfactory. For this reason he subsequently used a transverse incision, running from the anterior edge of the deltoid and skirting the acromion. By this means the blood and nerve supply were not injured, and he secured a first-rate access. If the incisions are made through the fibers of the deltoid, the deltoid will be paralyzed.

Dr. Shands remarked that although his incision was not like that of Dr. Davis, he was glad to hear the description of Dr. Davis's operation. In his own operation the muscle was practically not cut at all.

Juxtaepiphyseal Fractures of the Hip and Shoulder.—Dr. Fred H. Albee discussed the diagnosis and the frequency of occurrence of juxtaepiphyseal fracture of the upper end of the humerus and femur, and said that faulty diagnoses were frequent. He took into consideration the different elements displacing the fragments, and laid stress upon the importance of the use of position in fixing the long, or controllable, fragment in alignment with the short, or uncontrollable, fragment. Several illustrative cases were cited.

Dr. H. Winnett Orr said that he had used the sort of dressing described by Dr. Albee, but had taken the liberty of extending it a short distance farther, so as to include the hand.

Dr. Frank R. Peckham said that it was important that it should be recognized that these fractures should be treated by an orthopedist, rather than by a general surgeon. He did not think that putting the limb in extreme abduction would give perfect apposition of the fragments in every case of fracture of the neck of the femur. He thought that Dr. Albee had demonstrated the application of the same principle to fracture of the upper extremity as to fracture of the lower extremity, and believed that the x-ray should be used to find out what the position is both before and after the limb had been set. Passive motion and massage should be employed early, thus causing union and the functional result to go hand in hand.

Dr. S. J. Hunkin said that his experience had shown that the fragments could not always be held in opposition in a position of extreme abduction, and he had also found it difficult in some cases to tell whether the fragments were in apposition or not, even by means of the x-ray. He thought that one should cut down upon practically all fragments of the femur, and use the finger and the eye to find out whether they are replaced. They should then be fastened with some metallic suture, and a splint allowing one to see the part should be applied.

Dr. Albee, closing, did not think that this position would hold a fracture of the neck as well as an epiphyseal fracture, although it would usually hold a fracture of the neck.

Relaxation of the Annular Ligament of the Ankle-Joint as a Cause for Weak and Flat Foot.—Dr. J. Torrence Rugh had for some years been impressed with the notion that the cause of weak and flat feet lay in the lower portion of the annular ligament, which performs three distinct functions in the economy of the foot. It binds down the tendons of the tibialis anticus and the extensor proprius hallucis and keeps them tense; it acts as a sling for the support of the dorsalis, and it takes up the slack in the plantar fascia, when the tibialis anticus and the dorsal flexor of the great toe contract. It, therefore, not only has important functions of its own, but it also assists the neighboring structures in the performance of their functions; and if they become relaxed, the strain upon this portion of the ligament increases and it may give way. For this reason it should be considered in cases of weak or flat foot.

Osteophytes of the Os Calcis.—Dr. J. D. Griffith contended that bacteria were not necessary to the production of a deposit of bone by the periosteum, but that constant irritation and pressure could easily inaugurate a locus minoris resistaniæ and strain as a cause of osteoblastic deposition, especially when perverted metabolism was added. This thickened condition or deposition of extra bone was frequently the cause of painful feet. He considered the horseshoe incision the only one that was entirely satisfactory and devoid of the possibility of causing future trouble.

An Operation for the Relief of Anterior Metatarsalgia, Including Morton's Disease.—Dr. A. Mackenzie Forbes said that this condition was primarily due to abnormal laxity of the ligaments and the transverse metatarsus muscle, allowing the falling of one or more metatarsal heads. The pressure of the displaced bone on the soft tissues beneath it was the cause of the pain, which might later become exaggerated by the formation of a callus on the weight-bearing skin. Secondarily, a mild form of arthritis would sometimes supervene. As the second, third, and fourth metatarso-phalangeal joints are

supplied by the external branches of the anterior tibial, which motor nerve supplies the extensor longus digitorum, spasm of this muscle would often result, causing hyperextension of the phalanges of the affected joints. When chronic, this hyperextension was often followed by a dorsal subluxation of the phalanx, and this tended to depress the heads of the affected metatarsals against the adjacent soft tissues. Dr. Forbes said that the only difficulties in the operation that he proposed for the relief of this condition were those connected with the attachment of the extensor tendon to the depressed heads and the guarding against a low form of infection, which might destroy the attachment. The first difficulty was overcome by raising the head by direct pressure from below.

Problems in the Treatment of Club Foot.—Dr. W. G. Stern said that when not due to faulty technique in applying the plaster cast, a decubitus occurring on the dorsum of the foot was due to cutting off of the arterial supply of the arch afflicted, and that the cyanosis of the toes was due to a damming back of the venous return. Both of these untoward occurrences were caused by the compression of the soft tissues of the dorsum from over-correction. Relief of this condition could be brought about by reducing the over-correction and fixing the foot in a less extreme position. The amount of correction practicable at any one sitting was primarily dependent upon the circulation and was often considerably less than the maximum. For the best results in club foot a maximum over-correction must be secured, but this should not be done at one sitting. The circulation in this, as in other forcible operations, should control the amount of correction obtainable at any one sitting; and if the latter was not sufficient for a permanent cure the correction must be repeated at suitable intervals until the maximum over-correction could be safely maintained.

Flat Foot, Midtarsal Valgus.—Dr. E. H. Bradford stated that the foot changes shape under different static conditions, and referred to the difficulty in checking the inward sag and twist. He then described the action of the muscles in flat foot, and mentioned the essentials of the treatment for this condition. In order to regain suppleness and strength, daily exercise was a necessity. He laid stress upon the importance of measures to correct joint stiffening and restore muscular strength. He considered supports beneficial, but not curative.

Dr. H. P. H. Galloway had used Dr. Griffith's incision with more satisfaction than he had experienced when he had used the simple linear incision. He never employed the latter on the center of the heel. He considered the operation described by Dr. Forbes to be an exceedingly ingenious adaptation of an operation employed by all orthopedic surgeons for some other conditions. He had frequently transplanted the extensor tendons of the toes in order to overcome the closed condition of the toes met with in static paralysis, and to secure more power of dorsal flexion. He then exhibited an instrument intended to center the drill in making holes in bones of small diameter. He said that he had always succeeded in relieving metatarsalgia by mechanical means. Should he find any case that he could not relieve in this way he would adopt Dr. Forbes's operation.

Dr. Davis called attention to resection of the head of the metatarsal bone for the relief of metatarsalgia and said that Morton had not infrequently found that this operation destroyed the stability of the toe. Later, Morton often performed amputation of the toe for this condition. Dr. Davis wished to know whether in Dr. Forbes's procedure the tendon of the extensor brevis would be sufficient to maintain the toe in a straight line.

Dr. McCurdy described a method of taking from the toes tendons that would be long enough to wrap around the foot in cases of closed toe, the tendons being brought back and sutured to themselves. This operation gave a perfect stable anchorage.

Dr. Young said that he had performed the Morton operation several times and had always been obliged to remove the toe. Although the statement that it is not necessary to operate on these cases had been made, Dr. Young thought that some of these cases require operation. He considered Morton's operation perfectly satisfactory.

Dr. Rugh said that he had had a patient with chronic appendicitis and with referred pain about the sacroiliac joint and down the sciatic nerve. When he had operated for the appendicitis there was no further pain in the metatarsal. We cannot always ascribe pain in one part of the body to trouble in that particular region.

A number of other papers, including candidates' theses, were read but not discussed. All the papers whose titles were on the program, if not read, were considered as having been read by title.

Officers.—The following officers were elected—*President,* Dr. Albert H. Freiberg of Cincinnati; *First Vice-President,* Dr. A. P. Shands of Washington; *Second Vice-President,* Dr. Robert B. Osgood of Boston; *Treasurer,* Dr. Gwylym G. Davis of Philadelphia; *Secretary,* Dr Ralph R. Fitch of Rochester, N. Y.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON SURGERY.

Stated Meeting, Held May 9, 1910.

Dr. Charles N. Dowd in the Chair.

An Intravesico-Ureterorenal Tumor.—Dr. W. H. Luckett presented this patient and the specimen. There was nothing in the history of the patient that pointed to a tumor of the bladder, ureter, or kidney. She had been suffering from vague nervous symptoms for the last fifteen years. This was diagnosed as neurasthenia by the different internists who had seen her for the past two years. She had seen some pus in her urine, but no blood. During the last six months the patient herself had felt the tumor in the region of the left kidney. Cystoscopic examination of the bladder was made. The right ureter was catheterized and clear urine obtained. The left ureter could not be catheterized. A finger-shaped tumor apparently attached to the orifice of the left ureter extending transversely across the bladder was movable except at its attachment. Pus was seen escaping from the left ureter. Nephrectomy of the left kidney was performed. Upon inspection of the pedicle a large dilated ureter was seen plugged with a solid fibrous material. This was grasped and traction made upwards when a long worm-like fibrous tumor was delivered upwards through the kidney wound via the ureter. The lower end of this worm-like mass was recognized as that finger-shaped tumor seen at the cystoscopy in the bladder. The patient made an uneventful recovery. Two weeks after the operation cystoscopic examination of the bladder showed the absence of the finger-like tumor from the left ureter seen at the first cystoscopy. The kidney specimen was excised through the pelvis, and a large multilocular fibrocystic mass easily delivered from the pelvis and enormously dilated calyces which it was occupying. This mass was not apparently attached to the kidney, ureter, or bladder. The pelvis and dilated calyces were smooth and intact. The character of the tumor was not definitely established. Dr. Sondern was of the opinion that during embryonic life some part of the medulla of the future kidney failed to unite with the cortical portion, and as a result an inclusion has been formed which developed into the structure found occupying the bladder, the ureteral canal, pelvis of the kidney and cystic cavities of the cortex of the kidney. It was an unique specimen. The medical literature did not record a case of tumor of

the bladder being removed through a nephrectomy wound via the ureter.

Complete Avulsion of the Scalp.—Dr. J. J. Moorhead presented a woman, twenty-two years old, whose hair caught in a revolving belt and she was completely scalped in very much the same way Indians would have done it. The scalp could not be replaced because of the dirt. When admitted to the Harlem Hospital her head was completely denuded of hair. She was in very poor physical state and, therefore, it was impossible to do anything for her at first. Her hemoglobin count was down to 23 per cent. at one time. The accident happened on October 8, 1909, and on March 27 the scalp was in condition to graft. Twenty-five small pieces of skin were taken from the patient's thigh and grafted. Four series of grafts were taken, altogether one hundred and three pieces of skin. The last operation was done May 22. She developed melancholia and was transferred to Bellevue Hospital. No further operative procedure was carried out. The parts had all cicatrized except one small area the size of a twenty-five cent piece, and another the size of a dime. The grafts were covered by rubber tissue which was fenestrated and laid on as shingles on a roof.

Two Cases of Tuberculous Adenitis of the Neck Treated by Sea Air and Tuberculin.—Dr. W. M. Brickner and Dr. Neuhof presented these cases. They were two of a small series of cases of surgical tuberculosis among children of the tenements whom they had had under close observation for over a year, and whom they had treated solely by diet, tuberculin, such hygiene as they were able to secure, and, during the summer, by a sojourn at the ocean in the Rockaway Park Sanatorium for children. They illustrated nothing perhaps, except that an improvement that was at first most gratifying did not prove permanent, and that the plan had not effected a cure. Two other cases of the series were tuberculous synovitis of the knee: One, a boy, seemed to be entirely cured; the other, a girl, a case of much longer standing, was considerably improved but seemed to make no progress beyond a certain point. In the case of the boy, a high shoe, plaster casts, and crutches were part of the treatment.

Case I.—This patient came to the dispensary on March 28, 1909. Her parents, brothers and sisters were healthy. Five months before she had a swelling below the left jaw and along the sternomastoid, which developed to the size of a small pear. Three months before it had been incised in front of the sternomastoid and a large amount of pus evacuated. A second fistula developed later behind the sternomastoid; both were discharging a slight amount of turbid fluid. The general condition of the girl was fair. There was a mass the size of a walnut in the submaxillary region; the tonsils were moderately enlarged and smooth but no crypts were seen. On March 20 she was given a tuberculin injection B. E. 1/20,000 of a milligram. Injections were given semi-weekly, and diet and fresh air were advised. By May 15 all the sinuses had healed and there were no swellings visible. There were a few small glands on both sides of the neck, but the skin was everywhere movable. In June she had an intercurrent malaria, but at no time a reaction above 100 degrees. On June 28 she was admitted to Rockaway Park Sanatorium. Her weight at this time was 57 pounds. She was put on forced diet and slept outdoors. They continued to give her quinine and tuberculin emulsion up to 1/30 of a milligram. On August 15 she left the sanatorium, had gained fourteen and one-half pounds, and looked well. During this time she often had a temperature of 100° even when tuberculin was omitted. On September 27 the tuberculin was resumed, beginning B. E. 1/40,000 of a milligram. In December she had an intercurrent acute tonsillitis and submaxillary adenitis. By February 10, 1910, she was taking B. E. 5 milligrams. At that time a glandular abscess formed at the site of one of the scars which was allowed to rupture spontaneously. On March 16 she had a small superficial sinus and a slight discharge. She had frequent headaches and felt feverish.

Case II.—This boy, eleven years of age, came to the dispensary on March 20, 1909. The father had a chronic cough, but the other children and the mother were healthy. The boy had one large submaxillary gland and two smaller ones behind the angle of the jaw on the right side. There was a discharging wound over one of these which had been discharging since the incision of an abscess four months before. There were two scrofuloderma in front of these. There was dacryocystitis dextra for one month. The patient had a rhinitis with superficial ulcerations of the left nares. The tonsils were large and there was mucus in the pharynx. The lungs, bones, and joints were negative. There was an old perforation of the left ear drum. He was put on iodide of iron and syrup of hypophosphates. On March 23 he was injected with the tuberculin 1/4,000 of a milligram. This was continued twice weekly until May 1, when he was given B. F. 1/200 of a milligram. On April 24 the glandular swelling was punctured and evacuated. After May 1 he was given the tuberculin and by June 22 he took a milligram. At that time the glandular infiltration was almost gone. When he was admitted to the sanatorium the sinuses were almost closed and he weighted 61 pounds. He was kept in the open air on forced diet, etc. On September 7, after being in the sanatorium for ten weks he weighed 65½ pounds and was receiving B. E. 1/10 of a milligram. On September 29 treatment was resumed. At that time he had a gland about the size of a chestnut in the submaxillary region and a slight infiltration around the posterior scar. On November 26 there was a painful glandular swelling below the lowest scar. This subsided, but recurred again in February, 1910. The treatment was continued and now he again has glandular swelling and the right tonsil was pushed forward.

Treatment of Tuberculous Glands of the Neck. Six Hundred and Forty-nine Cases.—Dr. E. S. Judd of Rochester, Minn., read this paper. He said there was approximately 800 glands in the entire body and nearly 300 of these lay within the tissues of the neck. The glands in this region were the first to appear in the embryo. Placed at the juncture of the head and neck were several groups of glands forming a kind of glandular collar which was composed of a suboccipital group, a mastoid group, parotid glands, submaxillary glands, submental glands, and retropharyngeal glands. This glandular collar drained the entire scalp, skin, and mucous membrane of the head. There were no lymphatic vessels passing upward or communicating at any point within the skull. From the histories of their cases of tuberculous glands, they found that in 80 per cent. the first enlargement was beneath the upper end of the sternomastoid muscle, while in 18 per cent. it was in the submaxillary, submental, or parotid regions. If a routine examination was made of a great number of children between the ages of four and ten years, they would find in them varying degrees of enlargement of the glands: the changes in these glands, formerly called scrofulous, were in part simple hyperplasia, in part tuberculosis. There was no differential diagnostic criterion of the initial stage of gland tuberculosis. The tissues in these glands predisposed and invited tuberculous infection. Most of the patients upon whom they had done a complete excision of the glands had been over fifteen years of age; 18 in 649 cases were under ten years. In the presence of a discharging sinus, it did not appear advisable to excise the glands; they had usually curetted and treated by swabbing with equal parts of tincture of iodine and carbolic acid. As soon as the sinus healed, a radical operation could safely be done if necessary. Pulmonary invasion

was not necessarily a contraindication to operation upon tuberculous glands of the neck. The chief objection to the radical operation was the resulting scar. If one followed the natural creases in the neck and kept the incision as nearly as possible transverse, as suggested by Dr. Dowd, very little scar or deformity resulted. To prevent the formation of a wide ugly scar it was very essential that they turn back the platysma muscle and the skin in each flap. It was their custom to drain these cases through a stab incision. The spinal accessory nerve was the only superficial structure that it was necessary to avoid in operating. During the past fifteen years they had performed 668 operations for complete excision of glands of the neck. The following table showed the work done and results: Total number of cases operated upon, 649; total number of operations, 750; average age, 25; number of cases under ten years of age, 18; complete excision, 668; curetted, 62; both sides operated upon, 94; recurrence in region of former operation, 56 (8.6 per cent.); died of pulmonary tuberculosis, 19 (5 per cent.). Mortality, 19; one died in four weeks, one in three months, four in one year, five in two years, two in three years, two in four years, one in five years, two in six years, and one in eight years. Died of tuberculous lesions other than pulmonary, 9; died of other troubles, 14. Number of patients with pulmonary tuberculosis at time of operation, 10. In operating upon these cases it had been their effort to do a radical and thorough excision of the groups involved. Charts were shown to demonstrate the method of operating. In their series of cases they had had no mortality due directly to the operation. One patient died a few weeks after operation of general tuberculosis, and a second died in about three months from diffuse sepsis.

The Relation of the Tonsil to Tuberculous Adenitis.—Dr. F. S. Matthews said that the fact that the tonsil could be entirely removed without serious consequence to the individual was neither an argument for nor against the usefulness of the normal tonsil. There could be no doubt that germs invaded the tonsil, perhaps showing their first effects in other parts of the body. The tubercle bacillus had been found in it and had been shown to have passed through it at times without producing lesions. What they wished to know at present was, were the tonsils uniformly, occasionally, or usually a source of tuberculous adenitis. Wood of Philadelphia stated that the tonsils of persons dying of consumption showed evidences of tuberculosis in the vast majority of the cases, though other parts of the nose, mouth, and pharynx did not. On the other hand, consumptives frequently suffered from tuberculous adenitis. The tonsils of children had been frequently stated to have been tuberculous in 5 to 10 per cent. of the cases examined. On the other hand, Hodenpyl examined several hundred tonsils without finding any tuberculous ones. Dr. Matthews gave the results of the examination of the tonsils of sixty children. Over fifty of these were whole tonsils, but embraced every variety as regards size, shape, depression, and elevation. Not one of these fifty-five tonsils showed any evidence of tuberculosis. The tonsils of four patients suffering from tuberculosis of the glands of the neck were examined and each showed evidences of tuberculosis in the tonsil. He closed his paper with a brief outline of these cases.

The Treatment of Cervical Tuberculous Adenitis at the Sea Breeze Hospital.—Dr. Leonard W. Ely said that they had the histories of thirteen cases treated at the hospital under diagnosis of adenitis; besides these, enlargement of the lymph nodes had been observed in many of their patients suffering from tuberculous joint disease. The diagnosis had almost invariably been a clinical one and the treatment had been in most instances conservative. The results had been for the most part good. It was found that, as a rule, treatment was of little avail until the tonsils and adenoids were removed. About one year ago they discarded the operation of tonsillotomy and since then removed the tonsils entire. The benefits of the operation was often apparent in the subsidence of the nodular swellings in the neck. It seemed probable that if the original source of infection was removed, the nodes would subside spontaneously; but that if this be left, other lymph nodes would become involved from it. Dr. Ely then gave a synopsis of the histories of several of the cases. They considered that a great measure of their success in the treatment was due to the scrupulous care bestowed upon the teeth of the children. The dentist visited the hospital daily. Each child had his own tooth brush.

Preservation of the Submaxillary Branch of the Facial Nerve in Neck Operations.—Dr. C. E. Farr gave a lantern slide demonstration of these parts.

Dr. George E. Brewer said that they had had a large number of these cases to treat, and he confessed that he always approached the operation with dread because so frequently paralysis followed, or else some of the gland was left behind and recurrences appeared. With more experience and with more thorough operating the problem would become simpler. One should go to work deliberately and do a complete operation, removing the enlarged gland in one piece, but looking out with great care not to injure the nerves; then the results would be very satisfactory. The nerve that should be avoided lay one finger's breadth below the angle of the jaw, that was, about one-half an inch was about its usual position, but one should be prepared to meet it at a lower position. Paralysis sometimes occurred merely from traction upon the upper flap. He recalled a case in Roosevelt Hospital in which there resulted a marked paralysis and, at Dr. Weir's suggestion, to overcome the deformity he made a subcutaneous division of the nerve on the opposite side. This was followed by a marked correction of the deformity. When there was a paralysis of both muscles, there was an inconsiderable deformity. In some cases after five or six months such paralysis almost entirely disappeared.

Dr. Robert T. Morris said that the more thorough the operation the simpler it became. The matter of suturing the platysma myoides was very important in order to overcome the mechanical tendency to pull the scar apart. In addition to the stab drain Dr. Morris advocated the employment of a single layer of gauze over which he poured collodion; this caused traction along the suture line and might be retained for two or four weeks. This was done to avoid the large scars. Dr. Judd made no mention of the use of the *x*-ray in the treatment of tuberculous cervical lymph nodes. Dr. Morris said he had used with success the method of applying a bag of hot water to the affected region for two or three minutes, then the ice-bag, then the hot-water bag, etc. This he repeated every fifteen or twenty minutes or an hour morning and night. In two cases he obtained a cure after two months of such treatment.

Dr. Charles H. Peck said that these cases formed a very large group of the cases that the surgeon met. One of the difficulties encountered was the avoidance of the spinal accessory nerve, especially in those extensive cases with a diffuse periadenitis that were met with so often. It was very important that the platysma myoides should be brought carefully together and sutured before the wound was closed. He thought that the presentation of the results in such a large series of cases was an exceedingly valuable contribution.

Dr. Walter M. Brickner said that he believed surgeons were becoming more conservative in tuberculous cervical adenitis, especially when the smaller groups they saw so frequently were under consideration. He was quite sure that they saw fewer records on hospital cards of the removal of tuberculous glands of the neck now than they

saw ten years ago. Several years ago these cases were so often sent away from home to die; such cases now recovered under no other treatment than outdoor life in the mountains. He recalled one case of a tuberculous hip, with a profusely discharging sinus, that recovered after a sojourn in Maine. It would seem, therefore, that the climatic treatment of these cases was a very valuable aid, especially in the treatment of tuberculous cervical lymph nodes. Among the cases that he had had an opportunity of observing there were many that responded to conservative treatment, dietetic, and climatic, together with the administration of iodides, especially of iron. Just where to draw the line between the surgical treatment and the conservative treatment of these cases, when there was a single localized focus for instance, was a question that needed to be debated. The value of tuberculin had not been determined; when used with climatic treatment, it seemed, however, to work wonders. However, when these patients returned to their homes in the tenements, they would relapse and would be not much, if any, better than before treatment was undertaken. Dr. Brickner believed that these patients did better in the mountains where there was a dry and hard soil than they did at the sea shore.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

THÉORIE PHYSICO-CHIMIQUE DE LA VIE, ET GÉNÉRATIONS SPONTANÉES. Par STÉPHANE LEDUC. 8vo; paper; 202 pages; illustrated; 5 francs. A. Doinat, Paris, France.

TRANSACTIONS OF THE LUZERNE COUNTY MEDICAL SOCIETY, 1909. 8vo; paper; 228 pages. E. B. Yordy Co., Wilkes-Barre, Pa.

THE PRACTICE OF MIDWIFERY. By GALABIN AND BLACKER. Cloth; 8vo; 1,123 pages; illustrated; $6.00 net. The Macmillan Co., New York.

FOUNDERS' WEEK MEMORIAL VOLUME. Edited by FREDERICK P. HENRY, A.M., M.D. 8vo; cloth; illustrated; 912 pages. City of Philadelphia.

CHIRURGISCHE OPERATIONSLEHRE. Von Prof. Dr. FRIEDRICH PELS-LEUSDEN. 8vo; paper; 728 pages; illustrated; mks., 18. Urban & Schwarzenberg, Berlin, Germany.

ÜBER DIE NATUR UND DIE HERKUNFT DES TRACHOMERREGERS. Von Prof. HANS HERZOG. 8vo; paper; 56 pages; illustrated; mks. 5. Urban & Schwarzenberg, Berlin, Germany.

PROCEEDINGS OF THE ROYAL SOCIETY OF MEDICINE. 8vo; paper; illustrated; 142 pages. Longmans, Green & Co., London, England.

PROGRESSIVE MEDICINE. Edited by HOBART AMORY HARE, M.D. 8vo; paper; illustrated; 363 pages; $6.00 per annum. Lea & Febiger, New York.

HYGIENE AND MORALITY. By LAVINIA L. DOCK. 12mo; cloth; 200 pages; $1.25. G. P. Putnam's Sons, New York City.

THE SECRET OF SEX. By E. RUMLEY DAWSON, L.R.C.P. (Lond.), M.R.C.S. (Lond.). 12mo; paper; 64 pages; illustrated. Cochrane Publishing Co., New York City.

PRACTICAL MEDICINE SERIES. Vols. I to III. 12mo; cloth; illustrated. The Year Book Publishers, Chicago, Ill.

AMERICAN PRACTICE OF SURGERY. Vol. VII. By BRYANT AND BUCK. 4to; cloth; 061 pages. William Wood & Company, New York.

A MANUAL OF PERSONAL HYGIENE. Edited by WALTER L. PYLE, M.D. 12mo; cloth; illustrated; 472 pages; $1.50 net. W. B. Saunders Co., Philadelphia, Pa.

NURSING IN DISEASES OF THE EYE, EAR, NOSE, AND THROAT. By a Committee of Nurses of the Manhattan Eye, Ear, and Throat Hospital, New York City. 12mo; cloth; 281 pages; illustrated; $1.50 net. W. B. Saunders Co., Philadelphia, Pa.

HYGIENE AND PUBLIC HEALTH. By WHITELEGGE and NEWMAN. 16mo; cloth; 650 pages; illustrated; $1.75 net. Funk & Wagnalls Co., New York City.

SERUMS, VACCINES, AND TOXINES. By BOSANQUET and EYRE. 12mo; cloth; 361 pages; $2.00 net. Funk & Wagnalls Co., New York.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of September 10, 1910:

	Cases	Deaths
Tuberculosis Pulmonalis	523	141
Diphtheria	185	12
Measles	82	5
Scarlet Fever	64	4
Smallpox	—	—
Varicella	3	—
Typhoid Fever	169	22
Whooping Cough	29	15
Cerebrospinal Meningitis	7	8
Malarial Fever	—	—
Totals	1,062	207

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, during the week ended September 9, 1910.

CHOLERA.

PLACE.	DATE.	CASES.	DEATHS.
China: Fatshan	July 1		*Epidemic
Hongkong	July 10-16	9	6
Imported			
India: Bombay	June 26-Aug 2	..	1
Calcutta	July 10-16	..	14
Negapatam	July 2-8	..	13
Rangoon	July 17-23	..	1
*From the Veroffentlichungen des Kaiserlichen Gesundheitsamtes, August 17, 1910.			
Japan, Awaji Island	July 22-28	3	..
Ibogum	Aug. 5	3	1
Java, Batavia	July 17-23	30	18
Philippine Islands, Manila	July 10-23	30	20
Provinces—			
Batangas	July 10-23	60	25
Bulacan	July 10-23	196	140
Mountain Province	July 10-23	2	2
Nueva Ecija	July 10-23	171	116
Pamparga	July 10-23	51	43
Pangasinan	July 10-23	841	651
Rizal	July 10-23	28	16
Tarlac	July 10-23	33	31
Russia, general	July 17-23	13,374	5,979
July 24-Aug. 6, cases 16, deaths 7.			
Archangel, government—			
Archangel	July 17-23	1	..
Astrakhan, government	July 17-23	272	132
Baku, government	July 17-23	178	76
Baku	July 17-23	47	24
Bessarabia	July 17-23	3	2
Black Sea, province	July 17-23	162	45
Cronstadt	July 17-23	2	..
Daghestan, territory	July 17-23	21	11
Don, territory	July 17-23	2,826	1,292
Rostov on Don	July 17-23	151	36
Kaluga, government	July 17-23	7	..
Kharkov, government	July 17-23	434	174
Khazan, government	July 17-23	29	17
Kherson, government	July 17-23	350	168
Odessa	July 17-23	73	40
Kief	July 17-23	76	26
Kostroma	July 17-23	75	32
Kuban, territory	July 17-23	2,811	1,421
Kursk, government	July 17-23	233	74
Moscow, government—			
Moscow	July 17-23	3	2
Nizhninovgorod, government	July 17-23	125	36
Novgorod, government	July 17-23	1	..
Orenburg, government	July 17-23	121	31
Padolien, government	July 17-23	46	12
Pensa, government	July 17-23	30	8
Perm, government	July 17-23	14	4
Poltava, government	July 17-23	250	75
Rjasan, government	July 17-23	166	60
St. Petersburg, government	July 17-23	13	6
St. Petersburg	July 17-23	209	46
Sarapul, government	July 17-23	1	..
Samara, government	July 17-23	409	240
Saratov, government	July 17-23	402	184
Simbirsk, government	July 17-23	100	44
Stavropol, government	July 17-23	348	164
Tambov, government	July 17-23	101	46
Taurida, government	July 17-23	417	179
Kertsch	July 17-23	106	47
Tchernigov, government	July 17-23	183	59
Terek, territory	July 17-23	386	153
Tiflis, government	July 17-23	180	70
Tula, government	July 17-23	6	1
Ufa, government	July 17-23	6	3
Vitebesk, government	July 17-23	5	..
Volhynien, government	July 17-23	16	10
Yaroslav, government	July 17-23	22	11
Yekaterinislav, government	July 17-23	1,067	900
Siam, Bangkok	June 10-July 18	52	52

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Original Articles.

A PRELIMINARY REPORT ON EHRLICH-HATA PREPARATION FOR THE CURE OF SYPHILIS.

By M. S. KAKELS, M. D.,

NEW YORK.

ADJUNCT SURGEON TO THE LEBANON HOSPITAL

In the latter part of August I received from abroad a number of tubes of Ehrlich-Hata preparation, No. 606, for trial on luetic patients. From the brilliant reports and successes published in the German literature one cannot dispute the specific virtues of this new remedy. In order to give this preparation a fair test I determined to use it only on such tertiary or malignant cases that had not yielded to any previous treatment. My first patient I injected on September 4, 1910, my second on September 7, 1910. Up to to-day (September 15) the results thus far obtained have been beyond expectation. The time elapsed from the injection to the publication of this report is too short to offer it as a complete observation of the results and final effect of the remedy, but the rapid and astonishing changes that have already taken place fully warrant me in offering these brief histories for publication as a preliminary report and at the same time to confirm the brilliant reports which the German clinicians have recorded. The further details and results of these cases and others will be fully published in a later article after sufficient time has elapsed to warrant us in expressing an unbiased opinion of the efficacy of this epoch-making discovery. The remedy is being used according to the strict instructions of Professor Ehrlich. It is only injected in syphilitic patients, free from other organic lesions, either of the liver, kidney, heart or circulatory system. The eyes are examined in every instance for optic nerve lesions. It is also only injected in patients who are under hospital surveillance where accurate records can be taken.

Case I.—H. S., 24 years of age, single, occupation painter, was admitted to the Lebanon Hospital in the service of Dr. Roth on August 11, 1910. Since August 8th he had acute pain in the region of the gall-bladder. The onset was sudden and accompanied by chilly sensations. No jaundice. Physical examination was negative except for a large mass in the gall-bladder region which seemed to communicate with an enlarged liver. The right border of the mass extended to a vertical line situated through a point four inches from the umbilicus. The left border of the mass ran into the lower edge of the liver which was found to be two inches below the xyphoid cartilage. From the costal margin to the lower edge of the tumor the growth measured 4 inches; its width was 2½ inches. The spleen was enlarged and readily palpable.

The patient acquired an inital sore in March, 1907, and was treated by different physicians until June, 1907. From June, 1907, for three years he was given hypodermic injections of mercury.

After his acute symptoms had subsided Dr. Roth made an exploratory laparotomy and found that the tumor mass was a gumma and was inoperable. The large liver was infiltrated with gummatous masses. The pathological report of a section of the tumor confirmed the operative diagnosis. The wound had almost entirely healed when Dr. Roth kindly turned the patient over to me for the injection of the Ehrlich preparation. A Wassermann reaction a day before the injection was strongly positive. On September 4, 0.3 grm. of Ehrlich-Hata 606 was injected subcutaneously under the scapula according to Michaelis' method. Twenty-four hours after the injection there was already a marked diminution in the intensity of Wassermann's reaction. There were no local symptoms at the site of injection although a very slight pain was experienced which disappeared at the end of a few days.

There was a slight rise of temperature (100.8°) on the ninth day. On September 5 there was a leucocytosis of 10200. There was no change in his general condition following the injection. His appetite improved. The small ulcer at the site of the incision which had not entirely healed when he received his injection was entirely healed on the second day thereafter. On the 9th of September, five days after the injection, there already was perceptible by palpation and percussion a marked diminution in the size of the tumor. The liver also was as markedly diminished in size and the spleen also. There are no changes in his eye and he is gaining in weight. The third day after the injection there was well-marked evidence of still further diminution in the intensity of Wassermann reaction.

On the 14th of September the tumor had diminished fully an inch in circumference and the liver very markedly retracted from the abdominal wall and markedly decreased in size. The spleen was also smaller. There was a leucocytosis of 9200, his urine is negative and his weight has increased five pounds in nine days. He has been examined by several of the visiting staff, as well as by other physicians who were invited to examine him, and all agreed to the remarkable rapidity with which the growth is decreasing. I have never seen a pathological mass melt away so rapidly.

The second case is still more remarkable and I can only state, in short, that Ehrlich's remedy in this instance was life-saving. Not only was the patient's life saved, but he is being rapidly restored to health.

Case II.—Henry P., age 36, bartender by occupation, acquired an initial sore in June, 1907, followed by a papular eruption. In September, 1907,

there appeared deep sores on the neck and flexor surface of his extremities which healed after three months, leaving scars which are still visible. In December, 1907, he was deeply jaundiced, had an enlarged liver and was rapidly losing weight. He had pain in swallowing. There were plaques on his tongue. The epiglottis infiltrated and swollen. In rapid succession ulcerations appeared on the soft palate, tonsil, epiglottis and glottis so that the patient could swallow liquids only after the application of an anesthetic had been made. He had sleepless nights on account of the pain and accumulation of mucus. Although slight improvement set in there still persisted lesions on the skin and mucus membrane of a destructive nature. In June and July of 1909 there were relapses of the ulcers of the larynx and marked destructive changes in the epiglottis. There was a gumma in the nasopharynx, the left wing of the nose being gradually destroyed by an ulcerative process. There were ulcerative sores on the lips, with marked destruction of the tissues.

About the middle of August, 1909, the patient was admitted to the German Hospital. He left the hospital in October, 1909, very little improved. During all this time he received the most active antisyphilitic treatment. On September 5, I admitted him to the Lebanon Hospital from the German Hospital, which he had re-entered in November, 1909, and where he had remained until he came under my care for the injection of Ehrlich-Hata preparation.

His condition at this time was pitiable. For weeks he had been bed-ridden on account of a large and deep ulcer over the left external malleolus which measured 2 x 3 inches, the result of a gumma which had existed for over eight weeks and then had broken down. There was another soft gumma on the instep with the overlying skin reddened and ready to break down. On the upper third of the left tibia there was a hard and painful gummatous infiltration. On the lower portion of his face there existed a large number of old and recent cicatrices. The lips and nose were distorted by excavations. A number of small and deep ulcers of a punched-out appearance were visible on the cheeks, nose and lips, all covered with a nasty and yellowish discharge. A large defect about the size of a five-cent piece on the right side of the nose near the tip, the result of a broken-down gumma, was still covered with broken-down tissue. None of these sores showed the least tendency to granulation. Especially the large ulcer on his malleolus was absolutely pale and indolent looking and still in a breaking-down state.

Dr. Bullinger, who had treated the patient before he entered the German Hospital, and who kindly referred him to me with the kind permission of Dr. Klotz, the visiting dermatologist to the German Hospital, had used the inunction treatment several times. He also gave hyperdermics of mercury, enesol, and atoxyl in larger doses than are generally prescribed. He also received injections of arsacetin. From time to time during these various methods of treatment periods of slight but evanescent improvement were apparent. The patient quickly relapsed into his deplorable condition. Iodide of potassium was also given. Sulphur baths were taken in Mt. Clemens, but with no other result than that he was advised to return home by the physician in charge who expected him to die in a few weeks.

In the above-described condition the patient entered the Lebanon Hospital. Besides these ulcerative and rapidly destructive lesions the patient had mucous patches in his mouth and ulcers on his tonsils which prevented him from eating or swallowing. He was despondent and depressed and in such a desperate condition that he had to be watched the first night he was in the hospital for fear he would commit suicide. His temperature on admittance was 99°, his leucocytosis 8200, the urine had a very faint trace of albumin, his weight was 101 pounds. He was unable to walk on account of the pain and large ulcer on the foot. His other organs were normal. Dr. Denig, the ophthalmologist to the German Hospital, and Dr. Heller, adjunct-ophthalmologist to the Lebanon Hospital, kindly examined the eyes, and found a cloudiness, evidence of syphilitic neuritis. The Wassermann reaction before injection was strongly positive. I injected him with the kind assistance of Dr. Bullinger, on September 7th, with 0.3 grms. of Ehrlich's preparation subcutaneously in the subscapular region. The large infiltrated area was massaged and cold applications were ordered to be made.

The patient experienced but little pain, although a very large swelling developed and persisted for some time. Temperature on the second day, 100.6°. The intensity of Wassermann reaction twenty-four hours after the injection was markedly diminished. Leucocytosis twenty-four hours after injection, 18,400. Already on the second day a marked improvement in the many ulcerative processes was apparent. The nasty discharge had subsided, a drying up of the ulcers was taking place. There was no more breaking down of tissues. Granulations were commencing to appear. The patches in his mouth and on his tonsil were disappearing. The patient could swallow, was more cheerful and his appetite was better. In fact, a remarkable change had taken place which was observed by all who examined him.

All these improvements rapidly continued so that on the 14th day of September, one week after the injection, an astonishing difference in the condition of the patient is apparent. The ulcerations and pustules have disappeared and are nearly all healed and covered by scabs. The broken-down gumma on his nose is filled up with healthy granulations and healthy epidermis is already growing over the defect. The large and deep and undermined ulcer over the malleolus is filled to the surface with active and health granulations and commencing to epidermize. His face is clean, he is able to walk, the pains have left him, the gumma on his tibia has almost entirely disappeared, the soft one on his instep almost entirely absorbed. He is not ashamed to walk about the wards. He is more cheerful and happy and has a new lease of life. He has been examined by many physicians who have seen him before and after the injection, and all expressed astonishment at the rapid improvement, and this after only one week's time and but one injection of 0.3 grm. Surely a marvelous result.

Ehrlich-Hata 606 has not only saved this patient's life, for he was gradually failing, but in a week's time has stayed the active destructive processes caused by the *Treponema pallidum*, and is rapidly restoring him to health. What remedy in the whole domain of the pharmacopœia can accomplish this?

Mankind truly is indebted to Prof. Paul Ehrlich, and owes him a great measure of gratitude.

71 East Sixty-sixth Street.

A NEW METHOD OF TREATMENT FOR CHRONIC INTESTINAL PUTREFACTIONS BY MEANS OF RECTAL INSTILLATIONS OF AUTOGENOUS BACTERIA AND STRAINS OF HUMAN BACILLUS COLI COMMUNIS.

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THERE is no doubt that states of chronic intestinal putrefactions are the most numerous of all medical disorders in man. Etiologically the long-established condition is responsible for more permanent types of change of the highly specialized internal organs than all other factors put together, and it is more than probable that future years will show that many of the diseases classed to-day as of obscure origin will be understood to be directly or indirectly due to states of chronic toxemia from the intestinal canal. At the present moment it is evident that many cases of the following are of intestinal origin in their establishment; chronic myocarditis; essential asthma; chronic nephritis; chronic hepatitis; chronic cholangititis, cholecystitis, cholelithiasis; chronic gastric and intestinal atonies; chronic low secretory and motor conditions of the stomach and intestine, and excess sensory conditions of the first; the mysterious peritoneal and omental adhesions; chronic constipation of dynamic and atrophic origin; chronic colitis, from the simple catarrhal to the membranous and atrophic forms; chronic intestinal indigestion, with fat, sugar, and starch intolerance; arteriocapillary fibrosis, chronic hypertension without sclerosis; premature senility; pseudopernicious anemia, and the true types following gastrointestinal atrophy; chronic simple anemias; gout, intractable neurasthenia; habitual headache; insomnia; catarrhal affections (particularly the general forms with atrophy of the submucous tissues); backache; debility; neuralgias; loss of sexual power; loss of weight and strength; mental confusions; excessive emotional depression and irritability; muscular and mental fatigue; semi-invalidism; vasomotor disturbances; degenerative states of the central and peripheral nervous tissues; functional eye conditions; hypertrophy of the lymphatic tissues; atypical rheumatism, myalgia, and particularly arthritis deformans.

The history of medicine for the treatment of those conditions shows no notable advances until quite recently, when Metchnikoff entered the bacteriology of the subject from a practical standpoint. Before that time a positive excess of indican in the urine established the case as logically one for administration of one of the new intestinal disinfectants or antiseptics (none of which ever were of any practical value) and a few items of general medicine as these seemed to be indicated. Along these lines most of the milder forms of cases improved on the general means of clinical medicine employed, and, caught by the fatus of the literature of the moment on some one of the just advanced intestinal antiseptics, the therapeutic benefits were attributed to it, and so the controversy for and against the various synthetic proprietary products continued. To-day the care of these cases is about as follows: Following the diagnosis (made mostly from the urine examination), an initial purge is given and the bowels are kept open by some constantly employed drug or enemata, a diet is installed (usually the Bulgarian bacillus milk given, and later on with it also the simple foods), and such general means employed as clinical medicine would suggest.

It is a well-known fact that an individual on a milk diet harbors fewer bacteria in the colon than one on a mixed, a carbohydrate, or a meat diet. The benefits that come from the use of the Metchnikoff milk come from the large amount of lactic acid imbibed, which assists in gastric proteolysis (the normal hydrochloric acid is usually absent or low in the stomachs of these cases) and the milk *per se* taken—not from any practical degree of antagonism between the Bulgarian lactic bacillus with the harmful forms in the intestine. While to a degree this bacterial antagonism is possible of demonstration by laboratory methods, with the results in human beings it is different. Of late I have seen some markedly advanced cases of chronic intestinal putrefaction in individuals who for weeks before had been on this form of milk made according to Metchinkoff's direction, each of whom showed no local or general improvement, the stools from whom yielded from 47 to 83 per cent. of dried weight of bacteria, with a marked preformed sulphate output in the urine, and more than an 8 per cent. loss of milk constituents in the stools.

My interest in the use of a direct bacterial method of treatment was suggested by the uniformity of the different bacterial pictures seen in examining specimens of normal and abnormal stools stained by the Gram differential method; the fact that the *Coli bacilli* grow only for a certain time in bouillon, when, probably because of their generation of thermostabile and thermolabile substances allied to phenol, their proliferation is inhibited and they become quiescent or resting but not killed (the latter was a confirmation of Conradi and Krupjurveit observations with the *Baccillus coli communis* and the *Bacillus lactis ærogenas* (the last of which organism probably suggested the use of the Bulgarian form as a germicidal bacteria against all others); and also, the fact that *Coli bacillus* were most numerous in stools of normal individuals, but were diminished or absent in most cases of excessive chronic intestinal putrefaction, having excess of indican in the urine, even when the intestinal contents have somewhat rapidly passed through the colon. About that time I chanced to read Tissier's Thèse de Paris, 1900, in which he mentioned the inhibitory action of the *Bacillus bifidus* upon the putrefactive anerobes, the latter being the predominant organisms found in these cases (these are mainly the *B. acrogenes capsulatus* and usually also the Gram negative diplococcus). Shortly following that (1907) Harter's book on bacterial infections of the digestive tract was advanced and in it the various facts pertaining to the germicidal action of the *B. coli* group were compiled, particularly in the following passages, "Nevertheless the evidence now available suggests that in health the colon bacillus, both in man and higher mammals, exerts an important function in combating the development of the injurious saprophytes with which even in health the human intestinal tract almost necessarily abound. "The presence in the colon of immense numbers of obligate microörganisms of the *B. coli* type may be an important defense of the organism in the sense that they hinder the development of that putrefactive decomposition which, if prolonged, is so injurious to the organism as a whole." "These

bacilli are essential to the life of the individual mammal as a defence against bacterial foes which it is impracticable to exclude wholly from the digestive tract, and not as agents in directly facilitating the processes of digestion in the narrow sense." At about this time I confirmed the observation of Herter that the colon bacillus has practically no power to cleave native proteins, that its peptonizing action is slight, and that alone it has not the power to cleave the peptones (and cause the generation of volatile acids, indol, and hydrogen sulphide) unless these have been prepared by peptonization by the other microorganisms. Feeling that the common picture of low amounts of Gram negative bacteria might represent a lowering of the *B. coli* instead of the *B. lactosus acrogenes,* I grew colonies of the stool bacteria from normal and abnormal stools in different media and under different methods, and observed that the abnormal stools generally showed a content of less *B. coli* than the normal stools did. After these observations I perused the literature upon the subject of the *B. coli* by different authors and noted that most of the modern standard works on bacteriology claimed that an immunity against the *B. coli* was not difficult to develop in animals. (Löffler and Abel easily immunized dogs by progressively using subcutaneous doses of live bacteria grown in solid culture and suspended in water; the blood of the immunized animal possessing an active bactericidal effect upon the colon bacteria, but the serum was not in the correct sense antitoxic.)

Opposed to the above suggestions were many facts arguing against the value of the use of installations of the *Bacillus coli communis* in such cases. The main ones were that a few cases of indolic putrefaction showed larger amount of *B. coli* in the stools than the normal amounts; the fact that the *B. coli* is capable of giving rise to large amounts of indol and indolacetic acid and a rise in the ethereal sulphates in the urine when injected into the duodenum of the dog; the statements of Herter that "muscle fiber or peptones in the lower ileum or large intestine would be attacked by the anaerobes and colon bacilli with a production of indol and subsequent development of indicanuria," and that under conditions of stagnation in the lower part of the ileum where the colon bacilli are numerous "it is not necessary for anaerobes to take part in the attack on the already hydrolyzed protein, since, as repeatedly stated, the colon bacillus itself suffices to do this" (putrefaction), which he proved by experimentation on a healthy dog, and contends is proven by an imperfect action of a cathartic in some persons causing a sudden increase of indican in the urine due to the quick passage of native proteins and peptones from the small into the large intestine where it is possible for the colon bacilli to attack the former; and further in the statement "If the colon bacilli have for any reason ascended in large numbers above their usual upper limit, namely the ileum, into the jejunum or duodenum, they will act there upon peptones formed in the course of the normal digestion of proteins and make indol, and in these instances the aid of the putrefactive anaerobes is not necessary for the production of indol," claiming also that if there had been no ascent of the *B. coli* to these regions of the small intestine the putrefactive organisms located there could cleave the proteins and then when the contents had come through the ileocecal valve the *B. coli* in the large gut would cause an abnormal production of indol; and lastly, the significance he gives to the colon bacilli in the production of the indolic form of chronic excessive putrefaction in these words—"the first may be called the indolic type, and is characterized by indicanuria dependent chiefly upon excessive decomposition induced through the cooperation of members of the *B. coli* group."

From the above statements there seemed to be certain arguments in favor and certain ones against use of the rectal instillations of autogenous bacteria and those of the *B. coli* group in the treatment of the conditions under consideration. Nevertheless, encouraged or emboldened by the results recently reported from injections of killed autogenous bacteria in the treatment of other bacterial conditions (notably in the use of the *B. coli* in bacteriuria) I instituted experiments with rectal instillations in a case which had resisted all methods of treatment for months.

The woman was one who showed large amounts of ethereal sulphates in the urine, almost Gram positive stools in which the colon bacilli were few, the stool having an acid reaction in the beginning, the patient displaying a marked anemia, debility, loss of weight, and an established neurasthenia, together with other related symptoms. For the purpose of comparison the medical treatments that had been established before were not changed during the time of injections, and the diet detailed below was continued all of the time, since it seemed a logical one for such conditions, had been established four months before, and had been closely followed.

From the onset the number of bacteria grown and injected were examined and counted in two groups (Gram negative and Gram positive), and each subsequent stool was also examined before new cultures were inoculated to note any difference in the bacterial picture as time went on. I wish to report this case in full because with certain minor exceptions it answers for the others I have treated since then with the injections of both kinds, and also because the full clinical and laboratory detail of all of the cases would be too long.

Mrs. R. E., married, age 38, born in Russia, the mother of 4 children, had measles 20 years ago. She had no illness until 3 years ago, when she began with pains in the region of the sigmoid (she was pregnant at the time). After the birth of the child she became weak and weaned the infant at the third month. Following this the weakness progressed, she became pale, and was hardly able to attend to her household duties. About a year ago she became unable to do even the lightest domestic work. Then she became markedly pale and nervous, and these symptoms progressed up to the present time. The bowels began to be diarrheal about 10 months ago, and when the diarrhea was severe she had vomiting spells. Often she has had as many as ten fluid movements, accompanied with pain, in one day. These attacks were intermittent. When menstruating she becomes generally worse and has nausea, marked dizziness, and vomiting. Menstruation now very watery and the flow is not steady. The diarrhea is usually worse when menstruating.

She was of an apathetic type, with pale membranes, soft and flabby tissues, normal lungs; heart, first sound weak and pulse weak with rate of 110; the abdominal walls were thin; there was slight splanchnoptosia. Blood, 3,700,000 erythrocytes. Hb. 67 per cent., leucocytes 7,750; a differential count was not made. On the second day following an Ewald meal, 90 c.c. of material

returned which looked well digested, with little mucus, free HCl 17, combined HCl 26, total HCl 43, total acidity 47; the pepsin activity was good and starch digestion was good. The feces were soft and mushy, and their reaction was distinctly acid; examination under low power was negative, excepting that many meat fibers were noted, under high power large numbers of Gram positive bacteria were noted mostly *B. aerogenes capsulatus* and diplococci, Gram negative organisms were few; a watery suspension of 1 to 10 developed 21 per cent. of gas. There was no blood. Segregation cultures showed meager growths of colon bacilli. The urine showed a large amount of indican, a trace of albumin, some hyalin casts, but no glucose. The weight was 113½ lbs.; it was 138 three years ago. Aug. 31 the stool showed large amounts of Gram positive and few Gram negative organisms. It had an acid reaction; the food particles were normal. The urine contained a large amount of indican, a trace of albumin, a few casts. 3.7 grams of sulphate in twenty-four hours; the ratio was preformed sulphates 10, conjugate 4. The treatment included sleep with the windows open, abundant outdoor exercise, a diet as described below, a morning cold sponge, tincture of nux vomica, paregoric and iron; also extract of malt. This treatment was continued for two months with no benefit. The woman was treated from the laboratory from this to the present, the following records being made: Dec. 27, 1909. Stool, soft, acid reaction, 2 slides of raw feces showing mainly aerogenous bacilli and Gram positive diplococci, but no colon bacilli. Segregation growths showed meager growths of the latter. Dec. 28. Dextrose bouillon: gas result 10 per cent.; very acid media, no indican. Injection 18 c.c. = 738,000,000 Gram positive and very few Gram negative (not more than 700). Urine this day showed marked excess of indican. Dec. 30. Stool much lighter in color than above and not so thin, slightly acid, slides showed large predominance of G. P. but the proportion of G. N. was slightly increased. B. A. C. very prominent and a large number of shorter rodded non-capsulated organisms were seen, the G. P. diplococci about as before. The B. A. C. were shorter than above and by comparison the bacteria picture of the slides was different from that of 4 days ago.

Jan. 1. Media gas result 25 per cent., no indican formed but some uroresin, reaction of media very acid. Marked change in the bacterial pictures of this bouillon from the foregoing; the G. N. bacteria were more prominent appearing in proportion almost like that seen in normal stools. The B. A. C. were shorter and narrower, and with the G. P. diplococci were not so numerous. The fields of G. N. comprised quite a number of thick clubbed bacilli, but by far more numerous are a thin bacilli which probably are the B. C. C. In a number of fields the proportion between the G. P. and G. N. organisms was about 2 of the former to 1 of the latter. Injection this day of 16 c.c. contained 830,360,000 of G. P. and 460,000,000 of G. N. Much time was spent in the counting. Patient says she is no better, but says that she has not so much cramps in the abdomen. The bowels had not been so loose, this morning's stool being "quite hard" (one month ago had firm passages for a few days). Her urine still shows much indican, but this was thought to be somewhat less than on all occasions before. Jan. 4. Feces soft and lighter in color than most specimens, reaction amphoteric. Stained specimen shows marked change in bacteria. The reds (G. N.) are more numerous than the violet (G. P.). The B. A. C. are much smaller, more detached, less numerous than in the other specimens, but still are more numerous than in normal stools although they are much shorter than seen in most. There are many quite small G. P. bacilli which looked unlike B. A. C. and around which no capsule could be discerned. The G. P. diplococci were about as found in former specimens. The G. N. were most prominent, being almost 2-3 G. N. diplococci and 1-3 G. N. bacilli. Segregation cultures showed most generous growths of B. C. C. which compared to the results noted from the first specimen of stools showed striking results in the way that the B. C. C. were now much more plentiful in the gut. The picture of this specimen of feces resembled closely the normal stool, and it may be said that if any difference existed it was that there were less G. P. organisms than are ordinarily seen. Jan. 5 Media gas 10 per cent., reaction of fluid acid. Appearance and proportion of G. P. and G. N. organisms about the same as before excepting that the G. N. were greater in number than the G. P. The B. A. C. very scant and still shorter than before. The B. C. C. were somewhat increased in numbers above what is observed in inoculations of normal stools. Injections, 15 c.c. = 120,000,000 G. P. and 165,000,000 G. N. Urine to-day shows decidedly less indican with a sulphate ratio of 10 preformed to 1.7 conjugate. Patient says she feels better which is the first time she has made this statement since coming under observation; she has pains only before defecation, and has had only one stool a day and that formed. Gained 4 lbs. since Jan. 30, two days before the bacterial injections were begun. Jan 7. Feces a rich brown color, medium consistence, reaction amphoteric, foods well digested, red and violet bacteria about evenly divided. B. A. C. normal in numbers (about 3 to a field), G. P. diplococci markedly decreased, B. C. C. plainly evident and in large numbers. Jan. 8. Media, 21 per cent. gas, growth almost level to top of media, fluid very acid, amount 22 c.c. = 1,171,500,000 violet mostly the B. A. C., and 1,405,800,000 reds of the small forms of B. C. C. and a less proportion of long narrow bacilli. Patent says she feels decidedly stronger, has had one formed stool a day and no pain and that she is not as nervous as before. Test for excess indican negative. Blood examination decidedly better and mucous membranes practically normal in color. Jan. 11. Feces rich brown in color and firm in consistence, reaction amphoteric. G. N. and G. P. about equal in numbers, B. C. C. very numerous in all of the fields. G. P. diplococci and B. A. C. apparently increased. Growth on potato showed a thick film of B. C. C. Jan. 12. Media gas result 26 per cent., very acid, fields mostly G. N. bacteria almost all of which are a short rodded bacilli and some cocci of the B. C. C. group. Fields were seen in which there were as many as 500 organisms and only several G. P. organisms. The B. A. C. apparently were still shorter and not so thick as in the beginning, they comprised practically all the G. P. although here and there was a G. P. diplococci. This specimen had the best growth of B. C. C. yet seen, they being present in great predominance and mostly in chains. Injection 19 c.c. = 3,400,000,000 G. N. and 97,000,000 G. P. Urine, indican free. Patient without subjective symptoms excepting still feeling somewhat weak physically but doing all of her

housework, including washing and ironing. Gained 3 lbs. more in weight. Patient given a week's interval of injections. Jan. 18. Stool brown color, reaction amphoteric; G. N. and G. P. about equal in numbers. Jan. 19. Media acid, good growth, mostly G. N. but a number of B. A. C. were present, gas 27 per cent. Injection 17 c.c. = 2,100,000,000 G. N. and 970,000,000 G. P. Urine indol free, patient says she had gained 2 lbs. in last 5 days, and that she feels still better and stronger than when last seen. Bowels moved twice to-day without pain, both stools being formed. One week interval of injection. Jan. 25. Stool of rich brown color, reaction amphoteric, more G. P. organisms noted than in last specimen. Jan. 26. Good bacterial growth in media, reaction acid, mostly G. N. but the G. P. were more numerous than in last few. Injection 18 c.c. = 2,900,000,000 G. N. and 1,900,000,000 G. P. Urine has a faint blue indican reaction. Patient says she feels well but had some abdominal pain yesterday and to-day. Conditions not so good as two weeks ago. Ordered to send stool in five days.

Feb. 1. Stool somewhat softer than last specimen, deep brown color, reaction amphoteric, more G. P. present, mostly bacilli but apparently they are not B. A. C. G. P. diplococci very few, G. N. not quite as prominent as before but still in excess of the G. P. Feb. 2. Gas result in media 34 per cent., fields mostly G. N. bacteria but many small sized G. P. bacilli were noted which probably were not B. A. C. and are of an unknown character, growth fair, injection 15 c.c. = 1,270,000,000 G. N. and 1,100,000,000 G. P. Woman menstruating on this day. Urine indican free. Told to send stool in four days but did not until Feb. 9. Stool normal color but possibly slightly lighter than last one, pasty consistence, reaction amphoteric, G. N. and G. P. about equal in number, the B. A. C. not prominent, the B. C. C. very much so. Feb. 10. Media gas result 37 per cent., growth poor as compared to all former ones, many short rodded G. P. bacilli as before, a few B. A. C. and a large number of G. N. spherical bodies of unknown character growing in groups, injection 17 c.c. = 890,000,000 G. P. and 790,000,000 G. N., most of which latter are B. C. C. Urine indican free this day, and woman had gained 3 lbs. more since last Saturday. Feb. 15. Stool formed and rich brown in color, reaction amphoteric, short rodded G. P. bacilli much fewer, a few B. A. C., G. N. and G. P. about equal in numbers. Feb. 16. Injection 15.5 c.c. = 2,000,000,000 G.N. and 1,500,000,000 G.P., bacterial growths apparently not so prolific as in first medias. Urine indican free, sulphate ratio preformed 10, conjugate 1. Patient says she had one formed and following this one fairly loose movement yesterday but no pain accompanying either or at other times. Patient looks very much improved compared to any time while under observation, is now active and quick in her manner, doing her work each day, and is happy and cheerful. Feb. 26 (ten days since last seen). Stool apparently normal, reaction amphoteric, G. P. and G. N. bacteria about equal in amounts. Only a few B. A. C. seen, but large numbers of B. C. C. Feb. 27. Media less acid than times before, growth fair. Injection 17 c.c. = 1,300,000,000 G. P. and 1,470,000,000 G. N. Urine indican free Bowels have moved twice a day for four days, no pain, since last seen had a headache for a few hours on two occasions. Gained 2 lbs. in past week. Weekly injections instituted, bacteria not to be counted, 10 c.c. of media and smaller portions of feces for inoculation to be employed from this on.

Mar. 6. Media growth good, injection 10 c.c. Urine indican free. Patient apparently well. Mar 13. Media growth fair, injection 10 c.c. Urine indican free. Patient gaining about 2 lbs. in a week. Mar. 21. Media growth fair, injection 10 c.c. Urine faintest trace of indican, sulphate ratio preformed 10, conjugate 1.2. Feels well. Mar. 29. Media growth good, injection 10 c.c. Urine indican free. Has gained 5¼ lbs. in past four weeks. Stool specimens are about the same in each, G. P. and G. N. organisms about equal in numbers, and the B. C. C. most numerous.

April 5. Media growth good, injection 10 c.c. Urine indican free. April 12. Media growth fair, injection 10 c.c. Urine, faint trace of indican, but uroresin reaction rather marked. April 17. Media growth good, injection 10 c.c. Urine indican free, no uroresin. Patient has gained 17½ lbs. in weight since Dec. 27 (weight now 131) and feels well. Interval of injections now two weeks. Still under observation after six weeks and well, although no injections had been given during this time.

The deductions from this case were that the instillations caused an inhibition to proliferation and a destruction of the *B. aerogenes capsulatus* and the Gram positive diplococci, and a raising to normal of the *B. coli* in the stools; a sudden change in the reaction of the stools to neutral, and a change in its color and the taking on of a firmer consistence; the stopping of the tendency to diarrhea and the establishing of single daily movements; an elimination of the excess indican in the urine, the sulphate partition ratio diminishing from the preformed 10 to 3.7 conjugate, to 10 preformed to 1 conjugate in six weeks; a most marked improvement in the anemia, general strength and weight of the patient; and lastly an almost permanency of these conditions over months of steady observation, the indican returning in slight excess when the instillations were discontinued for a time and its disappearance again when the injections were again given.

Since that time I have treated twelve cases, none of which had originally responded to the ordinary routine treatments, and all of which patients now have decidedly lessened indican output and all of whom have made substantial general improvement. Nine of these (ten all told) are still under observation, receiving only one injection every two weeks or so and they will be reported again at some subsequent time. The other two have passed from observation but both had indican free urines and were much improved in general health when last seen.

In addition to the above were seven additional cases, four of which were treated with the autogenous mixed injection in the beginning and subsequently with strains of *B. coli communis* obtained from other human beings, and three with the latter from the beginning. In the first four, all of which were treated for at least three weeks with autogenous bacteria, three showed improvement in the way of a lessened indican output and improved general condition from the autogenous mixed bacteria, but none of whom become indican free, or having near to a normal sulphate ratio. The fourth showed no beneficial change whatever from these injections and is included in the following (which makes four

all told) that were treated with strains of *B. coli communis* from the beginning.

The latter were supplied in individual cultures on agar-agar by Dr. William Park from the Health Board Laboratories, were taken originally from the stools of typhoid patients, and were marked "Mary, No. 168, No. 6, No. 171. Brown, No. 3, Mangiuer, and No. 170." The inoculated cultures were first grown for twenty-four hours to get a good surface growth and after this kept in the original tubes at the room temperature, and inoculations were made by placing small loops from each of the tubes into about 15 c.c. of dextrose-bouillon, and the seven strains were grown together for twenty-four hours in the oven at 37° C. when the entire media was injected into the rectum. These injections comprised amounts of the organisms varying in each single injection from 327 millions to 2 billions and the media growths were examined by Gram differential staining and also by growing colonies on the surface of different nutritive medias so as to note if any extraneous bacteria had become inoculated into the original tubes. Up to the time of writing no outside organisms had become mixed with the *B. coli.*

These last seven cases were all those of long standing conditions and may be classed as those that are obstinately resistant to all forms of ordinary treatment. In them other diagnoses of distinct organ affections were easy to be made. These were, chronic myocarditis in two, chronic nephritis in five, chronic hypertension and arterial sclerosis in five, marked anemia in six and questionable pernicious anemia in one, prolonged neurasthenia in six, premature senility in one, arthritis deformans in one, marked debility and loss of weight and strength in all. The test meal analyses showed that three had gastric subacidity, one an achylia, two a normal secretion and one an excess secretion. In none, however, did the *x*-ray examinations of the colon show any kinks, twists or other types of obstruction, although five of them had varying degrees of prolapse which probably was secondary to the general atony and loss of weight. All but one had habitual constipation, the exception having more or less regularly running diarrheal movements. The stools of each in the beginning showed large amounts of Gram positive organisms and very few Gram negatives, and the urines showed a very dark blue in the chloroform from presence of indican (Stokvis-Jaffe's test with hydrogen peroxide instead of the soda or calcium hyperchloride solution employed), and persistently high conjugate sulphate in the partition from 10 of the preformed to 2.5 to 8 of the conjugate.

With the above mentioned seven cases were two additional ones of like type but which showed high Gram negative stools in the first examination. In these it was believed that the *B. coli* were present in largely increased numbers, and these are not included in the report of the cases for the reasons that they were too few in number, because one had a marked coloptosis and the second an angulation of the transverse colon, and because neither had been under treatment long enough to arrive at any definite conclusions.

The four of the mentioned seven cases that had first been treated with the autogenous mixed injections showed decidedly lessened output of indican in the urine when placed on the strains of *B. coli*, and the development of more equal proportion between the Gram negatives and positives in the stools (usually after about the fifth injection of *B. coli*). But in all a point was reached at which subsequent treatments with the autogenous mixed bacteria seemed to be ineffective although in all relief of symptoms was reported during their course and the benefit in general health was substantial. At the end of the third month of treatment with the autogenous mixed bacteria each was put upon injections of the strains of *B. coli*, and in three an almost immediate further drop in the indican output was noted, the urine eventually becoming almost indican free. The fourth still running an excess but still decidedly decreased indican after the second month of the latter treatment (*in toto* this last case had five months of bacterial treatment). The other two cleaned up completely on the *B. coli*, two inside of ten weeks and the third during the fifth month. The detail of one of the first cases treated with the *B. coli* is the following:

J. W., June 15, 1909, married, age 51, buyer in department store. Had measles and scarlet fever when a child, and diphtheria at 21 years. Had always been constipated but was well and strong up to eight years ago when he contracted typhoid fever. Following this he had a persistent tenderness and pain in the right heel, corresponding to the inner tuberosity of the astragalus which was intensified on walking and deep point pressure and relieved on resting. About three years ago for no known reason to him he became nervous, which condition manifested itself as a restlessness, lack of power in concentrating his thoughts, an irregular insomnia, some loss of appetite, a more marked constipation, and a steady pain and distressed feeling in the stomach under the left costal arch which was independent of meals and the character and quantity of food. During the first year these general conditions were somewhat intermittent, they being less marked when he was away from business and in the country. In the winter of two years ago he grew gradually worse so that he was unable to attend to business for weeks at a time. In the summer he again picked up in strength and ability to work, but last winter he was unable to attend to business after about Jan. 1, 1909, and since which time he had done nothing in the business way, although he was anxious to. During these three years he had been in the hands of a number of men, and being neurasthenic and impatient hardly gave time enough for any of them to accomplish much in the way of benefit. The diagnoses made were somewhat varied, although "indicanuria" ran pretty generally through them all, and no doubt the treatments installed were good. He said that he made the most improvement in the physician's hands just before me who give him extract of malt and cascara segrada, a meat free diet, and ten drops of tincture of nux vomica at his meals. However, after about a month he failed to make further progress and although changes in the treatment were made said that he "could feel himself slipping back again."

Examination: weight 149 lbs. (weight 205 three years ago); has a pallid countenance and pale mucous membranes; muscles soft and his skin flabby; nervous, apprehensive and excitable; had a hemic blow over the base of the heart; a marked gastric spash and an enlarged stomach; fecal masses in the sigmoid and descending colon; exaggerated knee jerks; an arterial pressure of 170 m.m. Hg.; and a marked amount of indican in the urine (almost a blue black). Ewald meal (June

17) return 95 c.c.; finely subdivided starch; no blood, lactic acid, or Boas-Oppler bacilli; free HCl 0, combined HCl 11, total acidity 19; starch digestion to maltose marked. Feces (when four days on the test foods), dark color and acid reaction; muscle fibers numerous, some striated; large masses of vegetable substances; thick coating of mucus on surface of stool; typical Gram positive stool, showing many B. A. C. and G. P. diplococci, and but very few G. N. bacteria and not more than one or two G. N. bacilli to a field. Urine, 1,400 c.c. Sp. Gr. 1,021; acid; trace of albumin; indican and uroresin reaction marked; sulphates 4.2 grams, ratio sulphates 4 conjugate to 10 preformed; urea 31 grams; moderate number of hyalin and granular casts, some renal and many squamous cells and a few cylindroids. Blood, 3,100,000 erythrocytes, 6,900 leucocytes, Hb. 64 per cent.

From June 17 to Nov. 11, 1909, various treatments were employed with only fair and most times discouraging results. The agar-agar established daily movements of his bowels within the first week of treatment, and this regularity was maintained up to the present. He seemed to make the most improvement on excessive amounts of outdoor exercise (walking seven miles a day), morning rubs with a towel soaked in cold water, the diet, and tincture nux vomica 10 in liq., ferri albuminatis 100, taking two teaspoonfuls after meals in water. During these five months some improvement was noticed in his general condition; the best blood count was on September 17, when 4,100,000 erythrocytes and 7,200 leucocytes were counted and 77 per cent. of Hb. But on all occasions largely increased amounts of indican in his urine were observed (39 examinations), the albumin and casts persisting. At times when it was believed that the patient was substantially better (particularly one time when he returned from a two weeks' sojourn in the country) a total sulphate examination of the urine was made with a ratio sulphate, and even on this occasion the sulphate output was 4.1 grams and the ratio was 3.7 conjugate and 10 preformed. On one occasion the arterial tension was 135 m.m.Hg., but at all other times it was higher; about half of the times it was around the figure first mentioned and in a few instances it was above. The man continued to feel weak, look poorly, was unable to work, and he constantly complained of the gastric pain or distress. The examination of his stools on three occasions showed the acid reactions and high G.P. and very few G.N. organisms. It was believed in November that no better results in the way of controlling the excessive intestinal putrefaction were possible by medical means, and that only a fair degree of benefit was possible from medical treatments and then only when these were constantly kept up over lengths of time. Encouraged by the success in clearing a case just before with instillations of the strains of *B. coli*, but which case had discontinued observation when the urine had cleared and the stools had improved in character, I began these treatments in the case, continuing also the diet, morning rubs, long walks, and the tonics with the following results:

November 15, dextrose-bouillon, 15 c.c., good growth, no indol in media, and reaction acid, injection 374,000,000 B.C.C. November 19, media 16 c.c., good growth, acid reaction, no indol in media, injection 327,000,000 B.C.C. November 23, media 15 c.c., growth good, acid reaction, injection 395,000,000 B.C.C. Patient's urine shows less indican to-day than ever before; says he feels somewhat stronger and slept better. November 27, media 17 c.c. and reaction, growth good, injection 410,000,000 B.C.C. Patient gained 2 pounds in last twelve days. November 30, media 16 c.c., gas result 70 per cent., media acid, trace of indol, growth good, injection 405,000,000 B.C.C. Patient says he feels that he is getting better; his urine shows only the faintest trace of indican.

December 3, specimen of stool submitted to-day shows neutral reaction, about 1/3 G.N. to 2/3 G. P. bacteria and very few B.A.C. Media 14.5 c.c., acid reaction, growth fair, injection 315,000,000 B.C.C. Patient gained 3 pounds in last six days, appetite is much better, and the gastric distress has stopped. December 6, media 15 c.c., growth fair, and reaction acid, injection 270,000,000 B.C.C. Urine faint trace of indican and no uroresin. December 10, media 14 c.c., growth good, bacteria not counted. December 16, media 15 c.c., acid reaction, injection 347,000,000 B.C.C. No indican shown in urine test. Blood count 4,700,000 erythrocytes, 7,900 leucocytes, Hb. 84 per cent. Patient looks well and says he feels much better. Injection once a week. December 22, media 19 c.c., growth good, bacteria not counted. Urine indican free. December 29, media 15.5 c.c., acid reaction, growth good, injection 410,000,000 B.C.C. Has had no distress in his stomach all of this month, gained 9 pounds in weight since November 27.

January 8, media 17 c.c. and reaction marked, growth good, bacteria not counted. Urine shows a trace of indican. Yesterday had eaten rather large quantities of meat at two meals. January 15, Media 16 c.c., growth good, acid reacion, bacteria not counted. January 22, media 17 c.c., growth fair, bacteria not counted. Urine free of excess indican. January 29, media 15 c.c., growth fair, bacteria not counted. Gained 7½ pounds in a month.

February 8, stool examination: The G.N. and G.P. equal in numbers, few B.A.C. seen, reaction neutral. Media 16 c.c., bacteria not counted. Injection at 10-day intervals. February 18, media 18 c.c., acid reaction, bacteria not counted. Injection at two-week intervals.

March 4, media 17 c.c., bacteria not counted. Has gained 6 pounds since Jan. 29, and looks much improved and of good color. March 18, media 16 c.c., bacteria not counted, urine indican free. Ewald test meal 67 c.c., return F. HCl 27, combined 21, total HCl 48, total acidity 53. March 22, media 16.5 c.c., bacteria not counted. Patient has resumed his work, feeling strong and active. Urine indican and albumin free, but still has casts.

April 3, media 15 c.c., growth good, bacteria not counted. Arterial tension 125 m.m.Hg. April 16, media 17 c.c., growth good, bacteria not counted. Urine indican free. Continuing steadily at his work and nervousness gone. Says he feels as of old.

Treatments continued at time of writing excepting at three-week intervals. Patient well.

This was an ideal case of chronic intestinal putrefaction of the gut due to the G.P. anaerobes with elimination of the G.N. organisms, in which the results from the medical treatments continued over five months' time were only fair, and in which the fecal instillations of the *B. coli* obtained from other human beings gave signal results both in the general way and in the reestablishment of the proper proportions between the G.N. and G.P. organisms in the gut. As the latter was brought about, the amount of indican in the urine with the total sul-

phate output and the ratio between the preformed and conjugate sulphates became normal. The man was brought from a debilitated, anemic neurasthenic unable to work to one that appeared normal in every way. A further interesting fact was the differences in the two test meal analyses (made nine months apart) in which it appeared that the toxins from the gut depressed the digestive secretions, and that when these toxins were no longer generated in excessive amounts the stomach secretion returned to normal. The blood pressure also came down to a figure that may be considered as safely normal and has remained at these lower figures.

The diagnoses of the excessive putrefactive condition in the gut were made by noting the various general or organ conditions with an initial examination of the urine for indican. The condition suggested, a purge was given (calomel and salts or castor oil), and when the bowels had moved well, carmine or lampblack was given to demarcate the stools and the patients were placed upon the following test diet.

"The diet mentioned below is to be strictly adhered to for three or four days. The stools of the first thirty-six hours after its institution are of no value for examination. If constipation exists, the bowels are to be moved by injection at the end of the thirty-six hours. After this time, providing the bowels have moved well, the entire first stool is to be sent as soon as possible, no purges being taken in the meantime. Fresh specimens are desirable, and a covered small tin can or glass jar can be used as a container. The output of urine of twenty-four hours should accompany the specimen of stool.

"*Diet.*—Morning: Two thin slices of well-baked bread with butter liberally supplied; one pint of oatmeal gruel, made of about 1½ oz. or 40 gm. of oatmeal; ¼ oz. or 10 gm. of butter; 6 oz. or 200 gm. of milk; 8½ oz. or 300 gm. of water, and one egg (strained).

"11 A. M.: Milk, 1 pint or 500 c.c.

"Noon: A good-sized piece of steak or roast beef chopped or cut into very fine pieces (about 4 oz. or 125 gm.) and served on a slice of toast; one bowl (about 8 oz. or 250 gm.) of mashed potatoes with ¼ oz. or 10 gm. of butter.

"4 P. M.: Milk, 1 pint or 500 c.c.

"Night: Same diet as breakfast."

The specimen of urine was examined for indican and uroresin, and a sulphate partition was made, close attention being paid to the ratio between the preformed and conjugate sulphate. When the chromogens were markedly increased in the urine and the urine showed a ratio partition between the two sulphate combinations of more than 10 of the preformed to 1 of the conjugate a specimen of stool was examined. The reaction of this was taken, the color noted, examination of the surface layer made when it was formed not when it was of soft consistence, and a portion of the center was examined between slides with the low power to note the appearance of food crystals, etc. Seven and a half grams of the stool were macerated in 25 c.c. of sterile water and fermented and the gas result noted, and slides were made of portions of the interior of the stool, these being stained by the Gram differential method. In the latter, attention was paid to the character of the gross proportion of the Gram positive and Gram negative bacteria. When the latter were low, a tube closed at one end was filled with dextrose bouillon and inoculated. The bacteria grown in twenty-four hours was examined and comparison of these latter slides were made with those of the raw stool before so as to note the differences in the bacterial pictures and also if the Gram negatives had a tendency to increase in number when grown in culture. If such was the case, the autogenous mixed bacteria was employed, if not the *B. coli* medias were employed. These were grown in about 15 c.c. of dextrose bouillon for twenty-four hours at 37° C., at which time an examination was made of the bacterial result, and the organisms counted in classes of Gram positives and Gram negatives, or just the *B. coli* when these only were used. In some instances where doubt existed as to the character of the organisms, colonies were grown on potato and on bouillon gelatin. When the bacterial instillations were instituted close attention was paid to the clinical side of the case, the weight was taken regularly, the red cells counted and the Hb. estimated from time to time, differences in the examination of the stools and bacterial inoculation results from them were noted in all instances. Altogether, the observation covered an immense field of laboratory labor and observation, at times discouraging, but in the end most grateful.

The medical treatments that had been used before the instillations were begun were usually stopped, although when tonics, enemata, etc., were indicated they were utilized more or less although not as steadily as had been the case before. Outdoor exercises, regular hours of sleep, morning cold sponges and other hygienic details were kept up, and also this diet.

"General Rules.—Care should be taken that all foods are fresh and cleanly cooked and served. The mouth should be cleansed with plain warm water before and after partaking of food and when possible at other times. All raw fruits should always be peeled. Drink a glass of warmed flaxseed water before meals. Foods should not be eaten during conditions of fatigue, mental excitement or depression, and a rest after each meal is desirable. Thorough mastication of the food is important, and such foods as can be mashed on the plate should be so treated. The vegetables and cereals should be well cooked, and condiments, such as pepper, mustard, lemon, etc., are not allowed. Not much food should be eaten at any one time; smaller meals and shorter intervals are more desirable. Kefir, Kumyss, Matzoon, and peptonized milk are the only forms in which milk can be used.

"Foods allowed. Bouillon, consommé, broths, and purées. Well-cooked rice, tapioca, farina, sago, oatmeal, and hominy and served with milk, sugar, and fresh cream. Eggs in any form and not taking more than two in a day. Bread, rolls, swieback, toast, biscuits, and crackers. All foods made with gelatin, both the animal and vegetable form. If constipated take a handful of agar-agar finely cut once a day with cream. Take as much fresh butter, fresh cream, and olive oil as possible. Beef, lamb, chicken, sweetbreads, liver, etc., and fish can be eaten in small quantities once a day, providing they are fresh, roasted, or broiled, and taken in a finely comminuted form (their use in made up dishes is not allowed). All of the vegetables can be taken, but they must be cooked to softness; peas, beans, lentils are wholesome. The green vegetables and salads are also beneficial. When constipation is severe and the bowels do not move with the agar-agar a dish of stewed prunes sweetened with milk sugar instead of cane sugar should be taken

each night before retiring. Custards, egg and milk, cereal or fruit, jellies, marmalade, stewed fruits are allowable. Other foods of value are apples, pears, brown bread, rice, barley, black grapes, potatoes, carrots, asparagus, green chicory, cabbage, and spinach."

From the results achieved I have come to the following conclusions: In cases of chronic intestinal putrefaction wherein such conditions as carcinoma, colonic obstruction, abnormal organic disease of the pancreas or stomach, or gastrointestinal atrophy, etc., are not responsible for the condition, much benefit can come from raising the content of *B. coli communis* in the gut by instillation either of the autogenous mixed forms or strains from other individuals; whether this is due to a real antagonism between the toxins of the *B. coli* and the other putrefactive organisms, these toxins being existant in the cultures injected (which bacteriologists claim is slight in amount with the *B. coli*), or whether the *B. coli* so injected are directly toxic to these other bacteria I am not prepared to say. (We know that the dead as well as the living *B. coli* are very toxic.) But it is certainly true that an individual who has high Gram positive stools can by the autogenous mixed or *B. coli* instillations quickly have the running proportion between the Gram negatives and positives raised to a proportion equivalent to normal, this being due to a raising in the *B. coli* and also to a diminution in the putrefactive Gram positives as the first become more numerous. With this more equal proportion between the two types of organisms, the conjugate sulphate of the urine diminishes and the cases make substantial improvement in the general body. Whether this raising of the Gram negatives is only due to the *B. coli* or only to the *B. lactosus acrogenes* (both being antitoxic to other bacteria), or to both together, is not always possible of determination, since both are much alike in their morphology and are Gram negative in character. But the cultural methods of distinguishing these two forms from each other and the results obtained when only the *B. coli* were used in the injections incline me to believe that these disorders are due to a shortage or inactivity of the *B. coli*, and that the latter are the most powerful agents in the human alimentary canal against the development of putrefactive conditions, and, that while outside of the intestine they are destructive and pyogenic, inside of the canal they are welcome hosts. From my experiences I am led to believe that these injections are a valuable method for treating these cases, quick and effective in the great majority, and not harmful in any. It is my belief that when anatomic conditions causing stagnation exist the results from these treatments are not capable of giving such good or substantial benefit. As regards the permanency of the benefit brought about it is apparent that about half of the cases which do not respond to simple treatments clear up inside of from one to three months of this treatment, but that the other half may not remain substantially benefited even when the instillations are kept up for longer periods. These latter show relapses when the instillations have been stopped for a week or more, quickly responding again when the injections are reestablished and some eventually clear up. It is probable that in the relapsing cases some permanent anatomical mischief preventing the establishment of a normal bacterial intestinal condition is present, which is either the cause of the development of the condition in the first instance and then its prolongation, or that there is present some anatomical or permanent functional change affecting normal secretions and motility of the digestive canal in asthenic ways. All cases of putrefactive conditions should first be treated by the routine methods of treatment for those conditions (diet, hygiene, tonics, etc.) before instituting the instillations. When, however, the latter are begun, the autogenous mixed bacteria should first be used, always employing fresh specimens of stools for inoculation of the media and this treatment kept up for about four weeks before a change to the strains of *B. coli* is employed for a length of time, and when benefit had been established a return to the autogenous mixed bacteria may be used. If no benefit is noted on the *B. coli* alone the *B. lactosus acrogenes* may also be added to them, the two grown together in the single media, and these tried for a length of time. And if after these no sustained or apparent benefit is achieved then we have present some anatomic and permanent complication affecting the function of the gut, and the best we can hope for is a resort to surgery in some of the cases, or a longer interval continuation of instillations of whatever form of culture has shown the best results in that particular case.

The bacteria were all grown under identical conditions, namely, in about 15 c.c of 2 per cent. dextrose bouillon for twenty-four hours at 37° C., when the entire media was injected. This was done after an enema of normal saline solution to cleanse the lower bowel, the patient being on the left side and remaining so for 15 minutes after the instillation. The routine was one injection every fourth day until benefit was noted, and after this at longer intervals, the treatment being kept up for months if necessary.

A POSSIBLE SECOND ATTACK OF ACUTE ANTERIOR POLIOMYELITIS IN THE SAME PATIENT.*

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The occasional epidemic character of acute anterior poliomyelitis had in the past already suggested the activity of a transmissible factor in the etiology of the disease, but it is only within the most recent times that the infectious origin of the disorder has been clearly and definitely established. Experimental investigation has demonstrated the cause to reside in a virus of ultramicroscopic and filterable character, capable of inducing typical palsies in inoculated monkeys, from whose nervous tissues in turn the virus can be obtained. Surviving animals thus infected have proven refractory to subsequent inoculation, and it is not too much to hope that the blood-serum of such animals may ultimately prove of prophylactic if not of curative value. The immunity thus induced is in accord with clinical observation, second attacks in the same individual having been observed with exceeding rarity.

In some instances what appears to have been an exacerbation or a recrudescence or a relapse of the disease has taken place within a short time after the inception of the primary attack, and exceptionally such a third outbreak has been reported. A few cases are on record in which a second attack has occurred considerably later in life. There is, however, a pretty general expression of opinion to the effect that acute anterior poliomyelitis in early life predisposes to the development of some other form

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of disease of the spinal cord in later life. On the other hand, James Ross[1] makes the statement that "Persons who have had an attack of spinal paralysis do not indeed appear to be more liable in later life to other affections of the spinal cord than healthy persons generally"; and O. Medin[2] expresses the view that one attack of acute anterior poliomyelitis appears to confer immunity to subsequent attack, and he adds that he knows of no instance of relapse.

M. Raymond[3] reports the case of a man, 19 years old, who at the age of six months had an illness attended with convulsions, fever and left hemiplegia—and diagnosticated as essential paralysis of infancy, and at the age of 17 years presented symptoms of progressive muscular atrophy commencing in the right arm and leg.

A. Seeligmüller[4] states that individuals that have had an attack of acute anterior poliomyelitis in childhood are liable to develop progressive muscular atrophy later in life and he cites two illustrative cases.

G. Ballet and A. Dutil[5] report the case of a man, 34 years old, who from infancy had presented marked weakness in the lower extremities. From the age of 22 years he had transient paraplegia on several occasions, and at the age of 25 an attack of complete paralysis of the lower extremities of sudden onset. For three or four years there had been also weakness and wasting in the upper extremities. In a second case, in a girl, 18 years old, there had been an attack of infantile paralysis at the age of 3 years, involving the lower extremities, at the age of 11 or 12 another attack, involving the upper extremities, and at the age of 14 a third attack, again involving the lower extremities. Ballet and Dutil refer to a case reported by Caudoin,[6] occurring in a boy, 16 years old, who had an attack of poliomyelitis at the age of 17 months, involving the left lower extremity, and at the age of 16 years a febrile attack, attended with loss of power in the right lower extremity. They report a case of Pitres occurring in a man, 19 years old, who at the age of four years had an attack, attended with indigestion, fever, weakness and wasting in the lower extremities. Weakness and wasting increased and at the age of 15 or 16 progressive weakness and wasting appeared in the upper extremities. Ballet and Dutil also refer to the report by Charcot and by Vulpian of cases of progressive muscular atrophy in subjects previously affected by infantile paralysis.

W. R. Gowers[7] states that relapses in the course of poliomyelitis are very rare and occur chiefly in the form of a separate later extension of the disease. Second attacks, he says, are almost unknown—there had been but one instance in his series of 116 cases. He notes that in a few cases some other chronic affection of the spinal cord has developed when the subjects of infantile paralysis have reached adult life. He refers to the development of progressive muscular atrophy, of acute and subacute poliomyelitis and also of lateral sclerosis in adult life.

P. Marie[8] states that an individual who has had an attack of poliomyelitis in early life may subsequently develop progressive muscular atrophy.

E. v. Leyden and Goldscheider[9] state that exceptionally in the course of an attack of acute anterior poliomyelitis acute or subacute recrudescences occur, or there may be a gradual extension of the atrophic paralysis.

S. Auerbach[10] has reported the case of a child in whom two months following a febrile attack attended with paralysis of the left arm and leg a second febrile attack developed, with paralysis of the right leg.

Rudolph Neurath[11] reports the case of a boy, five years old, who at the beginning of August had an attack attended with fever, pains in the arms and legs, and difficulty in walking, lasting for five days; at the end of August a repetition of the symptoms, again lasting five days; and on October 3 a renewal of the symptoms, with the addition of weakness in the upper extremities, and death on October 5. Postmortem examination disclosed extensive degeneration of the ganglion-cells of the anterior horns throughout the spinal cord.

E. Lövegren[12] has reported the case of a boy, 16 years old, in whom, two weeks following a febrile attack attended with paralysis of the left leg, paralysis of the extensors of the right thigh developed.

H. Oppenheim[13] expresses the view that infantile palsy predisposes to the occurrence of paralytic conditions in later life, such as progressive muscular atrophy or chronic anterior poliomyelitis.

I. Wickman[14] states that at times poliomyelitis sets in in two stages, new symptoms appearing after the subsidence of the primary attack, the second attack not rarely taking the form of a relapse. He cites two cases of Medin in which, following a febrile period of three or four days, attended with paraplegia, there was an afebrile remission of five and six days respectively, after which there was a renewal of the fever, with marked aggravation and extension of the paralytic phenomena; and a case of Leegaard in which there was an interval of three weeks between the two attacks.

J. S. Risien Russell[15] makes the statement that in cases in which poliomyelitis is probably responsible for a uniform want of development in a limb, but without paralysis or especial atrophy of any one muscle, and in which all movements can be executed—as in a case of acute poliomyelitis—progressive muscular atrophy may be encountered later in life, but such a sequel is rare.

According to M. Allen Starr,[16] Geirsvold of Norway has reported a case in which nine weeks following an attack of poliomyelitis involving one leg, with apparent partial recovery, a second attack occurred involving the opposite leg. Starr also cites two cases of acute anterior poliomyelitis reported by Wickman in which recurrence took place at an interval of eight weeks in one and of three months in the other. Starr has himself observed a little boy with anterior poliomyelitis affecting the right arm in association with pseudohypertrophic paralysis involving both legs and the back.

Dr. Wharton Sinkler[17] has observed a case in which apparently two separate attacks of acute anterior poliomyelitis occurred in the same patient. In the first the right leg was involved and fairly good recovery took place, while three weeks later the left leg became involved in flaccid paralysis.

In the course of a paper dealing with an epidemic of 135 cases of acute anterior poliomyelitis occurring in Victoria H. D. Stephens[18] makes the statement that there is a family predisposition to the disease in some instances and that recurrence or recrudescence in the same child has occurred.

J. K. Friedjung[19] has reported the case of a boy 2½ years old who, at the age of 23 months, had a febrile attack attended with loss of power and muscular atrophy in the left arm and who four months later lost power in the lower extremities, the calf-muscles undergoing pseudohypertrophy.

A. Strümpell[20] states that in several cases of infantile spinal paralysis progressive muscular atrophy has developed later in life, and he expresses the view that the diseased ganglion-cells of the anterior horns of the spinal cord are incapable of keeping up with the functional demands made upon them and therefore undergo premature atrophy.

Simon Flexner and Paul A. Lewis[21] infer from the silence of the literature of epidemic poliomyelitis on the subject of immunity that a second attack of the disease is rare in the same individual, if it ever occurs. For this circumstance they propound two possible reasons: (1) one attack of the disease tends to confer enduring immunity; (2) owing to the infrequency of epidemics and the long interval between them, a child once infected passes beyond the susceptible age when again exposed. They found monkeys refractory to reinoculation for a short time following an attack of experimental poliomyelitis, and they succeeded in inducing active immunity in monkeys through employment of gradually increasing doses of active virus or of virus modified by heat and other physical and various chemical agents.

Lewellys F. Barker,[22] in discussing the immunity conferred by an attack of acute anterior poliomyelitis in human beings, states that this does not always develop quickly. In his opinion relapses, while rare, do occur, and sometimes two or more in the same individual.

Although in the case herewith reported the character of the second attack is somewhat doubtful, it yet seems of sufficient interest to be put on record. The patient was seen in the service of the late Dr. Wharton Sinkler, at the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases, to whose courtesy I owe the privilege of using it. She was brought to the hospital September 7, 1891, at the age of 26 months. She had been breast-fed, and her dentition, although early, had been slow. At the age of a year she had an attack of cholera infantum, and at the age of 17 months an attack of mumps, followed by simple sore throat. On a warm day in August, 1891, when 25 months old, after an indiscretion in diet, and without antecedent traumatism, the child was seized with fever, lasting for three days, and associated with pain in the right leg and the back. There had been no vomiting and no diarrhea. On the fifth day the right lower extremity was found to be paralyzed, without apparent alteration in sensibility. The paralysis increased in severity for a week, and then it began gradually to diminish. The upper extremities, the left lower extremity, and the face were unaffected. The general nutrition was preserved, but the right lower extremity was moderately wasted. Intelligence was good and sensibility was unaffected. The gait was wobbling, the feet being held rather far apart in walking. There were no contractures and no deformity. The knee-jerk was normal on the left, enfeebled on the right. The circumference of the right leg was 7¼ inches, that of the left 7½ inches. The muscles of the right leg responded less well to faradic stimulation than did the muscles of the left leg, but there was no degenerative reaction. The patient occasionally had nocturnal enuresis, but there was no evidence of rachitis. Under treatment with massage and electricity for eight months practical recovery took place.

Eleven years after this illness, in March, 1903, a day after a fall, resulting in injury to the left shoulder and the left elbow, the patient developed weakness in both hands, more marked on the left. She had not been feeling well at this time and was "nervous," although she was attending school and had no fever or nausea or vomiting. When examined, May 4, 1903, there was found wasting of the intrinsic muscles of both hands, more marked on the left, with over-extension of the proximal phalanges of the left hand and flexion of the distal phalanges. Both arms were spare and much alike in size; each measured 7 inches in circumference. The circumference of the right forearm below the elbow was 7¼ inches, that of the left forearm 7 inches. The reflexes were preserved in both upper extremities. The dynamometer registered 44 and 55 on the right, 25 and 20 on the left. The knee-jerk was doubtful on the right and normal on the left. The patient still suffered from occasional nocturnal enuresis, and she had some slight difficulty in retaining urine by day, although at a later date this difficulty disappeared. On electric examination a doubtful reaction of degeneration was found in the small muscles of the left hand, the contracture of the extensors precluding a definite conclusion on this point. Response to faradic stimulation likewise seemed diminished. There was no electric change in either the flexors or the extensors of the forearms.

Under treatment with massage and electricity the condition of the right hand soon returned to normal, while a considerable measure of improvement took place in the left hand, the contractures disappearing entirely.

In August, 1903, the patient was found to have a pronounced lateral curvature, the lower lumbar region being convex to the right and the upper lumbar region convex to the left, and the dorsal region convex to the right; and a course of appropriate exercises was prescribed.

July 11, 1904, both hands were long and slender. The first dorsal interosseous space of the right hand was incompletely filled. The deficiency was more marked in the left hand, where also wasting of the remaining interossei became manifest on extension of the fingers. The hypothenar eminence of the left hand was reduced in size and the thenar eminence was even more so. When the hand was extended there was a tendency to over-extension at the metacarpophalangeal articulations, with slight flexion at the proximal interphalangeal articulations. There was considerable freedom of movement of the left thumb, although difficulty was experienced in stretching an octave on the piano, and the left hand could be readily flexed and extended. The circumference of each arm around the biceps was 7 inches. The measurements of the forearm were practically the same—right, 7½ inches; left, 7¼ inches, below the condyles; right, 5 inches; left, 4⅞ inches, above the wrist, but the circumference of the right hand at the level of the first metacarpophalangeal articulation was 7½ inches, and of the left hand 6⅝ inches. Around the remaining metacarpophalangeal articulations the measurement was 6½ inches on each side. The dynamometer registered 72 in the right hand, 46 in the left. A slight erratic knee-jerk could be elicited on either side, and the reflexes in the upper extremities were preserved. The small muscles of the left hand supplied by the ulnar nerve yielded degenerative electric reaction, with total loss of faradic response. There was normal response on the part of the muscles of the right hand and of those of both forearms.

There was little change when the patient was seen April 23, 1910. She was now employed as a clerk

and used the right hand with perfect facility and the left with some difficulty. The grasp of neither hand was strong, but it was especially weak on the left. The forearms measured on each side 8½ inches below the elbow, 7½ inches midway between the elbow and the wrist, and 5½ inches above the wrist. The thenar and hypothenar eminences were rather flat in both hands, though in greater degree on the left, where also the first dorsal interosseous space was partially excavated. The knee-jerk was inconstant and capricious on the right, and normal on the left.

There is no reasonable doubt that in the case reported the attack of illness at the age of 25 months was one of acute anterior poliomyelitis. Such a diagnosis is fully borne out by the mode of invasion, the symptoms and the course of the disease, and the results of treatment. Whether, however, the second disorder, at the age of 13½ years, attended with weakness and wasting in both hands, transitory on the right side and persistent on the left side, is to be attributed to peripheral nerve injury in consequence of a fall or to a second attack of poliomyelitis must remain an open question. The development of the symptoms a day following and not immediately after the accident, the involvement of both hands primarily, even though in slight degree and but transitory in character on the uninjured side, the absence of sensory alterations certainly entitle the possibility of a spinal rather than a peripheral lesion—a poliomyelitis rather than a neuritis—to serious consideration.

Conclusions.—Acute anterior poliomyelitis is an infectious disease, occurring in sporadic or epidemic distribution. It is due to an as yet unidentified virus, capable of inducing the disease in monkeys, from whom in turn the causative factor can be obtained and be transmitted to other animals. One attack confers relative immunity to subsequent infection, although it may predispose to other diseases of the spinal cord in later life. Relapses and second attacks in the same person are rare.

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1019 Spruce Street.

A BRIEF REPORT OF THREE UNUSUAL CASES OF RETROPHARYNGEAL ABSCESS.*

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The following three cases of suppuration in the retropharynx that I have observed during the past two years presented points of such unusual interest in the course of the disease and in the complications and sequelæ, that a brief report is apparently justified.

Case I.—Retropharyngeal abscess, associated with evidence of pressure on the pneumogastric nerve. S. B., male, age 8 years, American, of Russian-Hebrew parentage. Family history negative, except for mild attacks of rheumatism in the father. Personal history: He has had measles when three years old, scarlet fever when five years old, and has from time to time complained of pains in the lower extremities. The present illness began three days ago with malaise, anorexia, chilly sensations but no distinct rigors, and with pain and stiffness of the right side of the neck. There was at first no soreness of the throat nor pain on swallowing. When seen at the end of three days after the onset of illness, the patient presented the following: He was a boy slightly undersized for his age, and evidently underfed. He was pale, weak, and considerably prostrated. The skin was hot and dry. The head was stiffly held in the position of right-sided torticollis with the chin rotated to the left side. The right sternocleidomastoid was rigidly contracted and at the right angle of the lower jaw there was a mass of hypertrophied lymph nodes, about the size of a pigeon's egg, and exquisitely tender. Examination of the mouth revealed a highly coated tongue and a number of carious teeth. The tonsils were slightly enlarged and congested, and the mucus membrane of the pharynx was granular and congested, adenoids were present, but there was otherwise no evidence of any swelling. The thoracic and abdominal viscera presented nothing abnormal, excepting for an unusual slowness of the heart. The temperature was 103.4, the pulse 60, and respiration 20. The pulse was full, regular, and of good force, equal and synchronous in both radial arteries and synchronous with the heart beat. This extreme slowness of the pulse with a temperature of 103.2 added a perplexing problem to what would have been a provisional diagnosis of acute cervical adenitis, with torticollis, possibly of rheumatic origin. The slowness of the pulse suggested meningeal irritation or intracranial pressure. But there were no other evidences of either of the latter. The pupils were equal, of normal width, and reacted equally and normally to light and to accom-

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modation. The reflexes were normal. There was no retraction of the head, nor ache cérébrale, nor retraction of the abdomen. The mentality was not dulled. A tentative diagnosis of cervical adenitis and rheumatic torticollis was made, and the salycilates were administered. During the next five days the symptoms increased in severity. The torticollis was more pronounced, the pain more intense, and the swelling at the side of the neck attained nearly the size of a hen's egg. It was hard and tender, but not red, and no point of fluctuation could be detected. On the eighth day of the disease the patient began to experience pain and difficulty on swallowing. Examination of the throat revealed a swelling of the posterior and right lateral walls of the pharynx, about one and a half inches in diameter, hard to the touch, and with no fluctuation. The temperature was now 103.6, and the pulse rate 58. A diagnosis of retropharyngeal abscess was made. The slow pulse was now easily explained on the basis of pressure of the inflammatory mass in the retropharynx upon the vagus nerve.

A vertical incision one-half inch in length was made in the center of the pharyngeal swelling, but no pus was evacuated. The suppuration was evidently deep, and had not yet come to the surface. The following day a discharge of pus came from the opening. In the course of three days the temperature subsided gradually to normal, and the pulse-rate increased to 90 per minute. The swelling subsided, and with it disappeared the torticollis and the dysphagia. On the fourteenth day of the disease the patient was entirely well, except for the inanition, weakness, and anemia resulting from the acute illness, the suppuration, and the inability to swallow. The two striking points in connection with this case are the initial torticollis and external cervical adenitis, and the remarkably slow pulse that could be explained only on the basis of pressure on the pneumogastric.

Case II.—Retropharyngeal abscess followed by general pyemia and death. The patient, C. W., was a female infant, 13 months old, of Russian-Hebrew parentage. The family history was negative. The infant had been born after a normal labor and was breast-fed. She had had no previous illness of any kind. Early in February, 1909, another child in the family had contracted scarlet fever. Quarantine had been raised during the third week in March.

Two weeks later C. W. took sick with fever, vomiting, anorexia, and restlessness. The symptoms continued and at the end of eight days the infant was unable to swallow and had retraction of the head. At this time the physician in attendance had made a diagnosis of retropharyngeal abscess. By means of his finger-nail he succeeded in incising the mass, and in evacuating a considerable amount of pus. There was a temporary and partial improvement of the symptoms. The infant was soon able to swallow, the retraction of the head was relieved, but the high temperature did not subside and the restlessness and anorexia continued.

I saw the infant one week later, April 20, 1909, obtaining above history. On that day the examination of the case showed the following: The infant was extremely pale and moderately emaciated and weighed 16 pounds. The skin was hot and dry. The inspection of the head revealed a firm mass of hypertrophied lymph nodes at the right angle of the jaw. An irregular red scar on the posterior wall of the pharnyx was the only evidence of recent retropharyngeal suppuration. The ear drums were normal. There were no signs of difficult dentition. Heart and lungs were normal. The abdomen was slightly protuberant. The reflexes were normal. The temperature was 102.8, pulse 130, respiration 24. Urine was normal. Blood showed 3,200,000 red-blood cells, and 12,000 leucocytes. The stools were green and contained a moderate amount of mucus. The infant was moaning most of the time and slept but little. No diagnosis was made. The treatment instituted was the administration of small doses of calomel, cool sponging of the surface of the body, and the application of a 5 per cent. ointment of ichthyol to the inflamed cervical lymph nodes. During the next ten days the temperature continued with slight morning remissions. On the fifth day the swelling at the side of the neck began to subside, and in two days was succeeded by an area of redness and induration over the right temporal region, about 2½ inches in diameter. Under the application of ichthyol, this area of redness and induration disappeared within the next 48 hours. The symptoms of fever, restlessness, and anorexia continued. On the tenth day the temperature rose to 104.2°, and thereafter acquired a more marked remittent type, dropping to 100° to 102° in the morning, and rising to 104° to 104.8° in the evening. The Widal reaction was negative, the spleen was not enlarged, and there were no rose-spots. There were no malarial plasmodia to be found in the blood. The Moro tuberculin reaction was negative. Repeated careful examination of the lungs revealed no signs of consolidation. There was no evidence of cardiac involvement. Repeated inspection of the ears revealed no abnormality. The infant had a decidedly septic look, but the exact locality and source of infection could not be discovered. The remissions in the temperature, which on some days ranged as high as 106, became more and more marked. On May 7, 1909, auscultation of the lungs revealed a slight diminution of the intensity of respiration over the base of the right lung behind. The percussion note was normal and there were no râles to be heard.

An aspirating needle was introduced at the ninth interspace and 1 dram of serosanguinolent fluid was withdrawn. Microscopic examination of this fluid revealed neither cellular elements nor organisms, and culture media inoculated with the fluid remained sterile. Two days later both ear drums were slightly congested but not bulging. A paracentesis of the drum membranes was performed and a small amount of thin serous liquid was discharged. The following day the discharge from both ears became purulent. The septic character of the temperature became more pronounced, reaching as high as 106.2° in the evening and dropping to 100.2° in the morning. At this time distinct rigors set in. On May 12, the right conjunctiva became reddened, the cornea clouded, and the pupil reacted sluggishly. The following day the entire eyeball was markedly injected, the cornea became opaque, and the pupil became completely immobile. Dr. James W. Ingalls confirmed the diagnosis of suppuration of the vitreous humor. The following day, May 14, 1909, the infant developed unmistakable signs of bronchopneumonia at the base of the right lung, the respiration became superficial and extremely rapid, the heart action more feeble, and on that day death occurred. Unfortunately, no au-

topsy could be obtained. The history of this case is typically that of a general pyemia following a retropharyngeal abscess, and strikingly emphasizes the importance of making a prompt diagnosis of the latter condition, and of instituting early drainage.

Case III.—Retropharyngeal abscess associated with edema of the glottis. G. W., a 14-month-old infant of German parentage, was seen December 27, 1909. Family history was negative. The infant had been born after a normal labor and had been breast-fed until it was nine months old. Her development has been normal and until the present time there has been no illness. Seven days ago the infant became peevish and restless, had a slight fever and a pronounced coryza. The next day, a swelling appeared at the right side of the neck. There was slight interference with nursing, apparently on account of the coryza. The stools were constipated. Physical examination showed a well-developed infant weighing 18 pounds. There were a well-marked coryza and a mass of hypertrophied lymph nodes at the right angle of the jaw about one and a half inches in diameter. The throat showed slightly hypertrophied but not inflamed tonsils, and the mucous membrane of the pharynx was reddened, and presented no visible swelling. The thoracic and abdominal viscera presented nothing unusual. The temperature was 102.6°, pulse 140, respiration 24.

In accordance with these symptoms, a diagnosis was made of acute coryza with cervical adenitis, and the treatment consisted in the administration of divided doses of calomel and a mild fever mixture, the use of an antiseptic nasal spray, and the application of a 5 per cent. ointment of ichthyol to the glandular swelling. The symptoms continued with no abatement for the next seven days. The temperature ranged between 102° and 102.8° from day to day. The difficulty in nursing became more marked. On the fourteenth day of the disease, the infant was brought to the clinic. It was much worse than it had been on any of the previous days. It was slightly cyanotic, extremely restless and in great distress. The respirations were considerably labored, 40 to the minute, and characterized by inspiratory and expiratory dyspnea. Examination of the throat at once revealed the cause of this condition. The right lateral wall of the pharynx was considerably swollen and edematous, and the edema extended forward to the right pillars of the fauces and to the soft palate. The uvula was pushed forward and to the left. Digital exploration of the pharynx showed that the swelling and edema extended downward and involved the structures that surrounded and included the larynx. The cause of the dyspnea was thus easily recognized and the diagnosis was made of retropharyngeal abscess or lymphadenitis, associated with edema of the glottis.

The treatment demanded prompt surgical intervention. By means of a narrow-bladed scalpel, guarded to within one-quarter of an inch of the point, a half dozen small incisions were made into different portions of the pharyngeal swelling. A small amount of pus was evacuated. Within the next six hours the edema of the laryngeal structures subsided and respiration became freer. The swelling in the pharynx disappeared in the next three days, and the infant was well within one week.

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LIBRARY VENTILATION.

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The ventilation of a library offers several problems which are a little out of the ordinary.

1. The air must be clean enough for the books and of the right humidity.

2. If there is a general reading room with newspapers it will probably be patronized by a good many people with unclean clothes and unclean bodies.

3. Books and ink have odors peculiar to themselves which are apparent where there is a good deal of massing.

4. The temperature must be that best suited for quiet, inactive people with a low heat production and a tendency toward cold feet.

5. Among the people visiting libraries there will always be an undue number of convalescents. Among them, from time to time, will be found convalescents from diphtheria, scarlet fever, and measles; also people liable to infect others with tuberculosis, pneumonia, and colds. The disease-spreaders mentioned in the first group will be found to be more numerous in schools than in libraries, while the spreaders in the second group will be found more frequently in libraries than in schools. In a circulating library books may be returned from premises where there is contagion.

6. In the stack room a good circulation of air is difficult to attain.

Beyond these points the proposition of ventilating a library does not differ from that of any other installation.

Dust. In a windy place or one where there is a good deal of atmospheric dust it is difficult to keep the books cleaned unless the air is cleaned before it is introduced into the room. Vacuum cleaning of the books and shelves has very great advantages. There is scarcely an installation in which it has greater advantages than in a library. To take each book and wipe it off with a damp cloth, then to wipe off the shelf and replace the books entails expense which is almost prohibitive. If the library ventilates by open windows they should be covered by cheesecloth fitted to the windows in frames. These cloths should be easily removable so that they can be cleaned and replaced with little expense or trouble. If the air is artificially introduced it should be washed or filtered through cheesecloth.

Humidity. If the air is too dry the books will dry out; the leather will crack and break; the glue and paste will become brittle. If the air is too moist the walls, shelves, and books are liable to "sweat" and the books be injured thereby. To prevent sweating of the books is more a matter of arrangement of the shelves than anything else. The shelves should not be against the outside walls or near the windows. To keep them off the outside walls and away from windows gives better light and throws the light so as to illuminate the shelves.

A temperature of 65° F. with a relative humidity of 65 means .289 grams of water per cubic foot of air. If, now, the temperature of a given object falls to 53° F. the dew point is reached for each particle of air in contact therewith. The amount of precipitation will depend upon the number of degrees of the air below 53° F. and the amount of

air coming in contact with the chilling point. Outside walls, dependent upon their thickness, will chill below the dew point on their inside faces. It is better to keep books away from them and on stacks on inside walls or set on the floor. If stacks must be against outside walls, enough radiation should be placed along these walls to hold their inside faces above the dew point in zero weather. In setting stacks on the floor of a room, over an unheated basement, something is gained by putting them on a wooden base or some other base composed of a poor heat conductor.

General Reading Room. The temperature must be held fairly high, say 65° F., since the occupants are still and quiet and the circulation in their feet is probably sluggish. If the humidity is low the secretions of the bodies will dry and increase in offensiveness. If the relative humidity is below 50 the occupants will be chilled if the temperature is below 70° F. If the humidity is high the body and clothes odors become doubly oppressive; witness the oppressiveness of a rainy day. It is a basic principle of the handling of odors that they must be removed just as directly as possible. The ventilation of kitchens has taught us that the only way to prevent the dissemination of odors is to place a hood over the cooking stove and remove the odors directly. The body odors of a general reading room are not so strong and do not require as vigorous treatment, but the principle is the same. The fresh air should be introduced low down at a temperature of, say, 60 to 65°, and at a low velocity. The outlets should be high up. The space occupied by the readers should have as nearly even upward ventilation currents as it is possible to get. The worst of the down draft influences should be obviated by placing radiation under the windows and next the outside walls, and in any other places where there is a tendency to downward currents of air.

If the ventilation is by gravity the air should enter the room through radiation so as to bring the air to at least 55° F. when it enters the general air supply of the room. If this is not feasible, then deflectors must be inserted in or near the window openings in cold weather so as to send the cold air to the ceiling that it may be warmed before it reaches the floor. Odors, in such an installation, cannot be controlled except by using large quantities of air. A general reading room should be so arranged that its air can be blown out at intervals during the 24 hours.

Stack Room. The stack room odors are those of large quantities of ink and paper. This room is not especially disagreeable nor harmful. Air in plenty and an occasional blowing out is all that is required.

Contagion. There are a few things in a library management or arrangement which can be done to lessen the danger of contagion. Periodic blowing out of the air of the room will do much toward keeping the bacterial content of the air low. To provide sunshine will lower the bacterial content of the air of the room. To keep the air of the room fresh will lower the danger of infection of the occupants of the rooms. To place the reading tables and chairs so that the readers will have their backs toward each other rather than facing each other across tables will decrease the danger of infection of readers in some measure, as it has reduced the consumption rate among cigarmakers. To provide convenient and commodious washing facilities will decrease infections.

Several plans are available for the disinfection of returned books in a circulating library. Exposure to the sun's rays is effective and practicable in small libraries.

As the stack room is used by but few people, good ventilation is not as necessary as in the reading room. If there are racks which are not against the wall they should be so built as to leave some clear open space under the books. Again, space should be left between the top of the books and the ceiling. If ventilation is by windows, the aisles should be so arranged as to make the best possible use of the windows. If the ventilation is artificial, the ducts should be carried under the stacks and the air introduced from under them, as the space under the seats is used in railroad car ventilation.

Something can be gained in keeping dust off the books by having the stacks made with cloth backs instead of wooden backs, in order that the air getting into the shelf space will have its dust filtered out.

PSYCHOTHERAPY—ITS PLACE—ITS USES.*

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Psychotherapy is a comparatively new term, but that does not signify that the method is new. Ages ago a wise man wrote "There is nothing new under the sun," but even if that be true there has grown up in the last generation quite a dictionary of new terms in electricity, and one almost as large in neurology. A fair definition of psychotherapy might be the application of the power of the mind to the cure or relief of disease.

With this in mind a little study of the history of medicine would show us that the psychic influence was used way back in the infancy of the art, as early or possibly earlier than the first recorded use of material remedies. And from what we know of primitive remedies I think it would be safe to say that the psychic was more potent for cure, and possessed of less danger, than most of the material remedies used in those early days.

In primitive times, as we all know, the practise of medicine was purely empirical, and in the hands of the priesthood. It is said that history repeats itself, and if we study history we will see that with the discovery of material remedies of real value, through the development of chemistry, pharmacy, anatomy, and the allied sciences, and the separation of the practise of medicine from priestcraft, for a time the influence of the mind for the cure of disease became eclipsed by the more tangible methods.

The natural result of this apparent neglect of such a potent influence for good in the cure of disease was first the growth of homeopathy, which avowed the existence of a spirit or influence in medicine after such dilution as to eliminate all the physical or chemical properties of the drug, and proved the ability of Nature to cure with much less medicine than was at one time thought necessary. Later, for the same reason came Christian science, whose founder was, I am informed, once an ardent advocate of homeopathy, and still later came mind cure, New Thought, and their numerous variations, and last the Emmanuel movement, which tends to restore to the clergy their primitive function of min-

*Read before the Academy of Medicine, April 5, 1910.

istering to disease. These later isms or methods, all simply excrescences on the practise of medicine, have filled many a page in our magazines of late, and cause an unusual amount of discussion.

All this means that the power of the mind over the body has been rediscovered, but the use of the remedy should be claimed and administered by that body of medical men whose only binding obligation is to use "any remedy, from any source, in any form, which experience teaches is valuable in the cure of disease or the relief of suffering."

There have been through all time occasional men in our profession who, though untutored in modern psychology, have recognized the value of mental therapeutics, and have used psychotherapy as successfully as any of its modern followers who have been so much before the public of late.

I will give an instance or two of the use of the method by one of a generation now gone which will illustrate not only the wide range of application, but the rare tact required to adapt the method to the individual peculiarity. The psychic stimulus or suggestion may be conveyed by some material remedy or instrument, or may be given direct, and may be in the form of a command, an assertion, or masterful statement, an analysis of symptoms with explanations, reinforced by illustrations, or it may be only the hidden inference that the patient draws from the appearance or actions of the physician, or the remedy he prescribes. The use of the psychic influence is unconscious to a great extent so far as the average physician is concerned, but should be studied and used with a purpose to get its best results.

The first illustration from the experience of the old physician referred to occurred about 60 years ago and was as follows: The physician came in from a drive, whip in hand, and found a nervous, dyspeptic man grumbling at his assistant because he was no better after weeks of treatment, and blaming his lack of improvement on the doctor for not giving him a proper tonic. He then appealed to the old physician who apparently agreed with him. Then, turning to the assistant, he grumbled worse than ever. "Yes," said the old physician, "I do think you need a tonic, and I will give it to you now." And with that he proceeded to apply his whip around the man's legs. At first the patient was nonplussed, then indignant, then too angry to know what to do. While he was thinking what to do to get even with the doctor he began to work at his trade, that of a carpenter, forgot his stomach, and was on the road to health. A few months later he came back so improved in appearance that the doctor did not recognize him. In this case the remedy was heroic, and the psychic was stimulated through the physical.

Another instance illustrating the pure psychic was as follows:

About twenty years ago a prominent clergyman came to this same physician, now an old man, with the pitiful, though common, story of overwork, long continued, resort to stimulants to keep up, the habit formed, and now the man discovered that he is a slave to stimulants, and likely to disgrace his profession. He seeks the old doctor, of whom he has heard for years, in search of help, and tells him his whole story. The doctor sees the need and recognizes the avenue of susceptibility. He tells the clergyman he needs Divine help, and straightway proceeds to invoke Divine aid, and the clergyman is carried along wtih him as a child might be with a father. The doctor urges his patient to make confession, and begin in public his reformed life, which he does. Now, after more than 20 years, this patient still shows the permanence of the cure.

These cases represent the two extremes of the method, but in attempting to adapt it to any given case the physician may find the avenue of susceptibility any where between, and here his knowledge of human nature, as well as his tact, is required.

I know a physician who is so confident in his belief in Nature's power to cure when hygiene is aided by psychotherapy that he practises his profession with no medicines, except a hypodermic case for emergencies, and a set of colored sugar of milk tablets for every other kind of a case, using the placebo as a vehicle with which to administer suggestions, and to secure the patient's coo-peration and obedience. Such extremes are unwise and would work ill to the profession if known. I also have known surgeons to do operations when the physical condition did not demand it, but the operation was so on the patient's mind that the surgeon thought the mental effect of the operation would warrant it. Such a use of surgery is at best, experimental, and of doubtful expediency.

It would seem that no argument should be necessary to convince one that a remedy so potent for cure in some cases and so totally useless in others should be handled only by those who by training and education, not only know the method of application of the remedy, but are also skilled in diagnosis. It would then be obvious that no one however versed in psychology should essay to apply that knowledge to the art of healing unless such person is also possessed of a sufficient knowledge of anatomy, physiology, pathology, and the other fundamentals of medical education to enable him to make a reasonably correct diagnosis, and then he could apply this or any other remedy, or combine psychotherapy with other remedies in such a way as to contribute to the greatest good of the patient. Then if it should chance that he found himself deficient in the technique of psychotherapy he would have the same opportunity to call in the services of a specialist as he would in some case which required surgery or hydrotherapy in which he might not feel qualified, or did not have the time or the conveniences at hand.

And as the physician might, at times, call to his aid the services of a trained mechanic to help him fit some orthopedic appliance, so he might call in the aid of the clergyman when he recognizes that the avenue of susceptibility in any given patient required that the suggestion be applied along religious lines with which he might not have sufficient experience to use successfully, while he himself should keep the general control of the patient.

This is sufficient to show what I consider the place for psychotherapy. The uses of psychotherapy may be such as to give it the rank of a specific in some cases, *i. e.*, a trouble existing in the mind alone must be treated by mind therapy as a specific. But whether or not it be used in the sense of a specific it is always a valuable aid to material remedies. The remarkable results one man gets with a remedy in which he has unbounded faith while most of his professional brethren get no such results can only be explained by the psychic influence he exhibits with his medicine, which may be quite wanting in the use of the same medicine by others.

The physician who gives a medicine and fails to tell his patient what to expect as a result of the

remedy may get results, but even then he will miss one-half the good which would follow if he had seasoned the dose with a proper amount of psychotherapeutic flavor. It is not difficult, and the time and energy is well spent in thus flavoring your doses. But when the case is purely psychic, and the mental remedy is the specific it is no easy matter at times to work down through the various layers of long-buried thought or experience to find the original germ idea which has grown insidiously, spreading as it grew till it has made a network through the whole mental fabric of the poor unfortunate which is absolutely paralyzing to normal mental activity. Yet before any successful suggestion can be applied this germ must be found and rooted up. In fact, if you can induce the patient to uncove this germ and produce it for discussion you have gone far toward curing him. Such morbid thoughts die when brought in contact with the light and atmosphere of a healthy intellect, as mould dies when brought from the cellar into the air and sunshine.

But this takes time, and patience, and thought, often much of all of these. Does it pay? Let us see. A young mother came into my office one day looking the very picture of despair. She had come in seven miles from the country where she lived with her husband and baby alone. On a recent trip to the city she reached the culmination of a nervous state which was partly hereditary and partly acquired, became hysterical, and thought she was going to die, or was losing her mind. A physician was called in who did what he could for her, but failed to eradicate the belief that her condition was critical. A fear of death or insanity settled down on her till she did not dare to stay alone with the baby for fear that she would lose her mental control and kill the child. This fear so distressed her that she was in despair, and said that she could not and would not go home, but she did not know what she would do. She loved her baby and she could not bear to think what might happen if she should lose her mind. After she had talked and cried herself out, by tactful persuasion, the germ of her fear was brought to the surface, discussed, and driven out. She left my office very different from the way she came, went home, and took up her work, and up to the present time the fear has not returned. She came in to see me one day within a week and gave a good report. This case was comparatively simple and easy, though a considerable time was consumed in the first visit referred to. But it took a large number of visits, and much reiteration, and repeated explanations to bring the mother back to a useful member of society, and a homemaker for her family from a condition of chronic invalidism of four years' standing. The mother's dominating ideas were very similar in character to those from which her daughter had suffered, but had been strengthened by the time they had existed which made her recovery more tedious.

More cases could be reported, and if time would permit, methods of psychodiagnosis might be discussed, but each case requires a different avenue of approach, and every man does, and probably always will, adapt for his own use more or less of a composite of the various systems, or evolves a system of his own, for making that mental analysis which is required in these cases. Enough has been said, however, to make plain the uses to which psychotherapy may be applied, and the proper persons to be entrusted with the use of the remedy.

813 University Block.

CULTURE OF LACTIC ACID BACILLUS IN THE TREATMENT OF CHRONIC SPECIFIC URETHRITIS.

A PRELIMINARY REPORT OF THIRTY-FOUR CASES.

By G. A. PERSSON, M.D.,

MOUNT CLEMENS, MICH.

Old as the human race, the records of gonorrhea have come down to us through history and its onward march has left in its wake blind, halt, maimed, and sexless multitudes. It is to-day contributing no little to the non-efficiency of our men at the most productive age and thousands of women are directly or indirectly suffering from this infection; there is also no doubt it is a considerable, though hidden, factor in present mortality. Dr. John Van Rensselaer Hoff holds the attention of medical men by his display of recent statistics on venereal diseases, in which it is estimated that 1,500,000 men suffered from gonorrhea in the United States last year. This is a startling fact, which makes us ask with some hesitancy: As an unavoidable sequence, how many of the other sex suffer likewise? Chronic specific urethritis is a neglected but important factor in social hygiene and the physician in general medicine has a duty to perform to the large class of patients who have presumedly been cured of gonorrhea.

Not infrequently an applicant for examination will say that since the cessation of all symptoms of infection he has often had relation with women, among them several not given to sexual promiscuity. Indeed, his intimacies with one or another may have extended through prolonged periods, with the result that not one of them was infected by him. In explanation thereof, several elements may enter, among which the most frequent only can be mentioned. One woman contaminated with gonorrhea may have presented such slight manifestations of the disease that they pass unobserved or she may have been perceptibly infected but concealed her condition; again she may have had relation with another man, whom it might be more advantageous to accuse, and so on throughout the gamut of ignorance and cupidity. It would seem, however, fortunately for the human race, that a number of women, for a time at least, are immune to gonorrheal infection. A man who states that he observed the first symptoms of a gonorrhea within forty-eight hours after impure relations, is exposed to the suspicion of having there suffered a recrudescence of a preceding and perhaps forgotten infection, or to have acquired the disease in coitus within eight or ten days of the presumed cause. One in whom the first evidence of a specific urethritis appears weeks or even months after coitus may have had a similar experience or may have failed to note the first manifestation of the disease. In the latter case it may have been a "blenorrhagie chronique d'emblée," as Guiard calls what is ordinarily designated a "mild case." Parenthetically it may be observed that these so-called "mild attacks" often prove very rebellious.

Let it be assumed, for present purposes, that the patient has but one attack of gonorrhea. Let it be assumed further that for several years thereafter he observed no vestige of the disease except for the appearance of a seemingly insignificant discharge which continued a short time, disappeared, but reappeared again after long or short intervals.

The patients here reported were subjected to the following methodical examination:

Urethral Specimens for Microscopy.—The patient is ordered to present himself upon voiding his first morning urine. If any reason, such as distance of his residence or the need of early rising, prevents this, the patient is provided with sterilized, blunt toothpicks and microscopic slides and instructed in the technique of taking any excess of urethral secretion that may present. He is also provided with six clean three-ounce bottles with clean corks, and instructed to pass into them his first morning urine. He is further instructed to write his name or other distinguishing mark and the date on the labels of the bottles and to number the succession in which each bottle is used.

When the patient can come to the office before having voided his first morning urine, the urethra is stripped; should stripping fail to bring an excess of urethral secretion to the meatus, the urethra may be curretted with a sterilized platinum loop and the results finely spread on a flamed coverglass for microscopic examination. At the same time that a specimen is obtained for microscopy one or more slants of Loeffler's serum are inoculated by stabs and strokes and put into incubator at 90° F. The patient is now instructed to fill a 12-inch (180 cc.) ignition tube with his urine and entirely fill as many more tubes as he may need to almost empty his bladder. The remaining quantity is passed into a final tube. As the patient has used each tube it is immediately stoppered with sterile cotton and marked by means of a "glass pencil" with the patient's name and numbered to designate its place in the succession of tubes used. If the urines intervening between the first and last are perfectly clear and contain no "floaters," and the first and last suffice for microscopy, the intervening tubes may be discarded. The first and last tubes are sedimented and the results prepared for microscopic examination.

Specimens from Prostate and Seminal Vesicles.—If the preliminary preparation of the patient has not resulted in recrudesence of the discharge the prostate may be massaged and the seminal vesicles stripped for specimens in addition to those taken from the urethra. The contents of the adnexa mentioned as present at the meatus were used for microscopic specimens and culture. Should no secretion be immediately obtained by massage and stripping, the patient is instructed to walk about for a few moments; usually at least a slight oozing then presents itself. If this does not occur, the urine passed within five or ten minutes hereafter will be found in some instances to be loaded with the secretion that has escaped. Specimens herefrom are then available for microscopy.

Case I.—Mr. W. B., aged 25; was infected two years ago, the primary symptoms having been moderately severe. He received treatment for several months consisting of irrigation and internal medication. At no time during the period of this treatment did the symptoms entirely disappear. At present a very slight urethral discharge is noticeable only at times. The treatment consisted of urethral injections with a culture of the lactic acid bacillus once a day. All other treatments discontinued. An examination 5 and 10 days after commencing treatment showed gonococci present; on the fifteenth day there were very few gonococci; on the twentieth day their presence was doubtful; on the twenty-fifth and thirtieth days no gonococci were found, and the patient was discharged. Four months later he was again examined, but no gonococci were found.

Case II.—Mr. W. R., aged 45, married, had specific urethritis at the age of 20, from which he apparently recovered. He married at the age of 26 and three years later he was again infected; the second attack was very mild in character. Slight discharge continued for a long time, but the patient discontinued treatment and finally noticed a disappearance of all symptoms. This, however, was but temporarily, since the second infection the patient having had a periodic reappearance of urethral discharge. Examinations revealed gonococci in large numbers, and urethral injections with a culture of lactic acid bacillus were given once a day. Examinations made every five days showed between the fifth and thirtieth days that gonococci were present, whereas from the thirty-fifth to the fiftieth none were found, and at the end of this time the patient was discharged.

Case III.—Mr. F. J. has had specific urethritis three times; the last infection dates back six years. Urethral discharge has been visible at short intervals from last infection to present time. Examination revealed gonococci and staphylococci. Injections with a culture of lactic acid bacillus were made once a day. Examinations made every five days showed gonococci present until the twentieth day. From the twenty-fifth to the fortieth they were not found. After six months the patient was again examined, but no gonococci were found.

Case IV.—Mr. F. H., aged 24, had specific urethritis two years ago, since which time there has been a recurrence of the primary symptoms at intervals varying from six weeks to three months; a week previous to his first visit at my office these symptoms became very acute, the patient being unable to account for this condition, as cause for a new infection was lacking. Inflammation of the urethra was very marked and introduction of a soft rubber catheter was associated with great pain. Examination revealed large numbers of staphylococci and gonococci. Urethral injections with a culture of lactic acid bacillus were made once a day. Examinations made on the fifth, tenth, and fifteenth days showed gonococci to be present; while later examinations were negative.

Case V.—Mr. J. H. had specific urethritis three years ago, all symptoms disappeared in a comparatively short time, but he was reinfected six months ago; no physician was consulted but some proprietary preparation was obtained from a druggist and the patient treated himself. The acute symptoms were relieved in a few days but a slight discharge continued up until the present time, when gonococci were found in large number. Treatment, urethral injections with a culture of lactic acid bacillus once a day. Examinations showed gonococci present for twenty days after commencing treatment, after which time they were not found, and the patient was discharged on the thirty-fifth day.

Case VI.—Mr. T. G., aged 48, has had a slight urethral discharge at short intervals about six years, and examination revealed gonococci. Urethral injections with a culture of lactic acid bacillus were made once a day. Examinations on the fifth, tenth, and fifteenth days after commencing treatment showed gonococci to be present; on the twentieth and twenty-fifth days they were not found; on the thirtieth, thirty-fifth and fortieth days they were again present; but from the forty-fifth to the sixtieth days, when he was discharged, they were not found.

Case VII.—Mr. W. T., aged 68. This patient

was infected while serving as a soldier in the Civil War and has never been entirely free from a slight urethral discharge for longer than three or four months at a time. Examination revealed the presence of gonococci, staphylococci, and colon bacilli. Urethral injections with a culture of lactic acid bacillus were made once a day. Examinations made every five days until the sixtieth day after commencing treatment showed gonococci to be present; on the sixty-fifth and seventieth days they were doubtful, and from the seventy-fifth to the ninetieth they were not found.

Thirty-four patients have been treated by urethral injections with a culture of lactic acid bacillus, six of which received no benefit. In the remaining twenty-eight cases the specific microorganism disappeared, and all clinical symptoms subsided.

Preparation of the Culture.—A strain of the lactic acid bacillus, which coagulated milk at room temperature in twenty to twenty-four hours, was planted in the following media: Milk, 70 parts; physiological salt solution, 25 parts; nucleanic acid, 5 per cent., 5 parts, and incubated for twenty-four hours, when plate cultures in agar were made. The first colonies appeared on the agar plates in from eighteen to twenty hours; these were selected for sub-cultures in a media of: Milk, 60 parts; physiological salt solution, 33 parts; nucleanic acid, 5 per cent., 7 parts, which were grown in the incubator twenty-four hours, when again plate cultures in agar were made and the first colonies appearing were transplanted. By this method the quantity of milk was gradually decreased, the physiological salt solution and nucleanic acid correspondingly increased, until good growth was obtained in a media of 85 parts of physiological salt solution and 15 parts of 5 per cent. nucleanic acid, which culture was used as the urethral injection.

Conclusions.—Secretions present in the infected urethra inhibit the growth of a common strain of lactic acid bacillus. Suspension in physiological salt solution of lactic acid bacilli grown on slant agar was injected into the infected urethra and cultures obtained by means of a sterile platinum loop from the urethra—these cultures were planted in milk at the following intervals: First culture, one minute after injection; second culture, five minutes; third culture, ten minutes; fourth culture, fifteen minutes; fifth culture, twenty minutes; sixth culture, thirty minutes. After forty-eight hours' incubation there was complete coagulation in cultures one and two; slight coagulation in culture three; in culture four, acidity but no coagulation; in cultures five and six, no growth.

It was observed that the disappearance of the gonococci bore a constant relation to the length of time the lactic acid bacilli retained their virulence in the urethra.

In each of the six unimproved cases the bacilli were killed almost immediately after injection and although several different cultures were tried, none proved effective.

Cultures of lactic acid bacilli grown in nucleinic acid media, such as used in the treatment of the cases here reported, retain virulence when injected into the infected urethra for a much longer period of time.

In a number of instances cultures which coagulated milk in thirty-six hours have been obtained from the urethra of the patients under treatment ten hours after the injection was made.

A PLEA FOR THE STUDY OF GERIATRICS.

By I. L. NASCHER, M.D.,

NEW YORK.

The strain of sadness which permeates "De Senectute" destroys our faith in the great Roman's optimistic philosophy. Seneca, like Cicero, preached resignation, yet feared death. And so through the ages, philosophers have tried to look forward to the inevitable with the indifference of the fatalist or with the courage of the hero who approaches an unknown enemy, with the faith of the visionary who sees beyond eternal life, or with the grim resignation of despair. Yet, in spite of all the optimism of philosophers from the days of Seneca and Cicero to Jean Finot and Metchnikoff, man looks forward to death with fear and indignation. It is only when one can take a purely materialistic view of life and knows the succession of biological processes and the progressive changes which finally destroy the harmonious relations necessary to maintain the living organism intact, that one can look upon death calmly. Even then death is repulsive, for it opposes the first law of nature, the law of self-preservation, and the desire to live. The new-born infant knows nothing of death, it knows nothing of life, yet there is the instinct of self-preservation. It gasps for air, it seeks the nipple and suckles, it cries to make its wants known. As it grows older it takes an interest in life, and later it finds a pleasure in living. Still later the basic motive of the individual's efforts is found in a desire to live. There is still the fundamental instinct of self-preservation, there may be still a pleasure in living. This desire to live is apart from the instinct of self-preservation; indeed, the latter may be suppressed by force of will without impairing the desire. This desire to live persists in old age, even when there is no more pleasure in life, and when the dulled mental faculties make death less fearful. There are cases where the individual desires death or precipitates it to obtain relief from mental or physical suffering, but such cases are abnormal.

The old man has been described as a blind and pitiless egotist, jealous and suspicious, having lost all interest in everything outside of himself. The few remarkable exceptions bring out more strongly the generality of these qualities which are based upon the old man's intense desire to live. Sentiment condemns the discussion of the economic value of the decrepit old man to society at large or to the community, to his relatives and friends, or to himself. Though this be a utilitarian age, when the desirability of men and things is gauged by their practical value, we may not discuss even in the medical press subjects as euthanasia in painful, incurable diseases, the destruction of the new-born monstrosity, or the fetus to save the life of the mother, however valueless such lives may be. After the individual has entered the stage of decrepitude he has only a sentimental value to society. For all practical purposes he is not alone useless, but generally a burden to himself and family, and often to the state. Sentimental value, however, exceeds all economic value. In dealing with life, public sentiment, whether based upon humanity or sentimentality, takes unapproachable precedence, and public sentiment in civilized communities decrees that we must preserve the aged and make them comfortable. It declares that the old man is a human being, having an intense desire to live; he has served society in one capacity or another, and gratitude, as

well as humanity, demands that we prolong and ease his declining years. If we take an unimpassioned view of the position the old man holds in society we must acknowledge that notwithstanding this humane recognition of his work we show little of the altruistic spirit in our manner of dealing with him. It is hardly necessary to compare the condition of the uncared-for child with the condition of the uncared-for old man, the public asylums for children with the public asylums for the aged, nor need we dilate upon the difference in treatment in the private home where children and their grandparents entail burdens upon the family.

There are many circumstances and conditions under which the aversion to the aged is natural and excusable, under which even sympathy and sentiment are stifled. There is no occasion or condition under which the medical profession is released from its obligation to tender sympathy and to extend aid in distress to the limit of its ability, yet nowhere does the medical profession neglect its obligations to humanity so uniformly and so obtrusively as in dealing with the aged. I do not mean to say that the physician, called to an aged patient, neglects to do all in his power to relieve distress. There is no lack of individual sympathy. The profession as a whole is indifferent to the aged, since it makes no effort to study the senile state, the wants and needs of the aged, their diseases and discomforts, or to relieve them. Aside from the asylums for the aged there is not a hospital or dispensary for the treatment of senile cases, or which considers such cases apart from the ordinary cases of maturity. There is not a lecture given in any medical college, so far as I have been able to learn, upon geriatics, that branch of medicine dealing with senility and its diseases. There is not a medical society or a section of a medical society that takes it up, nor a medical journal devoted to it, although one journal (*The Medical Council*) has recently set aside a section on geriatics. There are several German and French textbooks on the subject, but I cannot find one modern American work or even an English translation of one of the standard German or French works of the present day. This is remarkable, as senility and its diseases have engaged French and German investigators for over seventy years, there is a very extensive literature upon the subject in the two languages, and, besides, from a scientific standpoint, senility offers greater and more interesting problems than childhood or maturity. There are great differences in anatomical features and physiological functions between senility and maturity than between childhood and maturity. We know how pathological processes affect the normal tissues in maturity, but we know little about the effect of pathological processes upon the degenerating senile tissues. Drugs act differently upon the aged than upon younger persons, because the tissues themselves are different and the power of absorption and assimilation are changed, yet physicians as a rule give the drugs that they give in similar diseases in maturity, perhaps diminishing the dose in a haphazard manner, without rule or system. Secondary effects upon degenerate tissues not involved in the disease are generally ignored, and patients die from these secondary effects.

We treat our senile case with the idea that while we hope he will recover we expect that he will die: and when we expect a fatal issue in a senile case we lose interest in the case and do not exert ourselves as we would in childhood to prevent it. "The old man must die, anyway; why strive to prolong his useless life?" Every physician who has given an unfavorable prognosis in a senile case has been assailed with the same question: "Why prolong the agony?" His conscience, as well as the family, repeats the same question. It is his duty to prolong the agony because it is the duty of the physician to prolong life. Aside from sentiment, humanity, sympathy, aside from every ulterior consideration, the physician's self-imposed obligation demands that he save life, even the useless life of the pain-racked, decrepit old man.

While this is the duty of the physician, the attitude of the profession is one of indifference. Few are interested in the hygiene, regimen or dietetics of old age, factors more important in senility in preserving health than in maturity. A single instance will suffice to show the importance yet general neglect of these factors. In a home for the aged many inmates began to cough every night after going to bed. During the day the blankets were folded back, allowing the linen sheets to be thoroughly aired. Before retiring the inmates closed the windows to warm the room, and spread out the blankets. The sheets remained cold, and when the old people got into bed they were chilled, while those who had bronchitis at once gave evidence of it. We all know that we cannot sleep in a cold bed until the heat from our bodies has warmed the bed sufficiently to make us comfortable. The old are naturally cold; they have a lower body temperature, there is less radiation, and it takes much longer to warm a cold bed from the body of an old person than from the warm body of a younger and more active individual. By neglecting the simple hygienic measure to warm the sheets before the old people went to bed they were compelled to endure unnecessary discomfort, to lose sleep, to suffer the pain and annoyance of coughing and disturb those who did not cough. In many other directions is the medical neglect of the aged observable. In health, the diet altered to meet the altered digestive powers, the dress, the bath, the exercise regulated by the changed anatomical and physiological conditions, mental stimulation agreeable to the mental capacity of the aged, sleep, all come within the physician's field, yet are neglected. In disease, with the sole exception of arteriosclerosis, the ailments of the aged have received but little attention in this country. Senile debility, the most obvious of the senile manifestations, causing the greatest physical discomfiture and producing a constant mental depression, does not figure in American medical literature, yet much can be done to improve this condition. The increasing mental weakness receives no consideration until it has reached the condition of senile dementia, when it is transferred to the field of the alienist. The senile tremor goes to the neurologist and the senile gangrene goes to the surgeon. The flat-foot goes to the orthopedist and the enlarged prostate goes to the genitourinary specialist, while another specialist takes care of his stomach and still another takes care of his heart. But who looks after the old man? All these ailments are due to, or part of, the normal senile changes. It is the old man, the individual, who needs the care of a specialist so that he may be free, or comparatively free, from the discomfitures of old age, and that he may avoid many of the ailments which otherwise fall later to the surgeon, the alienist, the neurologist or other specialist.

Whether we view the old man with the eyes of

the scientist who sees in him only an interesting study, or with the eyes of the humanitarian who sees here an object of sympathy, or with the eyes of a man who sees here a fellowman anxious to live, our duty as physicians is the same. We must prolong his life and relieve him of his ailments. We cannot perform this duty if we do not study his life and his ailments. Such study may reveal a difference in the properties of tissue cells at different periods of life, thus explaining the degenerative changes in senility. An intimate study of the metabolic changes at this period may explain the altered assimilation and lead to a rational scientific hygiene of old age. The study of the action of inflammatory and other pathological processes upon degenerating tissue, the action of drugs on such tissue, a knowledge of the incidental secondary diseases which destroy life in senility, are all necessary if we expect to cope with senile diseases successfully. We must look upon senility as a physiological entity as much so as is childhood, and while there is lacking the sentimental interest in the old man that there is in the child, we have here an object of greater scientific interest. From whatever standpoint we view the old man it is the physician's province to relieve his ailments and prolong his life.

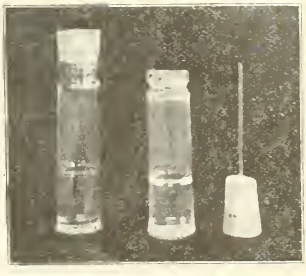
The object of this paper is to arouse an interest in geriatics. With such interest aroused, we could set aside a ward in our hospitals, a class in our medical schools, a column in our journals, a section in our societies, for his benefit. It is not too much to expect that as a result of such interest we may discover the underlying causes of aging, and, minimizing the causes, defer senility and prolong life.

73 East Eighty-second Street.

A PRACTICAL INEXPENSIVE ASEPTIC BLOOD-STICKER.

By C. C. BASS, M.D.,
NEW ORLEANS, LA.

The accompanying illustration shows a very satisfactory blood-sticker. It costs only about five or six cents and may be made up in a few minutes. It is superior to those on the market in that the needle is conveniently kept in alcohol or other antiseptic solution. This blood sticker is especially prac-



tical in laboratories where large classes are being taught blood examination. An essential part of the equipment for each such student is some kind of blood sticker, just as a stethoscope is essential for physical diagnosis students.

This sticker is made of a two dram vial, cork, and a straight surgical needle. The eye end of the needle should be stuck into the small end of the cork. The needle should not be stuck through the cork.

741 Carondelet Street.

A "Chamber of Horrors."—An anti-vivisectionist "chamber of horrors," such as was conducted in this city during the recent session of the State Legislature, has been afforded room at the State Fair now in progress in Syracuse. It is an exhibition of degeneracy—degeneracy not of the doctors whom it grotesquely slanders, but of the exhibitors. These people are afflicted with the mental disease which alienists diagnose as zoophil-psychosis, a love of pet animals that has become morbid. Women who coddle their pets and love them more than babies cannot bear the thought that dogs, cats, monkeys, and guinea pigs should be experimented upon, even painlessly, by the humane searchers after remedies and methods for the cure of human diseases. They would prefer that thousands of children should die in the horrible agonies of cerebrospinal meningitis or drag out crippled and disfigured lives from infantile paralysis to having a few hundred animals sacrificed for the sake of their cure—a cure that would work for all time. They would rather have millions of homes made charnal houses, haunted by the dread spectres of cholera, smallpox, typhoid, diphtheria, lockjaw, cancer, tuberculosis, and the Black Death, rather than that the veins of one horse or one cow be tapped for an immunizing serum, or a white rat be engrafted with diseased tissue to watch the method of proliferation and discover its preventable causes. They would construct a "chamber of horrors" full of all manner of deceitful representations to inflame prejudice in the minds of untaught beholders, while ignoring the real and terrible spectacles in the sick-chambers of the Nation. These people are working to spread plagues. Dr. Simon Flexner, who stands at the head of work in experimental medicine in this country, calls them "enemies of mankind." While a little insane, the leaders of this movement are wholly responsible for their work. The result of their campaign in the State and county fairs this Fall should be the strengthening of sentiment to restrain their degenerate exhibitions by law.—*New York Times.*

The Internal Secretion of the Pancreas.—As the result of a series of transfusion experiments, performed by anastomosing the blood-vessels of normal animals with animals in which glycosuria had been produced by means of extirpation of the pancreas, E. Hédon concludes that the internal secretion of the latter organ brings about a modification of the blood preventing glycosuria. But his experiments did not exclude the possibilities of the nervous origin of this condition. The two theories of the nervous and humoral origin of diabetes are not incompatible; it is probable that the pancreas regulates the metabolism of sugar by means of a double mechanism; a complex humoral component and a reflex nervous element related chiefly to the glycogenic function of the liver. As regards the possible rôle of the bulbomedullary centers in this mechanism, recent experiences of the author have shown that it is not a necessary one. In dogs rendered paraplegic by means of section of the cervical cord, the extirpation of the pancreas produces a diabetes as intense as ordinarily.—*Revue de Médecine.*

Use of Sterilized Clothing for Infants.—Edmond Weill advocates the use of sterilized clothing for infants as a preventive of localized skin lesions of pustular nature. The clothing should be regarded as a true condenser of germs, and the skin should be treated as a surgical wound is treated, that is with aseptic precautions. He found in the crèche at Lyons that all these local skin suppurations were prevented, and that in children who had contracted them the use of sterilized clothing soon put an end to them without other treatment. Each outfit is placed in a canvas bag and then in the sterilizer, and the bag is not opened until the clothing is to be used. After the linen so prepared had been used on one occasion the sterilizer was undergoing repairs and unsterilized clothing had to be used, with the result that the suppurations began to occur again, and stopped only when sterilized clothing was again used.—*Archives de Médecine des Enfants.*

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THE ESTIMATION OF ANAPHYLAXIS.

SINCE the discovery by Theobald Smith a few years ago of the phenomenon of anaphylaxis or fatal hypersensitiveness of an animal to a foreign serum produced by a previous injection of a similar serum, not only have the serologists devoted much time to the investigation of this obscure subject, but the clinicians have also been obliged to give it consideration in practical therapeutics, for fear that in cases of diphtheria, meningitis, septicemia, or any other of the ever-increasing list of diseases amenable to serotherapy, a repetition of the inoculation of the antitoxin during a period in which anaphylaxis is well developed might, instead of curing the patient, cause his sudden death. The subject is of especial importance in cases in which an immuning dose of antitoxin has failed to protect the subject, and the disease has made its appearance in spite thereof. In such cases the physician who blindly injects antitoxin is taking risks with his patient such as few would wittingly care to run. The great danger lies in the hidden character of the phenomenon, in the fact that we have no means of ascertaining until too late whether or not the anaphylaxis has developed.

In the hope of obtaining a practical method of testing a patient's sensitiveness to horse serum and thus of being able to tell in a particular case whether an antitoxin injection will or will not be dangerous, Knox, Moss, and Brown, at the suggestion of v. Pirquet, have carried on a series of experiments with the injection of horse serum into the skin of rabbits, and have reported their results in *The Journal of Experimental Medicine* for July, 1910. Rabbits which previously had been sensitized by the injection of horse serum in amounts varying from 0.1 c.c. to 10.0 c.c. were at definite periods given intradermal but not subcutaneous injections of very small quantities of horse serum. The results were uniform and striking. After a period in the neighborhood of ten days, during which the sensitization process occurred, an injection of even so small an amount as 0.01 c.c. of horse serum produced a definite local reaction at the point of inoculation.

The reaction is described by the authors as follows: "The bleb produced by the intradermal injection of the serum disappears in a short time, and no change is noticed at the seat of injection for ten to twelve hours. After this time the skin may become a little reddened and infiltrated, so that when it is taken up between the fingers in a fold it seems definitely thickened as compared with a fold of skin elsewhere. The swelling and redness continue to increase and reach their height in about twenty-four hours, when there may be a definitely raised brawny mass perhaps one or two centimeters in diameter. The skin of the reacting area is red and increased in temperature and the mass is definitely tender. Reactions which were less severe exhibited only a more or less diffuse infiltration of the skin at the point of inoculation with little or no redness or heat in the shaved area as compared to that of the rest of the skin. In a number of rabbits the reaction was much more marked. In these the infiltration began sooner, the part affected extending five to ten centimeters, became very tense, swollen, and red, and on several occasions partly necrotic. Reactions of this fulminating character often lasted for two or three weeks, whereas those which produced less severe changes diminished after twenty-four hours. On several occasions the reactions took the form of an unusually firm, sharply circumscribed, round mass with less increase in local temperature and redness than was usually the case." Microscopic examination of sections of the skin showed marked edema. There was little or no constitutional disturbance at the time of the reaction. Efforts to produce an antianaphylaxis failed, as did those to get the reaction in the newborn offspring of anaphylactic animals.

As this local reaction is produced by a minute quantity of horse serum, as it appeared with regularity in rabbits sensitized by previous injections and was as uniformly absent in nonsensitized animals, it would appear to be a fairly accurate indicator of the presence of a hypersensitiveness of the animal, in short to be an index of anaphylaxis. If further investigations confirm these findings and supply us with an accurate and innocuous indication of a state of hypersensitiveness in the human subject who has received a previous antitoxin injection the work will have to be accepted as an important advance in practical serotherapy.

ACROASPHYXIA IN CHILDHOOD.

THE vasomotor neuroses form a large group of disorders to which clinicians have as yet paid but scant attention. Accordingly, knowledge of the pathogenesis and symptomatology of these affections has not kept pace with the study of the physiology of the vasomotor nerves. Claude Bernard, Morat, Dastre, Gaskell, and a few others were the pioneers who cleared the ground for the pathologists and clinicians.

The prôtean manifestations of these conditions apparently account for the neglect which they have suffered at the hands of clinical investigation. That these diseases are not altogether uncommon is attested by the fact that most practitioners will readily recall familiar cases belonging to this category. The vasomotor manifestations of functional and organic nervous disease, including peripheral nerve lesions, and the less common disorders, such as

Raynaud's disease, erythromelalgia, and intermittent claudication, will at once suggest themselves.

The period of childhood has naturally furnished the fewest instances of these disturbances, nevertheless, their occurrence has been recognized in the following order of frequency of incidence: Raynaud's disease, acute circumscribed edema, erythromelalgia, and acroparesthesia. One form of the last that has been overlooked during childhood is acroasphyxia, apparently accounted for by the fact that in some traits it bears striking resemblance to Raynaud's disease. According to E. Kartje, who contributes a valuable paper on this subject in the *Archiv für Kinderheilkunde*, Vol. 53, Nos. 4 to 6, acroasphyxia is characterized by a gradually developing asphyxia of the peripheral portions of the extremities, and differing from the localized asphyxia of Raynaud's disease by its gradual development and by the absence of distinct attacks. In addition there are changes in sensibility and marked trophic disturbances, and in some cases general nervous manifestations. The three classical symptoms of Raynaud's disease are local syncope, local asphyxia, and local gangrene; but cases have been described in which local asphyxia is the only manifestation. These are to be distinguished from cases of true acroasphyxia by the fact that in the latter there is a diminution of sensibility which is only exceptional in Raynaud's disease. On the basis of four cases that he has observed, Kartje delineates the characteristics of acroasphyxia as follows: There is a gradually developing cyanosis of the hands and feet, which is less marked when the atmosphere is warm, and after a hot bath, and also in the lying posture. There is a constant hyperidrosis of varying degree of the cyanotic areas, particularly of their inner surfaces, and also a continuous, though varying, hypoasthesia. The cutaneous temperature is diminished and the cyanotic areas are cool to the touch. The vascular capillary pressure is lowered by the standing and raised by the reclining position. The venous hyperemia and cyanosis are the result of vascular spasm. The galvanic irritability of the nerves is increased in the same manner as is characteristic of tetany. On the strength of these observations Kartje concludes that this disease in spit of its local manifestations is a generalized disorder, characterized by an increased excitability of the nervous system, affecting particularly its vasomotor functions, and manifesting itself mainly by a widespread spasm of the smaller arteries. The etiology is obscurely veiled in all those causes that weaken the nervous system, and the treatment includes measures that improve the general and particularly the cutaneous circulation, such as warm baths, warm applications to the extremities, and massage. The application of the constant current is effective in promoting dilatation of the deeper as well as of the cutaneous vsesels.

PRINTERS' PALSY.

Much interest is nowadays being taken in what are known as occupation diseases. This attitude is, of course, perfectly natural, seeing that in civilized countries the greater part of the population lives in cities and is engaged in employments and crafts which to a greater or less extent predispose to disease. It is needless to state that some of these occupations are extremely injurious to health, in fact deadly, so much so, indeed, that in all progressive countries the law is being invoked to compel employers to use methods to render the work as little harmful to their employees as is possible.

In the *Medical Press and Circular*, August 17, Dr. J. C. McWalter discusses the question of printers' palsy, chronic antimonial poisoning, chiefly from its legal aspect. The British Workmen's Compensation Act has made such a consideration necessary in Great Britain, but as yet in this country this aspect of the case does not especially intrude.

The printers' trade may be looked upon as almost dangerous. Oliver in "Dangerous Trades" states that printers experience a death rate at the various age groups which is above the standard. Their mortality figure is 1,096 as against 602 for agriculturists. They have a high death rate from phthisis and from diseases of the nervous, circulatory, digestive, and urinary systems it is above the average. They suffer about one-third less from fatal accidents than do other workers, but they are somewhat more addicted to suicide. According to McWalter the diseases of the nervous, circulatory, and urinary systems are rather due to the antimony contained in type metal, which is an alloy of lead with 25 to 33 per cent. of antimony, than to the lead, although their mortality figure from lead poisoning is represented by 3. McWalter suggests that many of the more obscure and characteristic disorders of printers are due to antimony. The introduction of linotype machines appears to have lessened the amount of plumbism among printers, but evidence is not infrequently found of antimonial poisoning even among linotype operators.

A curious fact is mentioned by the writer that printing offices are notoriously free from cats. It is said that though men have tried to keep them, feeding them with milk, they eventually fall into ill-health. However, they present all the symptoms of acute lead poisoning, their eyes lose their healthy luster, their limbs become paralyzed, and they finally die with brain symptoms.

Whether it be antimony, arsenic, or lead to which may be mainly attributed the unhealthiness of the printer's craft, there is one thing certain, that printing offices are in too many instances unhealthy in themselves. They are usually situated in the most crowded parts of a big city, and are ill ventilated and are generally in an unsanitary condition. They should be spacious, airy, and well ventilated without draughts, they should be kept clean and especially free from dust. The workers therein should abstain from alcohol and drink milk. Baths should be provided on the premises, but food should not be taken there, while on the other hand no person should work on an empty stomach. There is little doubt that in various parts of America regulations tending to conserve the health of employees, and among these printers, are called for. That is one of the benefits, among many, that would follow the establishment of a Department of Public Health in the Central Government at Washington.

THE CUTANEOUS TRICHOPHYTIN REACTION.

Though there are but few skin diseases which are diagnosed more easily by the clinician than are those of the trichophyton group, tinea tonsurans, tinea circinata and tinea sycosis, these diseases may on occasion occur in atypical forms which make their isolation and differentiation matters of some doubt, and renders any improvement in the means of diagnosis a welcome innovation. Although until recent years it has been supposed that ringworm and its allied diseases were diseases localized to the skin, and without constitutional effects, investigations carried on during the past decade have demonstrated that, like diphtheria, while the ringworm infection is local and circumscribed, the constitutional effects thereof may be general. The result of these researches has been the discovery that culture, filtrates of the ringworm microorganisms, known as trichophytin, when injected into persons who are or have been infected with the parasite cause reactions, both general and local, somewhat similar to those produced by tuberculin. The local reaction at the point of injection consists of inflammation and infiltration; the general reaction includes headache, rise of temperature, malaise and muscular pains.

During the past two years the analogy between trichophytin and tuberculin has been emphasized by the results of experiments carried on by Bloch in producing a local reaction by a cutaneous vaccination of trichophytin, a reaction in many ways suggesting that proposed by von Pirquet. In the July number of *The Journal of Experimental Medicine*, Samuel Amberg reports the results of a series of vaccinations with trichophytin in subjects who had suffered from attacks of rigworm, barber's itch, or Dhobie itch previously, and in a large number of control individuals. The results of the investigation were fairly uniform, cases of ringworm infection which had had their attacks as long as twenty-nine years before giving definitely positive reactions. A few cases without obtainable history of ringworm disease also gave the reaction, and a few others with distinct histories were negative.

The vaccinations were made in a manner similar to that proposed by von Pirquet for tuberculin. The trichophytin was obtained by growing the fungi in a three per cent. maltose bouillon for two or three months at room temperature. The growth was then ground up and filtered through a Chamberland filter and the filtrate was preserved in 0.25 per cent. carbolic acid or 0.5 to 1.0 per cent. carbolglycerine. In positive cases the reaction made its appearance often from four to twenty-four hours as a flat red papule the size of a pea, which itched violently. For twenty-four hours this increased in size, attaining a diameter varying in different cases from 4 to 11 mm. and then slowly faded and disappeared within a few days. A brownish pigmentation remained in some cases for several weeks. In some instances a distinct red halo was formed around the papule, appearing about twenty-four hours after vaccination and lasting in the neighborhood of thirty-six hours.

Such a reaction is a refinement of medicine which gives promise of being of some use in diagnosis, especially in determining the significance of a skin lesion long cured. The recognition of an acute tinea trichophyta infection is so simple from its clinical appearance and the microscopical examination of the hair that in such cases a cutaneous reaction is hardly necessary. In cases, however where the identity of a bygone annular skin lesion is under consideration, especially in reference to a possible past specific infection, such a reaction may have a decided application. From the purely academic viewpoint the results of the investigation are of particular interest.

A MIRACLE OF HEALING.

The report of two cases of syphilis treated by the Ehrlich-Hata preparation, given in this issue of the Medical Record by Dr. M. S. Kakels of this city—the first published account of the use of the remedy in this country—is of a nature to shake the therapeutic incredulity of an Osler. Our foreign correspondents have, of course, informed our readers of the trials of the remedy in Germany and of the astonishing results obtained, and our abstract department has contained many notices from the German periodicals, but Germany is a long way off, and the report of desperate cases, albeit only two, treated in this city, and apparently rapidly progressing to a cure, seems more real. Dr. J. A. Fordyce of this city and Capt. H. J. Nichols of the U. S. Army Medical Corps have been making trials of the remedy at the City Hospital during the past summer, at the suggestion of Dr. Flexner, and their report will be published in the near future. It is said also that other American physicians have received small quantities of "606" and the wonders revealed in this first publication will no doubt soon be duplicated. After November 1, when, as we announced last week, the preparation will be on sale in this country, the accounts will, no doubt, be numerous.

We shall then perhaps hear another side, for with the remedy procurable by anybody, it is too much to hope that the precautions which the inventor of this most powerful protoplasmic poison insists upon, will always be observed. Any accidents resulting from the improper use of the remedy cannot in fairness be charged against it any more than can the use of strychnine be condemned because persons have been killed by overdoses. But, as we said in a previous notice of "606," we cannot yet tell what the final outcome will be, even when the remedy is properly used. The drug is retained in the tissues and is gradually taken up by the circulation and distributed to all parts of the body. Being eminently spirillotropic, so long as any of the specific organisms are present these small amounts are absorbed by them to their destruction, but when the drug, continuously set free in the circulation, is no longer absorbed by the spirochetes, is there not a possibility that it will be found to be generally, even though feebly, protoplasmotropic or neurotropic? This possibility should inspire caution, and must cause some disquietude as

one regards the future of this tremendous experiment. However, the drug may not have any evil after-effects. If it does not, the discovery will rank high among the wonders of these wonderful times, as marvelous as those of Pasteur or of Lister or of Behring, the already honored name of Ehrlich will be still more loudly acclaimed, and the believer in the healing power of drugs will be armed with another weapon in his contest against the hope-killing therapeutic nihilist.

Diagnosis by Wassermann's Reaction.

The evolution of a new diagnostic resource may be rendered appreciable if we compare the current literature on the subject with that of, say, one year or more earlier. At the earlier period we may encounter enthusiasm and optimism; at the later period scepticism, caution, and suggested delimitations of the method. All these represent a reactionary stage quite inevitable in the evolution of any new practical problem; and should be succeeded in time by a counter reaction, comprehending all that has actually been achieved, to the exclusion of whatever is beside the mark. As Sobernheim states in the *Berliner klinische Wochenschrift* for July 18, our knowledge of the Wassermann reaction is in urgent need of organization. He refers, naturally, to the bedside significance of the phenomenon. Simplification of technique, increased delicacy of reaction sound plausible to the practitioner, but variation of the test is probably far more significant in securing trustworthy results The greater the number of extracts used the better. Sobernheim would employ at least three, and only when each of these leads to a strong complement fixation would he call the result positive. In other words, this reaction is not a fit subject at present for short cuts. The authority in question has tested a large number of subjects in this manner, evidently with the praiseworthy aim of excluding such findings as "weakly positive," "doubtful," and the like. Doubtful cases cannot be eliminated outright, for it happens at times that the results with three extracts either conflict among themselves, or are all alike questionable in character. But on the whole variation in reagents seems commendable. This policy is familiar in the very simple tests for albumin and sugar in the urine: for in cases in which the reaction is so slight as to be indecisive successive tests with other reagents must solve the problem. A routinist may be satisfied with a single test with which he has had years of familiarity; while a novice, testing a specimen of urine with some of the thirty or more ordinary reagents which reveal the presence of albumin, may arrive at a much closer conception of the degree of albuminuria. Nothing is so ill advised as dependence on a single test. Sobernheim adheres for the present to the belief in a purely diagnostic significance of the Wassermann reaction. Apparently he would not involve it in prognostic or therapeutic considerations.

Serodiagnosis of Echinococcus Disease.

There is already no little literature on the serodiagnosis of unilocular echinococcus cysts and tapeworms; but until quite recently there has been no corresponding report for the multilocular or alveolar echinococcus. At least that is the conclusion reached by Dobrotin of Kasan, who believes that he has reported the first positive finding (in the *Berliner klinische Wochenschrift*, July 11). He obtained the antigen from a unilocular echinococcus in a man. This is a fact of some significance, for it appears to show that the two forms of parasitism causing the cyst formations stand in closer relationship to each other than has been assumed by many parasitologists. The patient had a large tumefaction of the liver, and the diagnosis lay between cancer of the gall-bladder, syphilis, hypertrophic cirrhosis and alveolar echinococcus. The Wassermann reaction for syphilis was negative. A positive result with antigen from a human echinococcus cyst was obtainable; but when antigen from a similar source in a cow was employed, the result was negative. Autopsy confirmed the diagnosis. As alveolar echinococcus is a relatively rare affection, if one must depend upon antigen from a cyst in man, this diagnostic resource can hardly possess more than an episodical value.

Dobrotin's report is followed by one on the same subject by Kurt Meyer, who confines himself to echinococcus disease in general, with no apparent reference to the alveolar type of cyst. He refers to the fact that "tapeworm carriers" sometimes react positively to the test, even when there are no general symptoms; showing that some product of the parasite must have entered the blood. A positive result in one patient lead to the discovery, after much pains, of tapeworm eggs in the feces. Numerous other diagnostic possibilities make this biological reaction second only in interest, among members of its class, to the Wassermann test for syphilis.

News of the Week.

Infant Mortality.—In a forthcoming bulletin of mortality statistics for 1909, to be issued by the Bureau of the Census, attention is drawn to the fact that of the total number of deaths, 732,538, occurring in the Bureau's death registration area, 196,534, or 26.8 per cent., were of children under five years of age, and 140,057 were of infants under one year. The death registration area covers about 55 per cent. of the estimated population of the United States. In general, it may be said that one death out of five during the year 1909 was of an infant under one year, and one in four of a child under five years. The correct statement of infant mortality, however, can hardly be made until there is a more accurate registration of births throughout the United States. The American Association for the Study and Prevention of Infant Mortality, recently formed, has for its object the coordination of all the sanitary agencies available for the special purpose of reducing the number of preventable deaths among infants, and the procuring of reliable statistics is of great importance in such an undertaking. The figures now available show, as was to be expected, a slightly higher death rate among infants in cities, and slightly lower proportions among the rural population, as compared with the registration area as a whole. In a recent report on "Infant and Child Mortality," Dr. Arthur Newsholme, medical officer of the local government board of England, states that infant mortality forms a sensitive index of social welfare and sanitary administration, and that "it is strictly correct to say that a high infant mortality implies a high preva-

lence of the conditions which determine national inferiority."

Car Runs into Ambulance.—Dr. C. H. Byrne, on the house staff of Bellevue Hospital, New York, was painfully injured on September 12, when the ambulance in which he was conveying a patient to the hospital was struck by a Third Avenue car at Twenty-third street. Two policemen accompanying him were badly bruised. The patient was not injured.

More Centenarians.—Mrs. Margaret Boerum of New York, who died recently at the age of 102 years, had lived in this city since childhood and had been in good health until a few days before her death.

Mrs. H. S. Beckwith of Utica, New York, died on September 11, also at the age of 102 years. She was said to be the oldest resident of Oneida County.

In Saginaw, Michigan, Mrs. A. M. Carrow died on September 15, at the reputed age of 117 years.

The International Opium Conference.—At the request of the Chinese Government, the meeting of this conference, which it was proposed to hold this month, has been postponed for a year. The conference is to formulate a plan for the suppression of the traffic in opium within a given period. The Chinese Government is not yet ready to take up the question.

Charitable Bequests.—St. Mary's Free Hospital for Children, New York, receives a bequest of $10,000 under the will of the late Mrs. Sarah Titus Zabriskie, who died recently in Newport.

By the will of Mrs. Mary Nevins Mayo, who died recently in New York, the residue of her estate, amounting to about $100,000, will be divided equally between St. Luke's Hospital and the Home for Old Men and Aged Couples, subject to the life interest of another person.

The Marlboro Hospital of Marlboro, Massachusetts, will receive about $20,000 from the estate of the late Miss Hannah E. Bigelow of that city.

Dr. John A. Mead of Rutland, Vt., was elected Governor of his State on the Republican ticket, on September 6. Dr. Mead, who is a graduate of the College of Physicians and Surgeons of New York (1868), retired from practice some time ago, and at present fills the office of Lieutenant-Governor of Vermont.

The American Electro-Therapeutic Association held its Twentieth Annual Convention at Saratoga Springs, N. Y., September 13, 14, and 15. There was a large attendance and the full program of scientific papers was read and brought out free discussion. The following officers were elected for the ensuing year: *President,* Dr. Frederick de Kraft, New York; *Vice-Presidents,* Drs. F. Howard Humphris of London, and Frank B. Granger of Boston; *Treasurer,* Dr. Emil Heuel of New York; *Secretary,* Dr. J. Willard Travell of New York; *Registrar,* Dr. Frederick M. Law of New York; *Trustees for Three Years,* Drs. Charles R. Dickinson of Toronto and Thomas D. Crothers of Hartford, Conn.

The Southern Medical Association will hold its annual meeting at Nashville, Tenn., on November 8, 9, and 10, 1910.

The Colorado State Medical Society will hold its annual meeting at Colorado Springs on October 11, 12, and 13, 1910. Dr. A. C. Magruder of Colorado Springs is chairman of the committee on arrangements.

The Medical Society of the Missouri Valley, at its annual meeting at Council Bluffs, Iowa, held recently, elected the following officers: *President,* Dr. Donald Macrae of Council Bluffs; *Vice-Presidents,* Dr. J. M. Bell of St. Joseph, and Dr. J. M. Banister of Omaha; *Treasurer,* Dr. Thomas B. Lacey of Council Bluffs; *Secretary,* Dr. Charles Wood Fassett of St. Joseph. The oration in surgery was delivered by Dr. Norvelle W. Sharpe of St. Louis, his subject being "Fractures of the Femur." Dr. George H. Hoxie of Kansas City gave the oration in medicine, "Arthritis" being the subject. The presidential address, comprising a review of progress in obstetrics, was delivered by Dr. A. B. Somers. The next meeting will be held at St. Joseph in March, 1911.

Obituary Notes.—Dr. Charles Cook Ransom of New York, a graduate of the Medical Department of the University of Buffalo, New York, in the class of 1879; a member of the American Climatological Association, the American Medical Association, the Academy of Medicine, and the New York State and County Medical Societies, and visiting physician to the City Hospital, of which he was also an alumnus, died suddenly on September 13, at the Faxton Hospital, Utica, N. Y., following an operation for intestinal obstruction, aged 50 years.

Dr. J. Frank Gillespie of New York, a graduate of the College of Physicians and Surgeons of Baltimore in the class of 1897, physician to the Out-patient Department of Lebanon Hospital, died at his home on September 12, aged 41 years.

Dr. George F. Perry of Hamilton, Texas, a graduate of the Medical Department of Washington University, St. Louis, in the class of 1875, died at Colorado Springs on August 30.

Dr. Milan A. Gates of Ronceverte, West Virginia, a graduate of the Detroit Medical College in the class of 1880, died at his home of locomotor ataxia on September 10, aged 55 years.

Dr. Isaac Wood of Kingston, Ontario, Can., a graduate of the Faculty of Medicine of Queen's University, Kingston, in 1892, died suddenly on September 1, aged 57 years.

Dr. William H. Drake of Windsor, Ontario, Can., a graduate of the Medical Department of Victoria College, Coburg, died at his home on September 6.

Dr. D. T. Robertson of Lennoxville, Quebec, Can., a graduate of the Medical Department of McGill University, Montreal, Can., in 1867, died at his home on September 7.

Dr. Nathaniel T. Dulaney of Blountville, Tennessee, a graduate of the Jefferson Medical College, Philadelphia, in the class of 1856, a member of the Tennessee State Medical Society, of which he was a former president, died at his home on September 3, aged 76 years.

Dr. William B. Sanford of Memphis, Tenn., a graduate of the Medical Department of Vanderbilt University, Nashville, in the class of 1880; a member of the American Medical Association, the Mississippi Valley Medical Association, the Mississippi and Tennessee State Medical Societies, the Tri-State Medical Association, and the Memphis & Shelby County Medical Societies, and professor of obstetrics in the College of Physicians and Surgeons, Memphis, died in Colorado Springs, of erysipelas, on September 1, aged 53 years.

Dr. Richard K. Gregory of Greensboro, N. C., a graduate of the Medical Department of New York

University in 1860, a surgeon in the Confederate Army during the Civil War, died at his home on September 10, aged 74 years.

Dr. Marcus Rosenwasser of Cleveland, Ohio, a graduate of the University of Wurzburg, Bavaria, in 1867; formerly professor of obstetrics at the Wooster University Medical, and recently professor of the diseases of women in the Cleveland College of Physicians and Surgeons; consulting gynecologist to the City, Mt. Sinai and St. John's Hospitals; a Fellow of the American Association of Obstetricians and Gynecologists, and a member of the American Medical Association, the Ohio State Medical Society, and the Cleveland Medical Society, and formerly president of the Cleveland Board of Health, died suddenly at his home on September 4, aged 64 years.

Dr. Orville W. Collins of South Framingham, Mass., a graduate of the Harvard University Medical School in the class of 1887; instructor in physiology and anatomy in the Framingham Hospital Training School for Nurses; attending physician to the Framingham Hospital; a Fellow of the Massachusetts Medical Society, and member of the American Medical Association, and the Framingham and Thurber Medical Societies, died suddenly on September 5, at Jefferson, New Hampshire, aged 59 years.

Dr. John E. Faber of St. Louis, Mo., a graduate of the Medical Department of Washington University of St. Louis in the class of 1869, died suddenly of apolexy on September 5, aged 80 years.

Dr. Milo W. Scott of Los Angeles, Cal., a graduate of the Rush Medical College, Chicago, in the class of 1877, died at his home on September 4.

Dr. David N. Fansler of Marion, Ind., a graduate of the Cleveland College of Physicians and Surgeons in the class of 1874, died at his home on September 5, after a long illness, aged 74 years.

Dr. William Perry Baird of Northboro, Mass., a graduate of the Department of Medicine and Surgery of the University of Michigan in the class of 1858, a veteran of the Civil War, died at his home of heart disease on September 10, aged 80 years.

Dr. Homer K. Castle of Kansas City, Mo., a graduate of the Eclectic Medical University of Kansas City in 1903, died at his home of heart disease on September 5, aged 61 years.

Correspondence.

A HITHERTO UNDERSCRIBED SYPHILITIC SIGN.

To the Editor of the Medical Record:

Sir:—At a recent meeting of the Canal Zone Medical Society, I presented a series of six cases showing a luetic sign which I have never seen described. It may be that the tropical sun brings this out more distinctly than is seen in northern climes. These six men were all white foreigners and I selected them because they all had the histories and other stigmata which leave no doubt as to the diagnosis. The faces of all these patients have a muddy expression and on close examination one can see a dirty brown or yellowish pigmentation, irregular in outline, blotchy in character, resembling the pigmentation of chloasma. It is seen particularly on the forehead and temples but also on the cheeks, and does not correspond to the areas of solar tanning where the hat protects. In this country it is so distinctive and characteristic that one can almost pick out the syphilitics in any gathering. It develops as early as the sixth month after the initial lesion, and when the disease is untreated becomes more marked with age.

It is particularly valuable as a diagnostic point in women when no opportunity exists for an examination of the husband without exciting suspicion. On comparing this pigmentation with the corona veneris of text books with its coppery-like stains, we see that the two conditions differ essentially.

One of the patients presented illustrated another point which I have frequently referred to in other diseases, particularly rheumatism and late syphilitic degenerations, namely, that the physiological determination of blood by occupation or otherwise generally determines the seat of the lesion. One of these men early in life lost an eye, and inspection showed that the orbit was not so well developed on that side; the chloasmatic pigmentation, or what I prefer to call it, the "luetic mask," was also less developed on that side than the other.

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OUR LONDON LETTER.

(From Our Regular Correspondent.)

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE—SANITARY INSPECTORS IN CONFERENCE—FISH AS FOOD—WAR AGAINST CONSUMPTION—TRAGIC SUICIDE—CEREBROSPINAL MENINGITIS—OBITUARY.

London, September 2, 1910.

The British Association (our chief scientific organization) for the Advancement of Science in all its branches, and of which the Medical Association may be regarded as a daughter, opened its 80th annual meeting at Sheffield on Wednesday, when the president, Professor T. G. Bonney, F.R.S., delivered his address. He is a past-president of the Geological Society and Emeritus Professor of Geology in University College, and his address was devoted to the glacial history of Western Europe, with special reference to the phenomena of the ice age or ages in the British Isles, and the hypotheses which have been put forward in relation thereto. Having discussed these in the interesting and learned way for which he is well known, he confessed he could not declare any one to be satisfactorily established, and added: "I think we shall be wiser in working on in the hope of clearing up some of the perplexities." There are stages, he said, in the development of a scientific idea, when our own best service is "by insisting that the giving of a name cannot convert the imaginary into the real, and remembering that if the hypotheses set on trial are treated as axioms, the result will often bring disaster, like the building a tower on a foundation of sand." I commend this quotation to the attention of the advocates of some medical hypotheses.

There are eleven sections, and some of these unite to consider questions common to them—a plan which supports those who protest against the medical association's divisions as too numerous, when half the number suffice for the whole range of the sciences.

The sections all set to work yesterday with a presidential address in each. Besides these important pronouncements nearly fifty papers were read or taken as read. Moreover, the reports of the numerous committees appointed at last year's meeting were presented to the several sections. Obviously they could not all be discussed, and even those more particularly of interest to your readers can only be considered on a future occasion.

The twenty-fifth annual conference of the Sanitary Inspectors' Association was opened on Monday, and occupied all the week. The report stated that since the last meeting in London there had been a great increase in the membership, and a scheme of examination had been arranged which will come into operation immediately. The meeting was held in the Fishmongers' Hall, kindly lent for the occasion, and the president, Sir J. Crichton Browne, appropriately devoted his address to the importance of fish as food. No city company, he said, had done more important work than the fishmongers, and none did work more interesting to his audience, for it had in reality carried on the work of sanitary inspection for centuries. Last year 946 tons of fish unfit for food had been condemned by the company, and more was probably held back from the market on account of the strict surveillance. Ptomaine poisoning, gastroenteritis and other insidious ailments might be induced by tainted fish. In Billingsgate this danger was prevented, but it was not so easy to follow the fish to the retailer on whose fine marble slabs sunlight, dust and flies did not make for righteousness. In America and New Zealand it

was not exposed in this way. The president next considered the dangers of shellfish drawn from polluted waters, giving proofs from the recorded outbreaks of disease caused in this way. The company and the medical officers of London and other cities had done much to prevent such occurrences, and people might, as a rule, eat their oysters without fear. But only the commission on the feeble-minded could deal with idiots who went about picking up periwinkles, cockles and mussels close to a sewage outfall. We were more indebted to fish than many realized. Our ancestors largely ate molluscs when laying down the keel of the race, as attested by the accumulations of shells known to archeologists as kitchen-middens. The dietetic value of fish was, next to meat supply, protein and fat enough for the body. Dr. R. Hutchinson calculated that an average herring contained 15 grammes of edible protein and 5 to 10 grammes of fat. Dr. Smith estimated that the despised lobster gave the most nutriment for the price of any animal food. An abundant supply of cheap fish would help in the prevention of tuberculosis, develop improvement in the race and provide employment. Hitherto we have depended on the wild life of the sea, but we might very well establish marine stock farms and sanitary science should be called upon to assist in such an enterprise.

Among the papers read was one by Mr. Quinton, chief inspector for Liverpool, who dwelt on overcrowding and unemployment; one by Mr. West on foods, who said the sale of food and drugs act had suppressed most of the grosser forms of adulteration, but still "the heart of man was deceitful above all things and desperately wicked," in proof of which he said flour of poor quality was bleached with nitrous oxide or calcium phosphate and sultana raisins touched up with sulphur to prevent their age being detected. This might be detected by the blue flame when thrown on the fire to amuse at Christmas! Again, rice was polished with talc and a thick mineral rind added to cheese to increase its weight. He had no faith in the branding of goods by foreign governments, but as to this Mr. McPhail strongly opposed him. A paper on town planning was also read. Yesterday Mr. Cameron, New Zealand's government commissioner, discussed the food supply from that country, and effectively criticised the manner in which frozen meat is handled on arrival in this country. I hope his remarks will be taken to heart by those concerned. The medical inspection of school children was also discussed, the president recalling that when he advocated this 30 years ago he was laughed at. Every parent, he thinks, should keep a life-chart of each child showing its growth, ailments and other points as to its health.

The war against consumption is still being vigorously prosecuted. Since the Edinburgh conference a successful tuberculosis exhibition has been held in Newcastle, and others are to take place throughout the autumn to illustrate the cause, propagation, extent and prevention of the disease. They are the work of the National Society for preventing consumption.

On Saturday last a caravan, built and equipped for the Women's Health Association, started from the Botanic Gardens on a mission to women and girls. The intention is to interest them and the people generally, too, in the importance of personal and domestic hygiene. A modern magic lantern and biograph apparatus will no doubt attract the people, and lectures will be given and leaflets distributed.

When the exhibition was at Liverpool, Sir James Barr gave an address in which he said there was no need for more public sanitoria. The results of these institutions had not been commensurate with their expense. What was wanted most of all was homes for advanced cases which would there be well cared for and kept from infecting others. Let them get plenty of sunshine into every nook and corner of their houses and bacilli would not lurk there. They could not spend too much on their children, but should not burden them with useless book education, but have them taught the nobility of work and how to earn their living. Girls to make good wives and happy homes. Boys to develop strength and character and be good citizens. He admired the boy scouts, who were improving both health and character.

An offer of £1,000 has been made for the distribution throughout the country of posters to instruct the public as to the avoidance of infection and assisting the National Associations' crusade.

Another tragic death has occured in our ranks. A doctor, who had served in Africa, India, Egypt, etc., and afterwards practised here, has committed suicide. It appears that an aged patient under his care had died, and some one had asserted his treatment was not proper. This preyed on his mind. An inquest will be held. At that on the patient, who was 82, it was shown by post-mortem examination that he died from diarrhea.

The outbreak of cerebrospinal meningitis is subsiding, but its considerable extent causes anxiety. A severe case was watched in Leicester Hospital. Dr. Farrar from the Local Government Board after consultation with the medical officers concerned has issued a reassuring statement attributing most of the cases to a mild sporadic form.

Dr. Joseph Nelson, ophthalmic and aural surgeon, Belfast, died on Wednesday. He took his M.D. at the Royal University and L. R. C. P. of Ireland in 1863. He had an adventurous life in the Garibaldi Brigade and in India before settling down in Ulster, where he has been a leader for the last quarter of a century. He had been president of the Ulster Medical Society, and he wrote on tobacco amblyopia.

Mr. Henry Collen Ensor, ophthalmic surgeon to Cardiff Infirmary and the Royal Seamen's Hospital at Cardiff, died on August 23, at 51, after an operation for nasal obstruction.

Dr. Ch. A. S. Dalgleish, late surgeon to the Sunderland and Durham Counties' Eye Infirmary, took his M.D. Dur., in 1892, and subsequently held resident appointments at the Radcliffe Infirmary, Oxford and at Leeds and Newcastle.

The sudden death was reported on Wednesday of Dr. J. Brown Sim, for many years a councillor of the City of Nottingham and a prominent politician as well as physician. He graduated at Glasgow, M.B., 1873: M.D., 1876. He contributed on poisoning by strychnia to the *Lancet* and by savine to the *Glasgow Medical Journal*.

Dr. Thos. Soars, who for nearly 30 years had been coroner for Canterbury, died on Wednesday afternoon, age 69. He conducted an inquest on Monday afternoon, but was seized with apoplexy immediately afterwards and did not fully regain consciousness. He was M.D., St. And., 1882 and M.R.C.S., Eng., 1865.

Dr. Surgeon-General John Lister Paul (retired) died on August 25, age 83. He graduated at Edinburgh in 1848 and joined the Indian Medical Service and served until 1877. He has held various appointments, including the Professorship of Surgery at Madras and Surgeon to the General Hospital.

Another Indian Dr. Surgeon-General (retired), Dr. F. M. Skues, died August 13 of cardiac failure, aged 76.

Dr. I. C. Paley, J.P., a retired Surgeon-Major of Militia, has died at the age of 85. He was M.R.C.S., 1846; M.D., St. Andrews, 1873. He had served in both militia and volunteers and on foreign service at Gibraltar, 1855-6. Was a magistrate for Lancashire.

Progress of Medical Science.

New York Medical Journal, September 10, 1910.

Pustular Typhoid Roseola.—Cary Eggleston reports the case of a boy fourteen years of age who was admitted to the hospital a week after the onset of his illness with symptoms that pointed to a mild attack of typhoid fever. Upon the abdomen and lower part of the chest there were 12 to 15 or more "spots." The majority were small, two or three millimeters across, and quite typical of typhoid rose spots. Several were larger and were capped with small vesicles, containing a clear fluid. Two or three were very large, 10 or 12 millimeters in diameter, and deep rose red at the base, which was infiltrated and somewhat elevated, forming a distinct areola about a central yellow pustule. The pustules were tender on pressure and bore no relation to hair follicles. A number more appeared on each of two succeeding days. The vesicles dried up and disappeared four or five days after the rose spots faded. Cultures from the pus developed a pure growth of *Staphylococcus aureus*. The patient suffered a relapse but made a rapid and complete recovery. The writer, after a diligent search of literature, finds that Cabiran reports one case of a varioloform eruption in typhoid fever; Alexander reports one case, and Birnbaum three cases, all of which were mild and the patients recovered. The cases of Birnbaum have features in common with the case reported. They all occurred in children, the cultural findings from the pus were not uniform, and in no case were typhoid bacilli found in the pustules, in each case there was a definite de-

velopment of the pustules from existing rose spots. From the few cases reported it seems possible that the development of pustules is due to a secondary local infection by one or another pyogenic organism and not to a pyogenic action of the typhoid bacillus. Whatever the cause the phenomenon is one of the rarest complications of typhoid fever.

Treatment of Phthisis by Immobilization of Portions of the Trunk.—B. G. R. Williams directs attention to the fact that as tuberculous disease progresses, the chest wall becomes fixed, causing lagging locally over the tuberculous process and later diminished expansion; and it is thus that the part involved fails to be aerated properly and this part of the lung suffers from local asphyxia, giving the bacilli a better hold, and making more rigid those portions of the chest wall immediately external. Taking the pathology of the disease into consideration, the author has devised a treatment based upon principles well known in the mechanics of respiration. During appropriate periods he immobilizes certain portions of the trunk, hoping to effect compensative aeration and pabular nutrition of those portions of the lung involved in the tuberculous process. He endeavors to prove that an increase of local aeration of lung tissue, diseased or normal, is possible; and has collected the opinions of well-known physiologists in regard to compensatory respiration. The author finds adhesive plaster a convenient aid in effecting immobilization and describes some of the methods in which it may be applied. He applies the immobilization during certain hours of the day only, and to facilitate matters he leaves the plasters in position and laces them up during the time when immobilization seems desirable. He emphasizes the value of any apparatus which will limit diaphragmatic descension in any patient suffering from tuberculous involvement of both apices. The practical application of a measure of this kind requires for its success more than ordinary diagnostic ability; each tuberculous chest becomes a study in itself, and until the ordinary physician becomes a keen diagnostician he suggests double strapping of the bases or the abdominal binder during certain hours daily in all suspected incipient cases. The author believes that this method may shorten the period of treatment in certain cases having a fairly good resistant power. Those of the habitus phthisicus can scarcely expect so much from the treatment; influences diminishing the proper amount of tidal air or retarding the circulation cannot be readily overcome by any mechanical treatment. The author urges others to investigate along these lines.

A Study of Functional Exercises in Some Nervous Diseases.—By "functional exercises," William Burdick means the accomplishment of acts that are done by a normal individual in his daily life, and says that these differ somewhat for each individual according to his vocation in life. The exercises that the author uses are based upon Frenkel's, more often modified and simplified than made more complex. In most cases locomotion has been the end desired, but to bring this about has required the learning of details one has probably never considered as entering into walking. The greatest danger in connection with the exercises is that of causing fatigue to the nerves. Successful results depend upon perseverance, intelligence, and the condition of the patient. The theory upon which the author works is that frequently repeated exercises done voluntarily teach the cortex of the brain to control and direct the act. The treatment of twenty cases, which includes seven of tabetic ataxia, three of paralysis agitans, two of combined sclerosis, one of multiple sclerosis, two of hemiplegia, two of anterior poliomyelitis, one of multiple neuritis, one of diffuse degeneration of the spinal cord, and two of spinal lesions undiagnosticated lead the author to conclude as follows: (1) In no case has there been a failure to better the difficulties of movement; even though the betterment might be slight it was such as to make one believe more and more in the possibilities of exercise. (2) Better coordination can be secured. (3) Exercise will, if unable to overcome the effects of the lesion, be able to teach other muscles to do the work vicariously. (4) These exercises apparently retard the progress of the disease.

Journal of the American Medical Association, September 10, 1910.

The Diagnosis of Leprosy.—Isadore Dyer and Ralph Hopkins regard it as highly important that the cardinal symptoms of leprosy should be learned by the officers of the public health so that the importation of leprosy may stop. This does not require any more legislation, but more education of port physicians. The salient points in the diagnosis of leprosy consist in the recognition of the stamp of the disease, which is always suggested by the dusky hue, the swollen skin, the overhanging eyebrows, and the raucous voice. The hands, too, have thinned epidermis and an altered color that is different from that in any other disease. The presence of tubercles in the skin of the face, at the lips, and about the nose, with others in the pendulous parts of the ears, should make a case suspicious. There are only two conditions which at all resemble tuberculous leprosy, iodism and disseminated tuberculosis cutis. The first-named condition is seldom seen in the areas common to leprosy and the nodules of iodism are highly inflammatory and ready to break down. With tuberculosis of the skin, the lesions are numerous, small and deep-seated, under the epidermis as a rule. They seldom assume a reddened hue. Moreover, this condition on the face is unusual and the lesions are apt to occur bilaterally and symmetrically. The writers suggest that physicians should report cases of leprosy occurring under their observation in order that the actual occurrence of the disease in the United States may be studied and statistics derived which may be of value in establishing an institution for the care of leprosy under governmental control and expense.

Significance of Edema of the Soft Palate.—Lewis S. Somers says that edema of the soft palate, and especially of the uvula, while an apparently trivial symptom, may be the expression of a serious affection. The most frequent and trivial type is that caused by excessive use of the voice. It may be associated with general affections, as rheumatism, grip, etc., or with local affections, as peritonsillar abscess. Again, edema may occur as the direct result of traumatism, such as is caused by operations in this region and the application of the cautery to the tonsils; or it may occur in association with ulcerative processes of the mouth and pharynx. In some cases edema is a prodromal symptom of acute articular rheumatism and it is nearly always an accompaniment of faucitis, as erysipelas, or septic infection edema of the uvula is nearly always an accompaniment. As an indication of serious organic changes in the kidneys, edema of the uvula should arouse suspicion, as it may be the only symptom of approaching uremia. Edema of the uvula is rare in acute nephritis, but occurs in cases of scarlet fever, in which the edematous uvula represents both the virulence of the local infection and the subsequent toxic nephritis. Corrosive poisons may produce this edema. The author discusses the question as to why the uvula should present edema in such a number of conditions. Two factors are especially concerned in the mechanism, traumatism and structure of the uvula.

Pathological Relationship of Ulcer and Carcinoma of the Alimentary Canal.—Louis Blanchard Wilson and Byrd Charles Willis make a brief statement of the present views of the relation of chronic irritation to the development of carcinoma in general. The alimentary canal was a difficult field of observation before the period of abdominal surgery. Views of the presurgical period still linger. They offer the following conclusions:

1. The relationship to cancer of simple chronic irritation of the unbroken free surface of the mucosa of the alimentary canal, as indicated by clinical data, is not readily demonstrable pathologically. 2. Scar tissue at the bases of ulcers, obliterations of the lumina of appendices, and diverticula segregate portions of mucous epithelium from the neighboring epithelium and from the lumen of the alimentary canal. 3. These portions of segregated mucous epithelium tend (a) to degenerate from pressure and diminished blood-supply, or (b) to proliferate and infiltrate the surrounding tissues, thus forming cancer. 4. These islands of segregated epithelium probably should be regarded as points of least resistance only, and requiring the presence of other factors for the production of carcinomata.

The Bronchoscopic Treatment of Bronchial Asthma.—Henry Horn briefly reports three cases of bronchial asthma (Notowny's) in which the treatment consisted in swabbing the mucous membrane of the bronchial tubes with a 20 per cent. solution of cocaine, containing a few drops of adrenalin; he also reports two cases (Galebsky's). These five cases were all that he could find in the literature. He reports one of his own cases in detail and offers the following:

Combining and comparing his results with those of Notowny and Galebsky, he thinks that he is justified in drawing the following conclusions: 1. It is possible in a young adult to have an almost complete closure of a main bronchus, due to a tonic cramp. 2. Notowny's conclusion that the theory of bronchial spasm is false is disproved in this case. 3. The complete cures in some cases and the long period of relief in this case seems to indicate

that the treatment of spasmodic asthma by the methods elaborated in this paper is worthy of more extended investigation and should be given a trial when all other methods have proven of no avail. 4. There seems to be no one bronchoscopic picture characteristic for an attack of spasmodic asthma. We may have normal mucous membrane, spasms and contractions of the large and small bronchi, and redness and swelling, alone or combined in the same case. 5. Tuberculosis, heart disease, slightly scoliotic spine, great weakness, and age seem to offer no contraindication to the use of this method.

Agar-Agar in the Treatment of Constipation in Children.—John Lovett Morse concludes that agar-agar is useful in children, as in adults, in the treatment of the type of constipation associated with small, dry stools. It is harmless and in many instances gives most satisfactory results.

Climatic Treatment of Pellagra.—In a preliminary report C. C. Bass states that all writers on pellagra seem to agree that it is a disease of warm countries and of the warm season; that patients with the disease usually improve at once when cold weather sets in, and that many of them never show further evidence of the disease. He has sent five patients to Colorado and two patients to Tennessee and all have been symptomatically relieved. This preliminary report is published in order to suggest the treatment for the benefit of the August and September crop of cases.

The Lancet, September 3, 1910.

A Report on Twenty Cases Treated with Ehrlich's Specific for Syphilis.—J. E. R. McDonagh at the request of Professor Ehrlich used only intramuscular injections, employing doses ranging from 0.3 to 0.6 of a gram of dioxydiamidoarsenobenzol, or Ehrlich-Hata preparation No. 606. The preparation is only stable as a bichloride, and as it must not be injected in the form of a double salt, it is converted into a mono- or a bi-sodium salt by the addition of sodium hydrate just before using. An emulsion is formed which makes it necessary to use a large needle. If the solution is neutralized the pain is greatly lessened. The author describes the method of neutralizing the preparation and the details of making the injections. It seems from the few cases treated that the earlier the syphilis the larger the dose required. If after an injection the rash becomes more profuse, the dose has been too small. It was the general rule for the temperature to rise to 100° F. on the night of the injection, and to become normal after four hours; sometimes the fever persisted to the third day, but only in those cases which had some toxic edema. In only one case was any albumin found after the injection, and in this case it was transient. In almost every case an induration could be felt in both buttocks at the seat of the injection, which is probably due to a fibrosis caused by the caustic action of the sodium hydrate, and it remains for time to tell whether these indurations will disappear. At any rate they produced no discomfort. Beyond the improvement noted with the naked eye, there was an extraordinary change for the better in almost every patient's general condition. They felt better and put on weight; this is a great achievement, since nearly every patient becomes depressed, anemic, and loses weight under mercurial treatment. It seems that the severer the case the quicker the action. A few cases of recurrence of symptoms have occurred and it is an open question whether the injection can be repeated and have the same action or not. The author believes that they are on the right road to find an absolute cure for a disease which is a curse to humanity.

Influence of the New Ehrlich Preparation, Dioxydiamidoarsenabenzol (606), on Recurrent Fever in Rats.—James McIntosh describes his experiments on rats which were undertaken with the idea of investigating the value of this new remedy as a curative agent in an infection provoked by the *Spirochæta obermeiri*. When a rat whose blood contains a considerable number of spirochetes is given a therapeutic dose of dioxydiamidoarsenobenzol, no diminution in the number of parasites is observed until some six hours later. The spirochetes then gradually disappear from the circulation, and in 18 to 24 hours have completely disappeared. In every case treated the same result was observed, whether it was the first, second, or third day of the infection, and in no instance did a relapse occur in any of the treated animals. The preventive action of this agent, like that of most chemical-therapeutic remedies, is slight though it is greater than that of atoxyl in the case of spirollose in fowls. Rats which have received an injection of "606" at the same time as the virus are found to have developed a complete immunity to the disease. Of several rats thus treated only one was found not to have become immune to a reinoculation. The chance of any toxic effects occurring in the employment of a therapeutic dose of "606" is extremely remote as the *dosis maxima bene tolerata* is six times as great as the *dosis curativa*. It may be said that dioxydiamidoarsenobenzol is a specific remedy for European relapsing fever, and no doubt will be equally efficient in other spirochetoses.

The Value of Ossiculectomy in Chronic Middle Ear Suppuration, as a Means of Avoiding the Complete Mastoid Operation.—Hunter F. Tod has performed this operation in over 120 cases; of these he has been able to verify results in a little over 50 cases. A brief summary of these cases shows that in 52 per cent. the ear is now dry and all signs of suppuration have ceased. In 30 per cent. the discharge is mucopurulent in character, and in almost every case is due to infection through the Eustachian tube. In 10 per cent. it is impossible to say whether the mastoid operation will be necessary. On comparing the operation of ossiculectomy with the complete mastoid operation, the following points may be mentioned. In favor of ossiculectomy: 1. The large number of cases which can be cured or in which the mastoid operation may be avoided; 2. The large proportion in which a good result is obtained with regard to the hearing power; 3. The slight inconvenience of the operation to the patient and the short duration of the after-treatment. As against ossiculectomy it has been urged that in many cases the mastoid operation eventually may become necessary, even although an apparent cure or cessation of the discharge may be obtained for a short time after ossiculectomy has been performed; and also that the minor operation does not render the patient completely free from further risk of intracranial complications. With this he does not agree and the cases reported support his contention.

Iso-Hemolysis in Relation to Cancer.—Harold Upcott concludes that it is evident that the possession of isohemolysis is very far from being pathognomonic of cancer. But then very few signs of the disease in its curable stages will bear this interpretation. A reaction which is positive in 50 per cent. of patients with cancer deserves to be weighed in the balance with other facts in the endeavor to arrive at a diagnosis. The only other conditions likely to be confounded with cancer in which hemolysis is frequently met with are tuberculosis and pernicious anemia, especially the former. In such cases, if hemolysis is proved, it is possible that one of the forms of tuberculin reaction would be of value. A negative hemolytic reaction can, of course, carry no weight.

British Medical Journal, September 3, 1910.

The Spread of Cancer Among the Descendants of the Liberated Africans or Creoles of Sierra Leone.—W. Renner has had his attention called to the increasing number of cases of cancer of various organs, especially of the breast, that have come under his observation in recent years, particularly among the descendants of the liberated Africans. An examination of hospital records and of those of medical practitioners would show that within the last forty years cancer has been spreading rapidly among these creoles. While it cannot be positively stated that cancer is absent from among the aborigines, it is certainly extremely rare, and this fact suggests that the adoption by the creoles of the civilized habits of Europeans is responsible for the increase of cancer. It is noticeable that the aborigines eat little meat and, living in the tropics, do not need this article of diet. On the other hand, the creoles have become meat eaters like the Europeans. The teeth of the creoles also show degeneration, which may be attributed to the use of European articles of diet, as saccharines, preserves, and sweets. If this tendency is not checked epithelioma of the tongue is liable to become as common in the course of fifty years as cancer of the breast is at present in this colony. A comparison of the Sierra Leone creoles who have adopted European customs with the Fantis, or natives of the Gold Coast, who have never taken kindly to civilized customs, although they have been in contact with civilization for several centuries, and among whom cancer is rare, offers further argument in favor of the theory that civilization among these peoples is responsible for the increase of the cancer scourge.

One Cause of Cancer as Illustrated by Epithelioma in Kashmir.—Ernest F. Neve states that during twenty-five years, of 4,902 tumors removed by operation in the Kashmir Mission Hospital, not less than 1,720 were malignant and of these 1,189 were epitheliomatous and 848 were on the thighs or abdomen and were due to the irritation of the kangri, a portable fire-basket, carried by the people under their clothes. The disease is twice as common in

men as in women and is extremely rare under the age of forty. The kangri burn cancer is a typical squamous-celled epithelioma. In the early stages the malignancy is slight, too slow to infect glands, and is very amenable to operation. In late cases deep glands are involved, and in many cases, owing to adhesions and brawny infiltration of the skin and cellular tissue it is inoperable. In many cases its origin is in scar tissue. It is demonstrably due to the irritation from the constant application of heat. In this respect it is similar to other epitheliomata resulting from mechanical, chemical, or thermal irritation. The nature of the cause is opposed to a parasitic theory of origin, and favors a trophic theory of cancer.

Gutta-Percha Tissue for Dressing Wounds.—J. R. Rigden Trist has obtained very satisfactory results by means of a gutta-percha dressing and thinks it well suited to the general practitioner. The method that he uses is as follows: (1) Cut off a piece of gutta-percha tissue of the required size and lay it in a tray of spirit. (2) Disinfect the hand, cleanse the wound, put in stitches, and arrest bleeding by presence of a swab wrung out of spirit. (3) Lift the gutta-percha dressing by one corner with forceps, and allow the spirit to drain off. (4) Lay the dressing upon the wound, and apply a pad of wool and bandage. At the beginning of the third day inspect the wound through the gutta-percha dressing and again on the fifth day without removing the gutta-percha if the wound remains clean. The wound need not be disturbed until the eighth or tenth day, when the stitches are removed and a similar dressing applied and kept in place until cicatrization has sufficiently advanced to eliminate the danger of infection.

Recovery from Arylarsonate Poisoning.—R. Lynn Heard announces the recovery of a case of arylarsonate poisoning which he reported in the *Journal* of March 19. Charles Wray, seeing that report, wrote suggesting the administration of large quantities of water daily as well as of electricity to the temples, of a strength sufficient to produce subjective flashes of light. The patient took from 90 to 100 ounces of water daily, and for ten weeks a constant current of from three to ten milliamperes was applied almost daily for from four to six minutes with an electrode on each temple. The current was usually reversed once or twice. The patient's vision has steadily improved and he has gained in weight and is doing very well.

Berliner klinische Wochenschrift, August 20, 1910.

Protective Inoculation Against Cholera.—Aaser of Christiania had his interest in this subject aroused by the Russian epidemic, and as a member of the staff of the Hospital for Epidemic Diseases, made preparations for immunizing as well as other steps in prophylaxis against cholera. As far back as 1908 he had immunized the attendants in the hospital by Haffkine's method. He procured virulent cultures from Berlin and inoculated the 31 attendants of all kinds who came in contact with cholera cases whenever the latter were admitted. Locally edema was produced; inwardly fever, prostration, somnolence, nausea, headache. This picture of toxemia varied within wide limits. The local symptoms came on in about four hours, and disappeared in from one to two days. The general symptoms appeared later and were also of brief duration. The site of injection was the loose cellular tissue beneath the costal arches. Blood tests, made according to several standards, showed that bactericidal immunizing substances were formed in that fluid which behaved also as agglutinins. This bactericidal power lasts for over a year. Repetition of inoculation adds little or nothing to the protection. The cultures, as already stated, were received living and virulent, passed through guinea pigs, and diluted with saline solution to the desired degree; the bacilli were then destroyed, along with any other germ life, by heat, and carbolic acid added as a preservative.

Duodenal Feeding.—Einhorn of New York has thus far employed this new resource in three cases. He first demonstrated it to the staff of the German Hospital, New York, in February of this year, and one of his cases was treated after that period. Such a method is naturally aided by radiography in demonstrating that the feeding tube is actually in the duodenum. The entire apparatus employed is known as the duodenal pump. The thin narrow tube may be retained in the digestive tract for 10 or 12 days without discomfort, and the patient may be nourished in two-hour intervals. The tube is evidently first swallowed by the patient and then allowed to find its own way into the duodenum. Two or three hours may be required for this purpose. The tube is aspirated from time to time and the presence of an alkaline reaction, bile, and pancreatic enzymes gives evidence that it has reached its destination. The food administered consisted of milk, egg in a fluid state, and lactose. The method will prove useful in complete rejection of food by the stomach, with unsatisfactory results from rectal feeding.

Catheter Cystitis (Hemorrhagic) After Operations on the Rectum.—Hadda, assistant of Prof. Gottstein of Breslau, in a brief communication, seeks to place on record the fact that patients subjected to operations on the anus and rectum are more prone than others to catheter cystitis which has a special tendency to assume the hemorrhagic type. This can hardly be an accidental form of postoperative cystitis, but is doubtless *sui generis*, dependent in all probability on thromboses in the region of the veins of the bladder.

Syphilis Transmitted to Guinea Pigs.—Truffi of Prof. Ascoli's laboratory writes briefly on this subject. We read much about rabbit syphilis, but it is not known generally that guinea pigs may be inoculated with the disease. Transmission to the latter is far more uncertain, and the lesions caused (in the scrotum) would hardly have been called specific before the discovery of the spirochete. With increasing development of technique the author has produced much more characteristic lesions; so that the guinea pig's tissues are no less susceptible than those of the rabbit in positive results. At the same time, as already stated, negative results are considerably more frequent. Thus far guinea pigs have been inoculated from rabbit lesions only. It has been impossible to inoculate a rabbit from a guinea pig or one guinea pig from another.

Münchener medizinische Wochenschrift, August 16 *and* 31, 1910.

Oehler's Symptom in Intermittent Limp.—Goldflam refers to a recent article by Erb on this subject, which gives credit to Oehler for the isolation of a new symptom. Many articles on intermittent claudication refer solely to the lower extremity, which is natural if not inevitable as long as the word limp or any of its synonyms is used. In quite recent years a general term dyskinesia intermittens has been made to comprehend both extremities, upper as well as lower. Oehler was apparently the first to describe this condition in the arm (1907), and should have set about to find some diagnostic symptom which would prove the identity of the disease in the two extremities. However, he did no more than mention a sudden pallor and coldness of the hands, which set in when a pavement rammer was lifted and dropped. Hence, the author thinks that Oehler's name should hardly be coupled with the symptom, because he did not extend his research. The article attracted no attention outside of Germany. Oehler even neglected to test sound subjects for the presence or absence of this symptom. Parkes Weber of England (1908) noted the coldness and pallor of the feet in intermittent limp after flexion and extension at the ankle. The author, in a paper published this year, following prolonged research, was able to find the phenomenon in incipient and latent limp, but later he discovered it in healthy subjects and decided that it has an essential physiological basis. A paper by Janowski, as yet unpublished, which is made up of sphygmographic and tonometric studies, will, it is stated, demonstrate the physiological nature of this sudden pallor of the extremities during certain muscular activities.

Nösske's Procedure in Threatened Traumatic Gangrene of the Extremities.—Erkes states that in 1909 Prof. Nösske of Kiel saved the crushed terminal phalanx of a finger by a very simple procedure. The author soon afterward found an opportunity to test it. A laborer had caught the index and middle fingers of the right hand in a machine. The end phalanges of both fingers hung by bridges of skin, all other structures having been divided. The pulp of the fingers was incised to permit the escape of the venous blood. A suction cup was now applied for 15 minutes to the cold, blue, and insensible members: in other words, Bier's hyperemia was applied in a form suited to the occasion. The fingers were then left in their natural position with an aseptic dry dressing. The next day the parts appeared unchanged, and the treatment was repeated. The dressing was removed after four days, when the phalanges were found of normal color and sensitiveness to needle pricks. The dressings were now changed every third day, and the hand bathed in hot water. Six weeks later patient was found to have perfect functional recovery, with anatomical recovery complete save for minimal interference with flexion at the terminal joints.

Apyretic Action of Koch's Original Tuberculin in Tuberculosis.—Engel, a practitioner in Egypt, calls attention to three cases in which this substance unexpectedly caused permanent defervescence in consumptive

patients. The cases are simply given for what they may be worth, and there are no claims made beyond one that there must be specific curative properties in tuberculin which have not yet been reduced to formulæ. As yet we cannot determine in advance to whom, when, and in what dosage the drug should be given. Thus the author in obtaining his results gave high reactive doses, although these are generally regarded as pernicious as far as therapy goes. The defervescence was not due to direct antipyresis, but to the general improvement. The initial dose was not large but the quantities were pushed until the reaction point.

Technique of the Ehrlich-Hata Remedy in Syphilis.—Alt of Uchtspringe, who has shown himself not oversanguine as to certain claims of the enthusiastic partisans of "606," ridicules the recent attempts of those who seek to make the injection less irritating and states that every one of the so-called modifications was tested by Ehrlich himself before putting the remedy into circulation. It must be remembered that Alt was one of the first to use the remedy, and was in Ehrlich's confidence before the "606" was made public. Therefore as far as technique goes he claims that Ehrlich's original acid solution is the best for intramuscular injection. He is also averse to doubling the dose originally fixed by Ehrlich; and otherwise appears to believe that the new remedy is in some danger at the hands of its friends. He thinks it well to combine "606" with mercurials in some cases; and believes that the older Ehrlich remedy, arsenophenylglycin, is of superior value in late syphilis. We have not yet learned just what becomes of the intramuscularly injected arsenobenzol substance. Alt was enabled to show by autopsies that much remains at the site of injection. Hence repetition of injections might lead to cumulative poisoning. Despite increase in dosage the destruction of the spirochetes is not hastened. Alt is in favor of making the first injection intravenous. Then if the disease reappears he would use an intramuscular injection.

Radicular Sciatica.—Stursberg would isolate a form of sciatica under the name of "Wurzelischias." Several distinct localizations appear to give rise to the clinical picture of sciatica. One of these is limited to inflammation or to some other local affection of the nerve roots. The roots involved include in all probability not only those of the sacral medulla, but those of the superposed lumbar cord. Certain authors have separated syphilitic affections of these roots from ordinary sciatica. The author appears to isolate his clinical cases of "Wurzelischias" by the anomalies of sensation referable to the various segmental levels. In certain cases he even believes that the dorsal roots may participate, and illustrates a case in which the 11th and 12th dorsal roots appear to have been involved in a general radicular sciatica extending from the 11th dorsal to the last sacral root. The significance of these localizations from the standpoint of therapy is marked. Lumbar puncture and heat over the loins would be indicated.

Sterilization of Woman by Röntgen-Rays.—Görl has had this subject under advice for four years. In 1906 he treated a hemophilic woman for myomatous uterus. The woman was 40 years old. Therefore there were two fundamental elements present, viz., inoperable tumor and a woman practically at the child-bearing limit. The patient was sterilized by *x*-rays and ceased to menstruate. The myoma slowly resolved. Since that epoch the author has treated eight other women with the aim of sterilization. Two may be eliminated because of faulty attendance, the results being incomplete or doubtful. Two were sterilized in from 15 to 18 exposures, but the age was critical (54 and 55). One woman, aged 42, is still under treatment. The preceding represent the questionable results. Three cases remain which approximate the original in type. The women were relatively young and suffered from conditions which rendered the myomata inoperable. The röntgenization appears to have produced sterilization, but the number of exposures required (85 in one case) was very large. The author is not backward in admitting that some of the general improvement in these cases may have been due to suggestion. The treatment is essentially hemostatic, directed to checking the uterine hemorrhage through action on the ovary and uterus. The myoma need not necessarily undergo involution. The heart (myoma-heart) appears to profit by the treatment. The treatment is harmless to other tissues. The author concludes that the chief indications for röntgen sterilization are menorrhagias which result from disease of the uterus itself (myoma), the heart or kidney, whenever, for any reason, it is inexpedient to do hysterectomy.

Deutsche medizinische Wochenschrift, August 25, 1910.

Relative Resistance to Quinine in the Malaria of Brazil.—Nocht and Werner, army physicians in Brazil, report that in the interior of that country they found cases of malaria in which the parasite was extremely resistant to the action of quinine. More than double doses of the latter failed to prevent the relapses which should be controlled by a course of the alkaloid. The same type of the disease has also resisted other antimalarics, as methylene blue and the Ehrlich-Hata preparation. The latter produced a temporary benefit in the single injection, and one apparent cure, but the authors were evidently loath to push it. The matter is still under consideration. The clinical type of the disease is not peculiar, and the parasite, save perhaps for abnormally small division forms and other irregularities, appeared to be of the typical species.

Disinfection of the Operative Field by Tincture of Iodine.—Müller finds the new method of Grossich far superior to all other methods in disinfecting an operative field. That is to say, he prefers it to soap and water, alcohol, ether, or sublimate. It is not to be used without a full aseptic technique, but is naturally indicated in cases in which the skin over an infected area is itself badly infected, as in an open felon. Cases occur in which the skin to be divided is accidentally the seat of some purulent affection. Further, in traumatisms from machinery and the like it has special advantages. In routine work, when no special urgency exists, the skin is shaved and washed and 10 per cent. tincture of iodine painted on thickly. A second coating is applied 5 or 10 minutes after the first. The operation may be begun 20 minutes after the original application. The tincture should not be allowed to come in contact with prolapsed intestines. In the preliminary washing soap should not be used, the razor being used dry and the water plain. According to Grossich the softening action of soap on the epidermis causes the iodine to sink in too deeply. In other words, the iodine must be applied to the skin when the latter is in a natural state or the seat of an infection. The older remedies all produce specific alterations of the skin in connection with the germicidal action which are more or less disadvantageous. Iodine also produces an effect on the skin, but one which is not a drawback. It is always ready for application, may be applied instantly to the most infected or injured surface, exerts its antiseptic action in a few minutes, and may be depended on. It is especially useful in military surgery. The author admits that it sometimes causes dermatitis and even an outlying affection of the skin of an erysipeloid character, the latter lasting but 12 hours or thereabout. The iodine dermatitis is to be controlled by powdering with zinc oxide. The course of healing is never disturbed by it. Iodine pigmentation is a serious drawback from a cosmetic standpoint. These disadvantages seem to prohibit its routine use in civil practice at least among the well to do, and to a certain extent among women and children.

Alcohol in Hand Disinfection.—Selter believes that alcohol is the ideal and practically a self-sufficient disinfectant for the surgeon's hands. Soap and water are merely accessories, for in macerating the upper layers of the epidermis they merely pave the way for a deeper action of the alcohol. He avoids the use of water altogether by combining 86 parts of alcohol to 14 parts of a hard soap. This forms a firm paste, and if 20 grams of this are rubbed thoroughly into the hands for the space of five minutes we obtain an ideal disinfection. The author's claims are backed up by the usual tables of germ content, the disinfection being estimated in percentages. Thus from 97 per cent. to 99 per cent. of germs were destroyed in their usual lodging places about the nails.

Ulceration of the Frenum Linguæ in Whooping-Cough.—E. Apert mentions a symptom of whooping-cough that he considers almost pathognomonic, and which occurs in about 50 per cent. of the cases observed by him. This is a superficial ulceration of the frenum linguae, generally linear, and which on scraping gives a grayish mass consisting of epithelial cells, and multitudes of leptothrix germs. It is situated in the median line and on the free border of the frenum. Of 252 cases seen by the author, this ulceration occurred in 111; in 105 it occupied the classical point on the frenum. Exceptionally there is the formation of a false membrane. This ulceration appears in the second or third week of the disease, sometimes as late as the seventh or eighth week. Two theories have been given as to its causation: first, that it is due to friction of irregular incisor teeth; second, that it is a specific ulceration. The truth seems to be between the two opinions.—*Le Bulletin Médical.*

Society Reports.

AMERICAN PUBLIC HEALTH ASSOCIATION.

Thirty-eighth Annual Meeting, Held at Milwaukee, Wisconsin, September 6, 7, 8 and 9, 1910.

THE PRESIDENT, DR. CHARLES O. PROBST OF COLUMBUS, OHIO, IN THE CHAIR.

Report of the Joint Committee on Mailing Infectious Material.—Dr. JOHN F. ANDERSON of Washington, D. C., said that the proposed modifications of the regulations of the mailing of infectious material had finally been promulgated by the postoffice department under date of April 22, 1910. The committee believed that its efforts had resulted in the promulgation of regulations which were a decided improvement over those formerly enforced. The regulations had been considerably simplified. The committee was successful in having the privileges of the mails for the transmission of infectious material extended to include Federal, State, municipal and other laboratories upon the issuance of a formal permit by the Postmaster-General. The report of the committee was accepted, and the committee discharged.

Studies on Self-Purification of Streams.—Dr. G. F. RUEDIGER, Grand Forks, North Dakota, detailed a series of experiments on this subject, and then presented the following conclusions: Colon bacilli and typhoid bacilli disappeared much more rapidly from polluted river water during the summer months than during the winter months when the river was covered with ice and snow. The destruction of these organisms in the river water during the summer months was in a large measure due to the growth of microscopic plants and other organisms which apparently gave off dialyzable substances which were harmful to the *Bacillus coli* and *Bacillus typhosus*. That such substances were given off by the saprophytic bacteria was clearly shown by Frost several years ago, and his experiments simply confirmed Frost's by attacking the problem in a slightly different way. These effects were lost in the winter as no growth took place after 0 °C. The direct rays of the sun also were an important factor and their effects were entirely lost when the river was covered with a thick layer of ice and snow. The practical value of this investigation was very evident. It explained why some of the northern cities where sewage polluted river water was used in the water-works system were more frequently troubled with outbreaks of typhoid fever during the winter months. This was illustrated at Minneapolis last winter, and he believed was true at Lawrence, Mass., before the installation of the filter. When bacteriological analyses of sewage polluted river water were to be made at the site of a proposed water-works intake pipe, it was important that samples should be collected and analyzed both in the winter and in the summer. Analyses of samples collected during the summer did not give reliable information in regard to the condition of that water when the river was covered with ice and snow. The analyses showed that the pathogenic bacteria from the sewage traveled several times as far in the water under the ice, before they were destroyed, as they would in an open river during warm weather.

Dr. H. W. HILL of Minneapolis, Minn., said the experiments which they undertook confirmed in every way the observations and conclusions of the essayist regarding winter river typhoid and summer typhoid. They had found that typhoid bacilli might die out in going down the river in summer under conditions where they would exist during the winter.

Dr. PETER H. BRYCE of Ottawa, Canada, said he noticed in connection with the paper the author seemingly did not take into account the question of sedimentation during the two days in the river. They all remembered Pettenfoker's tests long ago at Munich showed about ninety per cent. of all bacteria in water by dilution and by sedimentation had disappeared within a distance of ten miles.

Dr. E. C. LEVY of Richmond, Virginia, said at the Winnipeg meeting of this association Dr. Freeman and he presented a joint paper on typhoid fever in the South, with special reference to the disease in Richmond. In that paper they brought out the point which had been explained to-day, but made no attempt to explain why it was water-borne typhoid was especially a disease of winter months, but they proved to their satisfaction that such was the case. Their opinion was arrived at purely and simply from an epidemiological standpoint. They had no laboratory facts to corroborate this. During the years since that time their views had been confirmed in every way to such an extent that in Richmond, after they had passed the winter months, they did not worry about water typhoid.

Dr. RUEDIGER stated he should like to say a word with reference to sedimentation, which was referred to by Dr. Bryce. He did not think the factor of sedimentation would alter the experiments in any way; so far as he could see, there would be as much sedimentation in winter as in summer. This factor need not be considered in this particular study. Another study might be based on the factor of sedimentation, which he believed would be the same in summer as in winter.

The Sanitary Registration of Houses in Mexico.—Dr. JESÚS E. MONJARAS of Mexico City said the Board of Health in Mexico had made great progress in the sanitary records in that city. The plan of the city showed the houses in which persons had died of tuberculosis. Each house was shown on the plan by a number which corresponded to the number of cases observed in that house, and each one had its separate file containing all the details of cases as well as the work which had been ordered to improve the sanitary conditions of the houses. With this plan they were able to show the number of deaths caused by tuberculosis or any of its allied affections from the year 1891, with the ages and sex of those who died, and the wards in the City of Mexico in which those deaths were recorded. The sanitary registry of the houses, therefore, constituted a necessary institution in all cities by the aid of which the sanitary and municipal authorities, as well as the general public, could obtain easy and certain knowledge of the houses which constituted foci of infection.

Dr. FREDERICK TORRALBAS of Havana, Cuba, stated the work the essayist had described had been carried on in Havana for some years. It was the duty of the sanitary inspector to cover the complete history of houses. An inspection was made of from 1,800 to 2,000 houses a day, so that cases of tuberculosis were easily traced.

Sanitation of Bakeries and Restaurant Kitchens.—Mr. CHARLES B. BALL of Chicago said that in their experience with bakeries and restaurant kitchens they were led to the conclusion that new installations of restaurant kitchens were required. Ample space must be provided in which the employees might perform the various operations. The contingency of expansion at a future date should be considered, as the tendency to enlarge the dining room, without providing additional kitchen facilities, was found in a great many cases. The arrangement of the various appliances in their relation to each other should insure the isolation of dishwashing and garbage storage from the handling of food. Adequate provision must be made for the removal of cooking odors, not alone from the ranges, but also from vegetable boilers, so as to avoid nuisance in other parts of the building and in the neighborhood. The Underwriters' Association now required that ventilation ducts from large ranges be built of heavy iron plate and carried through the top of the building without any other connections, so that the grease and soot may be burned out

of them as from a chimney flue, without incurring fire danger to other rooms. Ample toilet facilities and washrooms, separate for each sex and apart from those provided for the public, must be furnished. The wash-basins should be located outside of the toilet rooms in order that it might be apparent to those in charge that the hands are cleansed after leaving the toilets. Proper locker rooms, with exceptional means of ventilation, must be provided in order to avoid the nuisance of the storage of either street or working clothes in tightly closed cupboards. Well-ventilated refrigerators were required in numbers sufficient to afford separation for the different classes of food and especially for milk and butter. The best examples of the application of these rules of design to new bakeshops and kitchens were to be found in upper stories, preferably the top story, of certain high buildings. Such installations of superior type were at present by no means rare.

Practical Methods of Supervising the Milk Supply of Cities.—Mr. J. Bosley Thomas of Baltimore discussed permits for the sale of milk and cream; methods of keeping records; collecting samples and recording results; methods of transporting and delivering milk; communicable diseases, diseases in houses where milk was delivered in bottles; bovine tuberculosis; supervision of dairy farms; butter-fats standards, and said that while there were many admirable methods used by various authorities in the administrative control of the milk supply, there was little or no standardization of these methods. It, therefore, seemed advisable that some representative society or body should appoint a committee to establish or recommend standard practical methods that would be capable of universal use.

Saving Children from Milk-Borne Diseases.—Mr. Nathan Straus of New York said that the old city of New York, now the Borough of Manhattan, had established a new record in the saving of the lives of babies. Notwithstanding unusually severe periods of intensely hot weather the past summer, there had been fewer deaths of children under five years than in any preceding summer, and for the first time in the history of the city the summer mortality had fallen to a rate less than 50 per thousand per annum. When he first undertook to protect the babies of New York from milk-borne diseases by supplying pasteurized modified milk in 1892, the summer saw the dying of 6,612 children under five years, making a rate per thousand per annum 136.1. With the steadily increasing use of pasteurized milk there had been a steady decline in infant mortality, until the summer just ended showed only 3,900 deaths in a population of children larger by 125,000 than that of 1892. In other words, in 1892, 064 children out of every 1,000 survived the summer, while in 1910 there were 988 who escaped death out of each thousand. In his practical experience the saving of children from milk-borne diseases warranted the assertion that the pasteurization of milk supplies of our cities, under careful health department supervision, would infalliby reduce the number of cases of infectious diseases and save lives of babies. In no way could this Association save so many mothers from grief and loss of their little ones as by hastening the time when efficient pasteurization would be the rule, and when the milk-borne diseases would be as rare as the plagues that medical science had practically abolished.

At the general meeting of the Association, which was open to the public, addresses of welcome were delivered on behalf of the city of Milwaukee, by Hon. Emil Seidel, Mayor; on behalf of the State of Wisconsin, by Judge William J. Turner, and on behalf of the medical profession, by Dr. W. A. Batchelor.

The responses to these addresses of welcome were made on behalf of the United States by Dr. Richard Lewis, Raleigh, N. C.; on behalf of the Dominion of Canada, by Dr. Frederick Montizambert, Director-General of Public Health, Ottawa, Canada; on behalf of the Republic of Mexico, by Dr. Jesus E. Monjaras, Mexico City, Mexico, and on behalf of the Republic of Cuba, by Dr. Frederic Torralbas, Havana, Cuba.

The Prevention of Mental Defects and Mental Diseases.—Dr. William A. White of Washington, D. C., discussed the preventive principles in the field of mental medicine. The practical things that might be done at once in any community were these: "1. The securing of legislation that places the responsibility for the care of the insane previous to committment in the local health office. 2. Every city of one hundred thousand inhabitants, or over, to have a psychopathic ward connected with its municipal hospital, which is as accessible for the mental case as the other wards are for general medical and surgical cases. This ward should have an out-patient department. 3. The organization of an after-care society to assist persons who have been discharged from a hospital for the insane to get on their feet and to point out to them ways of avoiding the conditions which led to their breakdown. 4. The passage of adequate laws for the control of the labor of women and children. 5. Popular education. By the use of this term I am not merely dealing in a glittering generality that may mean nothing or everything. We have in this country nearly two hundred state hospitals for the care of the insane. These hospitals, each one of them, should be a center of information for the community in which it exists, and its medical officers should use their position to spread information about mental disorders. The superintendent, or a member of the staff, should deliver one or more popular lectures each winter to which the public are invited. Much might be accomplished in this way if all hospitals would do this. 6. Field work from the state hospitals and psychopathic wards as centers to study conditions under which insanity has developed, to furnish assistance to the hospital in dealing with its patients, and to cooperate with the after-care society. 7. More liberal support by city and state of scientific research work in this field, especially along the lines of etiology and prophylaxis.'

The Prevention of Feeblemindedness.—Dr. E. R. Johnstone of Vineland, N. J., stated two or three states had passed laws authorizing the unsexing of certain degenerates after they get in institutions, but please note they had to get in the institution first. He heartily approved of the operation of castration and merely agreed to vasectomy and oophorectomy for want of something better, for after these operations had been performed a fair percentage of the cases might be returned with safety to their homes, and thus make room for others in the institutions, but the ideal way was to gather all of the feebleminded into institutions, and train them in so far as possible to be self-supporting; plenty of industrial occupation and very little academic training. Thirty to fifty per cent. could be made entirely self-supporting after ten years' training. Take the women of childbearing age first and teach them to raise and can small fruits, raise poultry and garden truck, knit underwear, weave rugs, carpets, etc. Then take the others as young as possible and the economic problem came close to solution. He stated they should not talk, but get to work. The numbers were increasing. If they did not care for them in well-conducted training schools where they might learn to contribute toward their own support, they must keep them in almshouses, reformatories, prisons and other institutions, and when they were led into evil ways they had to pay for these patients' arrests, their trial, and the damage they had done. If feeblemindedness was to be checked, they personally must do something.

Preventable Nerosis.—Dr. C. H. Hughes of St. Louis Mo., stated they had heard a great deal of late about the

conservation of forests, which had been a subject of national concern, but what he wished to speak about was the prevention of the neuroses which underlay the physical, the moral and the mental integrity of the people, and which, if not considered and timely regarded, would eventuate in degeneration and degradation of their people, such as have visited the people who had gone before. The neuroses constituted the bane of civilization. It was the neglect to care for a neurosis that caused the greatest of human generals to fall. It was an epileptoid condition, which was neglected, that caused Napoleon Bonaparte to lose the Battle of Waterloo. They were for prevention of the neuroses, those conditions of mind and of the nerve centers otherwise that had so much to do with the individual in the community, with the individual on the firing line in the battle of life, and with the individual who had to meet the duties and obligations of their modern civilization, with its strenuous demands, and it was in the prevention of the neuroses, beginning with the cradle and extending up to manhood and through manhood, they had most to do as physicians, who wished to conserve the vitality of their race and save America. They must take care of the neuroses because they were the bane of civilization; they were the bane of the family life; they were the bane of the social life. The incongruities and unhappiness that existed in families and revealed so largely in the divorce courts were the product on one side or the other, and oftentimes on both, of the dominance of the neuropathic element in one or the other, or both members of the family, and they were called misfits. They were called incompatibilities by lawyers, who could not find a better term, but they were conditions of neurotic ill-adaptability. They were physical misfits. What he meant by the neuroses was not alone functional conditions of the nervous system, because the line of demarcation between functional and organic disease was only a question of time and of study and further observation, but the functional affections of yesterday were the organic troubles of to-day. The time was coming when they would understand hysteria to be an organic disease. Insanity came down to them in its predisposing element in the majority of instances as an inherent predilection, an inherent organic tendency, and superadded to it came the disturbances or influence of environment, the disturbing influences of depressive passion, the influences of conditions of overstrain, overworry, which over-annoy the human mind. They should have a reasonable regard for the powers of the growing child, so that he might not be overstrained. He should have an adequate amount of fresh air, abundant nutrition, ample time for rest, and the prevention of those conditions which came from excesses was the cardinal principle which underlay the prevention and evolution and final destructive development of all neuroses.

Dr. John H. Hurty of Indianapolis said what if they did save a child from diphtheria or scarlet fever and yet failed to save it from some neurosis. The child was lost just the same. The longer he lived and worked in the science of hygiene, the more he was convinced that there was no hope to work with the adult. They must go back and instruct the child. That being done, they had taken the first step. Under their present form of education they did not do that except to a limited degree. The thought was gradually penetrating their minds that the child must have playgrounds and fresh air. They have been shutting out the air from the school room and calling it economy. They had been buying sites for school houses without playgrounds, and calling that economy, and it was the worst kind of extravagance. Something must be done to prevent the building of insane asylums, taxing the people, raising the rates, and having insane on every hand, and the way to do that was to begin with the child.

Dr. Henry A. Norden of Sturgeon Bay, Wisconsin, stated that aside from trying to make a living in the practice of medicine, he had been riding a hobby—the education of children. Neurotic conditions were superinduced by night studies on the part of children. He stated you should not blame the teachers; should not blame the school board, but blame the people who were behind them and have them prevent the school board from doing what they should do. It was absolutely necessary, considering the way education was carried on to-day, for the child to study at night or to sacrifice the playtime of the day. It was almost impossible for children to study in school with one section of the school room reciting. He had suggested frequently in his work to cut down the number of hours of school sessions; that they use the school session for the recitation and explanations, and allow a part of the day to be used for pleasure and part for study. In that way they could prevent neurotic conditions that were produced by night studies.

Dr. E. C. Rogers, of Faribault, Minnesota, stated wherever there was a family with two feebleminded children, that family ought to be studied carefully, its ancestry gone into, and the mental condition of these children studied carefully, and from the work that was now being carried on they hoped to have data which would give them the facts necessary to make statements as to what should be done towards prevention.

President's Address.—Dr. Charles O. Probst of Columbus, Ohio, said that a renaissance in health was at hand. Never before had the public shown such interest and enthusiasm in health measures. Never had it so nearly reached a realization of the immense possibilities in preventing sickness and prolonging life. The time was ripe for cooperation of the widest sort. Without attempting to even outline a plan for cooperation, he recommended that by committee or otherwise the question he investigated of the possibility of uniting or concentrating the efforts of the different national organizations in the four countries represented whose work concerned in any large measure the promotion of the public health. If moral prophylaxis came within the scope of social hygiene, the question of providing suitable amusement for the working people became of greatly increased importance. Especially was this true for working girls. The lack of such places in large cities was among the chief causes of the social diseases. The department of child hygiene of the Russell Sage Foundation, established in 1908, occupied a part of this field. Its purpose in part was to conduct researches and promote activities favorable to the physical, moral, and intellectual welfare of children, especially public recreation, and the health and progress of school children. This Association stood for the highest possible standards in public health. In various ways it had given weighty support to many health movements for improving general health conditions, and notably in the interest of pure food and the establishment of a national health department. The family physician must long remain the chief instructor and most potent factor in preventing the spread of dangerous infectious diseases. The strongest nation, the one of greatest achievements, would in the end be the one that gave the greatest amount of intelligent care to the health of its subjects. Eventually all health interests should be administered by the government. If the first step towards the centralization, or at least the cooperation, of the many associations devoted to health problems could be taken at the meeting, it might be the means of hastening the day when every individual would be given time and opportunity for the pursuit of health and happiness, and the certain knowledge of how and where to find them.

Organization of the Pennsylvania State Department of Health.—Dr. Samuel G. Dixon of Harrisburg,

Pennsylvania, said from July 22, 1907, to June 30, 1910, 32,347 poor tuberculosis sufferers had received the skilled medical aid and the attention of trained nurses which the Department's one hundred and fifteen dispensaries provided. The death rate from tuberculosis in Pennsylvania had fallen from 134 to 120 per one hundred thousand of population in four years. This meant a saving of 1,000 lives annually. From October, 1905, when the State began its free distribution of diphtheria antitoxin among the poor, down to December 3, 1909, 20,794 cases of this dread disease, mostly little children, were treated with the life saving serum. They knew by statistics that without antitoxin 42 out of every 100 of these children would probably have died, but with the aid of the State's antitoxin the death rate among these poor little sufferers was reduced to 8.48. Free antitoxin was also given in 15,125 cases, mostly children, who had been in contact with the disease. All but a very few of these were absolutely protected against diphtheria. A very low estimate of the saving of child life resulting from the state's free distribution of diphtheria antitoxin since 1905 was about 8,000 lives, a pretty good investment of the taxpayers' money. And what of typhoid fever in view of all this work for pure water? In 1906, 56.5 out of every 100,000 people died from this disease; in 1907, 50.3; in 1908, 34.4, and in 1909, 23.9. That is, there were now living 2,363 people who, had the death rate of 1906 prevailed in 1909, would have died from typhoid. In 1906 and 1907, the death rate in Pennsylvania per 1,000 of population was 16.5; in 1908, it dropped to 15.7 and in 1909 to 15.3.

Report of Committee on Education of the Public as to the Communicability and Prevention of Gonorrhea and Syphilis.—This report was presented by the Chairman, Dr. George M. Kober, of Washington, D. C. The report contained several recommendations, which were referred to the Executive Committee for consideration, and which were reported back to the general meeting subsequently in the following amended form. The committee recommended: "1. The recognition, study and control of the prevalence of these, as with all other communicable preventable diseases in order to ascertain the distribution of them. 2. An educational campaign for parents of all social classes and children of all ages and sexes. This teaching should be not only moral, but also medical in the widest sense. (a) Proper distribution of circulars, pamphlets and other literature by state health departments through all suitable channels. (b) State health departments to instruct all its local health officers in sexual matters, and direct them to make a systematic effort to educate the people in their respective communities. (c) State health department to make a definite and determined effort to awaken and interest the medical profession in this fight against veneral diseases. (d) State health departments to send out specially trained paid teachers and lecturers of their own, supported by exhibits and lantern slides to address special meetings of parents, health officers, medical men, teachers and others in schools, colleges, churches, etc., on these and other preventable diseases. (e) State health departments to encourage the organization of local leagues or associations whose purpose shall be the support of and control of a crusade against the spread of all communicable diseases. Said societies to include every profession and walk of life; to depend on philanthropists for necessary funds rather than upon paid subscriptions for financial support. (f) Health departments to interest and provide for the authorities having charge of the educational curriculum in public and private schools. (1) By introduction of biology into the graded courses of all schools. (2) To provide instruction in sexual matters for students of the upper grades. (3) By special instruction to normal school students who are to become the instructors. To impress upon presidents, deans, preceptors and teachers the necessity of exercising their influence on students in reference to the communicability of syphilis and gonorrhea, and to inculcate a morale of protection among the college fraternities. (g) T utilize the public press for the proper occasional presentation of the subject, and to discourage the display of advertising matter which encourages the exposure to dangers in these diseases. (h) To utilize church clubs, fraternal societies, trade unions, women's clubs, and especially mothers' clubs for instruction of parents. (i) Health departments to recommend the enactment of laws for: 1, physical inspection and segregation of prostitutes. 2. Notification and report (by number, if desired)of venereal cases. 3. Physical examination of men before marriage, male applicants for marriage license being required to obtain same to submit to an examination by a duly qualified physician for the purpose of ascertaining whether said applicants are free from venereal diseases. 4. To make it a crime to spread any venereal disease. 5. Keeping open free night dispensaries and maintenance of special dispensaries and hospitals for these diseases. (j) Advocacy of temperance on account of the relationship between alcoholism and venereal diseases. (k) Advocacy of personal cleanliness and venereal prophylaxis. (l) Advocacy of early marriage." These recommendations were adopted.

Venereal Diseases Among Seamen of the Merchant Marine.—Dr. J. W. Kerr of Washington, D. C., stated there were treated 1,281,427 cases of sickness from all causes, or an average of 53,392 patients annually. Of the total number, 106,090 were cases of syphilis in one of the three states, 4,420 being the annual average; 117,336 cases of gonorrhea (including gleet), representing an annual average of 4,889 cases; and 39,819 were cases of chancroid (including ulcer of the genitals), or an average annually of 1,659 cases. The total number of venereal cases treated and classified as above during the period mentioned was 263,245, or an average annually of 10,969 cases. It would thus be seen that these venereal cases represented 20.5 per cent. of the total cases treated. This percentage it would be understood represented cases of syphilis, gonorrhea and chancroid, and did not include complications or sequalæ of those diseases.

Dr. J. R. Kean of Washington, D. C., made a plea for applying the usual methods of preventive medicine to venereal diseases, and, among other things, said: he did not think it was either wise or necessary for scientific men interested in the good of the race and of the country to take any part in the discussion of the relation of this evil to society. It was sufficient for them to know the following facts, that the prostitute was a present confrontation of the problem. There was no reason to think that these diseases were beyond the reach of preventive medicine any more than other contagious diseases, and their immunity from restriction, must be attributed to the public disinclination to discuss them and legislate concerning them. He hoped that this association would not be deterred by the outcry of certain classes of persons who were accustomed to think with their emotions rather than their brains, from taking the bold stand in this matter which was justified by science, by common sense, and by the demands of the public good.

A Consideration of Venereal Prophylaxis in the U. S. Navy for the Benefit of Public Health Officials.—Dr. Charles N. Fiske of Washington, D. C., stated about fifty per cent. of the enlisted personnel of the Navy had a venereal disease during an average of four years. During 1008 there were 4,681 original venereal infections which entailed a loss of service and expense for treatment of 106,526 sick days; there were 1,001 cases of syphilis which represented nearly seven per cent. of the total physical disability of the Navy for that year. While

the morale had steadily and vastly improved during the past ten years in other respects the damage resulting from this class of affection had assumed such proportions four years ago that numerous medical officers no longer felt justified in waiting indefinitely for moral regeneration; they felt that military efficiency demanded activities promising more immediate results; they instituted personal prophylaxis by the use of antiseptic irrigation and inunctions following exposure and upon return to the ship or station. Certain results achieved caused the department nearly two years ago to authorize the extension of this work in connection with the customary educational propaganda, and distribution and confidential circulars throughout the service. Sailors and marines did not contract venereal diseases from the Navy, but from civil communities which were as notoriously indifferent to venereal diseases as they were to typhoid and other widespread infections. Military services had practiced compulsory notification of venereal diseases for years and expect civil authorities to undertake similar measures for control. The source of the Navy's 15,000 first enlisted recruits, and the destination of a similar number of men discharged each year, was the civil population; its statistics would indicate that one youth out of every six in the urban population between the ages of seventeen and twenty-four contracted a venereal infection each year. Venereal diseases had by no means yet been conquered in the Navy, but there was evidence that its ravages were being materially lessened, and that instead of encouraging vice through the hope of immunity, the margin of failure of this prophylaxis was sufficiently wide to deter an increasing proportion of the personnel from sexual indulgence. The desire for clean men on clean ships had been stimulated, and no sense of security had been engendered.

Dr. Gardner T. Swarts of Providence, R. I., stated last year, as President of this Association, he took the liberty of appointing a committee to take up the subject of venereal prophylaxis, with the idea that the people of the country were prepared to receive instruction in these matters. These communicable diseases were preventable and if boards of health were to conserve the public health, then these diseases should be put on the reportable list and steps taken to prevent their prevalence as far as possible.

Dr. J. S. Neff of Philadelphia stated he did not think it was possible to compel physicians to reveal the existence of these diseases among their patients, and they would not report this class of cases to health departments.

Dr. John N. Hurty of Indianapolis, Indiana, stated he believed that the road leading to the prevention of venereal diseases was the longest and roughest which hygiene and sanitary science had to travel. At this time, every tribe, every nation, and people of the earth were thoroughly syphilized. Think of that, and now we were proposing to eradicate it. The first man to propose education to eradicate these diseases was Solomon, and he began five thousand years ago, and with education, such as he gave, and such as they proposed to give, these diseases had increased and multiplied. Until they put aside that prudery which now prevented them from attacking this problem correctly, and which prevented them from teaching the child about his sexual nature and procreation, they could make no progress. Let them begin with the child.

Colonel Theodore Roosevelt said that, like any other man in public affairs, he was awake to the needs of the public health. It was necessary to join efforts for the preservation of the public health. It was important not only to keep the health of the individual, but also to keep the health of the nation. Yellow fever was a distinctive national problem. Several nationalities in the western hemisphere had dealt with it and must deal with effectively to prevent the ravages of this scourge. The question of dealing with the public health was a matter of the last two generations. One half a century ago comparatively nothing was known of diseases which were a scourge to the human race. About six hundred years ago the black death desolated Europe, a disease which undoubtedly they could deal with now. Then it took off two-thirds of the population of Europe. He had just come from a trip to the middle of Africa, where disease ravaged mankind as it did their ancestors. He passed through regions where the sleeping sickness had to its credit over 200,000 deaths in one neighborhood. The advances made in the medical profession during the last half century were incalculable. The work of the Isthmus of Panama could not have been done in its present shape a decade ago. They could not have grappled with disease as now. The prime requisite in every nation was to have every man and woman an effective unit. They were dealing with the basic problem of citizenship. Men could not be good unless they were healthy. He welcomed the delegates to this convention who came from foreign countries, especially from the Americas. In the two Americas they were solving the problem of living peacefully together Their only rivalry, far different from Europe, was the endeavor to see which was best able to cope with the problems that confronted them all. He welcomed them as their rivals, who were doing all in their power to uplift and care for the physical well-being of the human race.

Executivve Methods in Preventive Medicine.—Dr. Henry B. Hemenway of Evanston, Illinois, stated health administration was formerly local in nature. The science of public health had now advanced far beyond administration, especially in this country. The American law required a separation of the three branches of government. Health administrators, being of the executive branch, had no legislative power. They might not, however, issue any orders, or regulations except as distinctly provided in the laws under which they were acting. All health authority was derived from the police power of the state. Police power was a system of precaution for the prevention of crimes and calamities. It was a necessary but also a dangerous power; and because of the danger to individual liberty, the courts were inclined to scrutinize its operations closely to prevent abuse. The police of public health started from the idea of nuisance, and presupposed legislative determination in great detail. Even though administered by municipal officers, public health work was essentially state in nature; and in the absence of special constitutional provisions to the contrary, the state had the right to appoint and regulate the acts of municipal health officers. The protection of the state against damage suits was extended to all health officials, so long as they acted within the law, even though error had been committed, and damage resulted to individuals. As compared with other countries, American state executives were ill organized and weak; and one of the weaknesses was shown in the tendency to the appointment of boards, often serving without pay. Since executives had no legislative power, an executive board lacked in responsibility, decision, activity and despatch, without compensatory advantage. There was no more reason why a physician should donate his public health service than that a lawyer should serve without pay as a judge or a banker should give the use of the money needed for public improvements. Health laws should be enacted by the state legislature. The entire health administration of a state should be recognized as one body, having a single head to whom all local and district officials were responsible. Every man should be held responsible for a definite portion of the work. Executive duties were either ministerial or discretionary. If ministerial, the officer might

only do that which was required. If discretionary, he might do anything within that discretion; but neither his acts nor legislation for his guidance might be arbitrary or unreasonable. If the officer acted beyond the provision of the law, he might be sued as a private wrongdoer. Health legislation should be definite, not in general terms, to best safeguard individual liberty. Matters of technical detail in the work of the office might be largely left to subordinates; but the executive must personally and frequently decide upon questions of administration. Such knowledge of administrative law as would give confidence in execution, celerity of decision and definiteness of effort would increase effectiveness. In other words, the head of the department should be a professional administrator with a broad knowledge of sanitary science, not merely a sanitarian or a party politician. At least once a year there should be a conference of state and district officers, at which proposed legislation might be discussed and prepared for presentation to the legislature for enactment.

Dr. C. A. Harper of Madison, Wisconsin, discussed the relation between state and municipal boards of health, saying the interchange of ideas, and the knowledge required by each health officer in knowing how other health officers did their work and met certain emergencies, fully justified the labor and expense incident to holding state or district conferences. If the health officer expected to impart knowledge to others, he must know his subject thoroughly and realize the important role which sanitation and public hygiene play in the prevention of diseases.

Professor E. H. Bailey of North Dakota spoke of the advantages of cooperation between the state board of health and state universities.

Dr. Gustav F. Ruediger of Grand Forks, North Dakota, spoke of the relation of the State University of North Dakota to the State Board of Health, and favored placing the state board of health laboratory under the control and regulation of the state university, under the direction of the professor of bacteriology and pathology.

Dr. Charles A. Hodgetts of Ottawa, Canada, pointed out the functions of the Canadian Commission of Conservation and Public Health.

Dr. H. W. Hill of Minneapolis, Minnesota, spoke of the relations of universities to public health work.

Mayor Seidel of Milwaukee, Wisconsin, discussed social economics and public health. He said that land had a value. Timber had a value, and so had water and mineral deposits. These, with machinery, were important factors in wealth production. But the most important factor of all in wealth production was human labor. Without labor of hand and labor of brain applied to raw material, there was no civilization thinkable. The greatest of all natural resources was human life with its accompaniment of labor. It was good and excellent work to conserve land and timber and water utilities, but it was far more important and far more fundamental to conserve human life and make it more efficient and give it added ability and power to create.

Mr. Frederick Almy of Buffalo, New York, spoke of the inter-relation of national organizations working in the interest of health.

Dr. Frederick Montizambert, Director-General of Public Health, Canada, said the administration of the subject of public health in that country was joint between the Dominion and the Provinces. The administration of the subject of quarantine pertained solely to the Dominion Government, including the inspection and treatment of passengers, crews and vessels from abroad, arriving at the different seaports on the Atlantic and Pacific coasts, and of the persons and trains entering Canada over the international frontier. Leprosy was dealt with by the federal government. The adulteration of foods and drugs was dealt with by the Department of Inland Revenue. Infectious and other diseases occurring within the Dominion were under the administration of the provincial and municipal authorities.

The Mexican Republic Free from Yellow Fever.—Dr. E. Liceaga of Mexico City contributed a paper in which he stated that from the twentieth of December of last year not a single case of yellow fever had been observed either there or in any other part of the Mexican Republic. In spite of the success obtained, the sanitary service continued its action with the same regularity as in previous years, although it was not directing its energies especially against malaria.

Quarantine or Isolation in Diphtheria.—Dr. James Roberts of Hamilton, Ontario, stated in this paper he first established the fact of the dominance of the personal contact factor in the spread of this disease. Defective drains, bad ventilation, etc., although prejudicial to health, cannot cause diphtheria, which was due to the presence of certain bacteria. Overcrowding assisted the spread of diphtheria. Forty-five per cent. of his cases, representing not more than one-quarter of the school population, came from the districts where the industrial classes were centered. The presence of an ignorant foreign element hindered the work of sanitation and favored the spread of disease. Diphtheria, owing to the manner by which it was spread, was a school disease. The Boston Board of Health, after an exhaustive investigation, concluded that it would be impracticable to isolate bacillus carriers who did not themselves suffer from the disease, as they constituted one per cent. of all healthy school children, and these germs were ordinarily of little virulence. The restriction of this disease was for practical purposes limited to isolation of clinical cases and control of the contacts in connection with these. Where isolation could not be strictly carried out at home, hospitalization was the best method. But isolation hospitals were very unpopular, owing to their usually poor equipment, the danger of cross infection, etc. They safeguarded the community, but often at the expense of the individual. Our present-day conception of diphtheria as preeminently a school disease made it imperative that the inspection of school children should be thorough enough for the detection of early cases, and of those children harboring virulent bacilli. When this had been accomplished, regulations intelligently enforced, providing for the proper isolation of all cases either at home or in suitable institutions, would be productive of better results and much less annoyance and hardship than the continued enforcement of antiquated laws and regulations incompatible with their present knowledge of diphtheria.

A Study of the Ventilation of Sleeping Cars.—Dr. T. R. Crowder of Chicago, Illinois, stated the only available method of accurately estimating the air supply of running cars was by determining the amount of carbonic acid gas which their atmosphere contained, and from this computing the amount of air which entered. The problem was mathematically simple, and rested upon the known amount of carbonic acid thrown off by the respiration. This method had been applied in the study of sleeping-car ventilation. Some 2,000 samples of air had been analyzed from these cars. It showed that an average of approximately 40,000 cubic feet of air was supplied hourly to the main sleeping compartment of standard cars, which were equipped with the ventilating system now in common use by the Pullman Company, and that the amount was rarely, if ever, under 20,000 cubic feet. There were rarely more than twenty people in a sleeping car; hence each person was supplied with some 2,000 cubic feet of air each hour. This applied to the findings in occupied berths, both lower and upper, as well as to the car in which the berths were not made up. The high

wind pressure to which running railway cars were subjected resulted in fair ventilation even when they had no special ventilating devices. The amount of air which they received would vary from 15,000 to 50,000 cubic feet per hour, depending upon various conditions. When cars were uncomfortable and felt "stuffy" the fault was not generally to be laid to an inefficient air supply, as was commonly supposed. It rarely happened that the air supply was so inadequate as to bring about this condition, though it might at times contribute to it. The fault generally lay chiefly in an improper control and regulation of the heat supply. The degree of humidity of the atmosphere was also a very important factor; but its control was difficult, and often impossible. In the opinion of the author, heat control was a more important problem in maintaining comfort in sleeping cars than was the furnishing of a great air supply, and relatively greater attention should be concentrated upon this element of the problem and maintaining a hygienic atmosphere in cars.

Dr. JOHN A. AMYOT of Toronto, Canada, discussed the laboratory in its relation to public health, while Dr. William A. Evans of Chicago spoke of efficiency and economy in municipal health work.

The Association endorsed the principles embodied in the Senator Owen Bill for the establishment of a National Department of Health.

A resolution was adopted recommending that a committee (of which Dr. Probst shall be chairman) be appointed to consider and report next year a scheme for instruction in hygiene and sanitation in high schools, and in colleges and universities, with the view to bringing the necessity for such instruction with definite recommendations to the attention of educational authorities.

A new section to be known as the "Section on Sociology" was formed; also one to be known as the "Section on Sanitary Engineering." The following resolution was adopted: WHEREAS, A considerable number of municipal health officers believe terminal disinfection at the conclusion of communicable diseases is of questionable value and extravagant in practice; and, WHEREAS, A few municipal health officers of sound judgment and highest attainment have abandoned this practice as a prophylactic measure; therefore, be it *Resolved*, That the Municipal Health Officers Section refer to the Executive Committee a recommendation that the American Public Health Association appoint a committee to study the end results and practice in communities where terminal disinfection is no longer practiced at the conclusion of cases of communicable diseases.

The following resolutions were likewise adopted: *Resolved*, That this Association appoint a committee to cooperate with the Census Bureau in establishing standard methods of accounting for municipal sanitation. *Resolved*, That this Association offers and accords its hearty approval and commendation of the educational work carried on by the *Ladies' Home Journal* regarding the necessity and ways of teaching children the truth about reproduction and the sexual life.

Officers.—The following officers were elected: *President*, Dr. Robert M. Simpson, Winnipeg, Manitoba; *First Vice-President*, Dr. Fernando Lopez, Mexico City; *Second Vice-President*, Dr. John F. Anderson, Washington, D. C.; *Third Vice-President*, Dr. B. A. Bading, Milwaukee, Wis.; *Secretary*, Dr. William C. Woodward, Washington, D. C.; *Treasurer*, Dr. Frank W. Wright, New Haven, Conn.

LABORATORY SECTION.—*Chairman*, Dr. J. F. Amyot, Toronto, Canada; *Vice-Chairman*, Dr. John F. Anderson, Washington, D. C.; *Secretary*, Mr. B. R. Rickards, Columbus, Ohio; *Recorder*, Dr. H. D. Pease, New York City.

VITAL STATISTICS SECTION.—*Chairman*, Dr. Wilmer R. Batt, Harrisburg, Pa.; *Vice-Chairman*, Dr. C. V. Chapin, Providence, R. I.; *Secretary*, Dr. F. L. Watkins, Columbus, Ohio.

MUNICIPAL HEALTH OFFICERS' SECTION.—*Chairman*, Dr. A. J. Douglass, Winnipeg, Manitoba; *Vice-Chairman*, Dr. Frederic Torralbas, Havana, Cuba: *Secretary*, Dr. E. C. Levy, Richmond, Virvinia.

Havana, Cuba, was selected as the place for holding the next annual meeting.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS

CALIFORNIA STATE BOARD OF MEDICAL EXAMINERS

San Francisco, April, 1910.

ANATOMY.

Answer Ten Questions Only.

1. Trace cerebrospinal fluid from the lateral ventricles to the spinal canal.
2. Describe the rami communicantes.
3. Name the bones of the tarsus; use diagram.
4. Indicate, on the diagram, the points of exit from the pelvis of the following nerves; external cutaneous, anterior crural, genitocrural, obturator, sciatic, pudic, superior gluteal.
5. Indicate, on the diagram, the course of the common, internal, and external iliac arteries.
6. What veins are without valves?
7. What cranial nerves are distributed to muscles only, *i.e.* are motor?
8. Give topographical outline of the lungs and bronchi on the anterior chest wall; use the diagram.
9. Give origin and course of the eleventh cranial nerve as far as its exit from the skull.
10. What are the characteristics of arthrodial joints? Give five examples of this class of joints.
11. What is the ischiorectal fossa, how bounded, and what does it contain?
12. When the arm is hanging with palm forward, what bony prominences at shoulder, elbow, and wrist are normally in line?

HISTOLOGY.

Answer Eight Written Questions and Identify Slides.

1. (*a*) Name the structures found in red bone marrow. (*b*) give the function of red bone marrow.
2. Draw diagram illustrating long tissue, naming different structures.
3. Explain the difference between the mucosa of the endometrium and that of the vaginal portion of the cervix. Also make drawing.
4. Give structure of the tonsil.
5. From which germ layers are the following derived? Pancreas, spleen, large intestine, salivary glands, fat.
6. Draw a transverse section of the brain, at a point just anterior to the pons varolii. Name most important parts.
7. Draw diagram illustrating a cell and name all the necessary constituents.
8. Describe the structure of the liver.
9. Explain the difference between the white and gray matter of the brain.
10. What are terminal arteries? Name organs which are so supplied.
11. Identify slides.
12. Identify slides.

PHYSIOLOGY.

Answer Ten Questions Only.

1. How and where is lymph formed?
2. Discuss sleep and its causation.
3. Discuss briefly the influence of the nervous system on the digestive secretions.
4. Describe the movements of the intestines during digestion.
5. Explain the effect of (*a*) expiration on the volume of the brain, (*b*) inspiration.
6. Discuss the formation, function, and fate of glycogen.
7. What is the physiological difference between the brain of man and that of lower animals?
8. Under what circumstances may functional union be made between fibers of different nerve trunks? What practical value has this operation?
9. Give nerve supply and action of muscles concerned in the movements of the eyeball.

10. Do we determine the function of a nerve by the location or function of the center from which it comes or by its peripheral connections? Give your reasons.
11. What is the effect of a destructive lesion in the posterior limb of the internal capsule?
12. To what extent is the secretion of sweat under (*a*) nervous control; (*b*) vascular control?

BACTERIOLOGY.

Answer Eight Questions Only.

1. What are the differences in structure, methods of multiplication sporulation, etc., between the blastomycetes or yeasts and bacteria?
2. What changes are produced on the culture media when *Bacillus Coli Communis* is grown: (*a*) upon gelatin, (*b*) in milk, (*c*) in dextrose, (*d*) in lactose?
3. Describe the conditions necessary to successfully grow *Bacillus tetani* and the appearance of a stab culture in agar or gelatin about the sixth day.
4. What is the difference between an antitoxin and a bacterial vaccine?
5. Name four (4) pathogenic anerobic bacteria.
6. Differentiate between bacillus tuberculosis and bacillus lepræ, taking into consideration staining, culture peculiarities, effect on tissues, and relation to tissue cells of the host.
7. Describe briefly how you would make gelatin plate cultures, using material from a furuncle as the source from which to obtain the germ.
8. Name ten (10) pathogenic bacteria that are Gram positive.
9. What do you understand by the opsonic index?
10. How would you sterilize: (*a*) a culture tube of gelatin, (*b*) a glass container with rubber stopper, (*c*) a platinum needle in a glass handle?
11. Identification of cultures.
12. Identification of slides.

CHEMISTRY.

(*Answer ten questions only.*)

1. What is the poison in most headache powders? Its effect? Antidote.
2. Mention six elementary substances commonly used in their pure state in medicine.
3. What does the presence of an abnormal quantity of chlorine in drinking water indicate?
4. How would you detect the presence of bile in the urine? Give two tests.
5. Give the reaction, specific gravity, and percentage of fats in normal cow's and woman's milk.
6. Mention a secretion in the body that contains cholesterin; one that contains pepsin, and one that contains trypsin.
7. What antidotes should be used in phosphorus poisoning? Explain the action of each.
8. Define and illustrate (*a*) capillary attraction, (*b*) absorption, (*c*) diffusion, (*d*) osmosis, (*e*) endosmosis.
9. In what principal form is nitrogen eliminated from the body? Give the chemical properties of nitrogen.
10. What is the chemical composition of the various renal calculi?
11. Mention one chemical antidote for each of the following: (*a*) Phenol, (*b*) arsenious oxide, (*c*) sulphuric acid, (*d*) mercuric chloride, (*e*) oxalic acid.
12. What are the distinguishing characteristics of urates and uric acid as found in the urine? Give test for uric acid.

GENERAL DIAGNOSIS.

(*Answer ten questions only.*)

1. Give the physical signs of a pleurisy with effusion
2. Give the symptoms of bubonic plague.
3. Give the symptoms and physical signs of aortic insufficiency in the stage of failing compensation.
4. Give varieties, etiology, and symptoms of chorea.
5. Give the symptoms of tabes dorsalis.
6. Describe a Colles' fracture.
7. Give the points upon which you would make a diagnosis of cancer of the stomach.
8. Describe diabetes mellitus, and differentiate it from diabetes insipidus.
9. Differentiate rubeola from scarlet fever.
10. Describe the secondary lesions of syphilis.
11. Give the symptoms of a transverse myelitis.
12. Give the symptoms of cholelithiasis.

PATHOLOGY.

Answer eight of the written questions and identify four slides.)

1. Describe the difference in the pathological changes which take place in degeneration of the tissues and those which take place in atrophy.
2. Give the pathology of tabes dorsalis.
3. Describe the gross and microscopic changes which take place in the spleen, liver, and kidneys as a result of prolonged exposure to malarial infection.
4. What are the postmortem changes usually found in diabetes mellitus in (*a*) children, (*b*) adults of middle age, (*c*) adults of advanced age?
5. What is the average blood pressure in adults fifty to sixty years of age measured in millimeters of mercury? Describe the results if this pressure is exceeded for a considerable time.
6. In bony tissue what variety of malignant growths usually occur, and why?
7. Under what conditions is cerebral embolism most likely to occur? What blood-vessels are most likely to be affected, and why?
8. Describe the local lesion caused by infection by anthrax bacilli; the general or systemic effects, and state how infection usually occurs.
9. Describe the condition present in acute dilatation of the heart. Give the immediate and predisposing causes and the usual final result.
10. State fully why urinary bladder disorders are so frequent and so resistant to treatment in both elderly men and elderly women.
11. Identify two slides.
12. Identify two slides.

OBSTETRICS.

(*Answer ten questions only.*)

1. What zymotic diseases are liable to affect the pregnant and puerperal woman, and how?
2. How soon after the completion of the second stage of labor should the umbilical cord be ligated? How dressed? What are the dangers of improper dressing?
3. What injuries are liable to occur to the birth canal during labor?
4. Under what circumstances are anesthetics indicated in labor? What are the dangers?
5. What are the causes of premature rupture of the membranes? How does it influence the progress of labor?
6. How would you determine if a child is premature at birth?
7. Differentiate between retained and adherent placenta; the management of each.
8. What can be determined by external palpitation of the pregnant woman at the eighth month? How should it be performed?
9. What are the so-called false pains of labor? Differentiate from true pains.
10. Rupture of the uterus; etiology and symptoms.
11. Give the physiology of menstruation; of ovulation: relation, if any.
12. What is inversion of the uterus? Diagnosis and management.

GYNECOLOGY.

(*Answer ten questions only.*)

1. Give the conditions justifying operative measures in fixed retrodisplacement of the uterus.
2. Describe a pelvic hematocele, and give the usual cause.
3. What is the pathology of pelvic cellulitis, and what are the physical signs?
4. Name the most important causes of sterility.
5. Differentiate between a pudendal hernia and pudendal hematocele.
6. What do you understand by the operation for perineorrhaphy?
7. Give the etiology and pathology of chronic endocervicitis?
8. Describe a case of carcinoma uteri, and give some of the most prominent physical signs.
9. Discuss the matter of relative prognosis of cancer of the body of the uterus and cancer of the cervix.
10. Describe the mode of use and purpose of a vaginal tampon.
11. Differentiate between herpes of the vulva and chancre.
12. Name the muscles of the perineum, and give the functions of the perineal body.

HYGIENE.

(*Answer ten questions only.*)

1. Describe in detail the method of transmission of yellow fever.
2. What measures would you adopt to prevent the spread of typhoid fever during an epidemic?

3. What is a septic tank? Describe construction and explain how it acts.

4 What sanitary measures should be adopted in caring for tuberculous patients?

5 Name five of the most common intestinal parasites, and give a short description of each.

6. Give three ways of fumigating a room with formalin; also two methods with other disinfectants.

7. What effect have venereal diseases on the propagation of the human species? Explain.

8. How does the hookworm usually enter the human body? What means would you adopt to prevent its spread?

9. Describe the technique of vaccination, and give the course of a successful case.

10. What is the period of incubation of the following diseases: Plague, smallpox, diphtheria, scarlatina, measles?

11. What is the object of placing traps on all waste pipes? What danger to health would arise if there were no traps?

12. Describe two types of water filter. What should be accomplished by a good filter?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

CALIFORNIA STATE BOARD OF MEDICAL EXAMINERS.

San Francisco, April, 1910.

ANATOMY.

1. The cerebrospinal fluid passes from the lateral ventricles through the foramen of Monro into the third ventricle; then through the aqueduct of Sylvius (or iter a tertio ad quartum ventriculum) into the fourth ventricle, through the latter, and into the central canal of the spinal cord.

2. See Cunningham's "Anatomy" (1909), pages 615, 616, and 609; or Gray's "Anatomy" (1908), pages 1078 and 1079.

3. The *bones of the tarsus* are: Calcaneus, astragalus, cuboid, scaphoid, internal cuneiform, middle cuneiform, and external cuneiform. For diagram, see Cunningham's "Anatomy" (1909), page 239; or Gray's "Anatomy" (1908), page 242.

4. See Cunningham's "Anatomy" (1909), page 641; or Gray's "Anatomy" (1908), pages 1017 and 1029.

5. See Cunningham's "Anatomy" (1909), pages 840 and 857; or Gray's "Anatomy" (1908), pages 671 and 686.

6. The *veins without valves* are: The venæ cavæ, hepatic veins, portal vein and its branches, renal, uterine, ovarian, pulmonary, cerebral, spinal, and umbilical veins. The sinuses of the skull and very small veins are also without valves.

7. The *cranial nerves exclusively motor* are: Oculomotor (3); Trochlear (4); Abducens (6); Facial (7); Spinal accessory (11); and Hypoglossal (12).

8. See Cunningham's "Anatomy" (1909), page 1257.

9. See Cunningham's "Anatomy" (1909), page 695; or Gray's "Anatomy" (1908), page 1073.

10. See Cunningham's "Anatomy" (1909), page 257; or Gray's "Anatomy" (1908), page 268.

11. See Cunningham's "Anatomy" (1909), page 1281; or Gray's "Anatomy" (1908), page 1548.

12. When the arm is hanging with palm forward the acromion process of the shoulder, the external condyle of the humerus, and the styloid process of the radius are normally in line.

HISTOLOGY.

1. (*a*) See Cunningham's "Anatomy" (1909), page 71; or Gray's "Anatomy" (1908), page 36. (*b*) The *function of red bone marrow* is to form red blood corpuscles; also to help in the formation of bone.

2. See Cunningham's "Anatomy" (1909), page 900; or Gray's "Anatomy" (1908), page 1403.

3. See Cunningham's "Anatomy" (1909), page 1191; or Gray's "Anatomy" (1908), page 1504.

4. See Cunningham's "Anatomy" (1909), page 1035; or Gray's "Anatomy" (1908), page 1223.

5. *Pancreas* is derived from entoderm; *spleen,* from mesoderm; *Large intestine,* from entoderm; *Salivary glands,* from ectoderm; *Fat,* from mesoderm.

7. See Cunningham's "Anatomy" (1909), page 8.

8. See Cunningham's "Anatomy" (1909) page 1121; or Gray's "Anatomy" (1908), page 1345.

9. See Cunningham's "Anatomy" (1909), page 443; or Gray's "Anatomy" (1908), page 833.

10. *Terminal arteries* are such as do not anastomose with other arteries, either directly or by branches. *Organs supplied with terminal arteries:* Retina, brain, kidneys, spleen, lungs.

PHYSIOLOGY.

1. There are two theories as to the formation of lymph: (*1*) That it is formed from the blood plasma by the processes of filtration, diffusion, and osmosis. (*2*) That in addition to these the endothelial cells of the capillaries exercise some influence.

2. Sleep is a condition of partial or complete unconsciousness, during which the brain and body can recuperate. Metabolism in general is diminished, anabolism is (relatively) in excess of katabolism. During sleep the respirations are slower and deeper, most of the secretions are diminished, the pulse is slower, the eyeballs roll inward and upward, and oxidation in the tissues is decreased. The cause of sleep is not known. Bradbury (in Allbutt's "System of Medicine") gives the following as hypotheses as to the causation of sleep: (1) Cerebral anemia; (2) chemical changes in the brain cells or neurons, such as an exhaustion of their intramolecular oxygen, or an accumulation of fatigue products; (3) contraction of the dendritic processes and a consequent break in the transmission of nerve impulses; (4) expansion of the neuroglial cell processes, insulating the nerve processes and producing the same effect; (5) loss of consciousness apart from any physical or chemical change; (6) the most probable hypothesis is that of an altered metabolism of the cerebral cells dependent upon exhaustion and diminished influx of stimuli. Quite recently two new theories have been promulgated; one attributes the causation of sleep to an internal secretion of the pituitary body; the other makes it due to osmosis.

3. "The secretion of the digestive fluids is governed by the action of the nervous system, so that they are poured into the alimentary canal during the digestive process as they are required. The saliva is continuously secreted in sufficient quantities to keep the mouth moist, but the quantity formed is greatly increased by the sight or idea of food, as well as by the actual presence of food in the mouth, or the savory smell of food acting on the olfactory nerve.

"Stimulation of the mucous membrane of the stomach gives rise to increased vascularity, also to a copious secretion of gastric juice. It is probable that the food acts directly upon a local nervous mechanism in the wall of the stomach, possibly Meissner's plexus, yet it is certain that the secretion of the gastric fluid is more or less under the influence of the central nervous system. This is seen in the manner in which the digestive function is arrested by fear, anger, and other mental conditions. Moreover, the secretion of the gastric juice commences before food is actually introduced into the stomach, as the smell, taste, or idea of food stimulates its glands to activity. As division of the vagus below the origin of the recurrent branch during digestion causes the gastric mucous membrane to become pale, and diminishes the secretion of gastric juice, it may be inferred that this nerve is an efferent nerve, the action of which normally inhibits the vasoconstrictor action of the sympathetic.

"The secretion of the pancreas, like that of the salivary glands, is undoubtedly under the control of the nervous system, and a large flow of pancreatic juice occurs immediately food is taken; and a second but less copious flow takes place about four hours afterwards, probably when the principal discharge of chyme from the stomach into the duodenum takes place.

"In the intestine the rich nervous plexus of Meissner, which is found in the submucous tissue, is concerned in regulating the secretion of the glands in the intestinal wall. Similar plexuses are found in the esophagus and stomach, and in the latter, it has been already stated, a local nervous mechanism probably regulates the act of secretion."—(*Aids to Physiology.*)

4. See Gray's "Anatomy" (1908), page 1330.

5. The volume of the brain is increased during expiration, and is diminished in inspiration. This can be observed in infants before the fontanelles are closed, and in adults when the brain is exposed. "With the act of expiration the flow of blood in the arteries is favored and the current in the veins is retarded. If the effort be violent, the valve at the opening of the internal jugular may be closed. This act would produce an expansion of the brain, not from reflux by the veins, but from the fact that the flow into the chest is impeded, and the blood, while passing in more freely by the arteries, is momentarily confined. With inspiration the flow into the thorax is materially aided, and the brain is in some degree relieved of this expanding force."—(Flint's *Physiology.*)

6. *Glycogen* is chiefly formed from the carbohydrates The liver cells act upon the dextrose into which the carbohydrates have been converted by the action of the ptyalin

and amylopsin of the digestive juices. This *may* occur by a simple process of dehydration:

$$C_6H_{12}O_6 - H_2O = C_6H_{10}O_5$$

But the precise process by which it occurs in the liver cells is not known. At a subsequent period the glycogen is transformed into dextrose and is returned to the circulation. Hence the blood of the hepatic veins contains more sugar than the blood of the arteries, and these latter more than the blood in the veins (except the hepatic). This is the generally accepted view, but it is denied by Pavy, and the whole subject is in a state of uncertainty.

The *function of glycogen* is to form a temporary reserve supply of carbohydrate material that is stored up in the liver during digestion, and made use of between meals; at the same time the percentage of sugar in the systemic blood is kept nearly constant.

7. The brain of man, as compared with that of lower animals: (1) Is greater in size and weight; (2) shows a greater complexity of the convolutions; (3) has frontal lobes relatively greater in size and complexity; (4) has temporo-sphenoidal lobes less prominent; (5) the fissure of Sylvius is nearly horizontal; and (6) the fissure of Rolando is more distinct.—(From Kirkes' *Physiology.*)

8. This procedure is of very limited application because of the necessity of finding large nerves in the neighborhood; it is utilized nearly exclusively in the upper extremity; it seems to make no difference whether a sensory nerve be grafted to a motor or to a mixed nerve—or vice versa. The object is to switch an interrupted nerve impulse into a neighboring sound nerve, and then have it returned to the original nerve (lower down), and so transmitted to its final distribution as though there had been no interruption.

9. See Cunningham's "Anatomy" (1909), page 401; or Gray's "Anatomy" (1908), page 376.

10. The function of a nerve is determined by dividing the nerve and then observing whether there is any loss of sensation, or muscular paralysis, or absence of secretory function, or degeneration of tissue.

11. A destructive lesion in the posterior limb of the internal capsule will cause hemiplegia of the opposite side, followed by contractures; and also hemianesthesia, in which the special senses may be included.

12. (*a*) The secretion of sweat is chiefly under nervous control; and (*b*) but slightly under vascular control. "The relation of the secretion of perspiration to the temperature of the body, and the amount formed, is under the control of the nervous system. An increased supply of blood to the skin, the result of vasomotor inhibition, acts only indirectly in increasing the secretion, which is under the direct control of special secretory nerves. This can be shown by the stimulation of a cutaneous nerve even after the blood supply has been cut off. Stimulation of the sciatic of the amputated limb of an animal will produce a discharge of sweat upon the foot. The copious sweat produced on the pale, cold, anemic skin by fear and in some forms of death are evidence that sweat, like saliva, may be secreted in considerable quantity without any increased, and, indeed, with a greatly diminished, blood supply."—(*Aids to Physiology.*)

BACTERIOLOGY.

1. BLASTOMYCETES. *Structure:* A protoplasmic body surrounded by a double-contoured capsule. Sometimes drops of fat, granules, and vacuoles are seen; the presence of a nucleus is doubtful. Sometimes they appear as long, cylindrical hyphæ. *Multiplication* is by budding; sometimes also by sporulation.

BACTERIA. *Structure:* A protoplasmic body surrounded by a cell wall and nucleated, often flagellated, and sometimes granular. *Multiplication* is by fission, sometimes also by sporulation.

2. *Bacillus coli communis* (*a*) shows colonies in twenty-four hours on gelatin. The deeper colonies are round and brownish; the more superficial ones are larger and more diffuse; the edges are dentate; the gelatin is not liquefied. (*b*) The milk coagulates, becomes acid, gas is given off, and a fecal odor is observed. (*c*) Dextrose is fermented, and gases are formed (mainly CO_2 and H_2, generally two parts of H_2 to one of CO_2). (*d*) Lactose is fermented, and gases are formed (mainly CO_2 and H, but in less constant proportion than in dextrose).

3. Absence of oxygen is necessary for the growth of the tetanus bacillus; otherwise the conditions are much the same as for other bacilli. The appearance of a stab culture, in gelatin, about the sixth day, is that of a fir tree.

4. *Difference between an antitoxin and a bacterial vaccine:* "The antitoxic sera act directly upon the poison secreted by the living bacterial cell and neutralize its toxic property, while the bacteriolytic sera affect the bacteria themselves and destroy them or paralyze their action. Since the antibacterial sera are without effect upon the formed toxin, they are mainly useful in practice as a means of protecting against the bacterial invasion, while the antitoxic sera (*e.g.* diphtheria) may be employed to combat an infection already in progress. Broadly speaking, the latter are curative, the former protective."—(Jordan's *Bacteriology.*)

5. *Four pathogenic anaërobic bacteria: Bacillus tetani, Bacillus œdematis maligni, Bacillus œrogenes capsulatus,* and *Bacillus botulinus.*

6. *Differentiation between Bacillus tuberculosis and Bacillus lepræ:* (1) It is claimed that the leprosy bacillus is stained by an exposure of six or seven minutes to a cold, saturated, watery solution of fuchsin, and retains the stain when subsequently treated with acid alcohol (nitric acid 1 part to alcohol 10 parts). When treated for the same length of time the *Bacillus tuberculosis* does not ordinarily become stained. (2) The leprosy bacilli are found in enormous numbers, especially in large vacuolated cells (lepra cells), and lie in the lymph spaces. They are frequently beaded and lie in masses which have been likened to a bundle of cigars tied together. It is necessary to examine for long periods of time smears made from tuberculous lesions of skin before finding a single organism. (3) Leprosy bacilli have not surely been cultivated. (4) Injected into guinea-pigs, they do not produce lesions.

7. *To make a gelatin plate culture:* Melt three tubes of gelatin, and let them cool in a water bath to about 30° C. Sterilize the platinum wire. Inoculate tube 1 with a platinum loopful of the material to be plated (pus from the furuncle) and mix thoroughly. Replace the cotton plug, and take care that it does not get soiled. From tube 1 transfer two loopfuls to tube 2, and mix, and replace plug as before. From tube 2 similarly transfer two loopfuls to tube 3, and mix, and replace plug as at first. Then pour the contents of each tube into a sterile Petri dish; heat the neck of the tube as soon as the plug is removed, insert it under the edge of the lifted Petri dish cover and pour quickly.

8. *Ten pathogenic bacteria that are Gram positive: Staphylococcus pyogenes aureus, Staphylococcus pyogenes albus, Streptococcus pyogenes, Pneumococcus, Bacillus anthracis, Bacillus tuberculosis, Bacillus lepræ, Bacillus diphtheriæ, Bacillus tetani, Micrococcus tetragenus.*

9. The *opsonic index* is the relative amount of opsonins in a serum, as compared with the normal standard. It is obtained by dividing the average number of bacteria taken up by a leucocyte under the influence of a given serum by the average number taken up by a leucocyte under the influence of a standard normal serum.

10. To sterilize (*a*) a culture tube of gelatin: Put it in an Arnold sterilizer on three successive days, or in the autoclave at about 8 or 9 pounds' pressure for ten minutes. (*b*) A glass container with rubber stopper: Take out the stopper, clean it with soap and water, and let it stand for an hour in a solution of bichloride of mercury 1:1000, and then wash with sterile water; plug the glass with non-absorbent cotton and put it in a hot-air sterilizer at 170° C. for one hour. (*c*) A platinum needle in a glass handle: Heat the needle in an alcohol flame till red hot, and then allow to cool.

CHEMISTRY.

1. The poison in most headache powders is Acetanilid. It produces a sense of chilliness, cold perspiration, cyanosis, pulse soft and slow, respirations slow and shallow, dizziness, dyspnea, collapse, and coma. *Antidote,* strychnine.

2. Sulphur, mercury, phosphorus, oxygen, carbon, and iodine.

3. The presence of an abnormal quantity of chlorine in drinking water generally indicates sewage contamination.

4. *Gmelin's test for bile pigments:* Put 3 c.c. HNO_3 in a test tube, add a piece of wood, and heat until the acid is yellow; cool. When cold, float some of the urine to be tested upon the surface of the acid. A green band is formed at the junction of the liquids, which gradually rises, and is succeeded from below by blue, reddish-violet, and yellow.

The *Pettenkofer test:* Dissolve one or two drops of a solution of cane sugar 1:4 in the liquid to be examined; shake the mixture and float it carefully upon concentrated H_2SO_4. In the presence of bile acids the solution becomes turbid at the zone of junction of the two layers; this is soon replaced by a deep reddish purple zone, which extends upward and downward.

5.

	COW'S MILK.	WOMAN'S MILK.
Reaction	Alkaline or amphoteric.	Alkaline or amphoteric.
Specific gravity....	1028 to 1034.	1026 to 1036.
Percentage of fats.	3 to 4.	3 to 4.

6. *Cholesterin* is found in the bile; *pepsin*, in the gastric juice; *trypsin*, in the pancreatic juice.

7. In *phosphorus poisoning* the *antidotes* are: (1) Solution of potassium permanganate (1 per cent.); this oxidizes the phosphorus, forming phosphoric acid and phosphates; the potassium permanganate itself becoming manganese dioxide. (2) Old, acid, oil of turpentine; this is said to combine with the phosphorus to produce a non-poisonous substance.

8. (*a*) *Capillary attraction* is the force which attracts fluids in contact with small tubes thrust into them, so that the fluid is drawn up above the surface of the liquid in the containing vessel.

(*b*) *Absorption* is the process by which one substance is taken up or into another by molecular action.

(*c*) *Diffusion* is the gradual and spontaneous passage of one gas into another gas, or of one liquid or dissolved substance into another liquid.

(*d*) and (*e*) If two liquids be separated from each other by a membrane each will pass through the membrane into the other; this process is called osmosis; they do not pass with equal rapidity. *Endosmosis* is the term used to denote the more rapid osmosis, and *exosmosis*, the slower. These terms are also used to denote the direction (inward or outward osmosis, respectively).

9. Nitrogen is chiefly eliminated from the body as urea. *Chemical properties of nitrogen:* It is a gas, colorless, odorless, tasteless; it is not combustible, and does not support combustion; is but slightly soluble in water; it is very slow to enter into combination; it is not poisonous, but it is incapable of supporting respiration.

10. *Chemical composition of various renal calculi:* Uric acid, sodium urate, ammonium urate, calcium oxalate, calcium phosphate, ammonium magnesium phosphate; occasionally, cystin, xanthin, and urates of potassium, calcium, and magnesium.

11. Chemical antidote for (*a*) *Phenol*, sodium sulphate; (*b*) *arsenious oxide*, freshly prepared solution of ferric hydroxide; (*c*) *sulphuric acid*, magnesia; (*d*) *mercuric chloride*, white of egg; (*e*) *oxalic acid*, lime water.

12. *Urates* show a pinkish color, and dissolve on warming the urine. *Uric acid* is recognized by its crystalline form, and by the murexide reaction. The *murexide test* is: Add a little dilute nitric acid to the urine, evaporate to dryness, a yellowish-red residue is left, add a few drops of ammonia, the residue turns to violet. This is due to the formation of murexide (or purpurate of ammonia).

GENERAL DIAGNOSIS.

1. See French's "Practice of Medicine" (1907), page 701; or Osler's "Practice of Medicine" (1909), page 636.

2. See French's "Practice of Medicine (1907), page 284; or Osler's "Practice of Medicine" (1909), page 240.

3. See French's "Practice of Medicine" (1907), page 585; or Osler's "Practice of Medicine" (1909), page 799.

4. See French's "Practice of Medicine" (1907), page 1117; or Osler's "Practice of Medicine" (1909), page 1045.

5. See French's "Practice of Medicine" (1907), page 1047; or Osler's "Practice of Medicine" (1900), page 889.

6. See Rose and Carless' "Surgery" (1908), page 521; or Da Costa's "Surgery" (1908), page 506.

7. See French's "Practice of Medicine" (1907), page 759; or Osler's "Practice of Medicine" (1909), page 485.

8. See French's "Practice of Medicine" (1907), pages 935, 943, and 947; or Osler's "Practice of Medicine" (1909), pages 408, 410, and 425.

9. See French's "Practice of Medicine (1907), pages 322, 323, and 330; or Osler's "Practice of Medicine" (1909), pages 136, 137, and 144.

10. See French's "Practice of Medicine" (1907), page 421; or Osler's "Practice of Medicine" (1909), page 267.

11. See French's "Practice of Medicine" (1907), page 1030; or Osler's "Practice of Medicine" (1909), page 946.

12. See French's "Practice of Medicine" (1907), page 852; or Osler's "Practice of Medicine" (1909), page 550.

PATHOLOGY.

1. *Degeneration* is a pathological process in which abnormal substances are formed within living cells, or the entire cells are transformed into abnormal material.

Atrophy is decrease in the amount of a tissue, owing to diminution in size (simple atrophy) or number (numerical atrophy) of the histological elements of which it is composed. There are also loss of weight and impairment of function. There is no definite disease of the cells or tissues; frequently the two conditions (degeneration and atrophy) merge, and it may be difficult to draw a dividing line between them.

2. In *tabes dorsalis* the posterior columns of the spinal cord and the posterior nerve roots are involved. The posterior columns of the spinal cord are gray and shrunken, and show considerable overgrowth of connective tissue in the columns of Goll, Burdach, and Lissauer; this process extends upward from the lumbosacral region; the posterior nerve roots degenerate and become atrophic. The meninges over the affected parts become opaque and adherent. Some of the cranial nerves may also atrophy, notably the optic, but also the motor oculi and vagus. The process is destructive and progressive; it is not a simple wasting, although the nerve fibers are atrophied, but it is characterized by irritation, changes in the axis cylinders, overgrowth of the connective tissue, and sometimes congestion; the spinal ganglia may be affected.

3. See French's "Practice of Medicine" (1907), page 239; or Osler's "Practice of Medicine" (1909), page 15.

4. For the changes, in general, see French's "Practice of Medicine" (1907), page 939; or Osler's "Practice of Medicine" (1909), page 412. As to the distinction asked in the question, we can find no information.

5. The average blood pressure in adults fifty to sixty years of age is about 100 to 145 mm. mercury. If this pressure is exceeded for a considerable time there will be hypertrophy and dilatation of the heart; possibly, also, bursting of a blood-vessel, with its consequences.

6. Sarcoma is the most usual malignant growth in bone; the reason is that bone is a connective tissue, and sarcoma is the only malignant tumor of the connective tissue type.

7. Cerebral embolism most frequently occurs as a result of vegetations of an endocarditis. The artery of the Sylvian fissure is most likely to be affected, owing to anatomical conditions by which the embolus takes the most direct route from the left side of the heart to the brain (through the aorta, left common carotid, internal carotid, middle cerebral, and so to artery of Sylvian fissure). The anterior cerebral artery may also be obstructed; or the posterior cerebral (in which case the embolus travels along the vertebral and through the basilar).

8. See French's "Practice of Medicine" (1907), page 454; or Osler's "Practice of Medicine" (1909), page 252.

9. See French's "Practice of Medicine" (1907), page 599; or Osler's "Practice of Medicine" (1909), page 820.

10. In old age the walls of the bladder grow thicker, and the capacity becomes smaller; in men the prostate gland enlarges; urinary troubles follow, caused partly by the above and partly by diseases of the kidneys or other organs. All the resisting and recuperative powers of the body are diminished, the reparative processes no longer act, or act feebly and slowly; the nutrition of the tissues is enfeebled; hence diseases tend to become chronic. Degenerative processes are also common.

OBSTETRICS.

1. See Williams' "Obstetrics" (1909), pages 480 and 916; or Hirst's "Obstetrics" (1909), pages 263 and 674.

2. There is no fixed time for the ligation of the cord; as a rule it should not be ligated till it has ceased to pulsate, unless there is some urgent reason to the contrary. Dry, aseptic cotton or gauze (borated or salicylated) makes the best dressing. It should be kept dry and aseptic, and, if possible, be touched by no one but the physician. The dangers of improper dressing are: Infection, peritonitis, and death of the child.

3. *Injuries which may occur to the birth canal during labor:* Lacerated perineum, tears and abrasions of labia, injuries of blood-vessels, laceration of vagina, laceration of vulva, injuries to levator ani muscle, lacerations of cervix, rupture of uterus, instrumental perforation of uterus, inversion of the uterus.

4. ANESTHETICS are used in labor to lessen suffering produced by labor pains; to lessen the pain attending obstetric operations; to relax the uterus when its rigid contraction interferes with version; to promote dilatation of the os uteri; to reduce excessive nervous excitement which may interfere with progress of early stage of labor; to relieve eclamptic convulsions and mania; in cases of uterine inversion to relax the constricting cervix and so facilitate replacement; in bipolar version to lessen pain of introducing the hand into vagina; in precipitate labor to suspend action of voluntary muscles and retard delivery; in all cutting operations upon the abdomen; and sometimes in sewing up a lacerated perineum when many sutures are required.—(From King's *Obstetrics*.)

Dangers: It lessens the efficiency of the uterine contractions; it predisposes to postpartum hemorrhage; and, if given too freely, may be followed by headache, nausea, and vomiting.

5. PREMATURE RUPTURE OF THE MEMBRANES. *Causes:* Deformed pelvis, shoulder presentation, unusual friability of the membranes, endometritis. The progress of labor is lengthened and rendered more difficult; hence infection is

more likely. It conduces to laceration of the cervix, rupture of cervix, prolapse of funis, maternal exhaustion and shock, and fetal death.

6. See Williams' "Obstetrics" (1909), page 140; or Hirst's "Obstetrics" (1909), page 86.

7. *Adherent placenta* is not common. It cannot be expressed. There is no descent of the cord. Pressure on the fundus causes a thrill of the cord; there is hemorrhage.

In *retained placenta* the opposite of the above will be observed. For *treatment* see Williams' "Obstetrics" (1909), page 301; or Hirst's "Obstetrics" (1909), pages 434 and 436.

8. See Williams' "Obstetrics" (1909), page 211; or Hirst's "Obstetrics" (1909), pages 200 and 389.

9. *False pains* are irregular uterine contractions which occur before the beginning of labor, and which may be either painful or painless, and which do not cause the "show," nor yet dilate the os.

True pains are uterine contractions occurring at the beginning and lasting through the first two stages of labor. They are usually very painful; they advance labor, dilate the os, and cause the "show."

10. See Williams' "Obstetrics" (1909), pages 833 and 836; or Hirst's "Obstetrics" (1909), pages 593 and 597.

11. See Williams' "Obstetrics" (1909), page 81; or Hirst's "Obstetrics" (1909), pages 57 and 61.

The relation existing between ovulation and menstruation is not known. The two processes are usually coexistent, but they may be independent of each other. The following theories have been held: (1) Menstruation is dependent upon ovulation; (2) ovulation is dependent upon menstruation; (3) they are independent of each other; (4) they both depend upon some other (at present unknown) cause.

12. See Williams' "Obstetrics" (1909), page 824; or Hirst's "Obstetrics" (1909), pages 614 and 616.

GYNECOLOGY.

1. "Many cases of displacements are so complicated by prolapsed and adherent ovaries, by advanced disease of the ovaries and Fallopian tubes, by tumors, by inflammatory exudates, or by peritoneal adhesions that replacement is impossible, or, replacement being possible, the pessary is either intolerable from pain or proves inadequate to sustain the uterus. Such cases, unless relievable by non-surgical measures, furnish a definite indication for surgical treatment."—(Dudley's *Gynecology.*)

2. *Pelvic hematocele* is an accumulation of blood in the pelvis, due to rupture of a blood-vessel; it is generally due to rupture of a tubal pregnancy, or to a tubal abortion. *Symptoms:* Pain, which is sudden and severe, over abdomen and pelvis; nausea, cold perspiration, cold extremities, pulse rapid and weak, pinched features, and shock.

3. PELVIC CELLULITIS. *Pathology:* "Pelvic cellulitis is the inflammation of the connective tissue in the pelvis, above the pelvic diaphragm. It is particularly found in the broad ligaments, the surroundings of the cervix, and the sacro-uterine ligaments. It may be acute or chronic. The former may arise from a tear in the cervix extending into the parametrium, spread from the interior of the uterus, or originate in the depth of bruised tissue. Generally it is combined with peritonitis, lymphangitis, or phlebitis. It is as a rule unilateral. It may be traumatic or septic. Both are caused by germs, but the former is due to simple saprophytes, the latter to pathogenic microbes. Either of them may be puerperal or non-puerperal. The traumatic spreads in the loose connective tissue lying between the denser membranes; the septic does not respect any boundary. First, there is a stage of infiltration, which may end in resolution, induration, or suppuration. Of all pelvic inflammations, cellulitis is the one most prone to end in suppuration. The pus spreads, and the abscess may open in a way similar to that followed by an intraperitoneal one; but while the puerperal form has a tendency to break through the skin, the non-puerperal form usually opens into one of the hollow organs. Rupture into the peritoneal cavity is rare. Cellulitis may end in cicatricial retraction, causing uterine displacement. Indurated tissue is apt to suppurate after a long time. *Physical signs:* The patient may have a chill, there is a rise in temperature; the pulse is accelerated; she has pain in the lower part of the abdomen, and perhaps vesical and rectal tenesmus; she has no appetite; and her tongue is furred. But the pain does not come on so suddenly as in peritonitis, and is not so severe. There is less tendency to vomiting, and no meteorismus. By vaginal examination we find the vagina hot, swollen, and tender. If the seat of inflammation is in the broad ligament, we find at the side of the uterus a tumor that is sensitive on pressure and crowds the uterus to the opposite side. If both ligaments are inflamed the uterus is lifted up. If the sacro-uterine ligaments are inflamed we feel one or both folds at the top of Douglas' pouch swollen and sensitive. More rarely the swelling is situated behind or in front of the uterus. If the affection extends into the iliac fossa the corresponding leg is drawn up. If the tissue suppurates the swelling becomes softer, but rarely distinctly fluctuating, and there is an increase in the fever."—(Garrigues' *Gynecology.*)

4. The *most common causes of sterility in woman* are: Gonorrhea, absence or errors in development of any part of the genital tract, malformations of genitals, fistulæ, lacerations, obesity, alcoholism, pelvic inflammations, dyspareunia, inflammations of uterus, tubes, or ovaries, elongated cervix. The cause may not be in the woman, but in the man.

5. In *pudendal hernia:* There is a tumor which is soft, insensitive, and rounded; and which is apt to disappear with a gurgling sound on pressure or if the patient is put in the knee chest position; it is tympanitic on percussion, and may give an impulse on coughing. In *pudendal hematocele:* There is generally a history of trauma, no impulse on coughing, no resonance on percussion, and it is not reducible.

6. By *perineorrhaphy* is meant the various operations that are performed for the repair of lacerations of the perineum in the female.

7. *Chronic endocervicitis. Etiology:* Bacteria, especially gonococci; lacerations of the cervix, tumors, polypi, and excessive coitus. *Pathology.* The inflammation may spread, causing endometritis, salpingitis, ovaritis and peritonitis; the body of the uterus is very apt to become involved. The mucous membrane becomes congested, thickened, and everted, and the cervix appears hypertrophied; the secretion is increased and is thick, ropy, viscid and profuse. The cervical epithelium becomes eroded and the glands become enlarged.

8. See Rose and Carless' "Surgery" (1907), page 1285.

9. In both cases the prognosis is bad, a fatal result being inevitable unless timely and thorough operation is performed. Cancer of the body of the uterus progresses much slower than cancer of the cervix, and therefore in the former the disease will last longer. In cancer of the cervix the only hope lies in an early diagnosis, followed by operation. Hysterectomy gives much better results in cancer of the body of the uterus than it does in cancer of the cervix; the ratio of cures being about 60 per cent.: 5 per cent. So the prognosis may be said to be better in cancer of the body of the uterus.

10. A *tampon* is a small roll of absorbent cotton, about 2½ x 1 inches, and is inserted into the vagina either with or without some medicinal substance. Around the center of the tampon is a strong string, long enough to hang out from the vulva, and by which the tampon can be removed. The details of the mode of use will depend upon the condition for which the tampon is used. In any case the patient's bowels should be empty, and as a rule she is placed in either the dorsal or knee-chest position. The tampons are removed after about 36 hours, and a douche is then taken. The *purposes* of a vaginal tampon are: For controlling hemorrhage, either vaginal or uterine; to exert pressure; to support the uterus; as a means of applying medication locally; and for depleting inflammatory conditions.

11. *Chancre of vulva* is the first lesion of syphilis, is due to infection, has a long period of incubation, is generally single, is not as a rule painful, only occurs once in a patient, buboes are apt to follow. *Herpes of vulva* is a local neurosis, is due to irritation, has no incubation period, consists of multiple vesicles appearing in crops, tingles and itches, has no lymphatic involvement.

12. *Muscles of perineum:* Transversus perinei, sphincter vaginæ, erector clitoridis, compressor urethræ (and levator ani). *Functions of perineal body:* It holds in position the lower end of the rectum, vagina, and urethra and enables them to perform the functions of defecation, coitus, parturition, and urination; it strengthens the pelvic floor.

HYGIENE.

1. See French's "Practice of Medicine" (1907), page 267; or Osler's "Practice of Medicine" (1909), page 234.

2. See French's "Practice of Medicine" (1907), page 107; or Osler's "Practice of Medicine" (1909), page 96.

3. *A septic tank* is a specially constructed tank for the treatment of sewage; in it the sewage as such is destroyed, and new substances are built up in its place. In *Cameron's septic tank* system "the sewage is first led into a tank from which air and light are excluded. Digestive changes take place in the sewage within this tank as the result of anaërobic bacterial action, which is favored by the dark-

ness, the absence of air, and the perfect stillness at which the sewage is maintained. Under these circumstances much of the solid matter is rendered soluble and dissolved."—(Notter and Firth's *Hygiene.*)

4. Hygienic precautions to be taken in treating a case of tuberculosis: "The patient's quarters should be free from dust and admit of his spending many hours daily in the open air in all weathers, properly sheltered, and, if very ill, lying wrapped in a hammock or reclining chair. His bedroom should be well aired at night, draughts being avoided. The room should be uncarpeted and free from hangings. It should be often cleaned and periodically disinfected. All sputum should be collected in paper spit-cups, which should be burned daily. Smoking should be forbidden. Harm is done by any exercise which results in fatigue, and while fever exists it should not be attempted at all. Patients should be taught the necessity of practicing lung gymnastics and breathing only through the nose, which should be kept clear and free from occlusion by secretions, or an hypertrophied catarrhal mucosa. * * * The clothing should be woolen, but not too heavy, or sweating is increased; and a flannel night-gown and loosely knit leggings should be worn at night in cool weather. The skin should be cleansed daily with alcohol and water."—(Thompson's *Practical Medicine.*)

5. See French's "Practice of Medicine" (1907), page 474; or Osler's "Practice of Medicine" (1909), page 28.

6. The best means of fumigating by formaldehyde gas are: (1) By Trillat's apparatus, which "allows the solution of formalin to flow in a fine stream through a copper coil heated to redness by a flame beneath, and the gas and vapor passing directly into the room. The apparatus may be operated outside of a room, and the amount of gas liberated depends directly upon the strength and quantity of the solution evaporated. (2) In Schering's method the solid paraform is heated in a receptacle over an alcohol lamp, and is especially valuable in disinfecting small rooms, closets, etc. (3) The cheapest and most common form develops the gas directly by the oxidation of methyl alcohol, the vapors of the latter passing over or through tubes or coils of heated metal.—(Gould and Pyle.)

To *fumigate by chlorine:* For 1,000 cubic feet of space pour two ounces of H_2SO_4 and three ounces of water, previously mixed and cooled, upon eight ounces of NaCl and two ounces of MnO_2. The fluids must be mixed slowly and with care, and the salts should be in an earthen vessel upon a bed of sand. The generating apparatus should be high because chlorine gas is heavy.

To *fumigate by sulphur dioxide:* For each 1,000 cubic feet of space, three pounds of sulphur are burned, care being taken to prevent accidents. In all cases, all apertures and crevices of the room should be closed, all closets, drawers, or other receptacles opened; and after the fumigation the room should be well ventilated and thoroughly cleansed with a solution of corrosive sublimate.

7. Gonorrhea exerts an inhibitory influence upon the procreative capacity of both man and woman; in the man it may cause oligospermia, azoospermia, spermatozoa without power of movement, epididymitis, stricture, etc.: in the woman it may cause vaginitis, endocervicitis, endometritis, salpingitis, ovaritis. Each of these may interfere with propagation. Syphilis may cause disease or death of the fetus. Hence both gonorrhea and syphilis tend to prevent the propagation of the human species.

8. See French's "Practice of Medicine" (1907), page 499; or Osler's "Practice of Medicine" (1909), page 45.

9. See French's "Practice of Medicine" (1907), page 311; or Osler's "Practice of Medicine" (1909), page 127.

10. *Incubation period of: Plague*, is about 2 to 7 days; *Smallpox*, about 12 days; *Diphtheria*, about 2 to 7 days; *Scarlatina*, about 1 to 8 days; *Measles*, about 7 to 14 days.

11. The object of traps is to prevent the passage of sewer air into houses. If there were no traps sewer air would enter the houses, and there would follow symptoms such as: Vomiting, diarrhea, headache, prostration, pallor, languor, loss of appetite, and susceptibility or liability to certain infectious diseases would be increased.

12. *Two types of water filter:* 1. The first has a filtering medium of carbon (charcoal), or iron. Such filters strain off the grosser suspended impurities and make the water more palatable through aeration. The best, when new, slowly oxidize organic matter, lessen hardness, diminish nitrites and ammonia, and increase nitrates. They do not remove disease germs; but may, after a few days' use, increase the number of bacteria. 2. The second type provides bacteriologically pure water, but has no effect on the chemical constituents in solution; its pores are so fine as to strain off all microorganisms. Of this class are the Pasteur-Chamberland filter of unglazed porcelain, and the Berkefeld filter of infusorial earth.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of September 10, 1910:

	Cases	Deaths
Tuberculosis Pulmonalis	617	148
Diphtheria	143	8
Measles	60	6
Scarlet Fever	83	2
Smallpox	—	—
Varicella	19	—
Typhoid Fever	165	12
Whooping Cough	60	3
Cerebrospinal Meningitis	3	6
Malarial Fever	—	—
Totals	1,150	185

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, during the week ended September 9, 1910.

CHOLERA.

PLACE.	DATE.	CASES.	DEATHS.
Austria, general	Sept. 13	..	..
In 8 localities on Danube between Kressburg and Mobacs.			
Vienna	Aug. 21-27	2	1
China, Amoy	July 17-Aug. 6	..	2
Hankow	Aug. 1-6	2	1
Germany, Kalthof	Sept. 14	10	6
Suburb of Marienburg.			
India, Calcutta	July 17-23	..	18
Kurrachee	July 24-30	1	1
Negapatam	July 8-15	..	22
Rangoon	July 24-30	..	1
Java, Batavia	July 24-30	25	12
Russia, general.			
May 8-Aug. 6, cases, 81,083; deaths, 35,759; July 24-30, cases, 15,244; deaths, 6,914.			
Astrakhan, government	July 24-30	240	100
Baku, government	July 24-30	132	74
Baku	July 24-30	118	41
Black Sea, province	July 24-30	95	35
Cronstadt	July 24-30	8	2
Daghestan, territory	July 24-30	31	19
Don, territory	July 24-30	3	..
Rostev on Don	July 24-30	133	26
Erivan, government	July 24-30	6	..
Esthonia, government—			
Reval	July 24-30	1	..
Kaluga, government	July 24-30	1	..
Kharkov, government	July 24-30	1	..
Khazan, government	July 24-30	246	120
Kherson, government	July 24-30	70	30
Odessa	July 24-30	106	40
Aug. 1-30, cases 126; deaths 78.			
Kief, government	July 24-30	72	44
Kostroma, government	July 24-30	258	122
Kuban, territory	July 24-30	2,416	1,324
Kursk, government	July 24-30	658	245
Mohilev, government	July 24-30	31	6
Moseow, government	July 24-30	1	1
Moscow	July 24-30	4	2
Aug. 7-13, cases 20; deaths 7.			
Nizhni-Novgorod, gov't	July 24-30	155	50
Novgorod, government	July 24-30	28	9
Orenburg, government	July 24-30	116	46
Podolia, government	July 24-30	54	22
Pensa, government	July 24-30	63	25
Perm, government	July 24-30	41	15
Poltava, government	July 24-30	307	129
Rjasan, government	July 24-30	222	78
St. Petersburg, gov't	July 24-30	27	11
Sarapul, government	July 24-30	529	283
Samara, government	July 24-30	655	278
Saratov, government	July 24-30	237	100
Simbirsk, government	July 24-30	172	69
Smolensk, government	July 24-30	3	2
Syr Darya, territory	July 24-30	4	2
Tambov, government	July 24-30	647	328
Taurida, government	July 24-30	191	101
Kertsch	July 24-30	37	11
Tchernigov, government	July 24-30	134	45
Terek, territory	July 24-30	475	102
Tiflis, government	July 24-30	164	74
Tula, government	July 24-30	10	4
Turgai, territory	July 24-30	1	..
Tver, government	July 24-30	4	..
Ufa, government	July 24-30	84	47
Viatka, government	July 24-30	67	36
Vitebsk, government	July 24-30	8	2
Vladimir, government	July 24-30	7	2
Volhynia, government	July 24-30	18	8
Yaroslav, government	July 24-30	102	42
Yetkaterinislav, gov't	July 24-30	1,700	822
Straits Settlements, Singapore	July 17-23	10	8
YELLOW FEVER.			
Brazil, Manaos	Aug. 7-13	2	2
PLAGUE.			
Brazil, Bahia	July 18-22	1	1
Egypt, Alexandria	Aug. 3-9	2	1
Port Said	June 14-Aug. 15	24	11
Provinces—			
Assiout	Aug. 5-13	1	1

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Original Articles.

STREET DUST AS A FACTOR IN SPREADING DISEASE; METHODS OF REMOVAL.*

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WHILE no one now believes, as did the Greeks and Romans in the earlier centuries of the Christian era, that devastating epidemics of pestilential diseases are visitations of Providence or angry deities, yet the fact that the majority of human ills result from neglect of certain precautionary, health-fostering measures, which an ever advancing science has placed at man's disposal, is not fully realized. There is no lack of unanimity of opinion among health officials, sanitarians, and physicians as to the evil consequences to the public health of the filth and dust of our streets. It may be put down as an axiom that cleanliness of our city highways and freedom from street dust is not less important to the municipality than a pure drinking water supply.

The question of the noxious influences exerted by street dust may be conveniently considered under two heads: (*a*) the effects of the inhalation of non-infectious street dust; and (*b*) street dust as a vehicle for conveying disease germs, or the influence of infective dust.

The effects of the inhalation of non-infectious street dust.—The far-reaching ill-effects of floating matter in the air have not been sufficiently emphasized by sanitarians and physicians in the past, and it must be conceded that the conditions essential to the generation and the diffusion of dust in the atmosphere of our thoroughfares are prevalent to a greater degree at present than at any previous period of time. Again, those charged with the removal of the dust from our streets have failed to cope successfully with the situation in the past.

The composition of the filth and dust ordinarily found in the streets varies decidedly in different cities, and also in different portions of the same city, depending upon the character of the predominant manufacturing establishments which discharge their refuse into the streets, the character of the fuel used, the degree of care exercised by the populace, and, lastly, the nature of the pavement and of the soil in the vicinity.

W. Gilman Thompson[1] regards the term street "dirt" as comprising any or all of the following ingredients: "(1) The ashes, house sweepings, etc., which are freely blown about from exposed ash carts and ash barrels. (2) The excrement of horses and dogs voided in the streets, to become dried, pulverized, and distributed by winds and traffic. (3) The irritating powdered asphalt, ground from the surface of the pavements, and often mixed into a slimy paste with mud, horse dung, and the petroleum drippings from automobiles. (4) Pulverized earth, plaster, iron dust, cement, etc., derived from buildings undergoing construction or demolition, and carried about the streets in loosely constructed wagons. (5) The earth from street excavations, usually impregnated with sulphides and other products from leaking gas mains. (6) The soot from chimneys, which eventually settles in the streets and in the winter becomes visible by blackening the snow. In addition, as less general filth factors, may be added: (7) The garbage which in the tenement districts is frequently overturned into the street, especially after heavy snowstorms, when its removal is neglected. (8) Human excrement which in the crowded tenement neighborhoods is often voided by children or adults in blind dark alleys and ill-lighted streets."

In general, street dust deposits contain mineral particles, which form mechanical irritants, organic matter, both animal and vegetable, of numerous and widely different conditions and character. The organic substances if allowed to lie in the streets for too long a period, particularly during the warm season, undergo more or less decomposition, giving rise to other and yet more powerful deleterious products.

The dust found so abundantly in our streets comes principally from two sources: first, that which results from allowing the filth and refuse of the streets to lie undisturbed until it becomes thoroughly desiccated, when it is in a great measure, at least, converted into dust, and secondly, that which is swept from the soil by wind-currents. Chimneys and smoke-stacks likewise furnish a considerable amount of the dirt deposits of the streets, as well as of the dust contained in the air of city streets, particularly in the manufacturing districts and along the route of urban railroads.

There is still another constituent of dust which it should be the pride of every community to eliminate, since its ill consequences are far-reaching: I refer to dessicated human expectoration. Little does the general public appear to understand that in street spitting we have one of the worst examples of the violation of sanitary laws and decency that could be cited. Sputum harbors various disease germs, particularly tubercle bacilli and streptococci, and this fact furnishes the chief reason why the dust of our streets (into which the dried sputum enters) is so decidedly prejudicial to the public health. We need not stop here to inquire whether pathogenic implantation is the result of inhalation or ingestion of the tubercle bacillus, but that dust disseminated by air-currents is one of the principal sources of the spread of tuberculosis, is an accepted fact.

*Read before the American Climatological Association, Washington, D. C., May 4, 1910.

Following a thaw after snow-falls, uncleaned streets are covered with a slushy mud of varying depth. This germ-laden dirt adheres to clothing and shoes, and thus dragged into the houses where it dries and becomes diffused through the house-air. The important subject of household dust as a factor in the dissemination of tuberculosis and other inhalation diseases and the measures indicated in private houses, clubs, theaters, office buildings, schools and churches, to meet the demands of hygienic living, however, is one that cannot be discussed here.

Among the important primary conditions caused by the inhalation, more or less constantly of street dust (minute irritating particles entering into its compensation), are nasopharyngeal irritation, at times leading to frontal sinus disease, pharyngitis, tonsillitis, laryngitis, asthma, and bronchitis. The floating matter in the air may cause a severe conjunctivitis and in sufferers from organic affections of the heart, the irritation produced by the inhalation of street dust into lungs may call forth pulmonary congestion and edema. The physical deterioration superinduced by an atmosphere thus polluted is manifested by cough, dyspnea, and other customary symptoms of the pathologic conditions before mentioned.

It is fair to assume that these conditions may be caused by non-infectious dust, and more than this, they establish a predisposition to more serious disease of the lungs, such as tuberculosis and the pneumonias. The indirect pathogenic properties of dusty trades has received startling proof from Scurfield's[2] observations on certain occupations in Sheffield. This writer has shown that the death rate of "grinders" from phthisis is more than six times and the death rate from other respiratory diseases nearly three times that of the average male; while the death rate of cutlers from phthisis is nearly three times and from other respiratory diseases nearly four times that of the average male.

The dangers of non-infectious dust when constantly inhaled in working hours are also shown by an investigation into the causes of death among the Metal Polishers' Union of North America.[3] The deaths were with few exceptions from pulmonary tuberculosis, the tubercle bacilli finding a favorable nidus for implantation and growth in the foci of irritation set up by the dust particles. For example, the statistics for 1903 show that 45 metal polishers died, of whom 43 succumbed to some lung trouble; in 1904 there were 38 deaths among them, of which only three were due to causes other than pulmonary disease, while in 1905, 70 deaths occurred among the metal polishers, 65 of which were due to some form of lung complaint. Sandwith's[4] careful studies of various industrial diseases have yielded confirmatory results. The above figures afford convincing proof that clean, uncontaminated dust may still prove a potent factor in the etiology of tuberculosis and other pulmonary diseases, although operating in an indirect manner.

Anthracosis due to coal dust (carbon particles) and the inhalation of vegetable dust set up chronic interstitial inflammation, which predisposes markedly to pulmonary tuberculosis. The mass of dried, pulverized material swept from our streets into the atmosphere by the winds, and that whirled up in the form of great clouds of dust by the automobiles, must be inhaled by passers-by with definite, evil consequences. It has been well said that our parks and boulevards have ceased to be breathing places where the poor and middle classes can go for fresh air, and that family outings to outlying parks implies a return to their homes at night choked with dust, instead of being refreshed by their outing. If we recall the composition of street dust, as given above, principally mineral and vegetable matters, and granting that it is for the most part non-infectious, it is clear that its daily inhalation must nevertheless induce a mechanical irritation which, in turn, invites infection with the tubercle bacillus and other pathogenic organisms.

Street Dust as a Vehicle for Conveying Disease Germs, or the Influence of Infective Dust.—The extent to which street dust is contaminated with disease-bearing germs must depend largely upon the hygienic precautions exercised in a community. Speaking of the dirt factor in the causation of disease, Thompson[1] observes that it is no exaggeration to state that nine-tenths of the acute inhalation diseases and chronic catarrhal diseases are due chiefly and directly to dirt inhalation. On the other hand, the experience of Hill with the diphtheria bacillus, and of Whipple with the typhoid bacillus, show these bacteria to be for the most part harmless in dust, unless such dust was very recently infected, since they cannot long withstand light and drying. Occasionally, the germs of scarlet fever, pneumonia, and possibly whooping cough, cling to particles of floating matter or flying dust. In the case of the tubercle bacillus, according to Jordan,[5] "sputum that is completely dried so that particles are capable of floating in the air may be infective for eight or ten days, rarely longer."

Unquestionably the spitting nuisance in our public streets has been responsible for the infection of street dust with tubercle bacilli in the past. The fact is fully appreciated at date of writing that if expectoration on sidewalks and streets were everywhere prohibited the possibility of street dust becoming infected with tubercle bacilli, pneumococci, the germs of influenza, meningitis, measles, scarlatina, and other pathogenic bacteria would be reduced to a minimum. The importance of reasonable care of the sputum, if we would avoid contamination of the atmosphere of our homes, sanatoria, street cars, railway coaches and the like, has been abundantly shown by the experimental studies of Dr. Samuel G. Dixon, Health Commissioner of Pennsylvania; Dr. Irwin Hance, for the city of New York, and others.

McCarthy[6] justly incriminates the house fly as a carrier of infection. Attracted by the vegetable and animal matter found in the dust of the street, he next transports himself, bearing the germs of tuberculosis or pneumonia, to a neighboring candy or fruit store. Again, he may have visited first a typhoid fever patient, and subsequently been attracted to a nearby fruit store or candy shop.

In this connection reference should be made to the custom of exhibiting for sale food supplies, as vegetables, fruits, fish, meats and the like, in places where they are exposed to contamination by flies and street dust. The danger of infection of exposed foods with tubercle bacilli and typhoid bacilli must be great where flies have access to these and also to infected street dirt. Under these circumstances infection via the intestinal route with pathogenic organisms, such as the *Bacillus typhosus*, tubercle bacillus, and the *Bacillus coli communis* (from horses and other animals and contained in the dust), would appear to be obvious.

It must be conceded, however, that opportunities

for infection, either through inhalation of dust or the ingestion of uncooked foods, have been reduced by the well-enforced laws against spitting on the sidewalks and by the greater care exercised in the disposal of typhoid dejecta. On the other hand, we must recognize the fact that the dangers of street dust as a vehicle for conveying disease-producing organisms, and also opportunities for inhaling dust, have been infinitely increased since the introduction of the automobile as a means of transportation, for the reason that as a dust raiser that modern invention stands unique. On the other hand, the automobile tends to improve the hygienic status of city streets by removing the pathogenic possibilities of the feces of the horse.

If it be conceded that tuberculosis infection is capable of being disseminated by means of air currents and also that the dried, pulverized sputum to be found in dust is one of its principal primary sources as well as methods of extending its ravages, then it is clear that the automobile is profoundly prejudicial to public health, except means be found to successfully prevent dust formation. Finally, it is freely admitted that the indoor air, laden with bacilli containing dust, is even more dangerous than the outdoor air similarly charged.

Means of Removing Street Dust.—In view of the overwhelming mass of evidence, which proves the presence of lurking dangers of street dust, a warfare against this form of air poisoning until victory is assured would be both timely and of the utmost importance. It is not less the duty of cities, towns, and villages to provide pure air for the inhabitants to breathe than to provide them with first-class drinking water. Perhaps the principal reason why street cleaning is so indifferently and ineffectually carried out in most cities resides in the curious subdivision of work and responsibility connected therewith, whereas I feel strongly that it should be controlled solely by the health department of a municipality.

There are feasible and approved modern scientific methods adaptable to local conditions, and these are known to trained sanitarians, sanitary engineers, and physicians, who should constitute the personnel of health boards and are fitted to suggest suitable legislation where the necessity for the enactment of laws may exist. In this connection it may be pointed out that a careful consideration of modern methods of cleaning the streets has led me to the conclusion that the vacuum or pneumatic method as practised in Berlin gives the best results; it possesses two marked advantages: First, the street dirt is removed without raising any dust, and secondly, the process insures a more rapid, satisfactory, and complete cleansing than is obtainable by other methods. Quite apart from administrative efficiency and concentrated responsibility as bearing upon the question of street cleaning, the dust problem with which we are principally concerned here must be met.

True, the chronic state of filthy, dust-covered streets tends to maintain and exaggerate under the action of gusty winds floating matter in the air, and equally true is it that properly cleaned streets would go a long way toward the effectual removal of the atmospheric dust, but this menace to health would not be entirely overcome so long as pavements having dust-producing properties are used. In many suburban settlements, towns, villages, noted resorts, and public highways in which it would be impracticable to remove all of the street dirt and filth deposits, means to suppress dust must be provided. It is quite within strict truth to affirm that many resorts have been rendered uninhabitable by the dust whirled up in dense clouds by the automobile.

Moreover, the inspiration of dust in the air can be shown to be sufficiently deleterious in its effects when carried deep into the respiratory tract to make it incumbent on the proper authorities to effect the needed arrangements so far as they are known to remove the atmospheric dust contamination. While the prospect of the removal of dust from the air by appropriate municipal legislation are not particularly encouraging at present writing, still the question of the possible influences of this agency as affecting the prevalence and mortality of pulmonary tuberculosis has been receiving considerable attention at the hands of medical authorities, sanitarians, and sociologists, and it is to be hoped that public sentiment will soon become sufficiently matured to compel the enforcement of suitable measures looking to its removal, and in no way could more substantial progress in urban sanitation be realized.

In Italy, Gaglielminetti has been waging a campaign for years on behalf of the application of crude oil to roadbeds; he has adduced convincing evidence to show that the method costs but little more than one cent a square yard, while it renders the roads more resistant and saves repairs with entire suppression of the dust. On the other hand, tests made of petroleum products to prevent dust on highways by Cristiana and Michelis have not proved satisfactory.

Again, it must be recollected that the use of crude oil is inadvisable in streets paved with asphalt, which absorbs this substance. The method of allaying street dust in cities by means of street sprinkling is to be advised and encouraged throughout the nonfreezing period of each year. It must be confessed, however, that the watering of streets in this manner is impracticable in many towns and smaller cities owing to the expense involved. Josias suggests that automobile makers should study to obviate the raising of dust; "the escapement should not point downward, the tires should be full, and the under part of the frame should be smooth. The ideal would be to have the body egg shaped, sloping up toward the back."

Among measures advised by a committee appointed by the Stuttgart Medical Society in 1907 to discuss the question of the prevention of dust were to keep the streets carefully cleaned and warning notices in regard to the dangers of dust to be placarded by the Board of Health. Slack[7] well says: "Street sweeping at night, such as is usual in market districts, is to be commended, thus avoiding the stirring up of large quantities of dust during the day when the streets are crowded. Oiling and watering the streets are wise sanitary precautions, and money spent on these means of keeping our streets free from dust is saved a hundred times over in the health of the people."

It is in accordance with the eternal fitness of things that the American Climatological Association should wage a campaign against dust-laden street air, and thus increase its powers of ministering to the welfare of the general public. Such a great task could not be carried out, however, except by the creation of separate commissions for the different large cities and sections of the United States in which little or no attention has been paid to the question of combating street dust, and these should

work through or in conjunction with local health departments.

I would further submit the practical suggestion that a committee of the American Climatological Association be appointed to consider the subject from its hygienic and medical aspects, and to make a report at the next annual meeting. The legitimate scope of this committee should include an appeal to the mayors of all cities, requesting them either to appoint special commissions or to urge existing bureaus of health to study the problem with special reference to the good results already obtained in certain of the larger municipalities of this country with a view to overcoming the unhealthful conditions to which an unsuspecting public is now well-nigh constantly subjected.

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SURGERY IN ITS RELATION TO NERVOUS PATIENTS.*

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The relation of surgery to that large class of patients often erroneously called nervous, neurasthenic, or hysterical has been more closely defined since the recent advances in diagnosis and the reclassification of nervous diseases.

If we divide such cases into classes we find they fall most readily into the following groups:

(1) Organic disease with nervous symptoms. This class may include any surgical condition, but nervous symptoms are particularly manifest in the ptoses and malpositions of the abdominal viscera, defects in the genitourinary tract and exophthalmic goiter. (2) Nervous disease accompanied by or complicated by a surgical condition. (3) Nervous conditions associated with somatic symptoms without demonstrable organic lesion.

In the consideration of the first group the nervous symptoms may so mask the organic condition that diagnosis may be mistaken, or, what is of almost equal disadvantage to the patient, delayed. It would seem that not sufficient emphasis has been laid on the fact that neurasthenia and its more recently named kindred condition, psychasthenia, are comparatively rare diseases, *per se*, and that a most rigid examination may reveal a grave medical, or, more frequently, surgical condition, whose presence is not suspected by the patient himself. Treatment of such a condition, whether medical, psychic or Emmanuel, is not advantageous so long as the organic condition remains unchanged. Attention should therefore be directed to the relief of the organic condition when discovered, but that does not mean of necessity immediate operation. In my opinion the recovery of many cases has been retarded and the completeness of the cure jeopardized by neglecting the fore-treatment or preoperative treatment of the patient. This should include rest, quiet, carefully supervised hygiene, and such other means as may be appropriate to place the patient in as good physical condition as is possible before operation.

This may present a perplexing dilemma to the medical advisor as an operation that is imperatively necessary, from the physical standpoint, may be such a strain on the vital reserve that it leaves the patient nervously bankrupt by the strain of the operation which was designed for the amelioration of the nervous condition. This calls for a most careful review of the patient's condition, mental, nervous and physical, before any operation is attempted and the delay of operation, if possible, until a near-equilibrium has been restored.

The importance of mental rest, combined with carefully supervised hygiene after operation, including such exercise, massage, etc., as may be advisable or available in each case, is capital; and no greater error could be made than to suppose such a person on the way to recovery merely because the repair of the surgical procedure has progressed favorably to healing, and under no circumstances should they be permitted to resume their ordinary activity until in the judgment of their advisor they have a sufficient nervous balance to enable them to withstand the strains which are unavoidably present on their resuming a normal activity. Neglect or slighting of such after-treatment may precipitate not only a renewal but in all likelihood an intensification of the nervous symptoms. This emphasizes the importance of the non-surgical treatment of such cases and the fact that the surgical treatment is but a phase of the general care of the patient though an essential one.

In the presence of any organic nervoous disease, such as the spinal scleroses or neuritis with secondary degenerations, any surgical condition which arises must be met by palliation unless such condition compels radical operation to save the life of the patient. This is true even in a stronger sense when there are any evidences of general trophic change or the viscera show pathological conditions dependent on, or concomitant with, the causative disease. There are numerous incidental conditions occurring in the course of nervous diseases which may by proper treatment be so ameliorated that the patient can be made more comfortable and endure the original condition with greater resistance; but in all cases except when absolutely necessary to preserve the patient's life, the advisability of operation depends rather on the course and prognosis of the nervous complaint than on the prognosis of the allied or concomitant surgical disease.

In the group mentioned under the head of nervous conditions with somatic symptoms but no demonstrable lesion, the patients generally present an obsession of surgical disease or have been informed, frequently erroneously, that their symptoms could be accounted for by some surgical lesion, or, having tried all other methods, take in desperation a surgical operation as their final hope. While it is not the intention to recite cases, one of this kind may be adduced as this patient has been under observation for several years.

J. F., a successful business man, for ten years has complained of a "feeling" in his abdomen. This is located below the ensiform cartilage, is not changed by the ingestion of food, is always present, and particularly so when harassed, or worried, or tired. The patient is well nourished and physical examination is negative. He has been to several rest

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cures, sanatoria and health resorts, where his only change is a gain in weight. When he returns to business he drops to his normal and stays there. He has been seen by the most eminent consultants in New York, Philadelphia, and Baltimore; has followed out various treatments and diets to no result, and has been told that he has a gastric neurasthenia. Gastric analysis by an acknowledged expert showed no abnormality in stomach digestion, and examination of the feces showed nothing abnormal. At the suggestion of this last-mentioned practitioner he welcomed with enthusiasm the removal of his appendix. This was done a year ago; the appendix showed one slight kink, but no obstructions, and otherwise was normal; there was an uneventful recovery and absence of gastric symptoms until he was allowed up, when they came back with full force. At present the patient is the same as he was ten years ago with a somewhat diminished regard for the medical profession, though he is much pleased to know he has no abdominal disease, as a careful examination was made when the appendix was removed. This represents one condition and what surgery did for him. Here the question arises, "To what extent is a surgeon justified in undertaking surgical interference at the behest of the patient when he feels confident that no surgical condition is present; where all the symptoms are subjective?"

The notorious uncertainty of external abdominal diagnosis, in many instances, and the numerous pathological conditions unexpectedly found at operation should lead one to regard a persistent impression on the part of the patient that some surgical condition is present with the most serious attention, even when such symptoms are manifested by an apparently healthy patient with a neurotic tendency, and all means of diagnosis, including exploration, should be exhausted before the medical advisor may deem himself justified in pronouncing that patient physically sound.

The fact that a patient has had a similar complaint, antedating the one for which he seeks advice, and has recovered from it under favorable hygienic surroundings should not influence us too much against the diagnosis of a possible organic lesion and cause us to dismiss such a patient with the diagnosis of neurasthenia. As an instance, peptic ulcer, either gastric or duodenal, may heal spontaneously and entail no symptoms until a renewal of the condition or cicatricial contraction has induced symptoms which, as is well known, may be entirely subjective and offer no positive signs. The same may be said of gallstones and its train of gastric symptoms, and we are all familiar with the frequent finding of evidence of stone or inflammation in the gall bladder when the abdomen is opened for other and more obvious reasons. Again, chronic obliterative appendicitis may never offer an opportunity for diagnosis but may lead to a train of symptoms which may readily be attributed to hyperesthesia of the nervous system.

Persistent localized pain in the abdomen should never be diagnosticated as nerves without a complete examination, including exploration, if such exploration will not militate against the patient's general condition, as we have all seen cases who were much relieved when they were authoritatively assured that no pathological change existed in the abdomen. The advance in surgical technique has placed us in a position where we may recommend it to patients with confidence as having, *per se*, no unfavorable aspects.

There are two other sets of cases in which operation is debatable, and in which numerous conditions peculiar to each case render almost impossible any general rule as to surgical procedure. I refer to exophthalmic goiter, and to that large class of cases whose name ends in ptosis.

In regarding exophthalmic goiter as a nervous disease there is doubtless an opportunity for an exception, but in so many cases the nervous symptoms associated with this disease predominate that clinically it may be so considered. The operative treatment is fraught with so many and so grave dangers that its study has brought forth some remarkable statements. The methods of Kocher of Berne to avoid the dangers of the administration of an anesthetic; the mortality in very skilful hands; the endeavor to remove the dangers of anesthesia by repeated etherization, and some of the disadvantageous postoperative results are but a few of the many factors to be considered in the surgical aspect of the disease. Since the introduction of the Rodgers-Beebe serum many cases which showed no improvement under medical care have been cured, and many also improved, so that it would seem that in the cases where this treatment is available and appropriate it should be chosen before surgical interference; but there are, however, a large number of cases still remaining which demand surgical treatment if anything is to be done for the sufferers from this disease. These cases may be grouped for brevity as follows: (1) Those in which serum treatment or other medical treatment has proved unavailing. (2) Those in which the above treatment is not applicable, either because it does not act, or when the activity of the disease renders such a slow method impossible to the patient. (3) Those cases in which the thyroid gland has become so enlarged that pressure is exerted to an alarming extent on the trachea and esophagus.

In these three groups of cases it seems that surgery is imperative and many of the radical cures are so complete and offer such a good prospect of renewed and continued health that surgical treatment would seem to claim a larger number of adherents in the future.

That very large group of cases in which nervous symptoms predominate, which result in or are concomitant with the displacement of abdominal viscera, has afforded a wide field for surgical endeavor, and yet the results, even with the best of methods and in the most skilled hands, have not been uniformly satisfactory. In general it may be said that the surgical operation, though it tends to restore a more nearly normal relation to the abdominal viscus, which is the point of operation, never succeeds in completely remedying the condition, but places that viscus in its place to be there maintained by cicatricial or by other means; and, further, while one organ may be so treated, the other viscera may be in a condition of partial prolapse and it is not possible to sew fast all the contents of the abdomen.

There is, however, another aspect, and that is that many symptoms may be entirely relieved and some greatly ameliorated by the suitable employment of fixation operations. The best results are those seen after operations on the uterus and its adnexa, and in the great majority of cases where these organs are the only ones displaced it would appear that they may be maintained in a normal position and cause no further trouble to the patient.

The movable kidney with its train of symptoms

has been the seat of operation very numerous times, and the records are copious enough to possess considerable value. There is, of course, no question that operation is advisable when symptoms referable to the kidney itself intervene, as hydronephrosis, but the weight of surgical opinion inclines to the operation of nephropexy when only intestinal symptoms are present or when Dietel's crisis make their appearance. The results are on the whole favorable, and the condition being one which involves little danger, the fear of minute cysts in the kidney surface as a result of the sewing being negible, should be recommended for operation when the kidney alone is movable.

In general splanchnoptosis there is little question of surgical operation, but in the few cases of hepatopexy that have been followed for a sufficient time, it seems that the results are not unfavorable. The various operations for gastropexy have on the whole been unsatisfactory so far as relief of symptoms is concerned, though anatomically successful.

Cases Harmed by Operation.—To what extent are patients harmed by operation? Many claim to have been made nervous wrecks by operation, but a careful analysis of these cases will show that those precautions mentioned earlier in this paper in regard to the preoperative and postoperative care have either been neglected or slighted or that the patient never was given or never took a chance to recover fully from the operative procedure superadded to the preexisting nervous insufficiency.

Those rare cases which may be said to have the operation habit exhibit the antithesis of the last group, but present almost the same symptoms, and are eager to persuade the surgeon to perform radical operations for the most trivial complaints. It will be seen from the foregoing that the attitude of the surgeon to such nervous cases is practically that toward any patient whether suffering from any nervous complaint or not, but that he must regard his surgical activity as but an incident—however essential it is—in the general treatment of the patient. There is, however, one class or type in which operation should be avoided unless absolutely imperative. This group may not readily be defined. They were "delicate" children, have been nervous or hysterical for years, always looking for sympathy, dependent mentally and physically, and feeling no gratitude for whatever may have been done for them. Many of this type, generally young women, have had various viscera removed or readjusted, and if they do not make the surgeon the object of litigation, they at least blame him for their continued invalidism.

In all cases where there is even a remote doubt as to the diagnosis of where there is any uncertainty as to the benefit accruing to the patient from operation, the opinion of careful medical and nervous expert diagnosticians should be obtained to determine so far as possible the exact physical and nervous potentialities of the patient.

In conclusion we would suggest:

I. Greater care in the diagnosis of nervous affections.

II. More rigid investigation of possible associated medical diseases.

III. Exact determination, if possible, of the association or disassociation of the nervous part and physical part of the disease.

IV. Reconsideration of operation in all cases.

V. The appreciation of the profound effect of surgical diseases on the mental system.

VI. The necessity of treating the nervous condition before and after the surgical disease has been eliminated.

VII. The careful avoidance of operation where it can do no good or where it may result in positive harm to the patient's nervous system.

GONOCOCCUS INFECTION OF THE KIDNEY WITH REPORTS OF CASES.*

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A CASE of pyelitis in which a pure culture of the gonococcus was obtained which came under my care during the past winter suggested that a review of the literature of this subject might be interesting. I shall only consider the cases caused by the gonococcus alone. Careful search of the literature discloses some sixteen cases of mixed infections in which the gonococcus was thought to be present, and only nine cases could be found in which the gonococcus as the causative agent alone was demonstrated. The character of the infection in some of these nine cases can be questioned as no cultures were taken.

There is a diversity of opinion as to whether the infection is an ascending, hematogenous, or lymphogenous one. From what I can learn it seems more than probable that in the majority of cases it is an ascending infection due to extension along the lymphatic vessels surrounding the ureters, as it has been shown by Albarran that an intimate relation exists between the lymphatics supplying the posterior urethra, bladder, and kidney. Dowd (MEDICAL RECORD, June 25, 1898) in discussing the infrequent recognition of gonorrheal pyelitis, says: "The misleading point has been in assuming that the inflammation of the bladder must precede the involvement of the kidney pelvis. I have in a number of cases found the bladder free from any involvement, the cystoscope showing only one or two reddish streaks, apparently under the mucous membrane, extending from the urethral to the ureteral openings. The condition appeared to be extension by lymphatics, and not by continuity." Israel, Ebstein, and others report cases in which ascending pyelonephritis was not preceded by indications of active cystitis, etc.; on the contrary, the bladder seemed to be quite free from involvement. I cite this, as in my case there was no evidence of cystitis being present except an increased reddening of the trigone and especially the right ureteral orifice.

Watson and Cunningham, in their text book, give in the following order the organisms that cause renal infection and suppuration, the colon, staphylococcus, streptococcus, proteus vulgaris, pneumococcus, typhoid bacillus, and the gonococcus. From this it is seen that these gentlemen consider it as the *rara avis* in pyelitis. It seems to be the opinion of most authorities that the gonococcus prepares the soil for other organisms by lowering the resistance of the tissues, which is probably true, but I believe that a more thorough examination of the urine from the separate kidneys in cases of chronic pyuria associated with chronic gonorrhea will lead to a more frequent demonstration of the gonococcus alone as the causative agent in pyelitis.

*Read before the American Association of Genitourinary Surgeons at Washington, D. C., May 3, 1910.

The amount of destruction in the kidney structure possibly depends in a great measure upon the length of time the disease has persisted and possibly whether the infection has taken place first in the pelvis or in the cortical portion of the kidney. The case reported by Dr. Bransford Lewis had possibly lasted twelve years, as during all this time the man had purulent urine and symptoms in the affected kidney. Here there was an interstitial nephritis with numerous suppurating cavities that from the pathological findings had unquestionably been present for a long time. It is more than probable that if these cases were diagnosed early and appropriate treatment instituted, such a condition as total destruction of the kidney would be prevented.

Dr. H. H. Young of Baltimore reports a case occurring in 1897 in which the patient suffered with retention of urine, cystitis, and double pyelitis. The urine obtained from the bladder by suprapubic puncture showed gonococci in cover slip and cultures, no other organism being demonstrated. No catheterization of the ureters was done, but Dr. Young argues that the gonococcus was the cause of the pyelitis, for if it had been caused by any other organism it would have been demonstrated in the urine obtained from the bladder.

Dr. Young feels that this is the first case in which the gonococcus was demonstrated as causing pyelitis. The final outcome of this case is unknown, as the patient refused operation and left the hospital.

In Casper's first case the patient had contracted gonorrhea seven months before the irrigation of the pelvis was begun. Here the capacity of the renal pelvis was 100 c.c., showing considerable dilatation of the renal pelvis. This case was treated twice during the first week, then once a week. Three weeks after the first irrigation the urine was clear and no gonococci were found. A sudden recurrence took place, numerous pus cells reappeared with intracellular gonococci. After a subsequent recurrence the condition finally cleared up. It seems to me that with a pelvis of this capacity that it is more than probable that the kidney structure itself would be more affected than in those cases that have a more nearly normal pelvic capacity and would possibly account for the numerous recurrences noted.

In Casper's second case the diagnosis was made on July 30, 1901, and the treatment, consisting of irrigation of the renal pelvis, was not started until five weeks later. In this case the capacity of the renal pelvis was 25 c.c. Five days later the urine was clear and the patient appeared well. There were four subsequent renal irrigations, and two months after the last irrigation the patient's urine was still free from pus.

Dr. Bransford Lewis, in his most interesting case of three ureters with one infected by the gonococcus, also treated by lavage. He says that the urine quickly became clear and the patient left for home within a week, there being no recurrence of the purulent urine.

The second case reported by Sellei and Unterberg was a pure gonococcus infection, cultures showing typical Gram negative gonococci. The pelvis of the kidney here was of normal capacity, holding 10 c.c. of fluid. This case promptly recovered under pelvic lavage.

Weiswange, in 1908, reported a case occurring seven days after confinement. Many gonococci were found in the urinary sediment, the patient had had no gonorrhea for six years. She improved and was discharged. Some time later she returned. A nephrotomy was done and pus evacuated from the upper pole of the kidney, the abscess cavity extending into the pelvis. It would seem from a study of these cases that the earlier the diagnosis the more effectual the lavage of the kidney.

Of these nine cases of gonococcus infection of the kidneys, one refused treatment, the outcome being unknown, three were not discovered until post mortem, one was subjected to nephrotomy with recovery, and the remaining four, treated by pelvic lavage, also recovered.

From an analysis of these cases it would seem that pelvic lavage has a place in the treatment of this form of pyelitis. Of course, where there is great destruction of kidney structure, as in the cases reported by Dr. Bransford Lewis and Dr. Weiswange, it is inconceivable that this treatment could be beneficial. We feel that an idea of the amount of kidney destruction that has taken place can be determined quite accurately by filling the pelvis through the ureteral catheter with argyrol and radiographing the kidney. If the outline of the kidney pelvis approaches normal, renal lavage should afford a favorable prognosis. It might be advisable also to use the gonococcus bacterin, as was done in my own case. Of course, if the disease has persisted for a long time, as evidenced by the distortion of the kidney pelvis, the question of nephrotomy or nephrectomy should be considered.

The following is a report of my own case:

The patient, a male, aged 35, first consulted me on September 20, 1909, being referred by Dr. Dillenback, complaining of a profuse urethral discharge and right inguinal pain radiating to the back and to the region of the right kidney, the character of the pain being described as nagging and more or less persistent. He had gonorrhea ten years before, mild in character and recovering promptly. His present attack of gonorrhea began six weeks before with a very profuse thick discharge and the typical symptoms of this malady. Five days previously pain began in the right inguinal region along the right ureter of the kidney, a nagging, more or less persistent, pain, but not unbearable, worse at night and seeming to be aggravated when in the recumbent posture. His temperature had ranged from 99 to 100° for three or four days. He had no perineal pain, no pain on the left side, but some burning on urination. The daily urination was not markedly increased in frequency; nocturnal urination occurred once every four hours. He had no chills, no nausea and no hematuria.

On examination a profuse purulent urethral discharge was noticed, the penis was very much swollen and great periurethral infiltration extending along the pendulous and bulbous urethra was observed. Examination of the prostate revealed a very hard somewhat enlarged gland. Both seminal vesicles were enlarged and infiltrated, the right being the one most affected and the ampulla of the right vesicle being hard and nodular. From this very clear history I should have suspected pyelitis. I considered his pains were due to the greatly enlarged right seminal vesicle, and suggested hot normal salt rectal irrigations. This apparently relieved his pain, and he felt much more comfortable. He returned in ten days, his pain having disappeared, but the profuse urethral discharge continued. Rectal examination showed the seminal vesicle less enlarged and the prostate less hard and tender.

I treated this patient from October 1 to November 17, by which time his urethral discharge had entirely ceased, the infiltration of his vesicles and prostate had disappeared, but his urine continued to be filled with pus, although the patient suffered no inconvenience from any vesicle or urethral irritation. He was losing flesh and anemia was beginning to manifest itself. I suggested the advisability of cystoscopic examination and possible ureteral catheterization, as the urethra and adnexa did not account for the amount of pus present in his urine. The patient was cystoscoped at Garfield Memorial Hospital Nov. 17. The bladder capacity was 300 c.c. The bladder mucosa appeared normal, except in the region of the trigone, where it was reddened and the blood vessels congested. This condition was present to a marked degree in the region of the right ureter, the mucous membrane on this side being much more infiltrated than on the opposite side. Wormlike masses of thick purulent material were seen escaping from the right ureter. A double catheterizing cystoscope was introduced and both ureters catheterized. Both catheters were passed without difficulty well up the ureters about 30 cm. The urine from the left ureter was normal and was secreted in a normal manner. From the right there was no secretion for some minutes, then suddenly large masses of thick purulent urine flowed through the ureteral catheter. About 10 c.c. of this purulent urine, acid in reaction, was collected and sent to Dr. Wilkinson for examination. Cover slips showed numerous intracellular diplococci that decolorized by Gram's, cultures were taken on human blood serum agar and the ordinary laboratory media. At the end of thirty-six hours small white colonies were noted on the human blood serum agar that showed typical diplococci, morphologically identical with gonococci, that decolorized by Gram's. This organism was carried through three generations and refused to grow on a fourth transplantation. Cultures taken at the same time on agar, potato and gelatin remained sterile. The secretion from this kidney was so purulent that the advisability of nephrotomy was considered. It was thought advisable to ascertain the size and shape of the kidney pelvis. This was done by filling the pelvis with 50 per cent. argyrol solution. As soon as 10 c.c. had been injected into the kidney the patient complained of pain and fullness in the region of the right kidney. A radiograph was immediately taken and showed a practically normal pelvis.

At the end of two days the ureter was again catheterized and purulent urine obtained that showed the gonococci in cover slip. The kidney pelvis was then washed with two ounces of 25 per cent. argyrol. At the end of twenty-four hours the argyrol discoloration had disappeared and the urine appeared a little less purulent. Three days later the pelvis was washed with 1 per cent. silver nitrate. At the end of twelve hours the urine was a little more purulent than before using the silver nitrate, but at the end of thirty-six hours the urine passed was clearer than ever. There were four subsequent washings of the kidney pelvis with 1 per cent. silver nitrate. Immediately following the silver nitrate washings there would be a slightly increased amount of pus for twenty-four hours. An examination twenty-four hours after the last washing showed urine free from pus. As soon as the kidney condition was diagnosed I began giving the patient bacterin, beginning with thirty million and increasing it to fifty million. Whether the improvement will be attributed to the bacterin or the renal lavage I will not attempt to say, but now, nearly five months after treatment was discontinued, the patient is well and his urine is free from pus.

Personally I cannot help but feel that where a kidney pelvis is not greatly enlarged and a radiograph shows a practically normal shaped pelvis and pyelitis is present, we are justified in trying pelvic lavage.

Summaries of cases previously reported:

Friedrich Neuendorff (1892. Zur Frage von dem Vorkommen einer specifisch gonorrhoischen Pyelitis. Dss. Berlin) states that in 1883 Bockhardt injected a pure culture of gonococci into the healthy urethra of a man suffering from dementia paralytica. The patient died a few days later and the pus from the perinephritic abscesses was found to contain an unusually large number of gonococci, and the author (B.) assumed that he had to deal with a specific gonorrheal pyelitis. Since then many writers have expressed doubt as to whether Bockhardt used a pure gonococci culture. Neuendorff reports a case which he believes to have been due to gonococci. He found the organisms in the urine as it was taken from the bladder, not obtained by catheterization of the ureters.

Shinjiro Asahara (1898. Ueber Metastasen der Gonorrhee. Diss. Berlin) reports several cases of mixed infection of the kidney and other organs, demonstrated post mortem. He reports one case of pure gonococcus infection: A servant girl, aged 16, was admitted to Moabit Hospital in Berlin, June 22, 1897. She was unconscious when admitted. The diagnosis was peritonitis, appendicitis, sepsis. She died June 25. Anatomic diagnosis: Septicemia. The cause could not be found at first. The pus from a renal abscess was examined microscopically and found to contain diplococci only; these were recognized to be gonococci. Suitable media was not at hand, and hence no cultures were obtained, as the organisms failed to develop on the media used. Gonococci were also found in the lungs. All metastatic areas examined microscopically revealed gonococci only, no other organisms being found.

Bransford Lewis (*Journal of Cutaneous and Genito-Urinary Diseases*, v. 18, Sept., 1900, pp. 395-404; also *Physician and Surgeon*, Lond., v. 1, p. 167) reports a male, aged 54, single, laborer, admitted in a state resembling uremic intoxication in which he remained till death six days later. Denied ever having gonorrhea or syphilis. He first noted dull pain in the region of the kidneys twelve years ago; there had been gradually increasing lassitude, headache, vertigo, failing vision, anemia, indigestion, insomnia and loss of flesh. Malarial organisms were found in the blood. Urine: sp. gr. 1014, alkaline, but large amount of albumin; there was a heavy, milk-like deposit containing epithelial cells undergoing fatty and granular degeneration, epithelial casts, leucocytes, and triple phosphate crystals. Ante-mortem diagnosis: Chronic parenchymatous nephritis and malarial intoxication. Treatment: quinine, stimulants, and diuretics. No improvement; death. The right kidney was found to contain suppurating cavities, mostly about the size of a walnut. The infection came from the pelvis and collecting tubules, from there spreading to the intermediary zone and gradually absorbing the excretory structures, while the secretory portion suffered indirectly. The ureter also contained pus, and was thickened and dilated. Microscopical examination of the pus showed gonococcus organisms.

Inoculations resulted in obtaining pure cultures of the organisms.

Bernhard Marcuse (*Monatsberichte f. Urologie*, Berlin, 1902, v. 7, pp. 127-190) reports a male, aged 25, who contracted gonorrhea two years previously which was completely cured; second infection occurred in Sept., 1900, associated with cystitis. Internal and local treatment relieved the symptoms, but the urine remained cloudy from pus. While in Berlin in Dec., 1900, some one made a cystoscopy, diagnosing pyelitis of the right side. The right renal region was sensitive to pressure. The patient came to see Dr. Casper April 22, 1901. Cystoscopy with ureteral catheterization of the right ureter showed cloudy urine, pus cells in sediment, red cells in epithelium. The pus cells contained abundant intracellular gonococci of typical form, size and arrangement. The urine from the left ureter was normal. The kidney was treated with lavage of the pelvis twice during the first week, then once a week. On other days irrigation of the bladder and Guyon's instillation of the urethra were made. There was a favorable course. Several weeks after the first irrigation the urine was clear and no gonococci were found, when sudden recurrence took place; numerous pus cells reappeared with intracellular gonococci. Irrigations were renewed, and after a subsequent recurrence the condition finally cleared up. At the last pelvic lavage, in the beginning of August, 1901, the bacteria had disappeared. The patient was lost sight of. (The renal pelvis of the infected kidney had a capacity of 100 c.cm.)

Case 2. About the same time as above case there came to treatment a man, aged 23, with gonorrhoic pyelitis, who had had a soft ulcer and balanitis a year before. He contracted gonorrhea for the first time on May 5, and was treated at once with injections and sandal oil; ten days later there was pain in the region of both kidneys, with fever and symptoms of cystitis; bladder irrigations were made. He was treated by Diday's irrigations since June; micturition became less frequent and painful; the discharge stopped, but the urine was sometimes clear, at other times cloudy. Cystoscopy was done on July 30, 1901. Suppurating urine was obtained from the right ureter, containing numerous pus cells, some red cells, and epithelium, no casts and very little albumin. The pus cells contained numerous typical intracellular gonococci. The left ureter showed normal urine. Vesical irrigations were made only for a while. On Sept. 4, 1901, the first irrigation of renal pelvis with silver solution was made. Capacity of the renal pelvis was 25 c.c. Five days later the urine was clear, the patient felt well, and there was no fever. Sept. 11, 17 and 21 renal irrigations and vesical irrigation were made on alternate days. The urine was clear. On Oct. 28 and Nov. 21 examination showed that the urine had remained clear.

Bransford Lewis, 1906. Three ureters demonstrated during life; ureter-catherization, giving three different urines, one infected with gonococci. MED. REC., N. Y., Oct. 6.

Male, aged 24, was seen Feb. 3, 1906. Repeated recurrence of urethral gonorrhea since 1900, in spite of the employment of all known measures of treatment. When Lewis got the case he discovered three ureters, two on the left, one on the right side. The urines draining from the ureters bore no relation to each other. The urine coming from the ureter at the extreme left had sp. gr. 1005, was quite cloudy, with flocculi floating in it, while the other was more like normal urine. The urine from the extreme left ureter showed much pus and a moderate number of blood cells and epithelium. In a number of the pus cells colonies of diplococci that gave the customary appearance of gonococci to the positive methylene blue stain and decolorized after Gram's stain were found.

In the urine from the middle opening no pus cells and no organisms were found.

A colored silver solution was injected into the left catheter, the pelvis receiving about three drams without causing pain or reaction. The other catheter continued to drain unchanged; evidence of the total independence of the two sources of urine. The right kidney was not affected.

Two days later the infected ureter was again washed with the silver solution. "The silver irrigations of the infected pelvis brought the result desired. Evidences of infection that, up to that time, were persistent almost immediately disappeared, and the urine as quickly became clear. The patient left for home within a week afterward. Dr. Crook and the patient both write that there has been no recurrence of the trouble, although treatment has now been discontinued for over seven months."

Josef Seilei and Hugo Unterberg (1907, *Berliner klinische Wochenschrift*, 1907, v. 44, pp. 1113-1115, report five cases of gonococcic infection of the kidney observed in Budapest. The first case was one of mixed infection by long colon bacilli, diplococci, very thick, and gonococci. The fourth and fifth cases showed colon bacilli only. The third case was also a mixed infection: staphylococci, pseudodiphtheria bacilli, and gonococcoid bacilli. The second case was pure gonococcic infection: J. R., ailing for ten months with urethritis, prostatitis, and cystitis gonorrica. The cystitis had not improved under the usual methods of treatment. Pyelitis was suspected. The left kidney region was sensitive to pressure. The right ureter was catheterized. The urine was cloudy and contained albumin. The sediment contained red cells, much detritus, and a few epithelial cells. Bacteriologically there were a very few diplococci, which were negative to Gram's stain. Cultures on Thalmann-Agar developed typical gonococcus colonies. The authors state that gonorrheal pyelitis is usually cured by rest and internal medication. Direct local treatment is advised in certain cases only, namely, those where internal medication has failed. Irrigation of the renal pelvis is then indicated. They injected from 6 to 10 c.c of a boric acid solution and a 1-1000 silver solution with good results. They also employed collargol in 1 and 2 per cent. solution with like results. The injections were repeated once or twice a week. Several irrigations usually suffice to destroy the gonococcus. They injected from 5 to 10 c.c., allowing the solution to run out, and then injected some more. They used 5 c.c. with the first injection and successively increased the quantity till the patient experienced a sense of tension in the region of the kidney. In no case did they inject more than 10 c.c. at one time. All the cases recovered.

Weisswange (*Münchener medizinische Wochenschrift*, 1908, v. 55, No. 16, p. 967) reports a woman, aged 34, who developed fever, high pulse, and pain on right side seven days after confinement. Leucocytes, casts, and many gonococci were found in the urinary sediment. She was given medical treatment and improved to such an extent that she was dismissed. Some time dater the symptoms reappeared. The right kidney was exposed; an ab-

scess was made out in the upper portion extending into the kidney pelvis. An incision was made; numerous gonococci were found in the pus. Nephrotomy was done and recovery followed. She had not had gonorrhea for six years.

The Farragut, 17th and I Streets.

REPORT OF A CASE OF CARCINOMA OF THE SPLENIC FLEXURE OF THE COLON TREATED WITH THE NEOFORMANS VACCINE.*

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The case I wish to report is of interest, for the reason that the results seem to have been better than reports of similar cases treated by the neoformans vaccine. The patient, male, aged 55, consulted me February 25, 1910, for stomach trouble. He had been sick for one year, had lost thirty-five pounds in weight, complained of loss of appetite, distress after meals, food would increase the disturbance in his stomach, had both eructations and flatulence, complained much of constipation. He was markedly cachectic. By palpation a mass was easily mapped out in the left side of the abdomen. It was round, immovable and painful on pressure. There was evidence of an incision which the patient said was the result of an operation August, 1909. He could give me no account of the operation.

An examination of the stomach contents showed that he suffered from hyperchlorhydria. There was occult blood in his feces. Inasmuch as I was anxious to know about the incision made last August, I wrote Dr. Russell Caffery of San Antonio, Texas, the surgeon who performed the operation, to enlighten me as to the character of the growth. In his reply, March 19, 1910, he stated that he had discovered what he considered to be a carcinoma of the splenic flexure of the colon. Beyond separating some adhesions nothing was done, for he regarded the case as being inoperable.

Patient entered Harper Hospital, Detroit, March 20, 1910. On account of his extreme weakness he had to be taken there in the ambulance. Owing to the severe pain in the abdomen he was taking on an average of one grain of morphine daily in divided doses. His urine gave a specific gravity of 1018, no albumin, contained numerous hyaline casts, squamous epithelia, small round epithelia, and numerous pus cells. His temperature ranged from normal to 102°, running an irregular course. On the giving of an alkali for his hyperchlorhydria his stomach symptoms soon subsided. In view of his weakness and anemia, hemoglobin 30 per cent., he was given twice daily in the gluteal region: Citrate of iron, .05 gm.; glycerophosphate of sodium, .20 gm.; metarsin bisodic, .10 gm.; formate of sodium, .15 gm.; strychnine, .001 gm. he pains continued severe, there was no desire for food, and he had to be kept under the influence of morphine. It was now that I began the use of the neoformans vaccine. On the morning of March 24, 100,000,000 neoformans vaccine was given subcutaneously in the abdomen. He slept the greater part of the afternoon. The next day he was able to take more nourishment than usual. No morphine had to be administered for pains. The opsonic index was not taken at any time. The giving of the neoformans vaccine depended in the main upon the clinical symptoms. March 28, four days from the giving of the first inoculation, another 100,000,000 of the vaccine was given. The patient continued to feel better, his appetite improved, and his bowels were more nearly normal. The pain was constantly decreasing, and to my surprise the induration on the left side of the abdomen seemed to be rapidly subsiding. The vaccine was given: April 4, 150,000,000 neoformans vaccine; April 8, 150,000,000; April 11, 150,000,000. The patient from now on was able to walk around the hospital and began going out doors. April 13, 50,000,000 neoformans vaccine; April 15, 50,000,000; April 16, 50,000,000. The patient continued to improve so steadily that on April 16 he was sent home to his family physician, Dr. C. A. Cobb, to continue the treatment.

Upon his arrival home Dr. Cobb wrote that he was surprised to find the tumor gone. The patient complained of some pain and discomfort at the site of the old tumor, but the physician could feel nothing.

May 14, 1910, Dr. Cobb wrote: "Our patient is still improving. About the sixth of the month he began to have pain and uneasiness in left side (site of old growth). Upon your advice I gave him 150,000,000 neoformans vaccine at one dose. The following day, as the pain was no better, and as he showed no depression from previous injection, I repeated the same dose. The following day the pain persisted and I repeated again the 150,000,000 neoformans vaccine. That afternoon the pain vanished and has not returned since." His letter further states: "I am unable to detect any signs of a growth or nodule. His general condition continues to improve, he eats well, sleeps well, takes some exercise, and is gaining in weight. Last week I attended the State Medical Association and met Dr. Caffery of San Antonio. He said that at the aforementioned operation, when he had opened the patient's abdomen he had found a growth the size of an orange involving the splenic flexure of the colon. To remove this would have necessitated resection of at least eight inches of gut. There was a general infiltration of the retroperitoneal glands and adjacent structures. He was greatly interested to learn of the improvement from the use of neoformans vaccine."

May 27, 1910, Dr. Cobb writes he is able to find by palpation a small nodule the size of a hazel nut at the site of the old growth. He says it does not seem to have grown any larger in the past week. The patient does not care to exercise, as it hurts his side. He is eating well and gaining all the time. He was given 200,000,000 neoformans vaccine.

May 30, 1910, the doctor writes that there was a marked reaction after the last inoculation. A temperature of 103° F., which after six hours declined to normal. There was not such a reaction after any of the other inoculations of 150,000,000. The nodule cannot now be felt by the most careful continuous palpation. The patient's general condition continues good.

On May 28, 1910, the urine was markedly alkaline, specific gravity 1.023, trace of albumin, numerous pus cells, numerous blood cells, and hyaline casts.

The report of the blood findings during our observation is as follows:

*Read at the annual meeting of the American Gastro-enterological Association, St. Louis, June 6 and 7, 1910.

HARPER'S HOSPITAL LABORATORY.

Blood test March 21, 1910: erythrocytes, 1,980,000; hemoglobin, 30 per cent.; color index, .75; leucocytes, 8,600.

Differential white count: polymorphonuclears, 83 per cent.; large lymphocytes, 3 per cent.; small lymphocytes, 13 per cent.; eosinophiles, 1 per cent. The red cells show some poikilocytosis. They stain unevenly. An occasional erythroblast was seen.

April 6, 1910: Erythrocytes, 2,590,000; hemoglobin, 32 per cent.; color index, 0.6.

Differential white count: polymorphonuclears, 60 per cent.; large lymphocytes, 4 per cent.; small lymphocytes, 36 per cent.; eosinophiles, 1 per cent. The red cells show variation in size and shape and staining reaction. A few nucleated reds were found. The leucocytes are increased in number.

Laboratory of Drs. Wier & Thomson, Beaumont, Texas. Dr. Cobb. April 23, 1910: hemoblogin, 70 per cent.; red blood cells (4,788,000), 95 per cent.; color index, .73; leucocytes (13,000), 162 per cent.

Differential white count: Large lymphocytes (500), 4 per cent.; small lymphocytes, 35 per cent.; polymorphonuclears, 56 per cent.; eosinophiles, 4 per cent.; gasophiles, 5 per cent.; transitional, 0.

Dr. C. A. Cobb: The blood findings in this case are certainly not consistent with his general appearance. The anemia, judging from the blood picture, is due more to a loss of coloring than to the red cells, *per se;* the color index is quite low. There is a slight leucocytosis (13,000) but the eosinophiles are the only cells increased beyond their normal percentage. This picture, however, is consistent with Da Costa's description of the blood in malignancy. Yours very truly, Thomson.

May 11, 1910: Hemoglobin, 70 per cent.; red blood cells (3,496,496), 69.93 per cent.; color index, 1; leucocytes (15,000), 187.50 per cent.

Differential white count: Large lymphocytes, 5.5 per cent.; small lymphocytes, 33 per cent.; polymorphonuclears, 57.5 per cent.; eosinophiles, 4.5 per cent.

May 28, 1910: Hemoglobin, 70 per cent.; red blood cells (4,208,000), 84 per cent.; color index, .83; leucocytes (16,000), 200 per cent.; plasmodium malariæ, none.

Differential white count: Large lymphocytes, 6 per cent.; small lymphocytes, 24 per cent.; polymorphonuclears, 68 per cent.; eosinophiles, 2 per cent.; basophiles, 0; transitional, 0. No nucleated reds, no poikilocytes—even staining.

It is too early to determine the outcome of the case. To me it is interesting because of the relief of the painful symptoms, the rapid disappearance of the tumor, and the marked improvement in the general condition of the patient—an improvement which he has maintained up to the present time.

It was in 1902 that Doyen called attention to the *Micrococcus neoformans* which he found in cancerous tissue. At first he thought he had found the specific cause of cancer.

Karwacki (*Warschauer med. Woch.* 1906, No. 5) comes to the following conclusions after his use of neoformans vaccine: (1) the neoformans vaccine may induce the involution of tumors. (2) The vaccine acts upon epithelial growths while sarcoma remains uninfluenced. (3) In the presence of metastases, marked degeneration of the glands and cachexia, it should not be used. (4) The prognosis should be given with care and only after long observation. (5) The neoformans vaccine can be used alone or assisted by surgical measures.

I appreciate that the report of this case is an early one and I shall expect to say more about the case next year.

NOTE.—September 10, 1910. The improvement of the patient was a temporary one. He went to Rochester, Minn., for consultation June 15, 1910. Operation by Dr. W. J. Mayo, June 25, 1910, disclosed advanced carcinoma of splenic flexure. Died July 2, 1910. The autopsy findings by B. C. Willis were as follows:

"Body that of a large, poorly nourished and anemic man, ankles slightly edematous. Large incision with drainage tube in lower quadrant of left rectus, but nothing drained. Another drainage stab wound made in left flank, posterolateral with tube in place, nothing drained. Chest well formed and large. Lungs were distended and did not collapse. Some straw-colored fluid in each pleural cavity, more marked on right side where there had been an old pleurisy of some years' standing. Right lung, lower and middle lobes practically solid, on section it looked like hypostatic pneumonia, heart flabby and somewhat hypertrophied, a little more fluid than usual in the pericardial sac. Abdomen—clean, though intestines were firmly adherent to anterior abdominal wall around incision. Drainage tube was folded upon itself. There were a couple of pus pockets in the mass of tissue around lateral anastomoses of transverse colon with upper portion of rectum. The cecum was distended with gas, and the hepatic flexure was adherent to gall-bladder in such a manner as to pull on ascending colon. The perirenal fat on left side was involved in inflammatory mass. Liver had undergone moderate fatty degeneration. The kidneys showed subacute nephritis grafted upon chronic interstitial nephritis. Spleen and pancreas negative.

"Cause of death—hypostatic pneumonia and pleurisy with effusion; contributory, resection of colon for carcinoma and subacute nephritis.

"The findings at operation: Carcinoma of splenic flexure, advanced. Resection of two-thirds of transverse, splenic flexure, descending colon and half of sigmoid, isoperistaltic anastomosis between the sigmoid, ten inches above the rectum, and hepatic flexure; necessary to do extensive separating operation of the stomach—anastomosis sutured to abdominl wound. Peritoneum joined so as to throw the bed from which the tumor of bowel was removed outside of peritoneal cavity, end of bowel turned in. Line of anastomosis wrapped with omentum. Split rubber tube, two strips gauze through stab wound, left side.

"Pathological findings—tumor of intestines, carcinoma (adeno)."

32 WEST ADAM'S AVENUE.

THE DIAGNOSIS OF INCIPIENT PULMONARY TUBERCULOSIS.*

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OF the problems which confront the physician today none is more important and interesting than the diagnosis of incipient pulmonary tuberculosis.

*Read before the New York Society of Medical Inspectors, May 10, 1910.

The chances for recovery of a tuberculous patient are in most instances, if not in all, in direct ratio to the earliness of the discovery of his disease; this fact alone should be a sufficient argument in favor of the employment of every means toward the detection of the affection in its earliest form. The importance, again, of diagnosis in the first stages of infection cannot be overrated from the point of view of social economy; it is costing the municipality and the State thousands of dollars yearly to care for subjects in the advanced stages of the disease, who, had their affection been diagnosticated in its incipiency, might be supporting themselves.

A discussion of the economic aspect of the question is outside the scope of this paper, but a consideration of the number of tuberculosis patients in our hospitals and other institutions whose support is derived wholly or in part from the public funds or from private charity is appalling; likewise the number of families which, because their older members are unable to exercise their earning power on account of tuberculous disease, receive aid from the community is no small one.

For the early diagnosis of pulmonary tuberculosis no unusual training is requred; it is wholly within the attainment of the general practitioner who will use his powers to their full. And it is fortunate that this is so for most of the patients to whom this diagnosis is pregnant with importance apply, first, at least, to the class of physician who has come to be termed the "family doctor." There are, now and then, naturally enough, cases which present unusual difficulties but these are few among many. In the diagnosis of incipient pulmonary tuberculosis, as in that of any other disease, best results will follow a certain routine procedure. Each step in this procedure is of importance and particularly do I wish to emphasize this fact, for the diagnosis of tuberculosis in its early incipiency often cannot be assured until the results of these steps are reviewed and summed up.

1. The History of the Patient.—This should be taken in full and with care; no detail of importance should be neglected. Heredity, to my mind, plays a much less important rôle in the causation of the disease than the fact that the patient may have had intimate association with tuberculous individuals. Such association may have taken place at home or elsewhere, the work-room, for instance. Trades of themselves seem to have no special etiological significance, but in the nature of things the affection is much more likely to attack those who work in crowded, ill-ventilated, and unsanitary quarters than those who are employed under the opposite conditions or in the open air.

The previous history of the patient with regard to former illnesses may teem with helpful facts; for instance, histories of influenza, pleurisy, pneumonia, and even of digestive troubles are often strongly suggestive of tuberculous lung disease. Surgical conditions, such as hip and spinal disease, cervical adenitis and anal fistula point distinctly toward tuberculous infection.

In eliciting the history of the patient's present illness the polymorphous character of the symptoms cited should not in any way be allowed to allay the suspicion of tuberculosis if there is the least reason for such; in fact by far the safest stand for the physician to take is to judge the patient guilty of tuberculous infection until, by every means at the examiner's command, he has been proven innocent of the disease.

Miller[1] gives the following as the more usual initial symptoms: (1) Catarrhal or influenzal manifestations in which the cough is the chief symptom. (2) Symptoms suggestive of malaria in which general malaise, loss of appetite, slight evening rise of temperature, and mild digestve disturbances appear gradually, with or without cough. (3) Hemoptysis. This should always be held to be of tuberculous origin unless other distinct cause can be shown. (4) Gastric disturbances which obscure other symptoms of more definite character. (5) Anemia, without apparent cause. This symptom should not be allowed to deceive the diagnostitian in young girls in whom chlorosis is so frequent. (6) Pleurisy with effusion. This should always be considered tuberculous until the contrary is proven. (7) Pain in the chest. This is a not infrequent initial symptom. It is usually dull and aching in character and often is referred to the shoulderblade. Miller holds that the combination of any two of these symptoms or trains of symptoms should, as a rule, be sufficient evidence to establish a tentative diagnosis. Even where definite physical signs are lacking suspicion should be kept alive and the physician should be stimulated to further careful observation of the patient and to regular and frequently repeated physical examinations. In such cases the time will often come when physical signs of certain diagnostic import will be detected.

2. Physical Examination of the Chest.—As a preliminary, and a most essential one, the patient should be stripped to the waist and seated in a light room of which the temperature is sufficiently high for comfort; he should be taught how to breathe and to cough so that the auscultatory signs may be elicited to the best advantage. The inspection of the chest in incipient cases often offers no evidence of value. The main points on which observation should be centered are (*a*) the shape of the chest; (*b*) its symmetry; (*c*) its movement. One should notice whether both sides of the thorax expand synchronously, whether apices and bases show a correspondingly well-marked expansion, and whether there is abnormality of the general conformation of the chest. The supra and infraclavicular regions are often little retracted until the disease is well advanced. A low chest expansion is of little diagnostic value.

Palpation may reveal changes in vocal fremitus; localized increased fremitus may indicate beginning infiltration or consolidation.

Percussion. Slight deviations from normal pulmonary resonance may be demonstrated, particularly at the apices, but they are often of such ill-defined character as to be of little diagnostic worth when not strengthened by other evidence.

Auscultation is the means which is to be relied on as giving the most valuable diagnostic testimony. Miller[1] states that cases in which one can, with certainty, demonstrate a lesion in the absence of abnormal auscultatory signs are very few. He considers the use of the stethoscope preferable to that of the unaided ear, for with it sounds unappreciable to the latter become plain; râles are more easily heard, and the instrument is better fitted for application to the various regions of the chest. The ear, of course, may be employed alone and aided by the stethoscope. At times the former is more acute in the detection of changes in the breath sounds. The portions of the chest over which abnormal physical signs are more likely to be demonstrated in early infections are: the supraclavicular fossæ; the first

intercostal spaces, particularly at their inner and outer extremities; the region between the scapulæ just below the fourth dorsal vertebra; along the vertebral border of the scapula when the arm is thrown around and in front of the neck with the hand on the opposite shoulder, this area being over the interlobular septum; an area internal to the angle of the scapula; and, in children, the fifth and sixth spaces just external to the nipple. Miller suggests, as an aid to accurate auscultation, the use of a short, sharp cough alternating with a quickly-expelled, short, quick inspiration; this should be employed previously to any deep respiration for the measurement of expansion in order that râles of evanescent character may not fail of detection.

By this method of auscultation the following observations may be made: (1) The character of the breath sounds; (2) the presence of râles and their character; (3) the cough sound. The cough should never be omitted for, in itself, it has a character peculiarly its own; this may show the same variations as the breath sounds, and in addition it is essential for the appreciation of fine râles, which may not be audible at any other time. Also by its use we may be able to detect minute interruptions in continuity which are not true râles, but are analogous to the change in breath sounds described as granular or rude breathing. The presence of this alteration in the respiratory sound indicates an early stage of the condition which later is evidenced by the presence of true râles. Changes in voice sounds may be demonstrated by auscultation. Alteration of the whispered voice tending toward the bronchovesicular quality is evidence of slight consolidation; this change is appreciated more accurately by this sign than by either the true voice or the breath sounds.

The toxemia due to tuberculous infection is evidenced by an extremely important (from a diagnostic standpoint) train of symptoms, the most common of which are slight evening rise of temperature, rapidity of pulse, loss of weight, undue feeling of fatigue, increased rate of respiration, and anemia. These symptoms are of most value to the diagnostician when they are observed for a week or more under different conditions, at different hours of the day and especially before and after exercise. An important early diagnostic sign is a varying pulse rate and temperature. The latter may not rise greatly above the normal but its daily range is likely to be abnormally large. These symptoms and signs of toxemia, when taken in connection with a history pointing toward tuberculous infection, are of extreme diagnostic value even when unassociated with lung changes sufficiently marked to be demonstrable by physical examination.

Sputum Examination.—In incipient pulmonary infections sputum examination is very likely to yield little diagnostic assistance, still it is important that frequent specimens should be examined and, while a positive result assures the diagnosis, repeated negative ones are by no means conclusive. Bacilli are said to be absent from the sputum in quite 65 per cent. of all incipient cases. Recently Paterson[2] has advocated treating the sputum with antiformin, which is a liquid composed of equal parts of liquor sodæ chlorinatæ and 15 per cent. solution of caustic soda, in the following manner: 10 c.c. of sputum are mixed with 2.5 c.c. of antiformin. The mixture is allowed to stand for twenty-four hours, when it is shaken and centrifugalized. The supernatant fluid is then drawn off and replaced with normal sodium chloride solution; this mixture is shaken and centrifugalized and the process is repeated. The sediment is then smeared and stained in the usual manner. He believes this process is a considerable aid in finding bacilli in specimens where they are few in number.

Hausmann,[3] noting that many of his gastric cases gave evidence of beginning lesions at the apices, has examined the contents of their fasting stomachs (provided no sputum was obtainable) and in six cases within two months was able to demonstrate the presence of tubercle bacilli. This suggestion would appear worthy of further study, especially in connection with the use of antiformin and should be particularly applicable in children from whom it is often quite impossible to get specimens of sputum.

The inoculation of guinea pigs with sputum in which bacilli are not demonstrable is of value as a diagnostic help but is rather beyond the resources of the practitioner.

The stools are said to contain the bacillus, even in beginning tuberculosis, and examinations of them may reveal its presence.

Blood Examination.—The statement made by Rosenberger that the blood of incipient cases often contains demonstrable tubercle bacilli is uncorroborated; in fact it is now believed that his results were due to the fact that his wash water was contaminated with an acid-fast bacillus morphologically similar to the tubercle bacillus.

Cytologic Diagnosis.—Widal believes that a preponderance of lymphocytes in the blood speaks for tuberculous infection while a majority of polynuclear leucocytes of neutrophile and eosinophile types excludes the disease, but this theory fails of general acceptance outside of France. The employment of Arneth's method of differentiation of the nuclei of the leucocytes is being found to be of some value in diagnosis, but no definite work along this line has as yet been published.

The Opsonic Index.—King[4] states that certain observations and experiments conducted by him and Inman[5] seem to show that opsonic index determinations may have a practical use in the diagnosis of early tuberculosis. Their complicated technique and the special knowledge necessary for their performance would seem to militate greatly against their general use. For diagnosis the relation of the temperature to the opsonic index before and after periods of exercise is observed. In tuberculous patients the temperature rises after exercise while the opsonic index is lowered. Jacobs[6] finds that the opsonic index rises in pulmonary tuberculosis after a period of deep breathing lasting for about a half hour. He considers that this exercise produces an autoinoculation which results in a corresponding rise in the opsonic index and regards this method of great value in early diagnosis since by it the presence of infection can be demonstrated long before bacilli can be found in the sputum.

Agglutination Tests.—These, according to von Ruck,[7] may be relied on, either in connection with tuberculin tests or alone, to confirm the diagnosis in most nonbacillary cases where the physical signs are suspicious. Of 300 cases tested he found the reaction negative in 20, and in the rest positive in dilutions of from 1 to 5 to 1 to 50. Arloing and Courmont[8] have stated that agglutination in dilutions below 1 to 5 should not be considered diagnostic, but von Ruck believes that in the absence

of other definite diagnostic evidence no reliance should be placed on a dilution less than 1 to 10. When subjective symptoms and physical signs point toward infection he is accustomed to consider a reaction in higher dilution of positive value and that the tuberculin reactions may be dispensed with since their results have always confirmed the serum tests in his experience.

The Tuberculin Tests.—Of these there are four, three of which have been introduced comparatively recently.

1. The Percutaneous Test.—This consists in the inunction of an ointment of equal parts of old tuberculin and lanolin. The site of the inunction is usually a small area of the skin over the abdomen. A positive reaction is evidenced by the appearance of a papular eruption. Bandelier and Roepke[9] believe that this test is inferior in its certainty to the cutaneous test which is uninfluenced by the thickness and dryness of the skin, the number of its pores and various constitutional conditions, factors which materially affect the percutaneous test. The field of the latter is in infants in the first half year of life and in these a positive reaction points strongly toward the probability of an active tuberculous infection.

2. The Conjunctival Test.—This consists in the instillation into the eye of a drop of a ½ to 1 per cent. solution of old tuberculin in normal NaCl. A positive reaction is evidenced by a varying degree of congestion of the caruncle and conjunctiva which appears in from three to forty-eight hours. This test is a reliable test for patent bacillary tuberculosis and as such it is superfluous. It does not show whether the process is active or inactive. A negative reaction does not prove the absence of active tuberculosis and positive reactions may appear in healed tuberculosis, in the clinically nontuberculous, and in the healthy. As a rule the test does not react positively in those immune to tuberculosis or in the cachexias of tuberculosis and other conditions.[9] The disadvantages of the conjunctival test are that it cannot be employed if there is any inflammatory condition present in the eye and that it may cause untoward results. Both it and the percutaneous test are at present generally discarded.

3. The Cutaneous Test.—This consists in the inoculation of a small scarified area of the skin, preferably upon the arm, with a drop or two of a 10 to 25 per cent. solution of crude tuberculin in salt solution (or 5 per cent. carbolic-glycerin, 1 part; normal sodium chloride, 2 parts). A positive reaction is evidenced by the appearance in from twenty-four to forty-eight hours of a zone of light pinkish redness about one-half inch wide and accompanied by swelling; finally a papule forms which disappears in from seven to eight days leaving behind some temporary discoloration of the skin. The advantages of this test are[9] that it is simple, harmless, applicable to febrile and bed patients, and causes no local or constitutional disturbance. A positive result does not point out the site of the lesion, nor show whether the process is active or inactive. It may appear in the clinically nontuberculous and indicates that the body at some time and in some manner has been infected with the tubercle bacillus. Cases in which positive reactions occur and in which no lesion is demonstrable may be accounted for on the ground that the lesion, being insignificant, has been overlooked. A negative reaction points strongly toward freedom from tuberculous disease, but on the other hand the reaction may remain negative in the presence of actually existent and clinically demonstrable tuberculosis. Negative results may occur also in certain constitutional conditions, such as general cachexia, and in idiosyncrasy of the skin or the exanthemata. The positive result is of specifically tuberculous nature and its occurrence points toward pathologically existent tuberculosis.

The great field of usefulness of this test is in children and in them a positive reaction is an evidence strongly in favor of the existence of tuberculosis. In adults a definite and promptly appearing reaction is moderately good testimony in favor of recent and active infection. Mild, delayed, and atypical reactions are valueless in diagnosis since healed foci which have never given definite signs or symptoms may be evidenced by positive reaction. The negative value of the test is impaired to but slight degree by the exceptional cases of tuberculosis which fail to react for the reasons given above.[1]

Baldwin[10] considers the cutaneous test to be the one most suitable for general use, and that it is absolutely harmless. No other test is required for children, because in them a positive reaction is more significant of recent infection and does not often occur in apparent health under the age of 12. Other tests may be necessary in adults to confirm the result of a cutaneous test, but this latter can be advantageously employed as a preliminary in all cases.

4. The Injection or Subcutaneous Test.—This is the last resource and the most searching method of tuberculin diagnosis,[10] and for this reason it is often regarded as the only satisfactory test, in spite of the unpleasant fever reaction. Baldwin[10] regards it as unnecessary in most cases at present, but in instances where a focal reaction is desired, for instance, where a negative cutaneous test requires confirmation, it is of great value. Since the focal reaction in the lung escapes notice in most suspects, the subcutaneous test is of doubtful value in confirming the positive cutaneous reaction.

The most satisfactory tuberculin to employ is Koch's original product, but other filtered extracts may be used. Preparations containing dead bacilli should be avoided; the same is true of emulsions or vaccines, owing to their uncertain and irregular absorption.

Klebs[11] advises the following technique: The site of the injection, which may be under the angle of the scapula or other suitable point, is sterilized, as is also the needle to be used, and the solution of Koch's old tuberculin, diluted with 0.5 to 0.25 per cent. carbolic acid in distilled water, is injected deeply into the tissues. The initial dose differs—Brown advises 0.5 mg., to be followed, if no reaction takes place, successively by 1, 3, 5, and 8 mg. Roepke employs 0.2, 2, and 5 mg. The dose in children must be smaller by 1/10 to ½ than in adults. The reaction appears in 6 to 8 hours as a rule, hence 8 to 10 A.M. is perhaps the best time for the injection.

A positive reaction[9] consists of four phases: (1) The local inflammatory reaction at the point of injection; (2) the rise of temperature; (3) the constitutional disturbance, headache, malaise, prostration, nausea, etc.; (4) the inflammatory reaction in the tuberculous focus. These may appear simultaneously, separately, or two or more in combination, and differ in their diagnostic value; by some the pyrexia and constitutional symptoms are con-

sidered most significant, while others hold that the focal reaction is more pregnant with meaning. If one dose produces a mild indefinite reaction the same amount may be given after two to three days, but the dose should not be increased; Koch regards a strong reaction following a repeated dose as especially characteristic and an almost infallible sign of tuberculosis. The interpretation of results must take into account the amount of tuberculin required to produce the reaction, the promptness with which it develops, and the extent of the local and constitutional sequelæ.

In applying this test care should be taken that the tuberculin solution should be freshly made and accurately measured.

The contraindications are as follows: (1) A febrile temperature; the temperature should not have risen above 99.5° F. in the mouth for at least three days before the test. (2) The test should not be employed when a satisfactory diagnosis can be made without it. (3) Rapid pulse. (4) History of recent hemoptysis. (5) Organic heart disease. (6) Kidney disease. (7) Epilepsy. (8) Addison's disease. The test is inadvisable in hysteria, convalescence from any severe illness, apoplectic habit, marked arteriosclerosis, diabetes, and amyloid degeneration of the viscera.

The subcutaneous test is the diagnostic test of final resort and is the most certain of the tuberculin tests. Like that of the other tests its clinical value is usually in direct proportion to the smallness of the dose and the degree of the response. The more recent the infection and the more extensive the disease the more delicate is the reaction unless the disease is rapidly progressing or grave constitutional weakness is present.[10] In general it may be stated that the tuberculin tests are very valuable when taken in connection with the patient's history, his physical signs, and his constitutional symptoms.

X-Ray Diagnosis.—Klebs[11] considers the fluoroscope of little use as an aid in diagnosis in most instances; at times it will show a contracted shaded apex when dullness and marked changes in breathing cannot be discovered, but this is the exception rather than the rule. Limitation of motion at the base is more commonly to be detected and is more valuable as a diagnostic sign, but too much importance should not be placed upon it. The fluoroscope is of very material aid in the early diagnosis of bronchial gland enlargement, and consequently has a distinct field of usefulness in suspected cases in children.

Rist[12] believes that an increased shadow at an apex may be due to active or old disease or both. When there are symptoms and signs of infection at an apex without an increased shadow on the plate he suspects a fresh involvement in its early stage. A diminished shadow at an apex with no physical signs may indicate active commencing tuberculosis. Radioscopy excels physical examination in its ability to show the extent of pulmonary disease. Beginning central foci are not demonstrable by physical examination, but the *x*-ray may detect them.

Wolff[13] holds that the *x*-ray, in connection with the tuberculin test, enables us to locate the lesion when the latter has proven its existence, the ray being of special value where physical signs are equivocal and the symptoms are suspicious.

Krause[14] finds that in early tuberculosis in adults the fluoroscope will detect apical infiltrations which are recognizable on percussion. The *x*-ray examination is likely to show that the lesion is more extensive than percussion would lead one to suspect. Infiltrations either not demonstrable by percussion or only indefinitely so can often be detected by the fluoroscope, and, when doubtful, confirmed by *x*-ray photographs. Neither the fluoroscope nor the *x*-ray photograph will detect early catarrhal processes, but when these are of long standing the apices may show darkly owing to their poor aeration. These shadows do not clear up on inspiration. Diaphragm pictures may demonstrate the presence of incipient infiltrations which would not be shown by other methods. Calcification of the first rib can be detected, and, according to Freund, is an aid in early diagnosis. The clearing of the apices on inspiration which is present in health is often absent in early tuberculosis. The alterations in movement of the diaphragm are of no diagnostic value.

In incipient infections in children and young people apical findings are lacking, hence detection of shadow changes at the hilum of the lung, such as enlarged, indurated, infiltrated, calcified, or caseous bronchial glands or similar processes in their neighborhood, are the more important. Such findings are of extreme value in early diagnosis, but we must depend on the clinical findings to learn whether these processes are active or no.

The great drawback of the *x*-ray examination in pulmonary affections is the fact that considerable skill is necessary to the proper interpretation of the findings.

Summary.—When it comes to the making of a diagnosis in a case of suspected incipient pulmonary tuberculosis the following factors seem to me to be the most important and the ones on which chiefest dependence is to be placed:

1. The anamnesis. A history of association with other cases of tuberculosis and of previous illnesses such as would point to pulmonary infection is very suggestive.

2. Proper, thorough, and, if necessary, frequently repeated physical examination.

3. Careful observation of the symptoms of toxemia.

4. The cutaneous tuberculin test.

5. *X*-ray examination.

6. As a final recourse, a diagnostic injection of tuberculin.

I have omitted sputum examination from this list because positive results are so infrequent in beginning infections, and because negative results are absolutely inconclusive.

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345 WEST EIGHTY-FIFTH STREET.

THE METREURYNTER INCISION OF DÜHRSSEN IN THE TREATMENT OF PLACENTA PRÆVIA, WITH REPORT OF A CASE.

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DÜHRSSEN was among the first who many years ago appreciated the value of the metreurynter for dilating the cervix in labor and for the induction of labor. In his efforts to bring about rapid delivery, especially in eclampsia, he practised incision of the cervix, by making four long cuts in the cervix, only in those cases where the supravaginal portion of the cervix was completely dilated. In a large number of cases the metreurynter fails, however, of sufficiently rapid action, especially where the supravaginal area of the cervix is not dilated. Since in these cases multiple cervix incisions are contraindicated, Dührssen introduced his so-called vaginal cesarean section, with the aid of which it is possible, at any period of pregnancy or labor, without pains, to so thoroughly remove the opposition of the cervix and lower uterine segment as to make delivery by forceps or version possible at once. There are various methods of performing this cesarean vaginal section. Dührssen uses a longitudinal incision or splitting of the anterior and posterior lips; as soon as the incision penetrates the fornix he pushes up the cul de sac of Douglas posteriorly, separates the bladder from the anterior wall of the cervix and the vagina anteriorly, and then continues the splitting of the cervix up to the peritoneal fold of Douglas behind and the vesicouterine plica in front. My preference has been for the transverse incision in the anterior and posterior fornix with separation of the bladder in front and dissection upwards of the cul de sac of Douglas behind, after which the cervix is split longitudinally to any desired length.

Krönig has practised the method of vaginal cesarean section, but confined himself, in a series of cases, to the splitting of the posterior lip alone. Bumm has confined himself to the splitting of the anterior lip alone. Dührssen is correct in his contention that it is easier to split both the anterior and posterior lips; that the resulting opening is more roomy; that the risk of further tearing of the uterus in the delivery of the head is then reduced to a minimum.

This method is so admirable in its safety and in its rapidity of execution that its use in placenta prævia was a great desideratum. To carry out this step in placenta previa, one is confronted, however, with cases where the bleeding commences and is so profuse as to render the field of operation unapproachable for operative interference. In other cases, the incision would enter the sphere of the placenta and start a hemorrhage that would totally obscure the operative field.

Dührssen has overcome these obstacles by combining the vaginal cesarean section with the use of the metreurynter. In other words, the metreurynter is introduced; it is filled with lysol or some other antiseptic solution and then the anterior wall of the cervix alone, or both the anterior and posterior walls are split, producing an opening through which version and extraction are rapidly accomplished. The metreurynter during this procedure dilates the lower segment of the uterus, thoroughly controls bleeding from the placental site, and renders the parts of the uterus to be incised so anemic that only a very small amount of blood is lost, and that almost entirely from the posterior incision.

Mrs. B., pregnant for the second time, at the stage of 7½ months, commenced to bleed suddenly and profusely. Vaginal examination disclosed a vertex presentation, a cervical canal that admitted one finger, and a placenta prævia marginalis. The vagina was thoroughly packed with iodoform gauze and patient removed to the hospital. Under anesthesia, after thorough preparation of the vulva and emptying of the bladder, the vaginal iodoform gauze packing was removed and a posterior vaginal speculum was introduced. The anterior lip of the cervix was grasped by bullet forceps and the metreurynter was introduced, was filled with lysol solution, and the tube was clamped. The posterior retractor was removed, an anterior retractor introduced, and traction on the tube of the metreurynter brought the cervix down to the vulva. A wide transverse and somewhat curved incision was made through the anterior lip of the cervix ½ inch above the external os. The upper margin of the incision was grasped by two long artery forceps and the bladder was thoroughly dissected away from the anterior wall of the cervix up to the vesicouterine plica and the anterior speculum was now introduced between the bladder and the cervix. A long pair of straight blunt-pointed scissors incised the anterior wall of the cervix over the metreurynter for a distance of 2½ inches. The metreurynter was pulled on more forcibly, the anterior speculum was pushed higher up, peeling the peritoneal fold away from the anterior wall of the uterus. The anterior incision was increased in length up to the peritoneum. The anterior retractor was removed and introduced posteriorly over the perineum, the metreurynter was pulled up toward the urethra and the posterior wall of the cervix was incised for a distance of 1½ inches. The finger was introduced between the vaginal mucosa and the cervical tissue, and the cul de sac of Douglas was pushed upward. The posterior wall of the cervix was split up to the peritoneum and the resulting opening was so large that the metreurynter made its exit. The hand was then introduced, the membranes were ruptured, version was executed, the leg was pulled down and within the space of a few minutes extraction was completed. The placenta and membranes were removed manually, and a very hot vaginal lysol douche was given. Before the metreurynter had been introduced a hypodermic injection of ergotol was administered and another was now given. Bleeding had almost ceased, and a very wide strip of iodoform gauze had been introduced into the uterus extending out beyond the vulva. The two halves of the split cervix were grasped by volsella and others were put on at higher points until the upper area of the incision was reached. The bladder was held up and out of the way by an anterior speculum and the incised cervix was closed by interrupted chromic catgut sutures applied ½ inch apart, nine sutures in all being passed. Care was exercised not to catch the iodoform gauze which lay in the cervical canal. The cervix was then pulled up toward the urethra and in the same fashion the incision in the posterior lip was closed. Two chromic sutures were passed through the transverse incision along the anterior fornix and a narrow strip of iodoform gauze was introduced between the

bladder and the anterior wall of the cervix. The intrauterine gauze was taken out, another intrauterine douche was given, and a narrow strip of gauze was passed through the cervical canal into the uterine cavity. The vagina was packed with iodoform gauze and the operation was completed. The strip of gauze between the bladder and the cervix was drawn out at the expiration of 48 hours; the intrauterine strip at the end of 4 days and the vaginal gauze at the end of 5 days. Convalescence was uninterrupted and rapid.

In treating placenta previa, we may either introduce a metreurynter, allowing it to remain until dilatation of the cervix is complete, or we may rupture the membranes, so that the head may be forced down and compress the placental area, or we may do a version, draw the leg through and permit labor to follow a natural course. If the cervix does not permit the ready introduction of the hand for the performance of version and extraction, none of the above methods compare as regards safety and rapidity with this method of Dührssen.

NEURITIS.*

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Pain has often been described as the indication of impaired nutrition—the "cry of hungry nerves for better blood." That this view is the rule is a debatable question. The word neuralgia is the outcome of this idea and the habit of calling pain, wherever located, neuralgia, or attributing it to so-called "rheumatism" is unfortunate and unscientific. The term neuralgia, as applied to sciatica, and facial neuritis, with the pathology of the conditions in doubt, is not distinctive. In observations taken from more than two hundred cases of pain involving the distribution of the sciatic nerve and its branches, and about an equal number of cases of brachial neuritis, the writer has failed in but very few cases, and those remote, to localize a circumscribed local lesion. The same has been true in all cases of pain involving the branches of the trigeminus.

The diagnosis of neuritis, with the localization of the site of the lesion, is of the utmost importance, if the case is to be treated successfully. These observations have caused us to make the preceding statements concerning neuralgia; for in few cases except possibly the pains of tabes, where the process may readily be referred to an irritating or inflammatory process involving the central neurons, is it difficult to locate a local inflammatory cause of pain.

The pathology of neuritis, as the word implies, is always referable to an inflammatory process involving the neurilemma, or the nerve trunk or both, and in some cases accompanied by an interstitial process involving all the structures of the nerve trunk in the affected segment. The inflammatory process very rarely if ever destroys permanently the axions of the nerve trunk, except when involved in a malignant or some other destructive process. An acute unarrested neuritis may result in the formation of adhesions between the nerve sheath and the surrounding structures, and thereby create considerable hyperplasia which may for a long time impair the functions of the nerve, and be accompanied by a persistent more or less painful condition. The inflammatory process in neuritis is as a rule circumscribed within a small area, while the pains or a sense of numbness are referred as a rule to the periphery, corresponding with the axions upon which the pressure is exerted. The fact that these localized areas have not often enough been recognized has probably led to the abuse of the term neuralgia. There are certain exposed regions which are common sites of the lesion. Such lesions are usually located at points where the nerve trunk crosses a bony prominence or fibrous structure particularly when a muscle is over a nerve in an exposed part of the body, as in the following frequent sites of neuritis; where the sciatic nerve at the sacrosciatic notch passes beneath the pyraformis muscle; where the crural nerve passes beneath Poupart's ligament; where the lumbosacral cord and the anterior crural cross the sacroiliac synchondrosis; where the musculospiral and circumflex emerge from beneath the teres minor; where the suprascapular passes out beneath the trapezius and enters the supraspinatus fossa of the scapula; where the inferior dental enters the canal in the inferior maxillary bone; where the superior maxillary or second division of the fifth cranial nerve emerges through the infraorbital foramen. These exposed points explain the traumatic origin of a large percentage of the cases of neuritis, the peculiar conditions accounting for frequent occurrence at these sites. In herpes zoster and intercostal neuritis deep pressure made in the intervertebral spaces over the posterior roots will elicit points of tenderness.

Etiology:—In addition to mechanical injury or exposure, toxemia or local infection is a factor in the etiology of some cases of neuritis, as is indicated from the fact that some cases have favorably responded to so-called "anti-rheumatic" remedies.

Treatment: Whether a localized neuritis is of traumatic or of infectious origin, when it has persisted for two weeks or more, it will not respond favorably to drug treatment; as is borne out by experience. While exceptional cases may recover spontaneously, the usual case of neuritis under the medical régime is the *bête noir* of the medical man. The variety of means, medicinal and mechanical, that have been employed in the treatment of neuritis in the past is indicated by the large number of remedies prescribed. Rest, fixation splints, nerve stretching, surgical operations, and the employment of so-called antirheumatic remedies, followed in many instances by hot baths at the various health resorts and spas, are the usual régime employed in the treatment of neuritis; at least so we are to infer from the text book and the frequent reports of unrelieved sufferers that have come to be relieved. That these methods have been followed with only a moderate degree of success is evidenced by the large number of chronic cases of neuritis.

That there are methods of treatment which meet with uniform success when the lesions are accessible, *i. e.*, not in the pelvis or cranium, is the author's object in presenting this paper. It has been my lot during the last twelve years to have had under observation a large number of these cases in which the results have been uniformly satisfactory. The principles of treatment employed have been as follows: Accepting the fact that a local inflammatory process is always associated in its early stages with the development of induration—the stasis of inflammation—it is self-evident that induration thus formed exists as an obstruction

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to the blood stream, with the infiltrating materials, fibrin and round cells in process of being thrown out into the lymph spaces and there becoming gradually organized and often causing the nerve to become adherent to surrounding structures. These in turn exert pressure upon the nerve trunk and end nerve plates, producing local or diffused pain or both, together with impaired nutrition, varying with the length or extent of the nerve trunk involved; the pain as a rule being most marked at the periphery.

The indication for the treatment of inflammation, with the associated processes of infiltration, producing pressure and pain, is the dissipation of such infiltrating materials. With tissues thus involved in any noninfected inflammatory process, the infiltration with swelling and tension may be dissipated in the early stages, before organized hyperplasia has taken place, by inducing intrinsic activity, in other words, successive structural contractions throughout the area involved, and of the surrounding muscles, thereby forcing out or expressing the foreign substances from the lymph spaces. To be more specific, if an electrical current is applied to a structure in a state of infiltration, inducing successive contraction with intervening intervals of rest at an alternating rate of about 120 per minute, it will express the fluid element of the exudation, and also induce the elimination of round cells and fibrin deposited in the lymph spaces. This is practically demonstrated by the application of the static wave current or static sparks to a recent sprain which is thereby softened by one application to the extent that the patient who enters the office with difficulty walks out with little pain after the first administration. This principle in therapeutics applies to the treatment of all conditions of noninfected inflammation including the types of neuritis.

Another element to be considered as present with neuritis, and also in joint inflammation, is the associated condition of tension or contraction of the muscular structures receiving their nerve supply from the affected nerve, or the muscles which cross or move a joint. In neuritis of the brachial plexus, such contraction may cause the fixation of the pectoral, triceps, teres minor and major, biceps, and deltoid muscles; in severe cases to an extent that will so immobilize the arm that movement is both painful and difficult. It is this condition of muscular tension and contraction which gives the arm or limb the seat or a brachial or sciatic neuritis the sense of weight or heaviness and disuse. These conditions of muscular contraction are practically relieved by the same means as relieve local induration and infiltration.

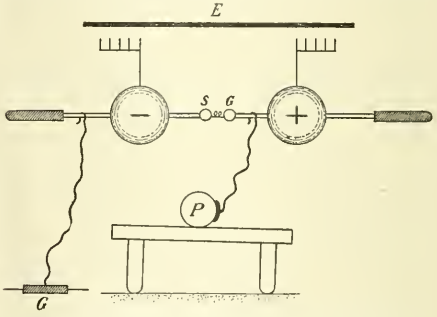
Effectually to overcome the infiltration and muscular tension associated with the local lesion of neuritis, there are no means, in my experience, that compare with the static modalities, particularly the static wave current, the static sparks, and the static brush discharge, as well as in some cases the direct vacuum tube current which simulates the wave current in that it is administered with the vacuum tube connected in the same manner to the positive pole of the static machine, with the negative side grounded, and the spark discharging at a length that can be tolerated by the patient. (See the illustration.)

Radiant light and heat or dry convective heat, as an adjunct to static treatment, should never be employed following the administration of that current. If, however, it is applied prior to the static treatment, the capillary and arterial dilatation induced, together with the tissue relaxation, seems to facilitate the expression of the debris or infiltration from the tissues, whereas relaxation so induced following the static treatment tends again to flood the tissues and produce to a degree a secondary infiltration. This has been well demonstrated by relapses thus induced in connection with the static treatment.

The application of mechanical vibration in the treatment of neuritis, associated with the static administration aids in overcoming the muscular tension. Otherwise, in our experience, the employment of this agent has proved generally unsatisfactory.

The technique we employ in the treatment of the variously located cases of neuritis is substantially as follows: If there is great pain and diffuse tenderness of the parts, as in acute cases, the application of radiant light and heat from a source of high candle power, to the extent of inducing an intense local hyperemia over the sensitive part, should always precede the application of the static wave current, which is administered in the following manner:

The patient is seated upon the insulated platform, opposite the positive pole of the machine, a metal electrode of lead, block tin, or bottle cap composi-



Connections for Static Wave Current. E, Electrostatic Generator; G, Ground Connection of the negative side of the machine; Electrode is connected to patient, P, who must be insulated.

tion (22 gauge is the best thickness) adapted to the part to be treated is adjusted over the site of the lesion, and fixed in such a manner that it will be held in close apposition to the skin, either by pressing it against a pillow, placed at the back of the part to be treated, or by bandaging the electrode to the part.

In the treatment of tic-douloureux, the pliable metal should be shaped to fit the face in such a manner that it will cover and press upon the distribution of the affected nerve. The electrode is best held in place by the palm of the bare hand of the patient against the metal, the arm resting upon the arm of a chair. It is impossible to administer this current over the forehead or scalp, on account of the thinness of the aponeurosis and skin, and the intense painful vibration induced over the bony structures beneath; but here the static brush discharge is always effective. The electrode, having been placed in position, is connected by a rheophore, a small bare wire suiting the purpose, to the positive side of the machine. The spark-gap or space between the discharging rods is then closed, and the negative side of the

machine grounded to some direct grounding, as a water pipe or radiator. The machine is then started at a very slow rate of speed, and the operator proceeds to open the spark-gap slowly, until the patient complains of too great pain, produced by the contractions induced in the involved tissues. A spark-gap one inch or a little more employed when treating an involved sciatic nerve at the notch, employing a metal electrode four or five inches square is all that can at first be tolerated if a lesion is present. Severe pain induced in this manner will be diagnostic. The spark-gap should then be opened a little at a time by the operator as the patient can tolerate it, until the treatment has been continued for twenty minutes, when the spark-gap may have been lengthened to from three to four inches. By this time the contraction or tension of the pyriformis and gluteal muscles will have been relaxed, and the infiltration be largely expelled from the involved tissues. The extent of relief that this treatment will afford the patient must be experienced or the effect witnessed to be appreciated by those who are unfamiliar with this method of treatment. The patient who comes in a cab and enters the office with difficulty, often can walk home without assistance.

It is my custom to follow up this treatment with a few static sparks over the section of nerve involved, and to any muscles that are tense and contracted, as to the long muscles of the internal and external vasti and quadriceps groups which are apt to be contracted in sciatica and the deltoid, teres minor and major, pectoral, triceps, biceps, and scapular muscles in brachial neuritis. The application of a spark to a muscle thus contracted will cause marked pain, but a very few sparks carefully applied completely relax the tense muscles. It is customary to apply these sparks to the long muscles in rapid succession with the sparking ball passing parallel to the involved muscles. Sparks cause intense pain, temporarily to be sure, when applied over the site of the lesion in neuritis, but no modality will be missed more, if this application is neglected.

Patients will accept it without protest as soon as they discover the relief following the application, and if not completely relieved will ask for more. It is notable how these patients will call for here and there another spark. It is customary in treating neuritis when seeking to overcome muscular tension, following the treatment of the local lesion, to have the patients move the affected arm about in all positions which cause pain, indicating where pain is caused by the movement, and there to apply sparks.

Few patients who have suffered for a few days or one week with a severe neuritis will make protestation against the application of these measures, if they are intelligently applied; the relief is so instant and complete. The length of sparks administered should always be relative to the size of the part involved—sparks an inch long over the forearm, to two and one-half inches over the deltoid and four inches over the glutei muscles and muscles of the leg, will be an approximate length in an average case to insure a maximum benefit. Sparks are best localized in these cases by means of a spark director.

In the treatment of tic douloureux or neuritis of the trigeminus, variously located, the application of the wave current will be followed to advantage in most cases by the use of the static brush discharge instead of sparks; the structures being less dense, this modality will always be effective. When the lesion is in the mouth, a glass vacuum tube electrode held over the lesion and employing the direct vacuum tube current obtains the desired result. It was so employed to two of my patients; one a case of neuritis of the inferior dental branch, where the nerve entered the bony canal, and in the other case the electrode was applied above the upper alveolar border.

In herpes zoster the static brush discharge is the modality of election for application over the herpatic patches, following an administration of radiant light and heat. Over the unerupted area, apply an electrode of soft metal which will cover the parts that are contracted and painful, and employ the wave current daily or twice daily in severe cases for twenty minutes, followed each time by sparks directed to the intervertebral spaces along the spine until the pain is relieved. These measures effectually cure these cases in a few days, and promptly relieve most if not all of the discomfort at each application.

Intrapelvic neuritis frequently occurs, associated with the sacroiliac luxation described by Goldthwaite. These cases are promptly relieved when coming early under observation, by the systematic employment of the static wave current with an electrode of soft metal $3\frac{1}{2} \times 8$ inches in dimension, applied over the sacroiliac synchondrosis and contracted muscles of the gluteal region, and employing at first a spark-gap as long as the patient will permit it, gradually increasing it to from six to ten inches, for the usual twenty minutes, followed by static sparks and in severe cases by an additional internal treatment such as is used in treating prostatitis with a cylindrical metal electrode, carried high up into the rectum, and held against the affected side. The writer has successfully treated four of these cases during the last two months, in all of which recovery has been complete within two weeks. In some cases it will also be necessary to reduce a luxation at the synchondrosis by extreme and forcible flexion of the thigh upon the trunk. It is probably these cases that are thus relieved by so-called nerve stretching.

The prognosis in neuritis when the static modalities are employed is always good by the method described, if the lesion is accessible. The time necessary to effect a cure is relative to the chronicity, *i.e.*, relative to the amount and character of the exudation and the extent of the involvement or lesion, when the case comes under observation. In no instance has the writer failed to cure a case of sciatic neuritis of less than two weeks' duration within ten days, the cases of shorter duration being relieved promptly with from two to five treatments.

In chronic tic douloureux the prognosis is bad after two years, because the lesion located within the bony structures is inaccessible, and the induration has become organized. These cases, however, are promptly cured when of less than one year's duration; and cases of Bell's palsy not of cortical origin respond to the same treatment for the same reasons.

There is probably no technique in electrotherapeutics that requires more care and precision in the management than the treatment of neuritis, and none that affords greater satisfaction to physician and patient.

329 West Fifty-seventh Street.

STRICTURE OF THE MALE URETHRA.*

By WALTER BROOKS BROUNER, A.B., M.D.,

NEW YORK CITY.

STRICTURE of the urethra in 95 per cent. of all cases is due to the after effects of one or more attacks of gonorrhea; congenital, traumatic, inflammatory, spasmodic, and organic strictures constituting the remaining 5 per cent. The importance of a knowledge of the cause and effect of strictured urethra cannot be overestimated, as gonorrhea is so prevalent in the male population of all cities, towns, villages, and hamlets as to be practically endemic. Indeed, so common is it, and of so little importance to the average citizen who is afflicted with gonorrhea, that it is often looked upon as a joke and of no more importance or danger than an ordinary cold in the head.

The attitude of the public, due to ignorance of the seriousness and latent possibilities of "only a dose of clap," makes the proper care and after treatment of a case of gonorrhea one of the most trying problems with which a physician or genito-urinary specialist is confronted. My hospital and private records show that not more than 50 per cent. of those afflicted with gonorrhea are willing to follow out the after treatment of their gonorrhea until cured; whereas 95 per cent. of our syphilitic patients haunt our offices until they are told to quit treatment. And yet this disrespect for gonorrhea, in spite of the fact that it causes not only stricture of the urethra, abscesses about the genital organs, disease of the testicles causing sterility, involvement of a very important organ—the prostate gland, infection of the bladder, urinary ducts, and kidneys, but also inflammations of the various tissues of the body, such as joints, bursæ, tendons, muscles, the heart, and even the eyes.

Of all these complications stricture of the urethra, excepting perhaps prostatic involvement, is by far the most common, often leading to the most serious complications to the genitourinary economy, and often necessitating heroic measures for relief of the patient. Why, then, is stricture so prevalent as a result of gonorrhea? The reasons are simple. The natural configuration of the urethra or urinary pipe predisposes to it; also the causative agent of the gonorrhea, the gonococcus of Neisser, with its predilection for the deep tissues, produces an ulceration of the mucous membrane of the urethra with a proliferation or deposit of new tissue within the urinary canal, and finally, patients refuse or fail to persist in their treatment of gonorrhea until cured.

The normal urethra is, as we know, not of equal or uniform caliber throughout its entire length. "At the meatus urinarius or mouth of the penis we find a normal narrowing of the canal, which then expands into a spindle-shaped portion, which is called the fossa navicularis; hence this is called the navicular portion of the urethra. As this part emerges into the spongy or penile portion a slight constriction occurs. The canal then expands and we find it of somewhat uniform caliber in its course through the course of the corpus spongiosum for a distance of four or five inches. It then expands again, in conformity with the bulbous expansion of the corpus spongiosum, and a spindle-shaped canal is formed, which is from an inch to an inch and a half in length, and is called the sinus of the bulb or bulbous portion of the urethra. Again becoming contracted at the anterior layer of the triangular ligament it has a uniform caliber for a distance of about three-quarters of an inch, when, at the posterior layer of this ligament, it emerges to expand again into the prostatic urethra. In its course through the triangular ligament it is simply a membranous canal seated about an inch beneath the summit of the pubic arch, and surrounded by the compressor urethræ muscle. The prostatic urethra is the direct continuation of the membranous urethra. It also has a spindle shape and is about an inch and a quarter in length. Thus anatomically there is a navicular, a spongy, a bulbous, a membranous, and a prostatic portion of the urethra, making five divisions in all. The term 'penile' or pendulous urethra is also applied to that portion which extends from the glans to the penoscrotal angle."

This configuration of the interior of the penis, together with the numerous ducts or pockets in the membrane of the urethra, form a natural nidus for the gonococcus, which if not eradicated tends first to a mucous degeneration of the mucous membrane, the formation of transitional cells, and finally a subepithelial connective tissue formation, which if not checked, leads to a round cell infiltration of greater or less extent.

According to Finger, "the areas of gonorrheal urethritis localize themselves by preference in the pendulous, bulbous, or prostatic portions of the canal, the membranous portion being rather immune to chronic inflammation of this sort." If the gonococci are not eliminated and the chronic urethritis terminated, the granulation tissue persists. Contraction subsequently occurs, causing stricture, which we define as any narrowing in the lumen of the canal or pipe or urethra. A stricture may be either (a) linear, (b) annular, (c) tortuous, depending on the relation of the scar tissue to the canal or urethra—in short, strictures vary in degree rather than in kind, and also as to the extent that they tend to a closure or occluding of the canal; hence the arbitrary distinction of open or large caliber strictures, and tight or small caliber strictures.

The changes which now take place, due to the existence of the stricture, are produced, first, by mechanical influence and, second, by infection. The urine in its outward flow meets the obstruction presented by the stricture, causing increased pressure on the walls of the urethra. This back pressure is felt all along the urinary canal, extending eventually to the bladder, which now has to work harder and overtime in order to expel its normal urinary contents. This constant overwork on the part of the bladder causes either hypertrophy of its muscular walls or it loses its contractile power, and atony or loss of bladder tone results. If the stricture be not relieved this damming-up process may back up into the ureters, which connect the bladder with the kidneys, subjecting them to similar deleterious pressure influences as described in the bladder, until the kidneys are involved, undergoing either a compensatory hypertrophy or a dilatation of their pelves. Finally the very substance of the kidney is involved, and water-logged or hydronephrotic kidneys result.

Concomitant with these muscular processes there go hand in hand other changes. As the bladder loses its projectile or expulsive force a certain

*Read before the Genito-Urinary Section of the New York Academy of Medicine, May 18, 1910, in a symposium on "The Complications and Sequelæ of Gonorrhea.

amount of urine is left behind, either behind the stricture or in the bladder itself. This urine undergoes fermentative changes, which not only tend to perpetuate the local inflammatory conditions but aggravate them, hence the ducts and the glands of the urethra become inflamed. Periurethral abscesses form. If the stricture be excessively tight a complete shutting off of the stream of urine results, causing retention of urine, which if not relieved causes urinary extravasation or leakage into the adjacent tissues. This in some cases leads to death, or if the case does not progress so far as this, cystitis may occur and with it a transmission upward and backward through the urinary apparatus, until the entire genitourinary system is involved with a pus infection.

It is impossible to state what proportion of patients who have had gonorrhea become the victims of strictural formation. It is certain that if a gonorrhea be gently, systematically, and persistently treated until the urine is free from shreds and gonococci and the subsequent course of after treatment by sounds be instituted, we can then predict the absence of any subsequent stricture formation. Once formed, strictures may vary in number, as many as ten strictures having been observed by me in one case. Observers vary as to the site of strictures. In one hundred cases observed by me at the New York Hospital and Vanderbilt Clinic thirty-five were within the first two inches behind the meatus urinarius, forty-seven were between the latter point and the penoscrotal junction, eighteen were at or near the penoscrotal junction. Strictures of the prostatic urethra are rare and with difficulty demonstrable.

The symptoms in the order of frequency are (a) gleet, (b) change in the stream either as regards form, force, or size, (c) increased frequency of micturition, (d) bladder symptoms as already described, and (e) loss of sexual power. The limits of this brief paper will not permit of any extended reference to these symptoms.

The diagnosis of stricture is made from the symptoms which the patient presents as already described, and from our examination of the urethra. Suffice it to say that we employ in our investigations two sorts of instruments: (a) metallic instruments, *e.g.*—cone-pointed or olive-pointed bougies, tunneled and grooved silver catheters, and tunneled and grooved metallic sounds, metallic urethral sounds, the urethrometer, dilators, and the endoscope; (b) non-metallic instruments: *e.g.*—filiform whalebone guides, soft flexible silk or lisle thread bougies, and rubber silk, or lisle thread catheters, without going into detail, it is necessary to remember that all our instrumentation must be of the gentlest nature. Force must be omitted, and patience and persistence substituted.

The treatment is prophylactic, nonoperative, and operative. (a) By prophylactic I mean that gonorrhea should be conscientiously treated so that the possibility of stricture following an attack of gonorrhea may be eliminated. In my practice I begin the passage of soft instruments as soon as the gonococci have disappeared. Many obstinate cases with shreds in the urine directly following an attack of gonorrhea clear up under sound introduction, after local applications, such as silver nitrate, have failed. No patient should be discharged by us as cured until a thorough exploration of his urethra has been made.

(b) Nonoperative treatment. As we have already indicated, strictures are open or closed. In my experience a large majority of strictures are amenable to dilatation. Even though at first admitting but a filiform, we may gradually, with tunneled instruments (followed by soft instruments later), work them up to at least 20 Fr. and then continue our work with rigid instruments, until we have dilated the urethra up to what we consider the normal size for the given individual. The results of such treatment so far as permanency is concerned are just as good as those following cutting operations, if not better, for even when operative treatment is employed we are forced to use dilators (sounds) thereafter for a certain interval. In all our manipulations of the urethra we must not employ force, but gentleness coupled with patience and persistence. The mortality of such dilatations is practically nil. Divulsions are not desirable, as they do too much violence to the urethral structures and eventually leave the patient as badly off (if not worse) than before the treatment.

(c) Operative treatment. There are certain cases which are not amenable to dilatation. Then there are certain emergency operations, such as retention, fistulæ, extravasation, etc., which require operation on the urethra. We then have one of three operations to perform—viz., internal, external, or combined internal and external operations. The limits of this paper will not permit of any reference to the detail of such procedure. It will be sufficient to state that like all cutting operations, there is a certain degree of danger from hemorrhage, infection, anuria, etc. Operations on the urethra today are not so numerous as formerly, and are accompanied by a relatively decreasing mortality, owing to our advanced ideas as regards preliminary and after treatment, and our special improved surgical equipment and technique.

27 West Ninth Street.

A New Technique in Intrabronchial Injections.—Guisez describes a new method by which intrabronchial injections may be easily carried out. He gives the results of such injections in a case of acute intrapulmonary abscess and one of chronic bronchial dilatation. In the abscess case radioscopy enabled the abscess to be located, and the treatment brought about a speedy recovery. In the chronic dilatation case the patient was benefited by the injections, and his fever lessened by the emptying and disinfection of the bronchiectatic cavity. The larynx of the patient is cocainized and the injection made with a long curved cannula, which is introduced with the head mirror. The cannula reaches to the bifurcation of the bronchi and is directed toward the affected bronchus at the moment of injection. When the injection is made the patient lies on the affected side, so that the solution runs in that direction. It is possible to introduce without disagreeable results 12 to 18 c.c. of fluid. This method allows of efficient local treatment of pulmonary conditions.—*Gazette des Hôpitaux.*

The Blood in Kala-Azar.—A. Tomaselli has investigated the blood in kala-azar to find if there is any diagnostic criterion in it by which to differentiate the varieties of this disease from one another and from other similar diseases. He does not find such practical differential criteria. In the beginning of the disease there is a moderate leucocytosis; later there is anemia; increased globular value; lessened hemoglobin and erythrocytes; increased mononucleated leucocytes; lessened lymphocytes; eosinophiles; and no alteration of size and form of red cells. Chromatophilia is noted in some cases. There is some difference between the blood in the African and Egyptian varieties. The parasites are rare in the peripheral blood. In infantile pseudoleukemic anemia there are numerous hematoblasts; there are nucleated red cells, which are rare in kala-azar. In malarial anemia we find malarial parasites in the blood, polynucleosis, and eosinophiles. In Malta fever there are normal polynucleated neutrophiles, polynucleates, and eosinophiles.—*Rivista Critica di Clinica Medica.*

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ARTERIAL HYPERTENSION.

SINCE the introduction of the sphygmomanometer into clinical medicine has done for the estimation of blood pressure what the clinical thermometer years before did for the body temperature, great and widespread interest has been taken in the interpretation of the variations and fluctuations of this particular factor of the pulse. This sudden enthusiasm has done much good in teaching the physician the necessity of careful observation of the pulse force, both as an aid to diagnosis and as an indication for treatment. Along with its benefits, however, the sphygomomanometer has done a certain amount of harm, for with its steadily widening use the term "arterial hypertension" is beginning to be used almost as though this were in itself a disease instead of merely a symptom.

For a proper understanding of the treatment of the various conditions associated with which the arterial pressure is above normal, it must primarily be recognized that if the pressure is high there must be some underlying cause for the abnormality. Such causes can, as a rule, be divided into three groups: mechanical, nervous, and toxic causes. The most common mechanical cause is arteriosclerosis, and yet there may be pipe-stem arteries with normal pressure. The reflex nerve irritation of a peritonitis or a fright, may cause a sharp rise in pulse tension, but in shock the blood pressure falls. The cause of hypertension, which is probably the most widespread and the most frequent, is intoxication. It is generally considered that it is the irritation from poisons retained by the kidneys and not the mechanical obstruction which sends up the blood pressure in nephritis, while in two articles in the *American Journal of the Medical Sciences* for May and July, 1910, Elliott emphasizes the toxic cause of those indefinite cases in which the pressure is permanently above normal, without recognizable causative lesions, the cases called by Cook "essential arterial hypertension."

These cases occur, as a rule, in stout people of middle age, often in men of large affairs leading strenuously active lives, and considering themselves to be in good physical condition. A little headache, some "biliousness," constipation, vertigo, or, most frequently of all, a troublesome flatulency appearing at night or excited by exertion brings such patient to the doctor with the self-made diagnosis of indigestion. An examination reveals a slightly plethoric man, with possibly more or less cardiac hypertrophy, and a systolic blood pressure between 160 and 220 mm. of mercury. The liver may be enlarged and an excess of indican is found in the urine, but, at least in the earlier stages of the disease, there is no sign of renal involvement. In such cases Elliott believes that the hypertension is due to the stimulation of poisons circulating in the system, toxins having their origin in the intestines, which keep the muscles of the vessel walls in a constant state of spasm, causing increased resistance to the flow of blood, and ultimately arteriosclerosis and cardiac hypertrophy.

The treatment in such cases is chiefly hygienic and dietary, and may well be summed up as moderation in all things. The patient must not starve himself, and he must not overeat. A low meat diet is desirable, but an embargo on meat with license in carbohydrates is distinctly harmful. Violent exercise must not be indulged in, but a sedentary life aggravates the condition. The use of alcohol and tobacco should be kept within moderate limits, and the salt intake should be reduced. Water should be given freely and the bowels should be kept well open with saline cathartics. When the pressure lies within moderate bounds and no active symptoms are evident, vasodilators are unnecessary. When the pressure is extreme and symptoms giving warning of an approaching apoplexy appear, active vasodilatation with nitrites is urgently required. In the later stages, when the heart has hypertrophied and then weakened, stimulants are needed, a reliable indication for this being the response of the pulse and blood pressure to graded exercises. If during exercise the pressure rises gradually and remains high for some time, the heart is in good condition; if it drops quickly to a point lower than before the exercise began the heart is weak.

These communications of Elliott are of considerable value, not only as pointing out what the author has found to be the most satisfactory method of treating a very puzzling and resistant class of patients, but especially in emphasizing the need of recognizing the underlying causes of the condition.

A FISH DIET.

SIR J. CRICHTON-BROWNE, who is the orator of the British medical profession, has been lauding recently in eloquent language the merits of a fish diet from various standpoints. At the twenty-fifth annual conference of the British Sanitary Inspectors' Association held in Fishmonger's Hall, London, on August 30, the speaker in question discussed fish generally. In the first instance he proffered the very sound advice that systematic inspection should be maintained over all sources from which shell fish were sent to market and that samples of the fish so sent should be taken frequently and subjected to bacterial examination in the same way as milk was tested in order to prevent the spread of disease. The main part of the address was devoted to the discussion of fish as a food, and regret was expressed that away from coastal towns fish had hitherto been regarded too much as an accessory,

too little as a staple article of diet. There are large numbers of people in rural districts, and the remark applies more pertinently to America than to Great Britain, who rarely taste fish, and who indeed fail to realize the value of fish as food. Fish, from a physiological point of view, except, perhaps, from the point of view of the vegetarian, is the next best thing to meat. It contains less protein than meat, and as a source of energy its nutritive value varies with the amount of fat it contains. In this respect salmon may be considered as equal to lean meat, but the lean fish which contains less fat and more water has to take a lower place. It has been calculated that 1½ pounds of codfish will equal in nutritive value one pound of lean beef, but cod is far cheaper than beef. Still the market price of fish is no criterion of its nutritive value. Sole is dear, while haddock is cheap, but haddock contains as much nutriment as sole. As a matter of fact, scarcity, taste, and fashion, and perhaps prejudice, regulate the market for fish, as there are several species of fish which are edible and nutritious, but which find no favor with the public.

Browne points out that if a general call for fish were to arise, a vast development of the fishing industry would take place, and we might look forward to an abundance of good nourishing and digestible fish for the people at a price making it accessible to the poorest. But in order that fish as a food should become widely popular, it is necessary that its merits should be made known far and wide, and especially among the poorer classes.

In the address given in London a very interesting point was brought forward, that the campaign against tuberculosis might be greatly aided by an abundant supply of cheap fish. Power of resistance to the disease is an important factor in its prevention, and that power is lowered by poverty in its many phases, and conspicuously by poverty in food, and especially by nitrogen starvation, as it is called, or an insufficiency of protein in the nutriment supplied. Little emphasis is needed to prove that if the sick poor were better fed their powers of resistance to tuberculosis would be greatly strengthened. Therefore the argument that to render fish foods rich in protein accessible to the very poor would be to take a long step toward the abolition of tuberculosis, seems quite reasonable.

There is one point in support of fish as food upon which the speaker did not touch, that it is not only a cheap alternative to meat, but that it possesses some special properties of its own. It is usually very digestible, and in these days when indigestion, intestinal fermentation, and the like are the most common disorders this is a very great feature in its favor and should particularly commend it to an American public. It should also be borne in mind that there are as good fish in the sea as ever came out of it, and that the succulent and nutritious varieties are not only those that are known and appreciated, but some which are unknown, and other varieties against which a prejudice exists.

It is certain that fish on the whole is nutritious, that many nutritious varieties are cheap, and the advice of Sir James Crichton-Browne might be followed with advantage in the country. For reasons hard to understand fish is neither so plentiful nor so cheap in New York as its situation seems to demand. Neither as an article of diet is it very largely used among the poor. A campaign of education on the beneficial effects of fish as a food would be as productive of good results in New York as in London, and the day may come when fish will be a common article of diet in the homes of the poor in Europe and in America.

The Mental Exertion of Manual Labor.

The belief is perhaps general that manual labor involves no particular mental strain. On the other hand, one frequently hears it said that mental work prejudicially affects the bodily powers to a much greater extent than does manual labor. Although there is a considerable amount of truth in the statement it must be accepted with certain distinct modifications, for even those who literally earn their daily bread by the sweat of their brow are not wholly exempt from brain travail. A correspondent of the London *Times*, August 29, argues the case ably for the man with the hoe or axe. He points out that it is impossible to draw a precise line between mental and manual work. Physiologically all work is brain work. All fatigue is really brain fatigue. In other words, all labor is skilled labor, though in greatly varying degrees. The navvy with his pick and shovel has to use skill; so does the docker, loading or unloading barrels, cases, and bales. There are men who are so constantly engaged in carrying out one little process that they do the work instinctively, almost automatically. The exercise of their skill requires little exertion of body or mind. On the other hand, the watchmaker or the engineer has to keep his mind continually on his work, and although he must use his hands all the time, his brain is being exerted more than his body. Many indoor trades requiring skill need the employment of brains rather than of physical force. But even the horny-handed son of toil, as the Italian who digs, and delves, and blasts, and the countryman who toils on the land, in these days of machinery must use a good deal of intelligent, as well as expend much bodily, energy. Indeed, it is obvious that brains are required in all trades and possibly on the whole nearly as much mental power is used by the man who works with his hands as he who mainly uses his brains. The professional man or the business man is generally brought up and educated for his work and thus his brains are trained, while the uneducated individual has, so to speak, to work his brains more, in that they are untrained. Whether it be work of brain or hand, so long as it is not carried to excess, it is healthy. No healthy man has ever been killed by hard work within reasonable limits, of any kind. More have rusted to death than have been worn out. The work which kills at the present time is the abuse of work, the rush and strain of modern conditions, and, above all, worry, the curse of modern times. The person who works at hard manual labor has several advantages. As a rule, he labors in the open air, and provided that he earns sufficient to support himself and family in comfort he is free from worry and he is free from responsibility which usually brings worry in its train. Nevertheless, the brain worker must not lay the flattering unction to his soul that he possesses a monopoly of mental exertion. Moreover in this as in every case, the personal equation must be considered.

Typhoid Spermatocystitis and Prostatitis.

Few subjects in recent years have occasioned such interest among clinicians and anxiety among sanitarians as has the question of disease "carriers," more especially in reference to the transmission of typhoid fever. Post-typhoid bacilluria is a well-known clinical condition, often occurring as long as five or even ten years after recovery from typhoid fever. The presence of the bacilli in the urine of otherwise healthy individuals is familiar, but their source has been a puzzling mystery. The gall-bladder has long been accused of being a harborer of the organisms, the accusation in many cases having been based upon abundant proof insofar as infection of the feces is concerned. That this organ should be the source of urinary infection is, however, not so easy to understand, especially in the light of the findings of Vyssokovitch that a healthy kidney will not allow the passage of micro-organisms from the blood to the urine, and as in many cases of typhoid bacilluria there is no evidence whatever of a kidney lesion, the searchers for the source of the bacteria have had to turn their attention to the lower urinary tract itself. In the *American Journal of the Medical Sciences* for July, 1910, Marchildon reports the results of some observations made by him in Pick's laboratory in Berlin, which seem to be of considerable interest in this connection. In two patients who died of typhoid fever careful investigation was made of the entire genitourinary system with the result that in one case a purulent infection of the seminal vesicles was found and in the other an acute prostatitis. From both lesions were obtained pure cultures of the typhoid bacillus. Both were men who died during the acute period of the disease, and the findings therefore bear only an inferential relation to the subject of typhoid carriers and post-typhoid bacilluria. In the light, however, of the well-known tendency of these two organs to chronic latent infections with the gonococcus, the suggestion that chronic typhoidal lesions of the spermatocysts and the prostate gland may be causes of bacilluria lasting for months or even years is distinctly worthy of consideration.

Enlargement of the Medical Record.

In accordance with the policy that has animated the Medical Record since its first appearance, forty-four years ago, always to share with its subscribers the benefits which accrue from their increasing numbers, the journal is now once again enlarged. Beginning with the current issue the number of reading pages each week will be increased, and this number will, as heretofore, be exceeded in individual issues when society reports, special articles, or other interesting matter calls for more space. Dating from this issue also the typographical appearance of the journal will be improved, the correspondence will be printed in larger type, and the abstracts from other journals in the department of "Progress of Medical Science" will be more widely spaced and so more easily read. These and other improvements, upon which we need not dwell now but which will, we hope, be apparent to our readers, will all make for a better journal, and the Medical Record will endeavor in the future, as in the past, to continue to merit the interest and loyalty of its many friends, both old and new, who have made these betterments possible.

News of the Week.

Decrease in Typhoid Fever.—The Health Department of the City of New York announces that the number of cases of typhoid fever during the four weeks ending September 17 was much lower than for the corresponding period of last year, the total number for the city being 630, as compared to 924 in 1909. In response to complaints regarding the taste of the city water, the authorities state that this is due to the presence of *Aphanizomenon* in the water, and that the ill flavor will remain until the cold rains come. The water is, nevertheless, quite harmless.

Toadstools for Mushrooms.—Three persons are dead in Orange, N. J., as the result of eating poisonous toadstools which they thought were mushrooms.

Crocker Cancer Fund.—The validity of the bequest made to Columbia University by the late George Crocker, providing that the proceeds of the sale of his house in New York City should, together with the proceeds of the sale of his country place, be used as a fund for the carrying on of work in cancer research in Columbia University, has been questioned by the stepchildren of Mr. Crocker, and the sale of the property has been forbidden until the courts have passed upon the case.

Infantile Paralysis.—In both New York and the District of Columbia the health authorities have classed infantile paralysis with the transmissible diseases and have ordered the quarantine of cases. The Washington Department of Health issued an order on September 20, excluding from attendance at the public schools all pupils who had been within the previous three weeks exposed to acute cases of infantile paralysis. Such pupils will not be allowed to attend school for fourteen days. In New York State the report of all cases and a quarantine for twenty-one days is required. The Commissoner has also issued blanks on which he urges a detailed report of every case occurring since January 1, 1910.

Baths Before Target Practice.—The men of the battleships composing the Atlantic fleet now in southern waters for target practice have been instructed to bathe and make a change of underclothing each morning before the ship goes into action. It is hoped in this way to prevent blood-poisoning through any possible wounds from infected clothing. Such precautions are thought to have been responsible for the absence of cases of blood-poisoning among the men on the Japanese battleships during the Russo-Japanese war.

Typhoid Fever in Toronto.—Typhoid fever is again very prevalent in Toronto. During the latter part of September about 130 persons were under treatment in the five principal hospitals of the city. This is believed to be due to the fact that the city water is infected, probably at the intake. The city filtration and sewage disposal works are progressing somewhat slowly, and considerable dissatisfaction is expressed at the delay in completing these necessary improvements.

Food and Nutrition Charts.—The Department of Agriculture has recently issued a set of fifteen charts on the composition of food materials, which are likely to prove especially useful to instructors and students in classes in physiology and in other branches in which the food and nutrition of man is studied. The charts may be obtained from the Superintendent of Documents, Government Print-

ing Office, Washington, D. C., for $1 for the set. The charts are printed from photolithographs in six colors, and in each case show the protein, fat, carbohydrate, ash, and water contents, and the fuel value expressed in calories. The food materials shown are as follows: 1, whole milk, skim milk, buttermilk, and cream; 2, whole egg, egg (white and yolk), cream cheese, and cottage cheese; 3, lamb chop, pork chop, smoked ham, beefsteak, and dried beef; 4, cod (lean fish), salt cod, oyster, smoked herring, and mackerel (fat fish); 5, olive oil, bacon, beef suet, butter, and lard; 6, corn, wheat, buckwheat, oat, rye, and rice; 7, white bread, whole wheat bread, oat breakfast food (cooked), toasted bread, corn bread, and macaroni; 8, sugar, molasses, stick candy, maple sugar, and honey; 9, parsnip, onion, potato, and celery; 10, shelled bean (fresh), navy bean (dry), string bean (green), and green corn; 11, apple, dried fig; strawberry, and banana; 12, grapes (edible portion), raisins (edible portion), grape juice (unfermented), canned fruit, and fruit jelly; 13, walnut, chestnut, peanut, peanut butter, and cocoanut. Chart 14 gives the functions and uses of food under the headings, "Constituents of Food," and "Uses of Food in the Body." Chart 15 shows the dietary standard for a man in full vigor at moderate muscular work and the estimated amount of mineral matter required per man per day.

Free Esperanto Instruction.—Mr. Arthur Baker, 700 East Fortieth street, Chicago, editor of *Amerika Esperantisto*, writes that he has had prepared 100,000 brief grammars of Esperanto in pamphlet form, and will send one free to any person who is sufficiently interested to ask for it, inclosing a stamp for reply. The grammar has been prepared in order to give every person interested an opportunity to judge for himself regarding the probable value of this international medium of communication.

Medical Inspection of School Children in Toronto.—Medical inspection in the Toronto public schools will shortly be in force. The department of medical inspection is to be placed under the direction of the Board of Inspectors. Dr. Helen MacMarchy has been appointed medical inspector of girls, and Dr. Wilmot A. Graham, medical inspector of boys.

Jewish Consumptive Institute.—This institution, to be used in the treatment of tuberculosis, was opened in Philadelphia on September 11. Addresses were made by the founder, Dr. M. Staller, and by Dr. S. Solis-Cohen, chief of the medical staff. Nurses from the institute will visit the homes of tuberculous patients and instruct their families in the care of the sick. Tents will be provided for sleeping on the roofs in crowded sections.

Marine Hospital Service.—During the last fiscal year 16,766 vessels were inspected by the officers of the United States Public Health and Marine Hospital service. This also meant the inspection of 1,280,000 would-be immigrants, of whom about 30,000 were excluded as unfit, either physically or mentally. The annual cost of the work of the service is about $2,000,000.

Death Rate for 1909.—The mortality statistics prepared by the Bureau of the Census for the registration cities and States of the United States show that the death rate for 1909 was 15 per thousand of estimated population. This is lower than for any previous year of registration and is probably the lowest in the history of the country. The mortality through the year was distributed with more than ordinary uniformity and no epidemics of wide extent occurred. The total number of deaths in the registration area for 1909 was 732,538, of which 54.4 per cent. were of males. The largest number for any single month occurred in March, when there were 70,093. In the majority of the registration States and cities March is the month of greatest mortality, and June of the least.

The official death registration area of the Bureau of the Census includes those States and cities which require registration of a death before the issuance of a burial certificate, and which have complied with other requirements of the Census Bureau. In 1909 the following States were included in this area: California, Colorado, Connecticut, Indiana, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, South Dakota, Vermont, Washington, and Wisconsin. In addition to these returns were received from 54 cities not in the registration States, in which the local ordinances were considered satisfactory. The estimated population of this registration area in 1909 was 48,770,893, or about 55 per cent. of the total estimated population of continental United States.

The Bureau reports 509 deaths during the year from acute anterior poliomyelitis, of which 552 occurred among white persons, and only 17 among colored. There was a somewhat greater incidence of the disease among males, and an increased mortality in August, September, and October. The duration of the illness was reported in only 292 of the cases; in 253, or 87 per cent., this was given as less than one month; in 40 as over one month and less than a year, and in 19 as one year or more. This is the first year for which the statistics of infantile paralysis as a cause of death have been separated. The figures indicate that the disease does not particularly affect large cities of 100,000 population or over.

Pellagra also is a new disease in the mortality statistics. During 1909, 116 deaths from this cause were reported, while in 1908 there were only 23. Previous to this time no deaths were reported from this cause, with the exception of one in 1904.

While the total number of deaths from tuberculosis in the registration area increased from 78,289 in 1908 to 81,720 in 1909, the death rate declined from 173.9 in 1908 to 167.5 per 100,000 of estimated population in 1909. Eleven of the seventeen States for which data are given showed numerical decreases in deaths from tuberculosis in 1909, as compared with 1908, the largest being in New York, 415.

Cancer, on the other hand, showed increases, the death rate being 77 in 1909 and 74.3 in 1908. The actual number of deaths was increased by 4,097.

The typhoid fever death rate which in 1908 was 25.3 per 100,000 of estimated population, the lowest then on record, fell to 22 for 1909. This latter figure is only about one-third of the rate for the five-year period, 1901-1905 (32.2), but it is almost twice as large as the rate for England and Wales.

Pneumonia caused 8,774 more deaths in 1909 than in 1908, the death rate being 143.6 per 100,000, as compared to 136 in 1908. In the number of deaths from influenza there was a decrease of 3,340.

Diseases of the nervous system showed a slight, and diseases of the circulatory system a large in-

crease in the number of deaths for 1909, as compared to previous years. Meningitis gave a lower death rate as well as a numerical decrease.

Gifts to Charities.—The Butler Hospital and the Rhode Island Hospital, both of Providence, R. I., will receive $10,000 each from the estate of the late Mrs. E. A. Shepard of that city. The Butler Hospital will receive further sums also, which are left to it subject to the life interest of another person.

St. Vincent's Hospital, New York, receives a bequest of $1,000 by the will of the late Mrs. Elizabeth Dunleavy.

The National Jewish Hospital for Consumptives at Denver, Colo., receives a bequest of $1,000 in the will of the late J. E. Schoenberg of New York.

Father John A. Kellner, late Rector of St. Gabriel's Church, New Rochelle, N. Y., in his will leaves $2,000 to St. Joseph's Hospital for Consumptives and $1,000 to St. Francis' Hospital, New York.

By the will of the late Amelia P. Rumpf of Philadelphia, the sum of $1,000 is bequeathed to the German Hospital.

The Oregon State Medical Association at its annual meeting on September 9, elected the following officers: *President,* Dr. F. W. Van Dyke of Grants Pass; *First Vice-President,* Dr. R. C. Yenney of Portland; *Second Vice-President,* Dr. S. T. Linklater of Hillsboro; *Third Vice-President,* Dr. R. E. Ringo of Pendleton; *Secretary,* Dr. Calvin S. White of Portland; *Treasurer,* Dr. Edna Timms of Portland. Dr. William House and Dr. N. W. Jones were elected members of the council.

The Washington County (Vermont) Medical Association at its annual meeting on September 13, elected the following officers for the ensuing year: *President,* Dr. L. W. Burbank of Cabot; *Vice-President,* Dr. C. E. Chandler of Montpelier; *Secretary,* Dr. E. A. Colton of Montpelier; *Treasurer,* Dr. L. A. Russlow of Randolph.

The Ohio County (West Virginia) Medical Society at its annual meeting on September 12, elected the following officers: *President,* Dr. William S. Fulton of Wheeling; *Vice-President,* Dr. D. Bigger Best of Wheeling; *Secretary,* Dr. R. J. Hersey of Wheeling; *Treasurer,* Dr. R. M. Baird of Wheeling.

Removals.—Dr. John A. Fordyce has removed to 8 West Seventy-seventh street.

Dr. Walstein M. Tompkins has removed to 158 East 37th street.

Dr. A. E. Palmer has removed to 68 West Eighty-third street.

Dr. G. Carl Huber, formerly of the University of Michigan, has been appointed professor of embryology in the Wistar Institute of Anatomy, Philadelphia.

Captain L. T. LeWald, Medical Corps, U. S. A., has resigned his commission and has been appointed director of the Edward N. Gibbs *x*-Ray Laboratory at the New York University and Bellevue Hospital Medical College, succeeding Dr. E. W. Caldwell. During his service in the Philippines Captain LeWald made a special study of ameba, showing the constant presence of the *Entameba buccalis* in the human mouth and suggesting its connection with certain pathological conditions, particularly Riggs' disease. He also established the use of the Roentgen rays in the routine examination of the heart and lungs of applicants for enlistment in the army.

Mme. Pasteur, widow of Louis Pasteur, died in Paris, France, on September 24, aged 84 years.

Obituary Notes.—Dr. James Donnelly of Toledo, Ohio, a graduate of the department of medicine and surgery of the University of Michigan in the class of 1883, for many years surgeon to the Lake Shore Railroad, and also to the Toledo Fire Department; a member of the American Medical Association, the Ohio State Medical Society, and the Toledo Medical Society; attending surgeon to St. Vincent's Hospital, Toledo for many years, and a prominent citizen highly respected for his upright character and professional ability, died at St. Vincent's Hospital on September 4 of typhoid fever, aged 50 years.

Dr. John P. Phillips of New Haven, Conn., a graduate of the New York Medical College, New York City, in 1859, surgeon in the 11th New York Regiment during the Civil War, died at his home on September 20, aged 77 years.

Dr. William G. Daggett of New Haven, Conn., a graduate of the department of medicine of the University of Pennsylvania in the class of 1884; a member of the American Medical Association and of the Connecticut State and New Haven County Medical societies, and secretary of the New Haven General Hospital Society of Connecticut; attending physician to the New Haven General Hospital, and lecturer in clinical medicine in the Yale Medical School, died at the New Haven General Hospital on September 18, following an operation for appendicitis, aged 50 years.

Dr. Anthony Romig Finck, a graduate of the medical department of the University of Pennsylvania in the class of 1871, died at Philadelphia of pleuropneumonia on September 19, at the age of 77 years. He was for many years one of the consulting physicians to the Masonic Home.

Dr. Gustav Baumgarten of St. Louis, Mo., a graduate of the St. Louis Medical College in the class of 1856; ex-Passed Assistant Surgeon of the United States Navy and a veteran of the Civil War; a member and ex-president of the Association of American Physicians, and professor of the practice of medicine in the medical department of Washington University, died at his home on September 19, after a long illness, aged 73 years.

Dr. William F. Holthausen of Brooklyn, N. Y., was killed in a trolley accident in Indiana on September 24. He was a graduate of the College of Physicians and Surgeons, Columbia University, New York, in the class of 1904. Dr. Holthausen was on his way to Kokomo, Ind., where he was to have been married on the evening of the day he was killed. His brother, a lawyer of Brooklyn, was with him and was also killed.

Dr. Richard K. Macalester of Glenwood Springs, Col., died suddenly in Denver on September 16. Dr. Macalester was born at St. Augustine, Fla., in 1859. Later he lived in Philadelphia and New York. After graduating from the Swiss Polytechnical school, he studied medicine at Heidelberg, Vienna, and Zurich, receiving his medical degree from the latter university in 1890. He lived for a while after graduation in New York City, but went to Glenwood Springs in 1898. Six years ago he suffered a broken leg when thrown from a runabout, when his horse shied at the caravan conducting Col. Roosevelt on a hunting expedition near Glenwood Springs. He has since been in poor health and lived in Denver. Dr. Macalester leaves a widow and four children.

Correspondence.

606 IN SYPHILIS.

To the Editor of the Medical Record:

Sir:—Early last May Dr. Flexner, Director of the Rockefeller Institute for Medical Research, received from Professor Ehrlich a supply of his new preparation, No. 606, for the treatment of syphilis. This remedy up to that time had been used only by a limited number of continental physicians, but the results obtained were so favorable that Dr. Flexner requested my cooperation in its use in a number of cases in the dermatological and venereal wards of the City Hospital. Here, in conjunction with Dr. H. J. Nichols, Captain, Medical Corps, U. S. A., who had previously published some observations on the use of 606 in experimental yaws in animals, we treated fourteen cases during May and June. As experience in the use of the drug at that time had been rather limited the patients were carefully selected as free from cardiac, renal, or ocular disease, in accordance with the contraindications stated by Prof. Ehrlich.

The drug was used in solution at first after the method of Alt and later with Ehrlich's modification of it. Since that time the Wechselmann modification has come into use, which mode of preparation has been employed in subsequent cases. The patients treated at the City Hospital included those with initial lesions, with and without secondary manifestations, early secondary syphilis, as well as tertiary manifestations. Their serum reaction was taken by Dr. Noguchi before and after injection. The most striking effects were seen in a case of chronic scaling syphilis of the palms, of one year's duration, a marked improvement showing at the end of a week, with complete cure at the end of a month. In a case of early malignant syphilis with ulcerative, rupial, and fungating lesions of the face, chest, and arm, the patient showed a perceptible change in a week's time; his general condition improved, he gained in weight, and at the end of five weeks the lesions were completely healed. In another case with multiple chancres of the lips, retrogression of the lesions took place rapidly and by the tenth day all evidence of them had disappeared. A report of these cases will appear in the *Journal of the American Medical Association*, October 1, in an article by Dr. Nichols and myself. This article also embodies a preliminary report on two private patients, one with optic neuritis and another with cerebral syphilis. In the last month I have used the preparation in the following cases:

Case I.—Syphilitic bursitis, affection of the sacroiliac joints and various ulcerative lesions of the skin, the whole forming a picture of malignant syphilis developing within the first year. The patient had been under fairly active mercurial treatment without much result. He was in an extremely cachectic condition so that the remedy was given with a certain amount of hesitation. On September 15, 0.4 gm., prepared according to the Wechselmann method, was injected under his right shoulder blade. On the second day he developed a marked reaction, manifesting itself by rapid action of the heart, his pulse going as high as 130. He had some elevation of temperature, 100.5°, malaise, indefinite pains over the body, was exceedingly nervous, and feared he was going to die. His Wassermann reaction before the injection was ++. At the time of writing the patient is in better physical condition than he has been in months, his appetite is good, his patellar bursitis has improved, and there has been a retrogression of the bone and cutaneous lesions.

Case II.—Latent syphilis with a strongly positive Wassermann reaction. In this case moderate pain developed within ten minutes after the injection was given, extending from the site of the latter down the right arm and hand, and continued until the next morning. Aside from this the man feels as well as he ever did.

Case III.—Double optic neuritis in a patient whose luetic infection dates back seven or eight years. The patient first noted impairment of vision in August, 1909. In March, 1910, a diagnosis of optic atrophy was made and active antisyphilitic treatment instituted. The trouble continued to progress, however, and his Wassermann reaction, September 16, was still strongly positive. In view of this and with the hope of at least arresting the disease, the patient was given on September 19 0.4 gm. 606.

Case IV.—Meningomyelitis. Infection three years ago. In July of this year the patient developed some weakness and loss of control of the left leg, attended by exaggerated knee-jerks and the Babinski sign. The diagnosis of meningomyelitis involving the lateral tracts was made by his attending physician, Dr. Haskell of Bridgeport. The condition improved under large doses of mercury and potassium iodide in a week, and in two weeks the leg was normal. His Wassermann reaction on September 16 was positive and on September 21 he was given 0.5 gm. arsenobenzol. This was followed by very slight pain; no increase in temperature or pulse rate.

These patients are still under observation and a subsequent report regarding them will be made.

In the last three cases the drug was prepared after the latest modified method of Wechselmann, which is as follows: The powder is dissolved in a 10 per cent. solution of caustic soda and reprecipitated with glacial acetic acid; sterile water is then added and enough 1 or 2 per cent. acetic acid to neutralize the suspension. This is then centrifuged, the supernatant fluid pipetted off, and physiological salt solution added. In the cases in which the drug has been used in this manner the pain has been comparatively insignificant. In the majority of those treated, however, a marked swelling took place on the second or third day which persisted for about two weeks and then gradually subsided. About the third day this swelling at times becomes exquisitely sensitive to touch, and pain may manifest itself first at this time.

Of five cases treated at the City Hospital where we have been able to follow the patients, the reaction has remained negative in four up to September 1. In the fifth, one of early syphilis, there is at the present time a marked relapse in the throat and on the penis and scrotum of large moist papules. The injection was given on May 23, 0.3 gm. The reaction became negative on June 10; on September 22 the blood examination showed a marked positive reaction. The man admitted that he had been drinking an excessive amount of alcohol since he left the hospital. If he had been under continuous observation a second dose would have been given as soon as his Wassermann reaction became positive or as soon as a recurrence of the lesions took place. Unfortunately, for the continuous study of a new remedy, it is difficult to keep patients under observation for a sufficiently long time. In all of

the hospital cases the dose given was the original one recommended by Prof. Ehrlich of 0.3 gm., and which later experience has proved to be too small for the majority of cases, a dose of 0.6 and 0.7 gm. not infrequently being administered now. It has been found, too, that the remedy may be safely repeated in from two to four weeks, when the symptoms fail to yield to one dose or when the Herxheimer reaction takes place. It will require observation over a period of several years before we can determine whether one or two or half a dozen doses of 606 will cure syphilis. The results up to this time are truly remarkable in that we have a drug which has a specific effect on the *Treponema pallidum*.

JOHN A. FORDYCE, M.D.

8 WEST SEVENTY-SEVENTH STREET.

CONTROL OF TRIALS OF 606 BY THE NOGUCHI TEST.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR—In my preliminary report on Ehrlich-Hata preparation for the cure of syphilis, published in the MEDICAL RECORD of September 24, 1910, I inadvertently omitted to mention that Dr. Noguchi of the Rockefeller Institute made the Wassermann tests according to his modification, and is making the tests in the other cases to be reported later. I believe great importance must be given these careful and delicate tests, for without them the reports would lose much in value.

M. S. KAKELS, M.D.

NEW YORK.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

BRITISH ASSOCIATION—ARCHBISHOP AND SIR OLIVER LODGE ON SCIENCE AND RELIGION—ROYAL SANITARY INSTITUTE—WOMEN'S SICK AND WOUNDED CONVOY CORPS—INQUESTS—OBITUARY.

LONDON, Sept. 9, 1910.

A SPECIAL service was arranged for Sunday at Sheffield in connection with the British Association when the Archbishop of York addressed the members, contrasting the relations of scientists and theologians at the present time with those which existed in the middle of the 19th century. On the one hand, he said, science has now become aware of its own limitations, and is more conscious than it was of the gaps unbridged, of the mysteries still unexplained, enfolding the ultimate causes of the material world, the origin of life, the meaning of the movements of the human spirit. Materialism as a self-sufficing theory of the universe has become discredited by the best scientific minds. True agnosticism, recognizing the limits of scientific knowledge, has taken the place of that false agnosticism which declared dogmatically that beyond those limits nothing could be known. On the other hand, religion—rather religion thinking itself out, which we call theology—has equally come to recognize its own limitations. Its claim to find in a Personal God the Author and Worker of all things gives it no right to decide the methods of His workings. It proclaims that He, and no mere blind energy, is the Worker, but waits for science to give it the tidings of the way in which He works.

Sir Oliver Lodge gave a lecture in the afternoon at the service of the Sheffield Wesleyan Mission. Referring to the change in our outlook during the last century, he said it was not surprising that many found difficulties in understanding ancient writings, especially in teaching children. Science and literature were not in conflict, but parts of a larger whole. Literature and poetry need not be historically true. At the same time, they might be true to human nature. The truths of science were real, but had nothing final about them. They were stages on the road to human feelings, were more ancient than knowledge, and the instinct of worship was powerful. In this spirit the Old Testament, the greater part of which was manifestly inspired, should be incorporated and understood. As knowledge grew our conception of inspiration might become larger and more definite, but whatever it meant it did not mean infallibility.

On Monday came a descent to the more mundane themes set forth as the program for the week. In the anthropological section the president showed the advances made and appealed for a government grant for the institute devoted to this subject. In other sections there have been many papers and discussions of importance in the several branches of science and of more or less interest—though indirectly—to the profession.

The University of Sheffield conferred several honorary degrees in commemoration of the meeting.

The twenty-fifth annual Congress of the Royal Sanitary Congress was opened on Monday at Brighton. The Mayor welcomed the delegates, numbering over 1,000, at a reception and a luncheon. In the evening the President, Sir John A. Cockburn, delivered his inaugural address, in which he reviewed the growth of sanitary science during the past year. Nothing important in this domain had, he thought, escaped the attention of the Institute, which had become a conning tower from whence the battle of science was directed against disease. The work had spread beyond this kingdom to the other parts of the dominions, and the growth of a common concern was one of the signs of the age. The president enumerated many things which tended to promote disease and the manner in which they should be met, but warned against too hasty generalizations. He was gratified with the Conference of Women on Hygiene, for when women took up a subject they meant business, and victory was not far off. With the advance of interest in the public health there had been an improvement in the status of medical men, and the Medical Officer of Health had been invested with large administrative powers and might be said to have become a high priest of our social salvation.

This is certainly an interesting view of the Medical Officer of Health, and he may be congratulated on his position, but I must beg to interpose that not a few general practitioners are profoundly dissatisfied with the effect on their own status. This very morning I was talking over the condition of the profession with a man who has been practising in one of the best parts of London for many years, and has promoted many forms of sanitation with all his influence, and he assured me that personally it was a losing game, and he knew a number of his confrères had steadily decreasing incomes, which fact they attributed to the growing disposition of the public to look upon the doctor as a State servant. What with midwives, nurses, and other competitors on the one hand, and notification, isolation hospitals, and State provision on the other, they

found it more and more difficult to get reasonable remuneration.

In connection with this congress, Dr. Newsholme, principal medical officer of the Local Government Board, gave an address at the Royal Pavilion on the "National Importance of Child Mortality." He made some home thrusts at some of the authorities, and did not hesitate to assert that negligence and parsimony are to blame for a considerable amount of the differences in mortality rates revealed by statistics. It could not be denied that the rate of increase of the population is falling, and though for the moment we have not reached stagnation, that may arrive within three generations. Infantile mortality is an important element in the national death-rate, and it offers the best opportunity of effecting improvement. The notion put forward by some that infant mortality in slum districts is nature's method of restricting the increase of the unfit was met by the lecturer with an appeal to statistics. There is not much difference in fertility between the classes, and unfitness largely depends on environment. The same influence which caused a high mortality in the first year of life continued its maleficent work right through life. In removing these conditions favoring infantile mortality they were in a very high degree removing those which caused a high mortality in youth and adult age.

Yesterday Sir Wm. Collins took up the subject as at a little later stage of life, and contended that from 5 to 14 the years were becoming not merely educational, but a period for the State handling of childhood. If this were socialism, it arose from the legislation of 1870-'76. The hygiene of childhood he divided into pre-school, school, and post-school hygiene, and referred to the question of heredity. He advocated hospitals for measles and whooping cough, as well as physical exercise in schools, but the last, he held, should not partake of military drill, as that was premature specialization.

Mr. H. Rofe dealt with economy in water supply; Mr. Edgar Newton with sewage pollution of the sea; Mr. Williamson with the state of the Thames, and Mr. W. G. Cooper with the prevalence of child labor as a cause of unfitness in after life.

The Women's Sick and Wounded Convoy Corps have been hard at work in their encampment qualifying themselves to be efficient members of voluntary aid detachments in time of war. About 35 have been out for drill at 7 A.M., and from 9.30 to 11 have been instructed by sergeant-instructors. In the afternoon lectures by medical men have been given. Some of the corps have been entertained on a cruiser.

At the inquest on the doctor who committed suicide, mentioned in my last, a verdict of temporary insanity was returned. It appeared that rumors were circulated to the effect that he did not treat the old gentleman properly, and suspicions were expressed. One person took upon himself or herself to draw police attention to the matter. The post-mortem was conclusive, but the doctor was so affected that he seems to have lost control of himself. The coroner made some scathing comments on the contemptible part of the informer who, sheltered under the refusal of the police to state the name, refused to confess in open court what he had done. Such conduct, he held, everyone would pronounce contemptible.

At an inquest on a death in St. Thomas's Hospital the nurse confessed to having made a mistake in measuring the sleeping draught. The jury found that the patient died from Graves' disease and advanced consumption, but the death was hastened by the overdose of morphia and the treatment for that. The coroner commented on nurses being entrusted to dispense—"for it was dispensing"—and he did not think they should be blamed for misreading hieroglyphics on prescription papers and on measure glasses. The jury agreed with his remarks and said poisons should be given by the doctor himself.

The sudden death of Dr. Benjamin Wainewright, F.R.C.S., Surgeon to Charing Cross Hospital, and the Westminster Ophthalmic Hospital, has taken place at Pontresina, Switzerland, at the age of 57.

Dr. A. J. Alliott, surgeon to Seven Oaks College Hospital and to the Children's Hospital for Hip Disease, has died at the age of 62. He was a Cambridge graduate and a scholar of Pembroke College. He had retired from practice.

Progress of Medical Science.

Boston Medical and Surgical Journal, September 15, 1910.

Present Status of the Treatment of Exophthalmic Goiter.—J. M. Jackson and T. M. Jewett resort to the following measures: Rest the heart and diminish thyroid activity. This includes not only physical but mental rest. The so-called Weir-Mitchell rest cure should be followed in its most absolute form. Drugs in cardiac cases these authors find of little avail. Their best results have followed the use of the neutral hydrobromide of quinine. Five grains may be given in capsule three or four times daily. The acid salt of this remedy is less efficient. The diet must be nourishing and easily digested. Tea and coffee are to be absolutely forbidden or greatly limited. Alcohol and tobacco are interdicted. Bromides may be given to relieve the tachycardia and the nervous symptoms while opium is to be avoided under all circumstances. A favorable statement is made with reference to the Rogers-Beebe serum, although the authors do not give their own results with it. Operation is indicated when the exophthalmos prevents closure of the lids, endangers the eyesight through corneal ulceration, and when three months after good medical treatment there is no marked improvement in the tachycardia, or in general health, or there is an increase in the intoxication by thyroid secretion even though no enlargement of the thyroid gland can be demonstrated. Cardiac cases with beginning impairment of the myocardium should be operated on in order to save the heart, and even where the organ has actually become impaired and the aggravating symptoms are still present operation is indicated to take the strain off the heart and prolong life. Operation should be avoided, if possible, where there is any bronchitis from compression, since it increases the danger of bronchopneumonia, but it is better to operate than run the risk of sudden swelling of the thyroid and a resulting death from compression. The summary of the authors is as follows: Treat medically for three months. Then if no improvement follows, ligate the vessels. If the patient later comes to the operation of partial thyroidectomy, the ligation makes the operation less dangerous. If the goiter is large it is better to remove only the larger lobe and treat the remaining one with the *x*-ray and medical procedures.

Surgical Treatment of Exophthalmic Goiter.—C. A. Porter gives his experience in seventy-two cases and favors surgical rather than medical treatment.

Distortion of the Face and Skull Due to Continued Fixed Posture in Early Infancy.—J. E. Goldthwaite figures seven cases showing how during the early years of infancy the skull can be moulded almost at will.

Some Results of Sanatorium Treatment of Pulmonary Tuberculosis in Children.—H. S. Goodall gives observations on 120 children discharged in the course of six years from the Stony Wold Sanatorium in the Adirondacks. The results have been uniformly good, and he thinks that children should have the same privileges as adults in institutions of the class named.

Congenital Stenosis of the Pylorus: Report of Three Successful Cases Following Gastrojejunostomy; Remarks.—C. L. Scudder contributes the histories of these cases and deprecates the present delay in instituting surgical treatment in such conditions.

Case of Hemorrhage of the Newborn Treated by Direct Transfusion; Recovery.—Clinical history by F. S. Newell. The baby's father acted as donor. Operation was called for on account of vomiting blood twenty-four hours after birth. As soon as the effect of the donor's blood became noticeable the hemorrhage was checked. The small size of the baby's vessels made the surgical technique extremely difficult.

Ovarian Cysts with Twisted Pedicles.—F. W. Johnson reports four cases. All were operated on and all recovered. Full histories are given.

New York Medical Journal, September 18, 1910.

The Surgical Importance of the Omentum.—L. J. Hammond describes the anatomy and physiology of this structure, and then passes on to the pathology, including splanchnoptosis injuries, displacements, and tumors. Of the latter there are the benign and malignant. The former comprise lipoma, which is the most common, fibroma, and myxoma. The latter comprise carcinoma, endothelioma, scirrhus and colloid, and sarcoma. In the last twenty-five years some fifty-five cases have been recorded of torsion of the omentum. Symptoms of these respective conditions are sometimes extremely difficult to interpret. There are no conclusive signs of either tumors or adhesions, says the author, other than a probably movable mass in the former instance, or pain on traction in the latter. Tumors or adhesions at the seat of an operation scar are extremely sensitive. The former are usually freely movable, while in the latter where traction is made which draws the viscera away from the point of attachment intense pain is usually produced. A tumor often suddenly appears. There are usually some gastric symptoms, loss of weight, diarrhea, alternating with constipation, and vague though constant abdominal pain and tenderness; and usually some time in the course of the condition ascites is present in greater or less quantities. The omentum may become cystic, and in rare cases it may undergo calcification within the sac, or sarcoma, carcinoma, or tuberculosis may develop while it is incarcerated.

Duodenal Regurgitation Due to Fatty Foods and Oils as a Clinical Entity; Fat Intolerance of Gastric Origin.—Report of four cases by A. Bassler. None of the patients gave a history of having had a stomach disorder up to the onset of acute symptoms. Physical examination in all was negative.

Notes on a few Prevalent Eye Diseases.—G. W. Vandegrift mentions acute conjunctivitis, trachoma, eczematous keratitis, and myopia. In regard to the first-named he says that at present we are working toward a classification upon a bacteriological basis and applying our laboratory knowledge to clinical conditions as, for instance, the fact that the Morax-Axenfeld diplobacillus is destroyed by solutions of zinc salts which have no appreciable effect upon other forms of conjunctival infections. In trachoma the author says that the final cause has not yet been discovered. There are really two conditions referred to under this head, namely, simple trachoma as found in school children, and succulent trachoma. Each of these diseases is clinically distinct, arising in the conjunctiva as a separate disease and in its entire course differing markedly from the other. In eczematous keratitis, with the corneal ulceration or the phlyctenular conjunctivitis, an eczematous manifestation develops upon the external canthi, the ears, scalp, and anterior nares. The same pathological process is at work in each region, the formation of nodules and their rupture. The bacteriology of the disease is still unsettled.

Acute Intestinal Obstruction Caused by a Foreign Body in the Peritoneal Cavity.—H. Roth reports the finding in the abdominal cavity of a pledget of absorbent cotton originally introduced into the uterus with the intention of producing abortion, an evident perforation of the uterus having been caused, and setting up peritoneal changes resulting in the formation of two adhesions between the loops of ileum and the mesenteric borders. These caused the intestinal obstruction. Abdominal section, recovery.

Important Physical Signs in the Diagnosis of Incipient Pulmonary Tuberculosis.—P. H. Ringer refers to a unilateral shoulder droop, hollowing of the supraclavicular fossa, or its flattening without its becoming hollowed, etc. Palpation should be done with the pulps of two fingers. In percussion importance is attached to a shortening of the note with a heightening of the pitch over one apex. Another sign of value is the expansibility of the bases of the lungs, both in front and behind. The earliest respiratory change noted is granular, rude, or rough breathing.

Aconite.—J. Knott presents a general review of this remedy as given in secular and professional literature.

Heredity.—H. M. Lee discusses this subject mainly from an anatomical standpoint, his sub-headings being evolution, physical form, color, race, man, susceptibility, defects, power of impression in the parent or parents as modifying form, size, or color of brain center of intellect, heredity in regard to disease, susceptibility to disease, immunity, confining remarks to individual men, etc. He closes with a paragraph on environment.

The Syphilitic and Tuberculous Patient.—G. B. Sweeny has experimented with benzoate of mercury in these mixed cases, and also with a mercurialized lymph. Those symptoms due to the syphilis were unmistakably benefited by the lymph, but in no instance did he find the mercurial to modify directly the coexisting tuberculosis.

Journal of the American Medical Association, September 17, 1910.

Proposed Enlarged National Health Organization.—George B. Young suggests a bill designed to embody in law his plan for a national health organization. First, the law should be as brief as possible, and confined to the declaration of certain basic legislative intentions, leaving the details to be arranged by regulations to be promulgated by the President. Second, it should for the present only transfer or consolidate existing or new agencies that are not the subjects of serious dispute on grounds of either expediency or constitutionality. Third, in order to provide for the question of existing activities, the expediency of transferring which is the subject of much dispute, as, for example, certain parts of the Bureau of Animal Industry, Treasury Department, a provision should be inserted authorizing such transfers within one year by Presidential order and providing for a commission or committee of departmental chiefs, or delegated subordinates, who shall advise the President of their findings after investigating each case referred to them, but whose advice shall not be binding on him.

Movable Kidney.—C. A. L. Reed calls attention to the separation of the capsula adiposa from its relations to the abdominal wall to the extent that such relations may have survived the destruction. Special care must be taken

not to separate the capsule from the tunica fibrosa, and he calls attention, as a guide in the operation, to the connective tissue striæ which form the stroma. After removal of the fat from the renal fossa these striæ are divided and the upper segment is attached above the incision and the lower below it, since they are in such intimate connection with the cecum on the right and the sigmoid on the left that they may and probably do become the media of traction by the loaded or replaced bowel on the kidneys and therefore a positive etiological factor in the descent of the kidneys. While the kidney is thus protected from traction, however, care must be taken not to deprive either the cecum or the sigmoid of any suspensory power that may inhere in this arrangement. It is important, therefore, that the lower segment of these striæ shall be attached to the lower margin of the operation wound. Vigorous friction of the tunica fibrosa above the zone covered by the adherent striæ, especially on the posterior surface of the kidney, and carried to the point of inducing punctate hemorrhages, is made in order to provoke an abundant exudate which will cause adhesion to the abdominal wall. Reed does not think that anything further than this is necessary.

Ileocolitis and Acidosis.—T. D. Parke calls attention to this distinctly marked symptom-complex. The symptoms are described as follows: After from one to four days of looseness of the bowels caused by mild ileocolitis, labored breathing develops, often suddenly, followed by prostration, restlessness, obstipation and enlargement of the liver. The temperature is sometimes subnormal. In other cases it stands about 100° F. and in a few patients runs higher. Vomiting with an acetone odor of breath occurs in a good proportion of cases. The urine is limpid and free. Albumin is sometimes found. Urine from three patients was submitted to chemical examination, and in each the report was that ammonia nitrogen was high. Jaundice has always been absent. During the labored breathing the breath feels cold to the hand held in front of the nostrils. This has been interpreted, rightly or wrongly, to mean volatile substances thrown out in the expired air. In fatal cases, death seems to come from exhaustion, from forty-eight to seventy hours after the onset of the labored breathing. In cases of recovery the duration of labored breathing was about the same. Convulsions were not observed and coma not until a few hours before death. The mortality, in a series of thirty-two cases observed, was 71 per cent. In nine cases autopsies were made and the findings were negative as regards gross appearances, except injection of the mucosa of the intestine in some cases and acute yellowish areas on the surface of the liver, extending downward to various depths in the substance. The gall-bladder has in all cases been distended with dark, green, ropy bile. Microscopic examination has only shown fatty degeneration of the liver. Treatment has varied from eliminative to symptomatic, with the employment of strychnine in good doses, epinephrin, and hypodermoclysis of normal salt solution. Treatment is of little avail when sufficient injury has been done to the system, but when this is not the case hypodermoclysis is of value.

Syphilitic Arteritis.—E. M. Hummel says that only recently has sufficient emphasis been placed on the tendency of specific arteritis to appear shortly after primary infection, and on the relative frequency of isolated involvement of the arterial system as a lesion of syphilis. It is now held that this lesion in its pure form practically does not occur in very late syphilis, or more than three years after the initial lesion. The importance of recognition of these facts in the correct diagnosis and treatment of syphilis is sufficiently obvious. As a matter of course, it is essential to interpret correctly the symptoms of diminution of the blood supply, as shown in neurasthenia, transient paresis, etc., not extending to the gravity of organic disease. When actual hemorrhage, softening, or thrombosis occurs, the symptoms are not specially different from those from other causes, excepting the tendency of syphilis to select the branches of the middle cerebral artery for its attacks. In Hummel's experience the involvement of the arteries supplying the striate body, thalamus, and bulb are especially frequent.

Poliomyelitis.—H. E. Robertson and A. J. Chesley report six cases with autopsy. From these they conclude: "1. Acute anterior poliomyelitis is a specific infectious disease characterized pathologically by general toxemia affecting the parenchyma of the heart, liver, and kidneys, and the lymphoid tissues of the body, but spending itself locally on the structures of the spinal cord. 2. Grossly the cord is congested, and on transverse section shows softening and often hemorrhages in the gray matter of the anterior horns. 3. In the cord the infectious agent is located in the perivascular lymph channels of the anterior portions, especially invading the gray matter, but extending to the white matter and pia and occasionally the posterior horns. The brain stem and basal ganglia may be involved. In the cord the medulla and cervical and lumbar swellings are particularly affected. 4. The characteristic lesion consists of collections of cells in the perivascular and pial lymph channels and tissue spaces of the anterior horns. Of these cells the polymorphonuclear leucocytes appear early and are relatively few in number. They are soon displaced by endothelial cells arising from proliferation of the lining endothelium and lymphocytes coming from the blood and lymph streams. 5. Edema of the interstitial tissue and degeneration and destruction of the ganglion cells are always present. 6. The vessels are congested, their walls degenerated, and the capillary branches in the gray matter irregularly distended and often ruptured, giving rise to hemorrhages, which always intensify markedly the amount of destruction. Thrombosis was not observed. 7. Early degeneration of nerve fibers from the anterior roots is a constant feature. 8. Stains for microorganisms were uniformly negative."

Cobweb Brain.—E. L. Hunt reports the case of a girl three years old who had been instrumentally delivered at birth, probably with some injury to the brain, and had afterward suffered from periodical convulsions for a while. She did not talk, sight was impaired, and the general appearance was that of an idiot. An exploratory craniotomy showed a bulging dura mater, which collapsed on incision. The entire right hemisphere of the brain was replaced by a reticulum of cobweb-like tissue filled with clear, watery fluid. No cerebral substance could be seen at the operation and the wound was closed. The autopsy showed practically a complete atrophy of the right hemisphere. The left hemisphere had been converted into a large cystic mass. The basal portions of the brain were well developed and apparently normal.

Infantile Spinal Paralysis.—D. Silver says the objects of operation in infantile poliomyelitis are as follows: First, improvement of form in the paralyzed member by forcible correction (tenotomy, fasciotomy, myotomy, osteotomy, wedge-shaped excision of bone and bone excavation). Second, improvement of function in the nondeformed or corrected member; (*a*) anastomosis, (*b*) restoration of muscle balance by muscle and tendon grafting and transplantation, and (*c*) through securing greater stability in the paralyzed member by arthrodesis, astragalectomy, silk ligaments, tenodesis, fasciodesis, and removal of skin flaps. It is rare to find an untreated patient for whom some benefit cannot be obtained by orthopedic surgery. Fortunately this treatment is most effective in the region most frequently affected, the foot, but in all regions enough can be gained to make the labor worth considering; usually the combination of several operations or procedures will be required.

Sporotrichosis.—R. L. Sutton's patient was a woman, aged thirty, and the lesions were situated on the right arm following an injury by a splinter or sliver in the thumb. Microscopic and cultural tests revealed the sporotrichium, which was developed in pure culture. The patient was treated with potassium iodide with satisfactory results. Sutton notices the differences between the clinical features in some of the French cases and admits the possibility of a difference in the specific organism. An external lesion is not absolutely necessary for the infection, though most cases have such a history. It has been found in a tonsillar crypt and has been produced in the young guinea pig by feeding with infected milk.

Tumors of the Hypophysis.—Dean D. Lewis reports a case of tumor of the hypophysis and discusses the pathology of these growths. He favors the view of association of hypophyseal alterations with acromegaly.

X-Ray Study of Children.—L. A. Levison and H. Dachtler report the results of a study of the use of the *x*-ray in the physical diagnosis of conditions in children. The rays afford a means of controlling such work, which could only otherwise be afforded by autopsies. It has been their aim to check up the physical findings, especially percussion findings, with the *x*-ray, paying especial attention to a number of points concerning which there has been much discussion and uncertainty. They used the teleoroentgenographic method, which recent improvements in apparatus and technique have rendered it possible to use with accuracy and dispatch.

The Lancet, September 10, 1910.

Operation for Prolapse of the Rectum.—L. W. Dryland advises opening of the peritoneum, exposure of the sigmoid and upper part of the rectum, and forcible traction of the prolapsed portion. A flap of peritoneum is firmly stitched to the upper part of the rectum, firm traction being employed to bring this up out of the pelvis as high as possible. The upper portion of the flap is now brought over to the front of the bowel and secured by interrupted silk sutures. Abdomen is closed in the usual way, patient kept in bed for six weeks, the bowels being moved by enema daily for a month. Operation successful in this case when reported twelve weeks later.

Henoch's Purpura with Intussusception.—J. H. Tonking reports one case. The purpuric symptoms lasted some sixteen days before the abdomen gave evidence of intestinal trouble. There was no blood or mucus per rectum. Intussusception reduced through abdominal incision. Recovery.

Aortic Regurgitation in an Infant.—A child aged 18 months was brought to W. A. Young with typical symptoms and signs of aortic regurgitation. Had been pale since birth. The mother had had two attacks of rheumatism, but there was in her no evidence of heart damage, except some accentuation of the pulmonary second sound. Did this child, asks the author, contract endocarditis *in utero* as a result of the rheumatic virus in the mother, or is the case one of congenital morbus cordis, in which the aortic valves are malformed or deficient? The second rheumatic attack occurred in the mother before the child was conceived.

So-Called Chronic Neurasthenia Due to Abdominal Operations; Operation; Recovery.—Case report by P. L. Mummery and E. C. Bridges. The patient was a man of forty-one years, subject to attacks of abdominal pain, and judged to have adhesions resulting from previous inflammations. This view was confirmed by exploratory incision. Freeing of these gave complete relief.

Failure of Nerve Anastomosis in Infantile Palsy.—A. Stoffel says that the failures in this operation are due to (1) engrafting a whole nerve when only a portion would suffice, and (2) the technique of the operation. If a longitudinal section is made into a healthy nerve there is great risk of the knife failing to cut the actual nerve fibers. It may merely separate them and pass into the endoneural connective tissue in the intervals between the nerve bundles. If a nerve is grafted in such a position and comes into contact with connective tissue and not freshened nerve fibers, failure is certain. In general, the author considers the operation as justifiable and worthy of further practice.

Vesicovaginal Fistulæ; A Summary of 21 Operative Cases.—W. C. Bentall analyzes these cases, taking up in order such points as age, number of confinement, days in labor, nature of delivery, days after delivery when urine leaked, time after labor of performance of operation, description of latter, and details of certain cases of special interest. Of the nineteen cases in which the ultimate result was known, in twelve the closure was complete and in seven incomplete.

Enteric Fever Spread by Milk Infection, Probably by Means of a Carrier Case.—H. Stott gives the details of an epidemic in one of the London districts in which a man who was a hostler in a cow stable was probably the medium through which the disease was spread.

Cesarean Section in the Treatment of Eclampsia Gravidarum.—F. J. McCan comments on recent literature on this subject, saying that with present expectant methods the mortality is from 20 to 25 per cent. Modern authorities generally advise early emptying of the uterus. After the first seizure no one can tell what the future will be in regard to further seizures. This intervention has reduced the mortality in Halle and Berlin to 2 or 3 per cent. Rapid delivery had some opponents, but the author says that it may safely be said that termination of pregnancy exerts a more constant and powerful influence on the course of the disease than any other method of treatment yet employed.

The Duty of the General Practitioner to the Deaf Child.—Macleod Yearsley says that it is above all one of prophylaxis. He discusses the relation of the ears to the nose and nasopharynx, the adenoid and tonsil operation, treatment of middle ear disease with and without pain, and also the less common causes of deafness in children, and finally deaf-mutism.

The Value of Blood Pressure Determinations in the Toxemia of Pregnancy.—H. J. Starling says that he is convinced that during the whole period of normal pregnancy the blood pressure is normal, *i. e.* 100 to 120 mm. Hg. He divides all cases of toxemia into two groups. Group one are sthenic in type, with increased blood pressure, which may be detected as early as the third or fourth month of pregnancy, not necessarily preceded by persistent vomiting or marked symptoms common to the first three months, such as slow, strong pulse, enlarging heart, apex beat traveling outwards, diminution in amount of urine passed, percentage of urea only slightly decreased, specific gravity not necessarily low, large amount of albumin in the urine, increasing edema, ending in eclamptic convulsions and death of the fetus. The death of the fetus is apparently due to mechanical causes, *i. e.* the convulsions of the mother. Subsequent to labor, there is a tardy elimination of toxins, often accompanied by albuminuric retinitis and permanent damage to renal and other structures. Group 2 are asthenic in type, much more gradual and insidious in onset, with general malaise and fatigue, increased urinary output with very low specific gravity, slight trace of or no albumin in the urine, no edema or casts, blood pressure slightly raised, due probably to cyanosis, owing to inefficient circulation or not altered, rapid, feeble, or intermittent pulse, finally great prostration and symptoms of profound toxemia. Temporary recovery if fetus dies *in utero* is speedy, and apparently complete recovery after delivery has taken place. In the

first group characterized by high tension we may give complete rest, a carbohydrate diet, free fluids, and thyroid extract in small doses. In the worst cases, or in those seen late we should terminate the pregnancy. In the second group milk diet and carbohydrates should be given, whereas the thyroid extract is injurious. Bicarbonate of soda should be given freely up to alkalinity of the urine.

Central Origin of Some Cases of So-Called Heart-Block.—Commenting on the report of temporary improvement in some cases of Stokes-Adams heart-block, J. F. Goodheart says that he is unable to understand how temporary recovery can take place when the lesion is due to some change in the heart muscle, gummy, fibrotic, fatty or calcareous as the case may be, and consequently he cannot accept the current theory of the cause of all Stokes-Adams disease in every instance. In many instances of patients with cerebral symptoms commonly ascribed to this form of heart lesion the fact is that these people with heart disease never faint. In many of these cases it is difficult to say whether the brain or heart is primarily at fault. He has seen several people in the declining decades of life who have first shown illness by way of the brain, such as vertigo, temporary weakness of one side, loss of consciousness or mumbling speech, who only after such attacks have their hearts shown vagaries of action. Many of the so-called Stokes-Adams cases which recover are really epileptic seizures.

A Case of Chronic Constipation Treated by Faradism of the Large Intestine.—W. J. Burroughs says that there is no need of using a rectal electrode in these cases. Two flattened lead electrodes are adjusted next to the skin over about the middle of the ascending and descending portions of the colon. A Faradic current of about nine volts with an amperage adjusted to requirements of the case is passed for fifteen minutes, then the current reversed and passed in the opposite direction for an equal length of time. The current must have a high degree of penetration, and be capable of a very exaggerated degree of interruption.

Berliner klinische Wochenschrift, Aug. 29, 1910.

Pathogenesis of the Diarrhea of Basedow's Disease.—Balint and Molnar state that this subject has received little attention until in recent years. Our increasing knowledge of internal secretions is responsible for the newly awakened interest. It has been assumed that the diarrhea may be in some way associated with pancreatic insufficiency. The research instituted by the authors is best shown in the relation of a single case, as follows: Women, 27; for past three years exophthalmic goitre. Patient pregnant when disease supervened. Desire for food and drink had been one of the principal symptoms, accompanied by diarrhea. Despite intake of water and food, patient became emaciated. Excess of perspiration was also present. When first examined the patient presented the same syndrome as was shown in the history. The symptoms in any case of Basedow's disease are sufficiently numerous; so that the relation of the case must consist chiefly of the gastroenteric symptoms. The patient, who ate and drank freely, had from four to eight movements daily, either semisolid or fluid. There was considerable fat present, but it was intimately mixed with other stool content. In other words, so-called butter stools were absent. The function of the pancreas was now tested by giving a Boldyreff-Volhard oil breakfast and analyzing ordinary feces as to the presence of trypsin and diastase. The results appeared to show that there was no inactivity in the external secretion of the pancreas. There remains for consideration the recently made claim of Falta that the diarrhea of Basedow's disease is due to insufficience of the pancreatic internal secretion. The authors know too little as to Falta's data to criticize this opinion; but in their own case there was neither diabetes nor experimental alimentary glycosuria.

Two Cases of Tumor of the Medullary Adrenal Substance.—Suzuki, of Prof. Chiari's Pathological Clinic, Strassburg, found two tumors of this nature in 1,000 consecutive autopsies. The first was a chromaffin tumor presenting little interest, as the patient died with a great complication of diseases. The tumor was seated at the right side only, and its existence had no apparent clinical significance, although the gland of the opposite side showed tuberculosis in connection with chronic multiple tuberculous lesions. In the second case the tumor, while occupying the cortex appeared to consist of medullary tissue, or rather of the so-called formative cells which occur in the sympathetic system. The analogy is not complete because the chromaffin bronzing is less constant, while fat cells coexist. The chief significance of this second case, which occurred in a very old woman dead of senile changes, is the relationship of the medullary cells of the adrenals to the so-called large and small sympathetic cells.

Early Symptoms of Tetanus.—Evler, in a serial article on tetanus, discusses first its early symptoms. He cites authorities like Rose and von Leyden. The consensus of view is that trismus must necessarily be present to insure a diagnosis of tetanus. Yet cases are on record in which trimus was absent, although tetanus of the arms, face, and trunk was present. The author finds that the early symptoms of tetanus are transitory, vacillating, alternating. They comprise restlessness, timidity, night terrors, bad dreams, dysuria, dyspnea, etc. The facial expression changes; there may be nosebleed, night sweats, prostration, yawning, vertigo—all symptoms of nervous irritability or prostration. Of more value are certain surgical symptoms. Thus swelling of an extremity, despite high elevation, is suspicious. The member in question may also be hot and painful. Lymphangitis commonly coexists. The blood-pressure is higher on the affected side. The injured limb shows such phenomena as contracture and tremor. Certain muscle groups are in a state of tonic spasm, often latent; that is, spasm appears only upon exertion. (This abstract will be continued with the appearance of the original article.—Ed.)

Münchener medizinische Wochenschrift, Aug. 30, 1910.

Unexpected Good Results from 606.—Duhot of Brussels relates a case in which the mother of a heredosyphilitic child was treated with the Ehrlich-Hata remedy. He has treated 85 cases all told and bears tribute to the general excellence of the remedy. The case cited, while unique in the author's experience, has been paralleled, as was found by communication with Ehrlich himself. This unexpected result was seen in the case of a woman who suffered from a malignant precocious syphilis which proved refractory to vigorous treatment with mercurials and iodides. The local lesions in part suggested a tuberculous infection, but the case reacted negatively to the various tests for that disease. While still suffering from malignant syphilis the patient gave birth to a child with typical heredosyphilis, the roseola appearing very soon after delivery. At a date 18 months after contracting the disease the woman received two injections of the Ehrlich-Hata preparation. There was no immediate thought of benefiting the infant. The apparently incurable ulcers of the mother at once began to heal. By the third day the infant being then three weeks old and suckled by the mother, its own lesions and characteristic aged expression showed improvement, which was progressive until, with the exception of a mild degree of hydrocephalus, the child became quite normal. Cases of this sort show that something unfavorable to the spirochete passes from mother to

child through the milk. Duhot thinks that this substance is an antitoxin, the genesis of which is rendered possible by the use of 606. The author warns against overconfidence, however; believing that spirochetes may lurk in the infantile organism he would give, sooner or later, an injection of the arsenobenzol compound.

Is the Intravenous Injection of 606 Especially Dangerous?—Ehrlich himself answers this question in the negative in response to a record of death reported recently by Fränkel and Grouven. He admits that a supersensitiveness to the remedy may be present in the individual case—in the old manner of speaking an idiosyncrasy. Abundant evidence is cited both from clinical and experimental sources to show that the intravenous injection, rightly carried out, has no particular drawbacks. It is admitted that two deaths have followed intramuscular or subcutaneous injections—these being due to anaphylaxis. In other words the mode of exhibition of so powerful a remedy cuts no figure.

Increase of Rhinoscleroma in East Prussia.—Gerber announces that he was the first to note the presence of this affection in the locality designated (about 1900). He then regarded it as a "platonic" disease. Certain happenings suggested a possible syphilitic origin, but all Wassermann tests proved negative with a single doubtful exception. The author regards this affection as originating in the nose and nasopharynx. From the latter neighborhood it extends readily to the middle ear, causing deafness. It appears to be an error to regard the nose proper as the elective site of the malady. Not only the nose but the throat may be exempt. The nasopharynx is inevitably involved. In many cases the lesions are confined to the nasopharynx and middle ear. As for the disease itself, it still remains a mystery. Many cases of "ozena" are probably due to rhinoscleroma. In addition to the nasopharyngeal localization the subglottic cases must be mentioned. Certain patients suffer chiefly from tracheal symptoms. Intubation is often required, O'Dwyer's tubes being employed. Any attempt to bring rhinoscleroma under the rubric of any known disease seems to be predoomed to failure. It has no necessary connection with tuberculosis, syphilis, or leprosy. There is no doubt that years of study will fix its status as a disease. It must bear a closer relation to ordinary nasal catarrh than has ever been made public.

Deutsche medizinische Wochenschrift, Sept. 1, 1910.

Bacterial Causation of Meat Poisoning.—Bofinger and Dieterlen, army surgeons, discuss the somewhat hackneyed theme of the relationship which exists between ptomaine poisoning and paratyphus infection. As is well known, the lines of demarcation between the simplest food diarrhea on the one hand and the great intestinal germ poisonings—as expressed in such affections as typhoid, cholera, dysentery, etc.—on the other hand are not readily established. Thus a case of apparent ptomaine poisoning turns out to be one of paratyphoid, and there is no doubt that what we understand by food poisoning proves a powerful factor in the genesis of certain specific epidemics of enteric origin. The authors add but little to the sum of our knowledge of these matters. In an outbreak of diarrhea among troops they examined the feces and found a bacterium which responded to all the tests of a true Gärtner bacillus. The cause of the diarrhea lay, doubtless, in a blood pudding which had been commonly consumed by the troops. From the stools was isolated a bacillus which corresponded throughout with the so-called Gärtner microorganism. From the blood pudding was isolated a germ which differed somewhat from the paratyphus B on the one hand and the *Bacillus coli* on the other. Passed through the white mouse the germ behaved like a true Gärtner bacillus.

Potassic Iodide and Arsenic for the Destruction of Typhoid Bacilli.—Tsuzuki and Ishida deal with the subject of the destruction of bacilli in typhoid carriers. Both these medicaments destroy Eberth's bacillus in vitro. But the favorable results obtained on carriers after administering the said substances cannot be set down to any direct bactericidal power. It is a fact that when convalescents are treated with either of the two drugs in question, the bacilli of the disease disappear more rapidly from the urine and feces than in negative control cases. This is a subject readily controlled in practice. It is only necessary to administer the drugs individually to different series of convalescents. It appears further that while potassium iodide gives good results, arsenic gives even better ones.

Bacterium Coli Commune as Pathogenic Germ and Saprophyte.—Fejes, of Prof. Jendrassik's clinic in Budapest, comes to the conclusion, after a study of several cases, that the *B. coli commune* may behave purely as a saprophyte in causing an absorption fever without further pathogenic changes. Naturally so radical a conception requires continuous clinical corroboration. Each typhoid convalescent must be tested as to fecal and urinary constituents. The views of the author are best illustrated by his cases, one of which was as follows: Healthy girl, aged 18, was taken with a severe cold and sore throat, two or three weeks before consultation. From this condition she made a complete recovery. Three days before consultation she was seized suddenly with abdominal pain, chills, fever, constipation, vomiting, and hiccough. Diagnosis: Cholangitis, enlarged liver, right-sided pleurisy. The patient made a good recovery. In order to understand the nature of the condition a bacterioscopic examination was absolutely necessary. The bacillus coli commune was readily cultivated from the blood and found to be highly virulent. The same microorganism was also present in the pleuritic exudate. The author assumes that the B. coli first caused the angina. It was not only swallowed, but also reached the blood. The swallowed germs caused the cholangitis, while those which reached the blood were responsible for the febrile attack. The pleurisy, doubtless, resulted from infection of the germs through the diaphragm. Other cases show a similar mechanism. Such cases of colisepsis bear little analogy with typhoid, but the author believes that such sepsis is often grafted upon typhoid fever, the germs reaching the blood through the intestinal ulcers. Despite the presence of the bacilli in the blood, close observation leaves doubts as to its pathogenicity, i.e., as far as its power to cause metastases is concerned. Instead of colisepis, colitoxemia might be a more acceptable term. In other words, the lesions of the tonsil, gall ducts and pleura were due to local attack, while the blood state was merely a toxemia.

How Should Hereditary Syphilis Be Treated.—Gaucher states that all children of syphilitic parents, although showing no symptoms at birth, are nevertheless infected. The Wassermann reaction has been positive in cases of children of a mother infected during the eighth month of pregnancy. There are two important points in the treatment of these little patients. The first is the feeding. It is doubly important to them to have breast milk, since they need the best of food to give them the necessary strength to resist the disease, and they also obtain from the milk of the infected mother antitoxins that are of value against the disease. It is equally important not to give them to a wet nurse on account of the danger to her of infection. The second point in the treatment is to give mercury by mouth, the sublimate being used in a solution of 1-1000, beginning with a milligram at a dose, and increasing. The effect of the drug is better if fractional doses are used. The author condemns the use of frictions as uncleanly and uncertain, and thinks that the hypodermic use of the drug is unnecessary.—*La Médecine Moderne.*

Book Reviews.

American Practice of Surgery. A Complete System of the Science and Art of Surgery, by Representative Surgeons of the United States and Canada. Editors: Joseph D. Bryant, M.D., LL.D., Albert H. Buck, M.D., of New York City. Complete in Eight Volumes. Profusely Illustrated. Volume Seven. New York: William Wood and Company, 1910.

In this volume the subject of Regional Surgery is continued, the regions treated of being the pelvic and gluteal regions, the extremities, and the abdominal and thoracic cavities. Many of the subjects are of more than purely surgical interest as the diseases treated of are on the borderland between medicine and surgery not yet entirely relinquished by the general practitioner, or "internist." Among these are the neuralgias of the pelvic and gluteal regions, myositis and other diseases of the extremities, and, though a surgeon will never so regard it, appendicitis. An indication of the constant advance of surgery into the territory of the internist is given in the section on surgery of the pericardium, heart, and blood-vessels in which suture of the heart wall and massage of the ventricle are described in a matter-of-fact way.

The volume opens with a well written and comprehensive chapter on "Surgical Diseases and Wounds of the Pelvis and Gluteal Regions," by Charles H. Peck of New York. "The Surgical Diseases of the Extremities" is the title of a chapter written by Charles A. Porter and William C. Quinby of Boston; it does not include all the diseases of these parts, but is rather supplementary to chapters in previous volumes, treating chiefly of the minor disorders of the arms and legs. "Surgical Diseases and Wounds of the Abdominal Wall" are discussed in an excellent but rather brief article by J. D. Griffith of Kansas City, Mo. A brief but instructive article follows, on the "Diagnosis of Tumors of the Abdomen" by Malcolm LaSalle Harris of Chicago, and after this is a chapter on "Abdominal Section" by William McDowell Mastin of Mobile. The section on the "Surgery of the Pericardium, Heart, and Blood-vessels," a thoroughly readable and up-to-date article, is contributed by Robert G. LeConte and Francis T. Stewart of Philadelphia. The section on "Surgical Diseases and Wounds of the Stomach and Esophagus" is written by A. J. Ochsner of Chicago, than whom no better author could have been selected. "Surgical Diseases of the Diaphragm and Subphrenic Abscess" is the subject assigned to J. C. Reeve, Jr., of Dayton, who has done his work well. A chapter on "Surgical Treatment of General Septic Peritonitis" by the late Andrew J. McCosh follows, and the same gifted and lamented author contributed the article on "Inflammatory and Other Diseases of the Vermiform Appendix." "Tuberculous Peritonitis" is well described by Nathan Jacobson of Syracuse, N. Y. This article is followed by one on "Abdominal Hernia" by E. Wyllys Andrews of Chicago, whose description of the operative treatment, especially of his own operation for the radical cure of inguinal hernia, is very clear and interesting. C. W. Oviatt of Oshkosh contributes an article of unusual value on the "Surgical Diseases and Wounds of the Intestines, Omentum, and Mesentery." Last but far from least in point of interest and excellence of treatment is the section on "Surgical Diseases of the Anus and Rectum" by J. P. Tuttle of New York and S. T. Earle of Baltimore.

With its clear print, dull white paper, and wealth of original and beautifully drawn illustrations, this volume makes a very handsome appearance. It is perhaps the handsomest and the most interesting of the series.

Serums, Vaccines and Toxines in Treatment and Diagnosis. By Wm. Cecil Bosanquet, M.A., M.D. Oxon., F.R.C.P. Lond., Assistant Physician to the Charing Cross Hospital, and to the Hospital for Consumption and Diseases of the Chest, Brompton; sometime Fellow of New College, Oxford. And John W. H. Eyre, M.D., M.S. Dunelm, F.R.S. Edin., Bacteriologist to Guy's Hospital and in charge of the Vaccine Department; Bacteriologist to St. Mary's Children's Hospital, Plaitow. Illustrated. Second Edition thoroughly revised. New York: Funk and Wagnalls Company, 1910.

The appearance of a new edition of this work is timely; the subject is of interest to the practitioner because he may here find an aid not only in active treatment, but also in prophylaxis, and in diagnosis. The subject of immunity, upon which the serum and vaccine procedures are largely based, is, unfortunately, very complex; and the student is liable after mastering many theories on the subject to be confronted with a new theory more intricate and abstruse than those which have gone before. Hence the great value of the present book. It is as simple as the subject will allow; it is concise, and authoritative; it is conservative, and fair in its statements; and it is up to date.

Hygiene and Public Health. By B. Arthur Whitlegge, C.B., M.D., B.Sc. Lond., F.R.C.P., D.P.H.; Late County Medical Officer of Health for the West Riding of Yorkshire, Chief Sanitary Officer of the West Riding of Yorkshire Rivers Board, Medical Officer of Health for Nottingham, and Lecturer on Public Health, Charing Cross Hospital Medical School. And George Newman, M.D., D.P.H., F.R.S.E., Lecturer on Public Health at St. Bartholomew's Hospital (University of London); Late Medical Officer of Health of the Metropolitan Borough of Finsbury, Consulting Medical Officer of Health of the Bedfordshire County Council, and Demonstrator of Bacteriology and Infective Diseases in King's College, London. Illustrated. New York: Funk and Wagnalls Company, 1910.

In point of size, this is perhaps the smallest manual on hygiene and public health in the English language; but its value is by no means to be measured by its size, for it is one of the most useful, reliable and complete of the works on these subjects. It is now in its eleventh edition, and it can be recommended as a concise summary of the present-day knowledge concerning public health, as well as a textbook for the student. Unfortunately, the sanitary law, public health regulations, and statistics in general, which take up a considerable part of the volume, are not those of this country. In spite of this one drawback, which is due to the origin of the book, this little manual will prove of value to practitioners and students.

Die Erkrankungen der Flexura Sigmoidea; von Prof. Dr. Th. Rosenheim, Berlin. Halle a. S.: Carl Marhold, Verlagsbuchhandlung, 1910.

This is practically a monograph of 77 pages, forming a section of a volume of a work on digestive diseases by various authors. The author maintains that on account of the peculiar function of the sigmoid flexure its diseases should be considered more or less independently of those of the upper part of the colon. The style is lucid. 17 pages of advertising accompany the book.

Spondylotherapy. Spinal Concussion and the Application of Other Methods to the Spine in the Treatment of Disease. By Albert Abrams, A.M., M.D. (University of Heidelberg), F.R.M.S., Consulting Physician to the Mount Zion and French Hospitals, San Francisco; formerly Professor of Pathology and Director of the Medical Clinic, Cooper Medical College (Department of Medicine, Leland Stanford Junior University), San Francisco. San Francisco: The Philopolis Press, 1910.

This is not a textbook on osteopathy as a separate therapeutic system, but in an effort to show that spinal therapeutics occupies a legitimate place in medicine. The author has aimed to rescue this subject from the low esteem in which it has unjustly been held and to give it a place befitting its scientific importance. After outlining the history of spondylotherapeutics, the author discusses the anatomical, topographical, and physiological data relating to the spinal column, including the spinal cord and the sympathetic system, then details the symptomatology of the spine, next presents a summary of spinal diseases and their symptoms, and in the following chapter deals with general spondylotherapy, including abdominal supporters, acupuncture, counterirritation, electrotherapy, exercises, reeducation of coordinated movements, spinal hydrotherapy, lumbar puncture, massage, psychrotherapy, thermotherapy, and vibratory massage. The succeeding chapters deal with pseudovisceral diseases, the circulatory system, the respiratory apparatus, the digestive system, miscellaneous reflexes, and the therapeutics and diagnosis of pain. The work represents an unique contribution to medical literature, and in the wealth of its contents, cannot fail to be of distinct value to the general practitioner.

Life and Health. By James Frederick Rogers, M.D., Assistant Instructor Physical Diagnosis, Yale University. Author of "The Body at Its Best" and other essays. Philadelphia and London: J. B. Lippincott Company, 1910.

The writer has evidently avoided the analytical method as far as possible, endeavoring rather to consider structure and function in its entirety by tracing its historical development. In the first part of this volume is presented a general picture of the body in life and health. The second part considers more explicitly hygienic problems under the sections: Internal conditions of health; and external conditions of health. A short index is appended.

Society Reports.

AMERICAN ASSOCIATION OF GENITOURINARY SURGEONS.

Twenty-fourth Annual Meeting Held at Washington, D. C., May 3, 4 and 5, 1910.

The President, Dr. Hugh H. Young of Baltimore, in the Chair.

An Experimental and Clinical Study of the Functional Activity of the Kidneys by Means of Phenolsulphonphthalein.—Dr. John T. Geraghty and Dr. Rowntree of Baltimore read this paper. Their conclusions were as follows: 1. Functional tests considered in conjunction with a careful clinical study of the patient undoubtedly furnished information of decided value regarding the functional capacity of the kidneys. 2. The phenolsulphonephthalein test as used by them had many advantages over all other functional tests so far proposed. 3. Phenolsulphonephthalein itself was better adapted for use as a functional test than any other drug previously employed for the same purpose on account of its early appearance in the urine and the rapidity and completeness of elimination by the kidney. 4. The method of quantitative estimation of the amount of drug excreted was simple and exceedingly accurate. 5. The permeability of the kidney for this drug was decreased in both chronic parenchymatous and chronic interstitial nephritis, the decrease being most marked in the interstitial variety. 6. The test had proven of great practical value in revealing the true renal conditions in cases with prostatic obstruction. It was here of more value than the urinary output, total solids, urea, or total nitrogen, and enabled the surgeon to select a time when the kidneys were in good functional condition. 7. The improvement in cases of prostatic obstruction following the institution of preliminary treatment was strikingly demonstrated by this test and the time most suitable for operation was indicated. 8. In unilateral and bilateral kidney diseases the absolute amount of work done by each kidney as well as the relative proportion could be determined when the urines were obtained separately.

Dr. Hugh H. Young of Baltimore said that earlier than the year 1900 he had worked in Casper's clinic when he brought out his phloridzin method. He had tried the phloridzin test, the freezing test, and quite a number of others, and given them all up, except the ordinary test for urea, the total solids, the amount of water, and a general study of the patient's systemic condition.

Dr. Geraghty said that in conjunction with this test they had carried on a great many of the other functional tests. Indigocarmine had been used because it was most rapidly excreted. They had been taught that indigocarmine exaggerated the lesion, but in a great many cases it would not appear for an hour or two. With phloridzin they had found certain cases that were excreting about half the normal amount of phenolsulphonephthalein in which sugar would not appear at all.

Removal of Papilloma of the Bladder by the High Frequency Current.—Dr. Edward L. Keyes, Jr., of New York read this paper. He presented a very simple apparatus for the intravesical treatment of bladder tumors. The idea of using this instrument for the destruction of neoplasms was by no means new. It had been employed for neoplasms on the surface of the body to a considerable extent and with success. The apparatus consisted of a small insulated cable about the size of a No. 6 ureter catheter, which could be used through any modern cystoscope. This wire was attached to a high frequency current apparatus, introduced into the bladder through the cystoscope, and manipulated therein after the manner of the ureter catheter. He had used the D'Arsonval or double pole current. At first one pole was placed in the bladder and the other in the patient's hand, but recently both poles had been placed in the bladder, tying the two ends together. The wires must be in absolute contact with the tumor. The simplest method was to get as near the base of the tumor as practicable, plunge the wires in, and then turn on the current. The duration of the burning varied with each case. Dr. Keyes reported one case in full of removal of a papilloma of the bladder that had recurred after removal by the suprapubic route.

Dr. Francis S. Watson of Boston said that as the author of the most radical means of dealing with tumors of the bladder, he would most heartily welcome any suggestions which looked towards its being abolished. He did not know what the action of this electric current was, but whatever there was beyond burning we would have to look to for its presumably good results. He did not quite see why cancer of the bladder was materially different from cancer elsewhere. The radical operation to be successful should be done in the early stages, not after the tumor had involved the whole bladder. One should not wait for a tumor of the breast to involve the lung. If it was cancer, one could not do it too early nor too radically. All else was in the line of palliation as far as he could understand it. It must be remembered that these cases of benign papilloma had recurred as late as thirteen years after removal, so that the fact that certain cases might go on after removal of carcinoma with delayed recurrence rendered it very difficult to come to a correct conclusion.

Dr. Louis E. Schmidt of Chicago said all these intravesical methods would probably be only used for palliative treatment, in cases where the patient positively refused to consider a cutting operation. Of course, it was too early to come to a definite conclusion, but in a general way, judging from other intravesical work, he was inclined to believe that the value of this method would not be any greater than those that had been thoroughly tried out.

Dr. Samuel Alexander of New York thought that every man in the Association who had an opinion should express it against this method being used for primary tumors of the bladder which were operable by other means. But in recurrent carcinoma of the bladder, which meant either death or total extirpation of the bladder, we should welcome any experimental work in this direction. He would use palliative means of this sort just as he had used serum therapy. He believed in using all the palliative means in carcinoma of the bladder before adopting the radical measure recommended by Dr. Watson.

Dr. Francis R. Hager of Washington described a method he had recently used in removing carcinoma of the bladder. After a suprapubic incision down to the bladder, a cystoscope was introduced into the bladder, and pins were passed through the bladder wall from the outside through the suprapubic opening, the cystoscope being used to guide him in placing the pins outside the tumor area. The incision into the bladder was then made as indicated by the pins and the operator was thus enabled to know that he was cutting outside the tumor area. In this way the tumor could be removed without cutting or breaking into it in any way.

Dr. Hugh H. Young of Baltimore mentioned his work during the past year with the operative cystoscope which he had shown a year ago. The two principal troubles he had had were the hemorrhage and dealing with the base. In one or two cases the hemorrhage had been rather alarming. It was impossible with any operating cystoscope to destroy the base. Resorcin had been used with good results. Cauteries had recently been added to the instrument for use in the later stages of the operation. He thought the method which Dr. Keyes had used was one of

great promise. A number of men seemed to think this high frequency current had a peculiar selective action on pathological calls.

Dr. KEYES in closing said he thought there were certain parts of the body where we got certain types of malignant growth sufficiently early to remove them by minor means. The part of the body most generally recognized as falling under that classification was the skin. Nitze a long time ago said he could do the same thing in the bladder. Everybody said that Nitze did not follow his cases long enough, but the fact was established that Nitze did by this means remove, temporarily at least, tumors from the bladder. There was just one case known to have gone twenty years without relapse of a bladder tumor after suprapubic operation. If one had to choose between suprapubic operation and an intravesical operation, he would select the palliative measure, the one that would temporarily remove the tumor, with the minimum inconvenience in the patient.

The Diagnosis of Stone in the Pelvic Portion of the Ureter.—Dr. HUGH H. CABOT of Boston read this paper which was illustrated with lantern slides. A stone in the ureter might be invisible by means of the *x*-ray on account of faulty technique, the chemical composition of the stone, its small size, and the position of the stone. This last cause of non-visibility of a calculus in the ureter had been brought very forcibly to his attention recently by two cases. In the first a calcium oxalate stone was found at operation in the ureter at the point where it crossed the iliac vessels, though *x*-ray plates made by an expert had been negative. The stone was then placed upon a skeleton pelvis as nearly as possible in the proper position and an *x*-ray plate taken, which again failed to show the stone. In the second case the *x*-ray was also negative taken in the ordinary way. But by placing an Edebohl's cushion under the patient's loins, placing the tube over the region of the umbilicus, and focusing obliquely downward into the pelvis, the stone was shown. At operation the stone was found lying over the iliac vessels in a position nearly similar to that of the first case.

Dr. JAMES PEDERSEN of New York said that if it were possible to place patients in such a position as to get a direct line through the pelvis, throwing the sacrum out of line, it would be a great help.

Dr. LOUIS E. SCHMIDT of Chicago said that in locating the exact position of the stone it was desirable to have the patient in different positions, but in taking the picture in the first instance it would seem that it was not only desirable to change the position of the patient but also to change the position of the tube in all those cases where a stone in the ureter was suspected.

Dr. HUGH H. YOUNG of Baltimore said he had been experimenting in much the same way, except that he had used the compression diaphragm against the abdomen. The results had been only fairly satisfactory, and it was probably better to do as Dr. Cabot had done

Dr. CABOT said the calculi in his cases were from seven to twelve centimeters above the bladder orifice of the ureter, lying over the thick portion of the sacrum, and he believed them to be invisible in most plates, no matter with what tubes taken. Twenty-eight negative plates had been taken on these two patients, with every known method and every known density of tube. He had tried the sitting position, but it seemed objectionable because it got the tube so near the patient's face. In his method the tube was nearly eighteen inches away from the patient's face.

Summary of Results Reported from the Use of Vaccines and Sera of Gonococci and Other Pyogenic Organisms in Urology.—Dr. R. F. O'NEIL of Boston read this summary, which was based upon ninety general and special articles on vaccine therapy, upon personal communications and personal experience. In gonorrheal infection in general most reports were that a stock vaccine made from a good strain was as serviceable as an autogenous one. In joint infections the autogenous was to be preferred. To have any general application in the treatment of gonorrhea a stock vaccine would have to be employed, for the double reason that the preparation of an autogenous vaccine required time and skill, and in a chronic case it might be very difficult to procure sufficient material to make a good one. The limitations of the doses of the ordinary organisms had been pretty well worked out, so that now the regulation of the amount and frequency of the dosage by the estimation of the opsonic index seemed to be unnecessary, quite as good results being obtained when these were regulated by the clinical symptoms and reaction. The almost universal opinion was that vaccine treatment in acute and chronic urethral gonorrhea, whether a stock or autogenous vaccine had been used, had proved to be of no value. The same applied to antigonococcus serum in urethritis. Apparently favorable results in epididymitis following the use of vaccines and serum had been reported by a few observers, but in most cases the ordinary methods of treatment had been also used, and it was hard to say what rôle the vaccines played in a condition which varied clinically to such an extent as did this disease. In gonorrheal prostatitis and vesiculitis there was very little to show that vaccines were of any benefit, except that some men thought that their cases did better when the vaccine treatment was added. Better results were reported from the use of antigonococcus serum in epididymitis. The reports on the use of gonorrheal vaccines in gonorrheal septicemia were not sufficient upon which to base any definite conclusions. As to the effect of gonococcus vaccines in joint conditions, the author quoted the following statement by Ebright: "The only lesions that respond with sufficient uniformity to put the treatment on a secure plane are the joint lesions." It should be combined with other forms of treatment, and might be regarded as an advance in therapeutics. In infections of the urinary tract with other organisms, and in bacteriuria, the vaccines did not appear to have any beneficial effect.

Vaccine Therapy in Genitourinary Tuberculosis.—Dr. FAXTON E. GARDNER of New York read this paper. There were 83 mentioned or reported cases of renal tuberculosis treated with tuberculin, with 18 called cured, 30 benefited and 25 not improved. To infer that tuberculin cured 21 per cent. of the cases of kidney tuberculosis and improved 36 per cent. more would be at least premature. In fact, there was no conclusion to draw from these cases. The details were thoroughly insufficient in all except 10 of the cases. We could not accept the statement that a case was cured without having some sort of proof. The only proof given in most of the reports was that the patient was in good health and had no more painful symptoms. A symptomatic cure could not be accepted as a real cure in such a disease as renal tuberculosis. There was not in a single report anything concerning the functional value of the kidney supposedly cured. But despite all objections, there remained a few cases in which one could not help thinking that tuberculin had a beneficial action on the kidney lesion, and practically everybody agreed that it had a decidedly favorable action on the general condition. Of 61 cases of tuberculosis of the bladder reported as having been treated with tuburculin, 20 were reported as cured. It seemed well established that tuberculin had a marked effect on the pain and frequency of urination, and also on the amount of pus in the urine. The only conclusion that could be drawn from the literature of tuberculin in genitourinary tuberculosis at the present time was this: Tuberculin raises the natural defensive power of the body. Whenever the defensive power is normally sufficient to cope with the morbid process, the reinforcement it receives from tuberculin is useful; in disease where the natural defense is unable to overcome the tuberculous process, it is very doubtful

whether tuberculin can raise it to a point where it would be able to effect a spontaneous cure. When tuberculin is presented as a curative agent, it may be eyed with suspicion; when as an adjunct to a normally conservative treatment, it should be welcomed.

A Further Report on Antigonococcic Serum and Antigonococcic Bacterins.—Dr. GEORGE K. SWINBURNE of New York said that in the work he had done during the past year he saw no reason for changing the opinion that he had expressed a year ago, namely, that acute complications were given prompt relief by the serum and that it acted in almost all those cases as a specific. Its action had been marked in cases of acute gonorrheal rheumatism occurring in primary attacks, and it certainly continued to act as a specific in these cases. As a working rule he preferred to use the serum first and then continue treatment later with the bacterins. Some cases did well with the bacterins and not so well with the serum, and *vice versa*.

Clinical Report of Cases Treated with Gonorrheal Vaccines and Cases Treated with Antigonococcic Serum, with Reference to Joint Affections, with Remarks and Conclusions.—Dr. LOUIS E. SCHMIDT of Chicago drew the following conclusions: 1. The site of injection with either a vaccine or a serum was of no importance as to therapeutic action—yet on account of local symptoms that might arise the deep or intramuscular mode of administration, paraticularly into the gluteal region, was both the most desirable mode and place for the injections. 2. That the technique to follow was the one which required strict asepsis. 3. That satisfactory results had been noted with the use of serum as well as with vaccine in the various kinds of cases. 4. Antigonococcic serum seemed to be used to greatest advantage in acute or subacute gonorrheal toxemia cases—those cases which were so often referred to as "gonorrheal rheumatism." That serum was of no practical value in the inveterate, long-standing cases. 5. That the vaccine mode of therapy had shown satisfactory results in some true gonorrheal arthritic conditions—where undoubted metastatic conditions were present and where a gonococcemia was probably present. In the very acute attacks some especially good results were noted. 6. That serum therapy had been of no distinct value in non-metastatic or toxemic conditions—that vaccines were to be used in these conditions. 7. As to the dosage of serum, that it was desirable to commence with small dosages, as 2 c.c., to repeat or even to increase to 4 c.c. on the second or third day. If no improvement was noted, to increase to 6 or even 8 c.c., to be given every fifth day. In general, the smaller the dose the more quickly could it be repeated; the larger the dose the greater the interval between injections. The large majority of cases required 30 to 50 c.c. of serum. 8. That the dosages of the vaccine must vary as to the case—that comparatively small doses, 10 to 30 million bacteria for the acute gonorrheal joints, was usually sufficient. In the subacute or chronic cases 50 to 100 million bacteria generally gave the best results. In both instances he was inclined to believe that the best results were noted when injections were given about five days apart.

Results Obtained by Autogenous Vaccines in Various Urinary Infections.—Dr. JOHN T. GERAGHTY of Baltimore gave his results in 14 cases. Four were renal infections due to the colon bacillus. Six were cases of mild cystitis. Three of these were due to the colon bacillus, 1 to the *Bacillus lactis aerogenes*, 1 to the *Staphylococcus albus*, and 1 to the colon bacillus and *Staphylococcus albus* combined. There were 4 cases of bacteriuria, in 2 of which the *Micrococcus ureæ* was found in pure culture, in 1 the *Staphylococcus albus* was found in pure culture, and in 1 the *Micrococcus ureæ* and the colon bacillus were found combined.

These were all cases that had resisted other forms of treatment and had been under observation a long time. All of the patients were treated over long periods of time, the majority over six months. An autogenous vaccine was prepared in each case, and doses from 100 to 800 million were employed. No reaction whatsoever was noted from the large doses. In not a single instance was any improvement produced which could in any way be attributed to the vaccines employed.

A Report of the Results in Certain Forms of Genitourinary Diseases Treated with Vaccines.—Dr. JOHN H. CUNNINGHAM, JR., of Boston read this paper. In gonorrheal infections both stock and autogenous vaccines had been used, the dose in the acute febrile cases varying from 2½ to 10 million, and in the chronic cases from 10 to 75 million. The doses had been gradually increased, and had been given at intervals of from one to seven days, oftener with the small doses and at longer intervals with the large doses. In gonorrheal rheumatism the vaccines did not appear to have shortened the febrile period, but the patients were possibly more comfortable. In the postfebrile cases almost immediate alleviation of symptoms after the first dose or two was generally noted. Functionating but not always normal joints had been obtained. From 10 cases of gonorrheal rheumatism treated with antigonococcic serum the only deduction that could be drawn was that little or no benefit might be expected, but an occasional brilliant result might be obtained. In four cases of chronic gonorrheal prostatitis and seminal vesiculitis the vaccines did not produce any beneficial results. In *Bacillus coli* infections associated with tuberculosis vaccines proved beneficial, as evidenced by some diminution in the symptoms of frequent urination, pain, and the degree of cloudiness of the urine. In only one case, however, did the colon bacilli entirely disappear from the urine. A predominating colon infection of the bladder and renal pelvis, if of long duration, might temporarily improve during the employment of vaccines, but it had not appeared to produce any permanent improvement in the condition of the urine in the cases that had been followed.

In genitourinary tuberculosis, the author said, the doses should be very small. An initial dose of 1/50,000 mg. R. E. solid substance might be given, and the dose very gradually increased to 1/15,000 mg. No reaction should occur. Theoretically and practically, the indications for the use of vaccine in chronic localized tuberculosis, when surgical conditions had been efficiently met and cure was not forthcoming, were hopeful, and the vaccine should be employed until further data established its value more precisely.

Value of Vaccines in the Treatment of Infections of the Urinary Tract.—Dr. HUGH CABOT of Boston read this paper. This report did not include tuberculous and gonorrheal infections. The author's conclusions were as follows:

1. The use of vaccines was followed by improvement of the symptoms in more than half the cases. 2. Vaccines had little effect on the bacteriuria. 3. The results were practically the same whether the lesion was in the upper or the lower urinary tract.

Two Cases of Renovesical Tuberculosis Treated with the Bacillus Emulsion.—Dr. JAMES PEDERSEN of New York reported in detail two cases of renovesical tuberculosis treated with bacillus emulsion with good results.

Results Obtained by the Use of Tuberculin in Genitourinary Tuberculosis.—Dr. HUGH H. YOUNG of Baltimore reported seven cases in which accurate records of the condition before, during, and after the treatment had been preserved. This was too small a number, Dr. Young said, to permit of accurate conclusions being drawn, but he thought it well to present the records so that they might be accessible to others in collecting a long series of well-observed cases.

Dr. Hugh Cabot of Boston said that in his opinion tuberculin should be confined to cases which were inoperable and those in which operation had been done; that it should not be used as a substitute for operation. In tuberculosis of the epididymis and the vas the tuberculous focus should be removed and then tuberculin treatment started. The same in tuberculosis of the kidney. He had never seen a healed tuberculous kidney.

Dr. Louis E. Schmidt of Chicago agreed with everything Dr. Cabot had said except with regard to the healed tuberculous kidney. He had repeatedly seen specimens in different pathological laboratories shown as cured tuberculous kidneys.

Dr. Francis R. Hagner of Washington said he had seen the symptoms increase very markedly from small doses of tuberculin after removal of the kidney.

Dr. John T. Geraghty of Baltimore said from his experience with tuberculin it had been impossible to draw any conclusion so far. He was inclined to agree with Dr. Cabot as to when it should be used. He had only had one case that seemed to do badly under tuberculin. All the other cases had shown improvement.

Dr. James Pedersen of New York thought the question of tuberculin treatment would reduce itself to a selection of cases. In his second case there was an apparent cure of two years' standing.

Dr. Schmidt said his experience with vaccines in colon infections of the urinary tract covered nine or ten cases. All had been treated with stock vaccines. No urine had cleared up under the vaccines, though there had been some improvement as regards urinary symptoms.

Dr. H. A. Fowler of Washington mentioned a case of pyelitis in which the infective organism was the pneumobacillus of Friedlander. A vaccine was made and the patient was given doses ranging from 100 to 500 million. His symptoms had improved very markedly, but the urine had not cleared up.

Dr. Edward L. Keyes, Jr., of New York said it had been his practice in tuberculosis of the kidney to remove the kidney if that was permitted, and subsequent to operation not to use vaccines unless the patient was not spontaneously improving in his vesical symptoms or in his general weight. In the seven cases in which he had used vaccines following nephrectomy it had seemed to him that the vaccines did good at a time when the patient was not spontaneously doing well.

Dr. Edward Martin of Philadelphia said he saw no difference between the results obtained by this vaccine treatment and those obtained by other methods. He had been astonished at the freedom and carelessness with which this method of treatment had been used. The vaccines were often administered by men who had not the very faintest knowledge of their therapeutic effect or of their possible dangers.

Dr. Alfred T. Osgood of New York said that in his hands the vaccines for colon bacillus infections and for the pyogenic infections of the urinary tract had shown absolutely no good results. He had never seen a colon bacilluria clear up. As to tuberculosis, he agreed with what had been said by Dr. Cabot and Dr. Keyes.

Dr. Young said he wanted to indorse very thoroughly what had been said by Dr. Cabot, Dr. Keyes, and Dr. Schmidt in regard to the operative treatment, and he hoped his paper would be taken merely as a collection of apparently favorable cases for tuberculin.

Officers.—The following were elected for the ensuing year: *President,* Dr. Charles L. Gibson of New York; *Vice-President,* Dr. Edward Martin of Philadelphia; *Secretary and Treasurer,* Dr. Edward L. Keyes, Jr., of New York; *Member of Council,* Dr. H. E. Squiers of New York.

Place of meeting next year, New York City.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held April 19, 1910.

Dr. C. N. B. Camac in the Chair.

Preliminary Report on Sahli's Desmoid Test.—Dr. N. B. Potter said that he wished it understood that this was merely a preliminary report which had been undertaken for the purpose of investigating Dr. Sahli's test. The methylene blue pills were made according to Sahli's formula. They had made the tests in all sorts of diseases and in some normal individuals; sixty tests were made upon 38 normal individuals. Where digestion was normal the reaction showed itself in about two hours; when the reaction did not appear until after four hours it was considered delayed, and where it did not occur for twelve hours or longer it was considered negative. Of these 60 tests, 43 were positive, 10 delayed, and 7 negative. In one series of tests 7 tests were made upon 6 individuals with 7 positive reactions; 26 tests were made upon 16 individuals having hyperacidity where there were 19 positive reactions, 4 delayed, and 3 negative reactions; 4 tests made upon 3 individuals having hypoacidity gave 3 positive and 1 delayed reaction; 12 tests made upon 6 individuals having anacidity gave 6 positive and 6 delayed reactions. In severe cases two or more tests were made and results were quite uniform. In all 74 tests were made upon 30 individuals of which 48 were positive, 12 delayed, and 14 negative. In pernicious anemia, afterwards confirmed by autopsy, there were 6 tests upon 3 cases, all of which were negative. Three tests were made in one case of secondary anemia of which one was positive and two negative. In one case of moderately severe secondary anemia, one test was made which was positive. In one case of gastric carcinoma one test was made which was positive. Their results agreed very closely with those obtained by Dr. Sahli.

Dr. C. G. L. Wolf said that the claims of Sahli's test rested on a sound physiological basis. When the indicator was given with a regular meal the action of the gastric juices was much more physiological than when given with a test meal. The type of meal had a distinct effect upon the type of secretion, therefore the secretion following a test meal of weak tea or rusk was not to be compared with that following the ingestion of an ordinary full meal. The only indicator that could be relied upon was one that could be given with a full meal. Sahli protested that the usual tests for hydrochloric acid and pepsin were not reliable. This test ingestion deserved greater consideration.

Aneurysm of the Aorta, with Important Clinical Symptoms.—Dr. R. G. Snyder gave a lantern slide exhibition, showing the special features in several cases of aortic aneurysm. The first specimen was from a man who gave no history of syphilis. The aneurysm was just above the aortic valve and ruptured through into the left pleural cavity. The second specimen was from a man supposed to have tertiary syphilis. The aneurysm ruptured into the trachea and at autopsy an acute syphilitic ulcer was found at the seat of the aneurysm. Another slide showed an aneurysm which simulated a tumor. There was no murmur and a diagnosis of tumor had been held for some time, but as there was no glandular enlargement nor other symptoms of tumor, it was supposed that an aneurysm existed. The death of the patient and the autopsy findings confirmed the diagnosis of aneurysm. In another case of a man coming into the hospital six months after having received an injury, the face, hands, and neck were blue. His wife had noted the blue color several weeks before. There was a systolic murmur and perforation into the superior vena cava occurred later. For two weeks before his death a thrill could not be felt in the left arm. At

autopsy a thrombus was found. The specimen illustrated very clearly the adhesions and pressure conditions. A case of Dr. Camac's showed two areas of dullness, one in the back between the left scapula and the spine and another to the left of the sternum in front. The heart was not much displaced. There was pressure both on the sternum and on the ribs behind. It was thought that possibly the man had two aneurysms. The autopsy confirmed this suspicion. In addition to the two aneurysms there was an aortic incompetency. A clot removed from one of the aneurysms weiged 650 grams. There was an erosion of the spine and of the ribs; the spinal cord was also eroded but the man had no myelitis.

Dr. B. Mann told of a case that had come to his service at the City Hospital in which the most marked symptom was a profuse bronchorrhea and a cough. There was an enlargement at the sternoclavicular junction and it was decided that the man was suffering from an aneurysm of the right innominate artery. He was operated upon and died. At autopsy it was found that the aneurysm had started at the arch and pointed out over the sternoclavicular junction.

Dr. Achilles Rose said that before the discovery of the *x*-ray it was almost impossible to diagnose these aneurysms, as the only symptom that was constant was intercostal neuralgia. A number of years ago he had had a patient with a history of syphilis and intercostal neuralgia, upon whom antisyphilitic treatment had no effect. The man died very suddenly and an aneurysm was found at autopsy. In a second case which he had under his care some fifteen years ago, and in which he could not make a satisfactory physical diagnosis although there was a history of syphilis, specific treatment was of no avail. This man also died suddenly of aneurysm. In a third case there was also a history of syphilis and an aneurysm of the descending arch could be readily made out in the scapular region. In this case there was the usual neuralgia but very little disturbance so far as the heart was concerned. There was a slight murmur. This patient died of rupture into the left pleural cavity. Dr. Rose had at present two cases under treatment. One a man 45 years of age in whom syphilis could be excluded; he had, however, driven fast horses and that might have had something to do with the causation. The other case was in a woman, 62 years of age, who had been under observation for three years. Her condition remained stationary. There was marked lateral curvature of the spine that might have dislocated the thoracic viscera thus giving rise to the condition. The diagnosis in this case had been confirmed by the *x*-ray. It was absolutely necessary that these patients should be kept in bed until all unpleasant symptoms subsided. He did not believe in large doses of potassium iodide and never gave more than 10 or 15 grains three times a day.

A Case of Diffuse Sclerosis of the Superficial Veins.—Dr. Harlow Brooks reported this case, which was of peculiar interest because it occurred in an individual very young for any form of venous sclerosis to develop, and especially because of the clear selective tendency manifested in the case for the veins of peripheral distribution with no evidence of other venous or of arterial involvement. He believed the selective tendency was no less frequent in sclerosis of the veins than in arteriosclerosis. It was often quite as evident and even more suggestive and striking since the general veins were so much less liable than the arteries to this type of lesion. The patient was a well formed, rather sparsely built, boy of eighteen years. He entered the City Hospital complaining of pain in the left leg and thigh so severe that he was unable to walk. His family history was negative and he had never done heavy physical work or exercise. He had been a healthy child with the exception of a slight attack of pneumonia and several attacks of tonsillitis and pharyngitis. There was no history of previous disease nor of venous disturbance. Recently he had used alcohol very moderately. On examination he was found to show a complete thrombosis of the left internal saphenous vein extending from 8 cm. below Poupart's ligament down to the ankle. The course of the vein was marked by a hard cord bordered on either side by an indurated and tender red band. There was considerable edema and he suffered intense pain on movement. A circular point of sharply localized bluish discoloration was found over the vein just below the knee joint, evidently a gangrenous area. There were no other lesions of importance demonstrable except that the superficial veins of the entire body, notably those of the extremities, were prominent and palpably thickened. The hands were cyanosed and soon became edematous if allowed to hang down. Moderate exertion caused facial cyanosis. An examination of the heart revealed nothing of importance; no arterial thickening could be made out and there was no change apparent in the retinal vessels. The blood chart showed on admission a systolic pressure of 120 mm., which subsequently went up while the patient was in bed to 140 mm. The temperature varied somewhat but was mostly at the normal level. The urine was normal throughout. The blood examination showed little of importance and varied but little since he had been under observation. The coagulation time was considerably below normal, and the blood cultures were negative. The leg was wrapped in cotton and moistened with 33 per cent. alcohol, and citric acid and potassium iodide administered internally. The gangrenous spot sloughed out, the perforation quickly granulated and there was rapid absorption of the clot in the thrombosed vein. Up to the time of his discharge the circulation was not fully re-established through it. The patient left the hospital after three weeks, walking and apparently well except for the thickened veins. With no other evidence at hand it seemed most likly that this selective venous sclerosis was induced by syphilitic infection either congenital or early contracted. However no evidence could be advanced in support of the accuracy of this diagnosis. They knew that in syphilitic arteritis this selective tendency toward the involvement of certain specific vascular distributions had been well established and it might with equal force be directed to the explanation of this unusual case of diffuse superficial venous sclerosis.

Throat Symptoms the Initial Feature in Three Typhoid Fever Cases.—Dr. N. B. Potter said that a few years ago a case had come to him, having mucous patches in the throat, and he at once suspected syphilis and began treatment. In the course of a few days the patient developed typhoid fever. The second case was of a woman who came to the hospital last fall. She had passed through the hands of four physicians before he had seen her and in each instance a diagnosis of syphilis had been made. She developed typhoid fever with subsequent perforation, was operated upon, and cured. The third case occurred in the French Hospital and it was thought from the appearance of the throat that the patient had diphtheria, but a blood culture showed it to be a case of typhoid. At the time that Dr. Potter decided to report these cases he thought throat symptoms uncommon, but a search of literature had convinced him that they were quite common. Sometimes there were mucous patches and sometimes patches resembling diphtheria on the post-faucial pillar which could be wiped off easily. They did not seem to affect the course of the fever.

Dr. E. Lipman, in discussing these cases, said that throat symptoms were of great value in diagnosis. Occasionally one could come to a conclusion by the aid of these symptoms even before a positive Widal reaction could be obtained. These lesions were quite characteristic of typhoid.

Dr. C. N. Potter said that these patches were found in other conditions, that he had learned of a case of pleurisy and one of angina in which they were present.

Tricuspid Regurgitation with Unusual Tracings.—Dr. B. Mann presented the clinical side of this case. The patient was a man, 43 years of age, who came into Dr. Camac's service in the City Hospital on January 20. He was very short of breath and had a severe, hacking cough. His history showed that he had been a heavy drinker and a hard worker. He had had scarlet fever when a boy and typhoid fever later. His family history was negative. He had been in the City Hospital before and his case had been diagnosed as one of mitral insufficiency; he had also been in Bellevue for the same complaint. His present illness had lasted for several weeks before his admission. At the time of admission he was dyspneic and cyanotic. His neck was full and the veins pulsating and there was a constant, brassy cough. The posterior bases of the lungs were dull and there seemed to be some fluid present. There was dullness in the precordium at the sixth interspace and two inches to the right of the fourth costal cartilage. The pulsations were from 140 to 150, which made it difficult to make out the murmurs. However, there were murmurs in the mitral and tricuspid areas. The abdomen was full and tense and there were systolic pulsations of the liver expansile in character. He was edematous from the waist down; the legs were blue, pigmented, and very edematous. There was a thrill in the radial, posterior tibial, and femoral veins heard on auscultation as a high-pitched bruit. Dr. Camac had had Dr. Bailey make tracings in this case. Pulsations in the peripheral veins were due to three causes, a contiguous artery, junction with an artery varix, or impulse carried through the vessels to the peripheral veins.

The Diagnosis and Treatment of Chronic Gonorrheal Arthritis.—Dr. Charles C. Ransom read this paper, in which he stated that the recent work of Nichols and Richardson on the nontuberculous diseases of the joints had shown the similarity of the lesions in all forms of arthritis. This work had also shown the futility of attempting a diagnosis from the appearance of the joints or from the existing pathological lesions alone, hence in order to make a diagnosis it was necessary to direct their attention more closely to the clinical history of these affections and to their etiology. While gonorrheal arthritis as a complication of gonorrhea did not occur very frequently, occurring in only two per cent. of all cases according to Fournier and Jullien, as a form of infectious arthritis it was quite common. It might affect any articulation even the articulation of the cervical vertebræ and the articular surfaces between the greater and lesser cornua of the hyoid bone. Dr. Ransom had recently seen a case in which the arthritis began in the temporomaxillary articulation. It might also affect the bursæ. The chronic form was almost invariably polyarticular, although the acute form was monoarticular in about 40 per cent. of the cases. From the joint changes alone it was impossible to say what the causative factor of the disease might be. Of course where there was a direct history of gonorrheal infection accompanied or immediately followed by an acute arthritis, persisting long after the urethritis had disappeared, the diagnosis was evident, but frequently it was so remote that there did not seem to be any relation between the gonorrhea and the arthritis. There was a method, however, which gave positive information in the vast majority of instances even of the obscure cases of long standing, which was employed as a routine at the City Hospital. This was the endoscopic examination of the urethra for erosions or ulcerations. These lesions occurred for the most part in the anterior urethra, though they were occasionally found in the posterior urethra and in a few instances the focus of infection existed in the seminal vesicles alone. These lesions were recognized as denuded granular patches, deeply red in color, which bled readily when touched. The lesion in the seminal vesicles was recognized by the thickened sclerosed condition of the vesicles on palpation. The possibility of an arthritis being indefinitely continued by the toxin from an infected focus remotely situated and in itself giving no symptoms was conceded, he believed, by all. Instances in which chronic processes in the joints were arrested by the removal of the tonsils and others in which the joint conditions were cured by the healing of the erosions in the urethra justified such a conclusion. The treatment obviously consisted in healing the erosions. For this purpose he used a 10 to 20 per cent. solution of nitrate of silver every fifth day. Urethral discharges were treated in the usual way. In order to give a better idea of the value of this treatment Dr. Ransom cited a typical case in which a complete cure was effected. While one could in the vast majority of cases in the male reach a positive diagnosis of gonorrheal arthritis by the method described it was obviously not possible to locate the focus of infection in the majority of female cases. In the search for a method which would give definite information a series of observations were carried out to determine whether gonorrheal vaccines would produce definite reactions in all such cases. The results of the experiments were shown upon a chart. There were ten cases in all. In only one case of gonorrheal arthritis was there any elevation of temperature; this was two hours after the injection when the temperature went to 100.6° and reached the highest point four hours after the injection when it was 100.8°. As these cases frequently had a slight elevation of temperature with an exacerbation of the joint trouble, and as none of the other cases showed a similar rise, they were not justified in attributing the rise of temperature to the vaccine. The reaction was not distinctive enough for a diagnosis.

Dr. George Reese Satterlee spoke of his work with the gonococcus vaccines where he had noted that the reaction was accompanied by very little change in the leucocyte count, but by most marked pain in the joints. He had started with injections of 20, then 50, and later 150 million dead gonococci, and reactions had been extremely well marked. Though no cultures were taken from the joints, the pain was probably caused by toxins produced and not by the gonococci themselves. In old cases there were probably no gonococci present in the joints.

Multiple Noninflammatory Necroses of the Liver, with Jaundice, in Chronic Cyanosis of the Liver.—Dr. Horst Oertel of the Russell Sage Institute of Pathology presented a liver derived from a young man, 25 years of age, who entered Dr. Potter's service, at the City Hospital on December 3, 1909, with typical symptoms of mitral stenosis and evidences of general stasis. These symptoms became aggravated and he rapidly developed considerable edema, fluid in the chest, pulsating veins, and pulsating and distinctly enlarged liver. On October 8 there was observed for the first time faint jaundice; his leucocyte count was 8,400. On October 11 the jaundice had become marked with occasional vomiting of brown fluid. The stools were formed, brown, and contained some blood. On October 13 there was epistaxis, and considerable blood in his sputum. On October 16 his jaundice deepened; hemorrhage occurred from the bowels. The stools were loose, yellowish, and contained mucus. He rapidly became weaker and died on October 18. The clinical diagnosis was mitral stenosis, general stasis, with doubtful infectious cholangitis. The autopsy disclosed a mitral stenosis due to fibrous and vegetative endocarditis with relative triscuspid insufficiency, slight hypertrophy of the left, and marked hypertrophy and dilatation of the right side of the heart. The other valves were well preserved. There was a double hydrothorax. Emphysema

and edema of the lungs with numerous infarctions were present. The abdominal cavity contained a liter of dark, reddish brown fluid. The liver came to the costal margin. There was slight distention of the gall-bladder with a few adhesions around the common duct. The liver itself weighed 1,000 gms. and measured 23 cm x 12 cm. It was smooth, and distinctly deeply greenish jaundiced. On section it cut relatively easily. Its cut surface was smooth, and while the normal markings had entirely disappeared, it showed a distinct pattern of hemorrhagic spots and streaks on a distinctly greenish ground color. In places, the hemorrhagic markings were obliterated, or at least much lessened, by a uniform pale greenish color. Microscopical examination showed a lesion entirely distinct from the result of uncomplicated stasis. The lobular structure had disappeared and given way to an irregular, streaky, central necrosis and fatty metamorphosis leading to disorganization of the liver lobules. The central veins were dilated; their walls frequently hyaline and swollen. Immediately surrounding them the liver tissue was necrotic with remnants of liver cells, frequently still lying within the reticulum, much free blood, some bile pigment, and fat. While the origin of the lesion appeared distinctly around the central veins, the distribution, like that of stasis, was irregular, and in streaky fashion ran from one lobule into another. At the periphery of these necroses, which terminated apparently more or less abruptly, were usually fairly well preserved liver cells, although these also showed edematous swelling, and in places beginning vacuolization of their protoplasm. Between them were dilated blood and bile capillaries, and the inter- and intracellular bile capillaries filled with bile were occasionally prominent. Of particular interest was the fact that the process of necrosis was not that usually observed in inflammatory destruction of liver tissue with the formation and coagulation of dead protoplasmic masses but appeared to be simple solution of liver cells, associated with vacuolization and central fat infiltration, leading to marked swelling of these cells. The faint nucleus, cell membrane, and the reticulum were retained well towards the last. The nucleus also showed only evidences of fading, chromatolysis. Fibrin could not be demonstrated in these sections. Clinically and anatomically this case differed from the results of uncomplicated stasis. Clinically it could be well differentiated by the progressing, deep jaundice, and anatomically by its cytolytic and fatty cestral necrosis and jaundice, leading to destruction of the architecture of the involved parts and setting free of blood and bile pigment. Peripherally, dilated blood and capillary vessels, bile stasis and edematous swelling and beginning occasional vacuolization of the cells were present. Entirely absent were evidences of an inflammatory character, any involvement of the larger bile ducts, or portal changes. The relation of this change to the chronic severe cyanosis and its immediate cause was still a matter for discussion. Originally he had stated that he was not inclined to think that the stasis and the necrosis with jaundice stood in direct genetic relation, but he believed that the lesion was due to a toxic invasion resulting in cytolysis. Continued studies, however, had associated the lesion so definitely with cases of advanced venous congestion and followed so definitely in its course, that he rather tended towards the view that a relation to it must exist. Two possibilities must be taken into consideration. One was that the lesion represented an additional infection from outside. Investigations for bacteria in these sections had not disclosed any support for this view. Further, the absence of any inflammatory reaction on the part of the liver might also be argued against it. On the other hand, it might be assumed, and he tended towards this view, that during the process of cell atrophy and stasis, the formation of cytolitic ferments might occur, inaugurating the terminating lesion. The passive features of the process, which were so characteristic, might be cited in support of this view.

An Unusual Form of Leukemia.—Dr. Lindsay S. Milne reported this case occurring in a well-developed, robust man, twenty-three years of age, Greek, who had come under observation in the City Hospital for the early secondary stage of syphilis, eighteen months before the date of his death. His inguinal glands at this time were slightly swollen, but his spleen and liver were not apparently enlarged. His urine showed no special change. He had suffered from gonorrhea five months previous to his coming to the hospital, but had no special illnesses before this. He remained five weeks in the hospital, being extensively treated with mercury injections. He continued these injections at his home for six months, and took internal mercury treatment for four months after this. He reentered the City Hospital in Dr. Camac's service, six months before his death, complaining of swelling of the glands of his neck which had lately commenced. He also had an enlargement of the axillary and inguinal glands, of rather more recent origin. His blood gave a positive Wassermann reaction and he was very weak and anemic. The spleen was found to be four finger-breadths below the left costal margin, and on the right side the liver extended three finger-breadths below. His blood count at this time showed: Red blood corpuscles, 3,400,000; hemoglobin, 55 per cent.; leucocytes, 52,000; polymorphonuclear, 10.5 per cent.; transitionals, 3.4 per cent.; myelocytes, 5.6 per cent.; eosinophiles, 1 per cent.; eosinophile myelocytes, 1.3 per cent.; small lymphocytes, 11.2 per cent.; medium sized lymphocytes, 30.7 per cent.; large lymphocytes, 12.5 per cent.; transitional lymphocytes, 6.8 per cent.; large mononuclears, clear cytoplasm, vesicular nucleus, 8 per cent.; medium sized, finely basophile granular mononuclears, 1 per cent.; large sized, finely basophile granular mononuclears, 2.9 per cent.; mast cells, 0.7 per cent; normoblasts, 4.1 per cent.; megaloblasts, 0.3 per cent. His weakness increased rapidly. The cervical glands, as well as those in all the lymphoid situations throughout the body, became rapidly larger, and breathing through his nose became progressively more difficult. He developed effusions, which had frequently to be removed, from his left pleural cavity, and occasionally also from the right. The spleen increased considerably in size and his anemia became much more noticeable. The leucocytes in his blood varied from 30,000 to 73,000, a rather larger number being present just before death. The relative proportions remained about the same, the eosinophiles and the neutrophile myelocytes, became slightly increased, the neutrophile polymorphs slightly reduced, while the large finely basophile mononuclears rose finally to 8.9 per cent. The number of normoblasts remained proportionately about the same, but the megaloblasts had increased to 2.7 per cent., on the day of his death. The red blood corpuscles had become progressively reduced, as also the hemoglobin; the color index however being always under one. His temperature had a slightly daily variation, as an average rising in the evening to between 99.5° and 100°, but sometimes reaching 100.8° as a maximum and 97.6° as a minimum. Various medications, including arsenic, mercury, and iron were used with no apparent improvement. At autopsy, the lymph glands all over the body were found greatly enlarged, firm, elastic, more or less discrete, and of a pink color, although some were dark purple from hemorrhage. In the axillæ and groins some of these had attained the size of a hen's egg. Microscopically, these were shown to be enlarged not only by infiltration of cells from the blood, but also by an active proliferation locally. On opening the thorax several large lymph glands were seen in the anterior inner part of the right vault of the diaphragm. One large hemorrhagic gland was situated

at the inner anterior part of the left vault close to the attachment of the pericardium. The outline of the pericardium was regular and its outer surface smooth. On section it was found to be enormously thickened. Posteriorly, it measured 5 mm. in the middle, and 1 cm. in the upper part. The lower portion and the region of the apex were only very moderately thickened. Anteriorly, however between the levels corresponding to the fourth rib and the upper border of the manubrium sterni, there was a very special thickening, about 4 cm. in diameter. This was in direct continuity with the pericardium and below the level of the fourth rib gradually became thinner, towards the apex being only about 3 mm. in thickness. This extensive pericardial thickening was very firm, apparently fibrous and of a pale yellow pink color. In its upper part it included several small lymph glands, some of which were hemorrhagic. The bronchial glands were considerably enlarged some of them also being dark red from hemorrhage. Microscopically, this condition in the upper part of the pericardium was found to be composed for the most part of fairly dense fibrous tissue, including very frequent rather ill-defined lymphoid foci which resembled closely the structure of hyperplastic infiltrated lymph glands in other situations. The appearances observed in this mass did not correspond to a tumor growth, but seemed to be the result of hyperplasia of the anterior mediastinal glands and most probably also of the thymus, although no Hassall's corpuscles were found. This was associated with extensive chronic inflammatory matting, and leukemic infiltration also to some extent had assisted in the process. There were not in the glands throughout the body nor in the pericardial thickening any evidences of tubercle, nor indeed were there any signs which made syphilis in any way a certain factor. No spirochetes were found in any situations throughout the body. The left pleural cavity contained a large amount of blood stained fluid. The pleura showed a chronic thickening due, as seen microscopically, to leukemic infiltration and chronic inflammation. The heart was dilated and flabby. The spleen weighed 900 gms. and was 21 cm. long by 14 cm. wide. It was of a dark reddish color and moderately firm. The Malpighian bodies were markedly enlarged, appearing as white spots through the section. Microscopically, the perivascular spaces were considerably distended by accumulation of cells. The sinuses also were frequently almost filled with, for the most part small, mononucleated cells. All the types seen in the blood were to be observed in these sinuses. There seemed, however, to be a very considerable proliferation of the lining endothelium. In some of the cells of this proliferation there were apparently distinct evidences of new formation of nucleated red blood cells. Some of the endothelial cells also seemed to be the seat of a deposit of coarse eosinophile granules, at first, apparently deposited around or on one side of the nucleus. These coarsely granular cells often attained considerable size and they all possessed a homogeneous, small, darkly staining nucleus. Some of them could be observed in process of direct division, and some also could be observed in the perivascular tissues. They never, however, assumed quite the appearances of the eosinophile myelocytes, as observed in the peripheral blood. The liver was moderately enlarged, weighing 2,150 gms., and, microscopically, showed a considerable deposit of hemosiredin pigment in the liver cells, and in the portal spaces a considerable infiltration consisting mostly of lymphocyte like cells although the other types seen in the blood were also represented. Many of these cells were situated perivascularly, but the capillaries themselves frequently were crowded with nucleated cells. To some extent in the perivascular spaces, but more in the interior of the vessel, there could be observed a relatively large number of coarsely granular eosinophile cells, mostly small, frequently appearing attached to the vessel wall, and containing small round homogeneous darkly staining nuclei, and were similar to those observed in the spleen. The lining endothelium of the capillaries, in isolated places in the interior of the lobules, also showed considerable proliferation, some of this apparently assisting in the production of leucocyte types, such as were seen in the blood and, to a small extent, the formation of nucleated red blood corpuscles could be determined. The kidneys were extremely enlarged, the left weighing 700 gms., the right 750 gms. and were for the most part pale, but very numerous hemorrhages were scattered chiefly through the cortex. Microscopically the enlargement was due, besides the hemorrhages, to a very extensive leukemic infiltration. In the perivascular spaces, besides a large number of small mononucleated cells, small clumps of relatively large cells having some of the appearances and giving the reaction of plasma cells, could frequently be observed. These cells generally contained numerous fine granules and some of them could also be seen isolated in the kidney capillaries. They did not quite resemble any type found in the peripheral blood. The intestines showed no specially abundant aggregations of lymphoid tissue. The bone marrow was unusual for any case of leukemia, being dark red in color and almost wholly erythroblastic. There was a relatively small infiltration of leucocytes from the blood, but only a very slight formation of polymorphs, myelocytes, lymphocytes, and eosinophiles. The reason for this almost exclusively erythroblastic marrow might have been that the destruction and loss of red blood cells was specially severe, and that the bone marrow, the usual site of new blood formation, became, of necessity, practically entirely devoted to its production, assisted to a small extent, as has been mentioned, by the spleen and liver. A great proportion of the leucocyte types found in the blood were evidently derived from some other sources than the bone marrow. The greater part of the lymphocyte like cells, for instance, were evidently derived from proliferative processes in the lymphatic glands and from endothelial surfaces in the other tissues. In connection with the consideration of the development of the neutrophile and eosinophile myelocytes in the blood, it may again be noted that numerous coarsely granular eosinophile cells were found in apparently all stages of formation in the spleen, to a less extent in the liver, and occasionally in the lymphatic glands. Also, in the kidneys, were found clumps of large very finely acidophile granular cells which, of course, may have been formed by local proliferation from some of the cells which penetrated from the blood and locally developed, but also presented evidences that some of them got into the blood subsequently. These may then have been responsible for the production of some of the myelocyte cells observed in the peripheral blood. Occasionally also in the peripheral blood the myelocytes of both types could be observed in process of division. There seemed to be, then, in this case, some evidence which would lead to support Maximow's idea that myeloid tissue may be formed from any endothelial surface in the body, and not only from the bone marrow. This case, in conclusion, presented several interesting features, in being of a more or less mixed type of leukemia for some considerable time. Anemia, although usual in leukemia, was in this case particularly prominent and was associated with a very special degree of regeneration of red blood cells. One might almost place it in the category described by v. Leube as "leukenemia," where leukemia of either variety is associated with anemia of the pernicious type. Sternberg has designated a type, which in some ways resemble this case, as "leucosarcomatosis" or an associated lymphosarcoma with leukemia. The present case, however, differed from the type described by Sternberg, in the blood picture and in there being no definite evidences of tumor growth in

the anterior mediastinum, lymphatic glands, or elsewhere. The condition appeared to be due to some chronic toxic process associated with marked blood destruction and extensive reactive changes in the tissues, particularly of the lymphatic glands, spleen, liver, etc. It is known that various intercurrent diseases can, to some extent, modify the appearance of the blood in leukemia and in this relation the question arises as to whether syphilis was merely a coincident process, a modifying condition, or even the essential etiological factor in the disease.

Report of Standing Committee and Other Observers Regarding the Symptom Complex as Communicated by Dr. N. E. Brill at the January Meeting.—Dr. C. N. B. Camac reported that he had a letter from Dr. David Bovaird stating that he had had a case showing the symptom complex as set forth by Dr. Brill and he called on Dr. Elsberg of Mt. Sinai Hospital who gave the history of a case of acute infectious fever of unknown origin. Dr. Camac stated that a meeting for the discussion of this subject had been planned for next December when physicians from Boston, Philadelphia, and Baltimore who had been studying cases of this nature would be present. In the mean time he hoped that physicians would be on the lookout for cases of this kind and would report them.

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Syphilis. By Sir Jonathan Hutchinson, F.R.S., LL.D., F.R.C.S. 12mo; cloth; 583 pages; illustrated; $3.00 net. Funk & Wagnalls Co., New York.

The Diagnosis of Smallpox. By T. F. Ricketts, M.D., B.Sc., M.R.C.P., D.P.H. 8vo; cloth; 154 pages; illustrated; $6.00 net. Funk & Wagnalls Co., New York.

Radiumtherapy. By Wickham and Degrais. 8vo; cloth; 306 pages; illustrated; $5.00 net. Funk & Wagnalls Co., New York.

An Epitome of the Diagnosis and Treatment of Nervous Diseases, including Bromide Therapy. Henry Irving Berger, M.D. 16mo; cloth; 42 pages; illustrated. Peacock Chemical Co., St. Louis, Mo.

Metropolitan Water and Sewerage Board, Ninth Annual Report, December, 1900. 8vo; cloth; 272 pages; illustrated. Wright & Potter Printing Co., Boston, Mass.

Studies from the Rockefeller Institute for Medical Research. 225 pages; paper; 8vo; illustrated. Institute, New York.

International Clinics. Edited by Henry W. Cattell, A.M., M.D. 8vo; cloth; 304 pages; illustrated. J. B. Lippincott Co., Philadelphia, Pa.

The Vegetable Proteins. By Thomas B. Osborne, Ph.D. 8vo; cloth; 125 pages. Longmans, Green & Co., New York.

Proceedings of the Royal Society of Medicine. 8vo; paper; 148 pages. Longmans, Green & Co., New York.

Die Erkrankungen der Flexura sigmoidea. Von Prof. Dr. Th. Rosenheim. 8vo; paper; 78 pages; 1.80 marks. Carl Marhold, Halle, Germany.

Operative Surgery. By John J. McGrath, M.D. 8vo; cloth; 653 pages; illustrated; $5.00 net. F. A. Davis Co., Philadelphia, Pa.

Précis du Traitement des Fractures par le Massage et la Mobilisation. Par le Dr. Just Lucas-Championnière. 12mo; paper; 268 pages; 3 fr. 50. G. Steinheil, Paris, France.

Le Greffe Ovarienne Historique; Resultats Cliniques and Therapeutiques. Par le Docteur Ivan Scheurer. 8vo; paper; 182 pages; illustrated; 4 fr. 50. G. Steinheil, Paris, France.

Klinik für psychische und nervöse Krankheiten. Von Robert Sommer. 8vo; paper; 196 pages; 12 marks. Carl Marhold, Halle, Germany.

Die bakteriologische Untersuchung im Dienste der Diagnostik und Prognostik der puerperalen Infektion. Von Prof. Dr. W. Zangemeister. 8vo; paper; 36 pages; M., 1.50. S. Karger, Berlin, Germany.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of September 24, 1910:

	Cases	Deaths
Tuberculosis Pulmonalis	662	156
Diphtheria	188	19
Measles	51	6
Scarlet Fever	82	4
Smallpox	—	—
Varicella	9	—
Typhoid Fever	133	11
Whooping Cough	50	5
Cerebrospinal Meningitis	6	2
Malarial Fever	—	—
Totals	1,181	203

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, during the week ended September 23, 1910:

CHOLERA.

PLACE.	DATE.	CASES.	DEATHS.
China, Amoy	Aug. 7-13	3	3
Hankow	Aug. 7-13	2	1
India, Bombay	Aug. 10-16	..	4
Calcutta	July 24-30	..	9
Madras	Aug. 6-12	..	3
Negapatam	July 16-29	..	31
Japan Osaka	Aug. 6-13	1	..
Yokahama	Aug. 22	1	..
On s.s. Siberia from Shanghai			
Java, Batavia	Aug. 1-6	20	15
Philippine Islands, Manila	July 24-Aug. 6	35	27
Provinces—			
Batangas	July 24-Aug. 6	62	31
Bulacan	July 24-Aug. 6	194	138
Cavite	July 24-30	2	2
Mountain Province	July 24-30	1	1
Nueva Ecija	July 24-Aug. 6	129	88
Pampanga	July 24-Aug. 6	85	74
Pangasinan	July 24-Aug. 6	689	522
Rizal	July 24-Aug. 6	75	51
Tarlac	July 24-Aug. 6	30	18
Union	July 24-30	1	..
Russia, general	Aug. 1-13	14,771	10,473
Astrakhan, government	Aug. 1-13	604	273
Don, territory	Aug. 1-13	6,802	3,020
Kaluga, government	Aug. 1-6	13	3
Kharkov, government	Aug. 1-6	450	191
Khazan, government	Aug. 1-13	1,176	484
Kherzon, government	Aug. 7-13	916	352
Odessa	Aug. 14-20	41	26
Kief, government	Aug. 1-13	425	125
Kostroma, government	Aug. 1-13	1,406	587
Kuban, territory	Aug. 1-13	4,067	2,179
Kursk, government	Aug. 1-13	1,618	413
Livonia, government—			
Riga	Aug. 1-6	1	..
Minsk, government	Aug. 1-13	210	66
Mohilev, government	Aug. 1-13	67	27
Moscow, government	Aug. 1-13	23	16
Nizhninovgorod, government	Aug. 1-13	847	338
Novgorod	Aug. 1-13	148	59
Orel, government	Aug. 1-13	200	72
Orenburg, government	Aug. 1-13	466	251
Podolia, government	Aug. 1-13	219	78
Pensa, government	Aug. 1-13	306	103
Poltava, government	Aug. 1-13	798	349
Riasan, government	Aug. 1-13	788	305
St. Petersburg, government	Aug. 1-13	157	53
St. Petersburg	Aug. 1-13	1,115	380
Samara, government	Aug. 1-13	3,532	1,466
Saratov, government	Aug. 1-13	1,260	404
Simbirsk, government	Aug. 1-13	815	332
Smolensk, government	Aug. 1-13	14	8
Stavropol, government	Aug. 1-13	1,298	603
Tambov, government	Aug. 1-13	1,253	562
Tchernigov, government	Aug. 1-13	183	63
Viatka, government	Aug. 1-13	123	64
Ufa	Aug. 1-13	346	209
Voronesch, government	Aug. 1-13	934	416
Yaroslav, government	Aug. 1-13	473	229
Yekaterinislav, government	Aug. 1-13	4,244	1,794
Straits Settlements, Singapore	July 24-30	17	12

YELLOW FEVER.

Brazil, Manaos	Aug. 14-20	4	4
Para	Aug. 21-27	16	11
Pernambuco	May 16-21	..	1
Ecuador, Guayaquil	Aug. 1-15	9	1

PLAGUE.

Brazil, Pernambuco	June 16-30	..	1
Chile, Iquique	Aug. 1-6	1	..
China, Canton	Aug. 1-6	5	4
Hongkong	July 24-Aug. 6	4	4
Ecuador, Guayaquil	Aug. 1-15	10	3
India, Bombay	Aug. 10-16	..	26
Calcutta	July 24-30	..	11
Rangoon	Aug. 1-6	..	14

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Original Articles.

THE CARBOHYDRATE DIATHESIS.

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In June and July, 1904, the author published a paper in the *New York Medical Journal* entitled "The Carbohydrates as Ætiological Factors in Stomach Disorders," in which he endeavored to show that most of the socalled idiopathic indigestions or dyspepsias were due to dietetic errors, particularly the ingestion of sugars and starches in excess. Necessarily this does not include indigestions arising from other causes. In other words, if no constitutional or organic disease or dyscrasia; no local inflammation such as appendicitis or cholecystitis; and no functional disorder as hysteria or neurasthenia exists—all of which give rise to digestive disturbances, and the individual suffers from indigestion—then sweet and starchy foods in quantity or in kind are responsible. They give rise to local disturbances by the inability of the stomach to handle them and more remotely through their fermentation; and resulting products are responsible for a large number of pathological conditions commonly referred to as due to errors in metabolism.

About one year after the above-mentioned publication, the author published another paper in the same journal treating of one group of these remote effects, in which he stated that he believed that all true rheumatisms were the result of an autointoxication from carbohydrate fermentation when this group of foodstuffs was taken in excess and not properly assimilated. The object of this paper is to extend the clinical observations resulting from the remote effects of carbohydrate ingestion, and at the same time to confirm and accentuate the opinions expressed in the aforesaid publications.

The sources from which medical facts crystalize are numerous. One of the most important is clinical observation. In recent years this appears to have played a subsidiary rôle when viewed in the light of the dazzling discoveries in pathology, bacteriology, physiology and physicochemistry. At present, unless one can demonstrate a clinical observation by a mathematical calculation, or make it subserve Koch's laws, it will probably be received with incredulity by the profession at large. Clinicians, however, believe that many physiological functions are peculiar to vital cell protoplasm and cannot be elucidated through the agency of the microscope or test-tube experiments. As clinical observation was the first method by which a true understanding of morbid conditions was obtained, so it stands to-day an important factor with the aid of modern methods of research in the interpretation of morbid phenomena. The subject must be treated clinically in this paper, and the conclusions drawn are based upon evidence accumulated in the observations of years under specially favorable conditions.

The observations upon which this article is based began in Montreal, were continued in New York, and during the last three and a half years in the tropics. The opportunities to confirm and extend them have been so numerous and convincing that the writer feels that the presentation of them is now due the profession. Before discussing the observations made, I wish to predicate a few important physiological facts bearing directly on the subject. (a) Man belongs to that great group of animal life classified by Bergmann as homoiothermic, because they maintain a more or less constant temperature, irrespective of the environment. (b) In order to maintain that temperature, water, oxygen and a certain amount of organized food material is necessary. (c) Through the medium of cell metabolism, physiological changes are brought about in them by which the cells are nourished, waste products eliminated and heat generated; the whole process regulated by a more or less automatic nervous mechanism. (d) As more heat is dissipated in cold climates than in warm, necessarily food with less energy-producing units or calories is required in the latter than in the former. If the same dietary be maintained, undoubtedly a greater amount of work is thrown on the heat-regulating mechanism and the eliminating organs in the summer, resulting in irritation, if not pathological changes. (e) Exercise also plays an important rôle. Landois states that per kilogram of body weight a man at complete rest requires from 32,000 to 38,000 calories; at light work, requires from 35,000 to 45,000 calories and at hard work requires from 50,000 to 70,000 calories. (f) According to Liebig (taken from Landois), "foodstuffs subserve two purposes, namely, as plastic for the growth of the body, and, as respiratory, for the generation of heat. The former includes especially the albuminates, the latter especially the non-nitrogenous carbohydrates and fats." (g) Landois also states that 80 grammes (2¾ ounces) of proteid is absolutely necessary for the proper nutrition daily of a man weighing 154 pounds, and from three and a half to four and a half times as much carbohydrates and hydrocarbons. (h) If food stuffs are not taken in approximately the proper proportions, necessarily the excess must be eliminated and the human organism is called upon to do this not only by its own vital mechanism, but through the aid of bacteria which plays such an important rôle in physiological processes. Redundant or effete matter nature takes care of either within or without the body through bacterial fermentation and oxidation processes.

With these physiological premises in view, in combination with clinical observations, are based the conclusions which follow. The carbohydrates in excess are subject to fermentation, chiefly in the

stomach, but also in the intestines. There are two distinct forms of carbohydrate food which require discussion separately, as they give rise to a different symptomatology, namely, sugars and starches. The sugar eater has usually a very red, irritable tongue, rapidly recurring hunger, with a ravenous appetite quickly and easily satisfied, red fauces, a tendency to heartburn and ineffectual belching. Children are anemic, badly nourished, pasty looking, irritable, restless, particularly at night, suffer frequently from enuresis; they have decaying teeth, are constipated, at times alternating with diarrhea; are subject to rheumatism, chorea, iritis, recurring bronchitis and sore throat. In early infancy they are always prone to gastrointestinal disturbances and are the victims of eczema on the head and face.

The starch eaters are those who partake freely of bread, toast, potatoes, yucca, yams, etc. They are prone to take on flesh, are anemic, have flabby, tooth-indented, coated tongues, bad breath, chronic pharyngitis, and chronic cough, have little desire to eat, but when the first food is taken in the stomach, the appetite is stimulated and they eat enormously. One or two hours after eating they have left hypochondrial distress, belch large quantities of gas, have cardiac asthma, are constipated. They suffer from rheumatism, acute or chronic, lassitude, mental lethargy and drowsiness. The women are the subjects of dysmenorrhea and all forms of catarrh. Children handle starchy foods better than adults, but tend to become potbellied and anemic. I have pictured here the two extremes and they merge gradually into each other, depending upon the nature and quantity of the two classes of food ingested.

It does not lie within the scope of this paper to detail further the reason why this fermentation takes place. That has already been done in a former paper. I wish, however, to lay particular stress on the symptomatology of the conditions referred to, both local and remote. During three and a half years' residence in the tropics I have had unusual opportunities of studying the effects of diet in people of all ages, races and classes, and from the observations made and the results obtained, feel convinced that the carbohydrate diet in the tropics and in all warm climates is responsible for a very large percentage of the suffering of the human race. Although this country is prolific in a great variety of fruits, the Panamanians seldom use them as articles of food, except in the form of sweet drinks. Green vegetables are equally sparingly used. Their food consists chiefly of meats, fish and poultry, rice, potatoes, yams, yuccas and sweets in all forms and great profusion. In other words, a meat and starch and sweet diet practically devoid of fruit and green stuff. Until recently the Canal Zone population has been compelled to adopt a similar diet. The supply of green vegetables and fruits has been inadequate. In lieu thereof, canned goods, bread, rice, potatoes (Irish and sweet), syrups, artificial honey and rich jams are consumed in great quantity. The results of such a diet are seen so frequently and yield so promptly to treatment that there appears to be no doubt as to their etiological importance.

Climatic conditions here throughout the year are similar to the northern summers in temperature, but, owing to the great humidity, are conducive to more inertia, consequently less physical exercise. If then, because of the high temperatures, because of the inertia, a heat producing, energizing diet is taken, can we expect otherwise than a fermentative process with clogging of the emunctory organs in their efforts to eliminate what should not be taken? It is certainly surprising and satisfying to both physician and patient to observe the results when the sweet and starchy foods are substituted by fresh fruits and green vegetables and the starches thus reduced to a minimum. Some will states that they cannot tolerate fresh fruits, that they "sour on their stomachs." That is invariably true when patients are suffering from the acid stomach of a sugar indigestion, but when the diet and acidity are corrected, fresh fruits are tolerated in almost any form, and the natural sugars in them do not suffer the fermentative change.

As stated in a previous article, sugars in the stomach are prone to become oxidized in some of the organic acid series, which are locally irritating, and being very diffusible, are readily absorbed. The starches, though giving locally a different symptomatology because of their bulk and the difficulty of acidulating the mass, permitting CO_2, fermentation and flatulence, utlimately in part result in sugar and intermediate products and are prone to the same processes. Practically, then, almost all forms of stomach disorders can be referred directly to the action of these foods alone or in combination. The chronic pharyngitis so common north is more so here and results from the regurgitation of the gas and acid stomach contents. Here also is the secret of the early decay of the teeth and the stomatitis so comonly met with. Constipation is also a direct result of this dietetic diathesis with sporadic diarrheas, the latter particularly in children. Constipation is invariably associated with, if not responsible for, the anemias so common in all countries. When anemia supervenes with its consequent relaxed mucous membranes and atonic blood vessels, we have the potent factors in all catarrhal conditions, nasal, bronchial and vaginal. This combination of anemia and gastric hyperacidity due to sugar fermentation, I believe, also leads directly to gastric and duodenal ulcer. Even appendicitis has its history of constipation always, and the frequency of its occurrence among our patients certainly suggests the same cause. Whether the carbohydrate diet be directly responsible for the above-named conditions or not, one thing is certain, that when it is replaced by a fruit-vegetable diet, chronic constipation, indigestions and anemias, whether of short or long standing duration, disappear and the patients recover. Clinical evidence is abundant in confirmation of this statement.

We now come to a consideration of the effects of the absorbed products of carbohydrate fermentation when circulating in the system. In a former paper the writer stated his belief that all true rheumatisms and rheumatic phenomena were caused by the irritating products of gastrointestinal fermentation, chieflly carbohydrate acting on fibrous connective tissue on which it is selective. Fibrous connective tissue is the supportive tissue of all cell units in the organism, and in consequence, every part of the body is susceptible to the action of the rheumatic poison, the localization of which is determined by physiological congestion or injury (I say true rheumatisms in contradistinction to the socalled rheumatisms, or rheumatic pains occurring in such affections as chronic nephritis, syphilis, locomotor ataxia, pachymeningitis, herpes zoster, compression myelitis, etc., etc. In the carbohydrate group of rheumatic phenomena we have a great many different manifestations because of localization, but all due to the same or related toxic substances. I will chiefly

enumerate them: endocarditis, pleurisy, arthritis, tonsilitis, neuritis, iritis, corneal ulcers and chorea. When the connective tissue in the muscles is involved, we have muscular rheumatism, and when the modified connective tissue, cartilage, is involved, we have rheumatoid arthritis. Two other forms of rheumatism I wish now to mention hitherto not considered in this group. They are sufficiently important to be considered in separate articles. I refer to dysmenorrhea and enuresis. These two conditions to me were therapeutic problems I always hated to face. I never suspicioned their etiology and only guessed at the means of relief.

In carrying out the methods of diet here advocated, Dr. A. B. Herrick, in charge of the gynecological clinic, suggested the probable relationship of dysmenorrhea to the carbohydrate diathesis, as certain patients had been relieved of this trouble when dieted for other conditions. Since he drew my attention to this, I have investigated a great many cases and am in a position to confirm it in the great majority. I do not say in all. In other words, most dysmenorrheas are rheumatic due to the action of the poison in the connective tissues of the womb, and yield promptly to a rheumatic treatment of diet and salicylates. Recently a young lady under my observation was at a loss to understand why she had a painless period toward the end of Lent, which she kept by cutting out all sweets, and that is but one among many examples. Enuresis is but a rheumatic affection of the bladder and yields promptly to the same treatment. From an extensive experience in connection with the above-mentioned rheumatic phenomena, the writer is in a position, not only to affirm what he years ago contended in regard to the relationship of rheumatism and a carbohydrate diet, but to extend the scope of that relationship.

We now come to a consideration of the effects of the fermentative products on the eliminative organs. First on the alimentary tract. I have already referred to the sporadic diarrheas which occur and to the habitual constipation which is so general and its secondary effects. The worst effects, however, are seen in the enterocolitis of marasmatic infants fed on condensed milk, between 60 and 75 per cent. of which is sugar in some form. It is certainly striking what rapid changes are wrought when the infants are fed on a proper combination of this and the almost sugarless concentrated milks of commerce, diluted with water or barley water. On the kidneys also, which are called upon to eliminate so many products, the result of autointoxication, there seems to be a relationship between a carbohydrate diet and some of the insidious forms of nephritis commonly referred to as idiopathic. On the skin there is absolutely no doubt. Two great classes of skin affections are directly caused by a carbohydrate diet due either to the poison while circulating in the blood, or during its elimination by the skin. I refer to eczema and acne in all forms, acute and chronic. The manner in which they clear up on a carbohydrate free diet is one of the most striking things one sees in medicine. I have seen weeping eczemas in young people cease exuding in twenty-four hours and absolutely dry up and disappear in a week. The more chronic forms yield more slowly and usually require some digestive correctives as well, because of their chronicity. It is a frequent observation to see an acne eruption follow a sweet and pastry debauch, and I have had as brilliant results in this form of skin affection as in the eczemas.

One other group of conditions I wish now to discuss, the importance of which is such that mention should be made of it, though my observations have not been as extensive as I should like. Of the causal relationship there can be no question. I refer to the effects of a carbohydrate diet on the respiratory tract. That a relationship between recurring bronchitis and the sweet diet of childen exists, there is no doubt. I have had too many cases in direct proof. When, however, we consider that all constitutional conditions which produce a lowered vitality and a bronchial catarrh form a suitable nidus for the development of the tubercle bacillus, then the importance of diet becomes a serious problem, not only in the prophylaxis, but also in the treatment of this grave affection. We know and see here many cases of tuberculosis apparently provoked by an attack of neglected influenza which produces the conditions above named, and when we know that a carbohydrate diet tends to bring about a similar constitutional condition, and when we see here case after case of pulmonary tuberculosis, developing without hereditary factors or any other constitutional or exciting cause but that they have suffered for variable periods with indigestions, throat catarrhs, anemia, etc., and a carbohydrate diet history, then the relationship becomes more than casual.

I have seen here a child invalided from exceedingly severe recurring attacks of pharyngitis, tracheitis and bronchitis to such an extent (climate being presumably the exciting factor) that peremptory orders by physicians of repute had been issued for a northern sojourn, clear up absolutely in two weeks' treatment. In three months the child gained twenty-five pounds, and to my certain knowledge, has not had a sick day in two years. She is now eleven years of age. So many examples of similar conditions have come under my observation that where doubt existed a few years ago as to the etiology, now positive assertions can be made. I have spoken briefly in reference to a series of conditions and their etiology so apparently different in their manifestations that most physicians will, I fear, think that all bounds of credulity have been passed.

In support of the position I take that dieteic errors are responsible for a tremendous amount of human suffering, I desire to bring to my aid some of the principles of biology and evolution. It is a well-known fact that a fresh-water hydra can be divided in sections and each division develop into a perfect animal. It is a rudimentary organism with little cell differentiation. The higher the development of the organism, the more cell differentiation and cell specialization for physiological functions. The lobster can regenerate a discarded claw, or the lizard a severed tail, but they cannot regenerate as do the hydra. They are more specialized.

When we speak of man we get the highest type of cell differentiation and specialization, the process of countless years of development and subject to only the slowest degree of modification. In him generations are necessary to structural changes anatomatically and physiologically. We know of none that the microscope can detect in historical times more than can be seen through effects of climatic adaptation, and these are transitory, not permanent. You may, with care, train a carnivorous bird to adopt a graminivorous diet and vice versa, and with it there will be profound changes in the digestive organs. But a bird being much lower in the animal scale than man is more readily subject to modification by changed environment.

No scientific man believes to-day but what his evolution was through many ages, antedating probably by thousands of years the historical period. From what we have been able to glean from the footprints of his development, until quite recently, he lived under the most primitive conditions when meat, milk, fish, fowl, fruit, vegetables and cereals could be his only diet. No pastry cook lived in those days to leaven, dextrinize and modify his cereals; he ate them plain, or at most, cooked. Sugar was unknown, except as he chewed the sugarcane, a local product, or tapped the sugar maple, also a local product, or sought the honey of wild bees. In fruits chiefly, in a natural form alone, could he indulge. In other words, sweets was not a natural food and is not now a natural food for the morphologically related animal kind. Not then being a natural food, he developed nothing to take care of it in his stomach.

It is a well-known fact that in the human stomach sweets undergo no digestive change. There is no ferment, organized or unorganized, to digest cane sugar, and what is not of use is deleterious. If taken in solution on an empty stomach, sugars pass directly on into the intestine and there meet a ferment which converts them into assimilable products, but when mixed with food, they are retained until the whole mass is acidulated, and before they can pass into the intestine they are converted into the products so deleterious to all tissues. If we but reflect for a moment, we see that sweets and starchy foods form the greatest factors in our diet. The Irish potato, practically all starch, is a product of the 16th century, and to-day is ubiquitous in our dietary at least two meals a day. Bread is used in every meal, a fermented, partially dextrinized product, chiefly starch, but still containing some nitrogenous food.

Sugar forms a part of the meal in some form three times daily. It is a solid alcohol artificially extracted from cultivated plants, tubers, and the wild sugar maple similar in chemical composition to the starchy foods, more prone than they to fermentation, and more irritating products result. In the attractive manner sugars are now manufactured and sold in the form of sweets and candies to stimulate their consumption they have crept into every man's home. They have outrun in the amount of their use the physiological evolution of man and have become, I firmly believe, the greatest curse in modern civilization. I do not except alcohol in all its varied forms, and believe that a popular movement against their present method of use would do more to lessen human suffering than the temperance movement against alcohol. One often hears the statement that the suffering and pain so common in the higher walks of life are a concomitant result of the evolution of modern civilization. If so, modern civilization must be largely gastronomic, subject to rapid evolution and involution depending largely on diet.

Natural fruit juice is antiseptic and will not disagree if one is not a sugar eater. One has to examine the recent magazine articles on digestive fads of all kinds, to see the reason of their successes. A great many have hit upon the practical demonstration of the principles, herein taught, blindly. Some of them are the Salisbury treatment, Fletcherism, fasting, milk diets, physical culture, dietetic sanatoria, alkaline springs, etc., ad infinitum. They all mean a cutting out of sweets, an alkalinization of their fermentative products in the stomach, or an increase of exercise and massage to a degree to increase oxidation. One can handle much more of the carbohydrates in cold weather and during exercise than in warm weather and when living a sedentary life. That is why we have more indigestion, rheumatism, etc., among women than men, and among the sedentary living than the physically active. It is often difficult to get a true dietetic history. Patients attempt to conceal the use of sugar as they would shun an inquisition on alcoholism. One must take up each meal in order and endeavor to find the exact quantity used in the food and in drinks of all sorts; also the amount of candy consumed, ice creams and malted milks. It is surprising often to find what people consume in an ordinary diet. The candy shops with wide open doors to children of all ages where their gift pennies are spent are a veritable curse in the land, poisoning the youth of the country and undermining their physical and mental development. Can we find a more pitiable picture of their effects than in the emaciated, anemic, constipated child, with coated tongue, decaying teeth, fickle appetite, sporadically fed at all hours, fretful, irritable, sleepless, suffering from enuresis, rheumatism, chorea, frequently developing heart disease, dwarfed in its physical and mental development? This is the every-day picture of a sweet-eating child; or of a young girl suffering from one or more of the above, merging into womanhood, the victim of dysmenorrhea, resorting to sedatives and ill advised by members of our profession, subjecting herself to curettage, ovariotomy, etc., and finally deprived of that which makes for true womanliness, becoming a physical and neurasthenic wreck, the prey of all quacks and patent medicine venders. These pictures are not overdrawn. They are every-day occurrences in a clinical practice. They can be seen in numbers in every outdoor hospital clinic every year. Of such are our sanatoria filled, and we physicians too often say modern civilization, uric acid, and nervous prostration.

From my experience the following can be truthfully predicted: Granted a child is born perfectly healthy and free from constitutional taint, if properly fed and living in a good hygienic environment, he or she will suffer no illnesses, except those due to the infectious diseases, and then the resistance will be such that no fear need be entertained of the favorable outcome. The principles above advocated are those in vogue here and to their more or less general adoption, I attribute the low sick rate and exceedingly low infant mortality among those living in the Canal Zone under the care of our staff. One has but to read in our medical publications of the appalling death rate in most tropical countries to appreciate the results here obtained by this method of procedure. Enterocolitis, so fatal in warm climates, we rarely see in a white child, and then only as a result of parental carelessness. Among the poor, when canned condensed milk and patent foods are used, we find all our badly nourished, marasmic children with their enterocolitis, etc. Some of these are so advanced when we first see them that all treatment is futile. It is astonishing, however, from what profoundly morbid conditions they recover when properly dieted.

In conclusion I wish to summarize that patients suffering from one or more of the following affections are consumers of an excess of carbohydrate food: Indigestion, gastric ulcer, decaying teeth, stomatitis, constipation, chronic pharyngitis, true rheumatic phenomena in all forms, eczema, acne, recurring bronchitis, anemia, most dysmenorrheas,

enuresis, etc. I believe the diet to be indirectly responsible for appendicitis, and frequently tuberculosis. Physicians may think that the position I take is extreme, but I am forced to these conclusions by my clinical observations and all that I ask is investigation before condemnation. I am not stating what the exact nature of the products of carbohydrate fermentation is; that belongs to physiological chemistry; but I do contend that every statement above made can be abundantly verified clinically, and from a humanitarian standpoint, the results obtained are worthy of further investigation. In the tropics, unless engaged in active physical exercise, the nearer we keep to a diet consisting of meat, fish, poultry, milk, green vegetables, and fruit, the less suffering we have. In this combination we find an energizing, tissue forming, low heat-producing food, free from fermentative properties and containing enough of the indigestible vegetable cellulose to stimulate intestinal peristalsis and elimination. Sugars should not be consumed at all except in solution on an empty stomach, and then sparingly. The amount of starch ingested should be proportionate to the physical exertion involved.

RESULTS IN THE TREATMENT OF DIABETES MELLITUS.

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In considering the results which we may obtain in the treatment of diabetes mellitus, we should apply the standards which we employ in other chronic diseases.

When we are called in to see a patient with an old endocarditis, with damaged valves and broken compensation, a pulsating liver, edema, and ascites, we do not expect to cure him. We know that we cannot smooth out the crumpled and deformed valves, we know that we cannot even restore the muscle wall to the state which existed before his attack of rheumatic fever. If we are fortunate and skilful, we can, however, get rid of his edema, relieve his cough and dyspnea, and get him into condition so that he may be able to walk about on the level and, with certain limitations, enjoy life. We know only too well that sooner or later the patched-up heart will again give out, but this merely tempers our satisfaction in being able to relieve him, and does not keep us from attempting to restore his equilibrium.

The situation is very different if we are fortunate enough to get him under control early in the course of his disease: at this time it is much easier to restore the cardiac function and we can teach him to avoid the stress which for him is too great. He may even attain a considerable "margin of safety," and, under a proper regimé, may hope for life of many years—with limitations, it is true, but not necessarily useless or unhappy years.

The results which we can obtain in diabetes are closely comparable to those we reach in chronic valvular disease. Rarely do we cure a real diabetic. Personally, I should hesitate to say that I have ever seen one absolutely cured, for I have never seen a case which I was willing to designate a true diabetic, who did not have limitations which the normal man does not have. I have seen them go on for years under very slight restrictions, without a trace of sugar or acetone in the urine, without thirst or polyuria or loss of weight; in fact, without a symptom referable to diabetes—and yet these restrictions, small as they may have been, were necessary to maintain this condition of health. The cases which we get early and in which we can secure the cooperation of the patient are those for which we can usually accomplish much. The advanced cases, characterized by great carbohydrate intolerance, acidosis, and emaciation, are far more intractable, but even these we can usually arrest for a time; and though we are obliged to admit that eventually the course will be a downward progression, we can do much to reduce the hardships and avert the suffering. Boils and carbuncles, those tortures of the untreated diabetic, are almost unknown in those whose hyperglycemia is kept at a low level.

There are many important elements which make for the successful treatment of diabetes, but if I were asked to select the one factor which is fundamental and without which success is impossible, I should certainly place first of all *a systematic record*. This record should include not only the usual history of the case and frequent notes on the physical condition and subjective symptoms, but should also show in a tabulated form the details of the urinary findings, the weight, the diet, and the medication. For a number of years I have used such a record: it is a folding card, 13x6 inches; one side is used to record the usual facts of the history, symptoms, physical signs, etc.; the other side is especially ruled in columns and headed with the following titles: Date: Amount in 24 hours: Specific gravity: Albumin: Sugar: Polarization before and after fermentation: Acetone: Diacetic acid: Oxybutyric acid: Ammonia: Urea: Weight of patient: Diet (protein, fat, carbohydrate, calories): Medication. A single card of this size will afford ample space to record 20 distinct observations. This is not only a labor-saving device, but also will afford at a glance information in regard to the progress of the case, which makes one confident that he knows what is going on. The keeping of such a record has a direct effect on both the physician and the patient. The physician cannot watch such a record from week to week without being impressed by the value of attention to details; as his treatment improves the condition of his patients, his enthusiasm increases (to treat diabetes successfully, one must have a great deal of enthusiasm); but the enthusiasm which is of real value must be based not on guess work, but on facts recorded in black and white. To one who has followed cases in this way, the effect on the patient is equally obvious, his confidence is won, he sees the care and attention which is being devoted to him, and this in turn (usually) enlists his cooperation; and this is the only sure means that I know of whereby this cooperation can be secured.

The *technique* of the management of a case of diabetes is most important. The patient must be educated to carry out all the directions with exactness. This can be most quickly and satisfactorily attained by placing the patient in a properly-conducted sanatorium, where his food can be accurately selected and weighed, his exercise properly regulated, and the excreta carefully preserved. There are, however, obvious difficulties in persuading a patient who does not feel very ill to enter an institution; therefore, his education must usually be conducted amid less favorable surroundings. It is surprising how soon and how accurately patients will learn to observe the necessary details. In my experience it is usually easier to teach a patient what he

must do for himself than to teach a nurse, who has had no special training in the case of those suffering from metabolic disorders, what must be done for the patient. The illustrative cases which will be reported in the present paper are of subjects all living at home; purposely no institutional cases have been reported, in order to emphasize the fact that with the proper supervision, education, and cooperation of the patient, most satisfactory results may be secured outside of the sanatorium.

The diet must be written out by the physician in the form of a prescription; it must express explicitly not only the kind, but also the quantity of food which is to be taken at each meal. The patient must be put upon his honor not only to take no food other than that prescribed, but also to take the exact quantity (no more and no less) expressly stated for him in the prescription. The patient should weigh his food for the first few weeks until he has become familiar with the amounts represented by definite quantities of the various kinds of food. For this purpose I have found most useful and convenient a special food scale which I have had constructed for the purpose.* All drugs except those prescribed should be expressly forbidden.

Detailed directions should be given for the collection and delivery of the urine. Not merely a specimen of urine should be submitted, but the whole 24 hours' quantity should be sent to the laboratory *in toto*. The 24-hour period should begin with an empty bladder and conclude by emptying the bladder. The 24-hour period should be so selected that at its conclusion the urine may be forwarded to the laboratory for immediate examination.

Our first procedure for the diabetic is to determine his *tolerance for carbohydrates*. This is accomplished by prescribing for him a "standard diet" consisting of a considerable quantity of fat, a moderate amount of protein with a minimum of carbohydrate, and to this is added a definite amount of carbohydrate (the "accessory diet.").

The "standard diet" should be practically carbohydrate free and should furnish not less than 30 calories per kilo of body weight. Thus for a patient weighing 150 pounds the "standard diet" should furnish about 2,000 calories.

*Journal American Medical Association, Vol. liii., p. 457, 1909.

The "accessory diet" should consist of a known amount of starchy food. This may be wheat bread or potato or oatmeal, or other starch-containing food. After experimenting with various forms of starchy food for test purposes, I have come to depend almost entirely on the Huntley and Palmer "breakfast biscuit." These are quite uniform in weight (10 grams each) and have a very constant starch content of about 5 grams.† As a primary test ("accessory diet"), I usually employ 4 of these biscuit with each meal (*i. e.* in 24 hours, 12 biscuit = 120 grams = 60 grams starch). After such a test the patient's carbohydrate tolerance is represented by the formula: Standard diet + 60 grams starch — x grams sugar excreted (estimated as starch) = carbohydrate tolerance. If the amount of sugar excreted is less than the amount of sugar which could be manufactured from the starch of the accessory diet, we speak of the patient's having a *positive* carbohydrate tolerance of 60 — x grams starch. If sugar is excreted in an amount greater than can be accounted for by the starch of the accessory diet, we regard the patient as having a *negative* carbohydrate tolerance.

Having established the carbohydrate tolerance on a known diet of this kind, we have a test which may be applied at any subsequent period to determine how far our measures have improved the patient's power of utilizing carbohydrate food.

As a rule, any real improvement in a diabetic will be shown by an improvement in carbohydrate tolerance. In a severe case the patient may, in spite of our best efforts, always show a negative carbohydrate balance, but with improvement this negative balance almost invariably becomes smaller.

The main element in the production of increased carbohydrate tolerance is a restriction, for a time, of carbohydrate food. This improvement in the power of oxidation seems to depend on the rest afforded the tissues by diminishing the work thrown upon them. The reduction of the carbohydrate food of the diabetic has an effect on the tissues quite parallel to that of restricted muscular exertion on the overtaxed heart.

The improvement which may be secured is illustrated by the following cases, which represent a number of different types of diabetes mellitus.

†Based on numerous analyses made in my own laboratory.

J. D. CASE 1.

Date	Weight	Diet				Carbohydrate			Remarks
		Basic	Bread Grams	Potatoes Grams	Milk Grams	Intake Grams	Output Grams	Balance Grams	
Jan. 28, 1907	184	Unrestricted	?	?	?	?	8	?	
31,	182	Standard	100			60	3	+57	
Feb. 7,	179	"	30			18	0	+18	No thirst
14,	178	"	60			36	5	+31	Not up at night
21,	174	"	30			18	0	+18	Quantity of urine moderate
Mar. 28,	171	"	60			36	0	+36	Furunculosis gone
April 11,	171	"	100			60	6	+54	Free from pain
18,		"	60			36	0	+36	
May 16,	167	"	0	300		90	2	+88	
23,	166	"	30	150		63	0	+63	Strong and energetic
30	165	"	100			60	0	+60	
Jan 27, 1909		"	100	150		105	0	+105	A little pain in shoulder
April 13,	171	"	100	150		105	0	+105	Feeling strong and well
Feb. 14, 1910	165	"	100	150	100	110	0	+110	Feeling well

Case I.—J. D., 55 years old. Married. Engineer. Family and previous history unimportant. Was first seen in January, 1907. Sugar was discovered in his urine two years ago. He complained of passing considerable quantities of urine (was obliged to get up at night), thirst, furunculosis of scalp, and pains about the shoulders. Physical examination showed a stocky, well nourished man; height, 5 ft. 7 inches; weight, 184 pounds. Heart and lungs normal. Liver felt one inch below the margin of the ribs in the right midclavicular line. Abdomen otherwise normal. An abbreviated record is given in the table preceding. It is a typical record of a mild diabetic; it will be noted that during the early part of the record the limits of tolerance were not infrequently overstepped, but a return to the more restricted diet was soon followed by an increased tolerance. For something over a year, when last seen, he had been indulging in 100 grams of wheat bread and 150 grams of potato (or the equivalent of these) per day with no glycosuria. It is true that during this period of three years he has lost some 19 pounds in weight, but this I regard as an advantage rather than otherwise, as the normal weight for his height and age should be 158 pounds.

Date.	Urine Quantity c. c.	Sugar		Weight Pounds	Diet
		Per cent.	Grams 24 hrs.		
1909					
Jan. 4	5760	4	230	111	Partly re
Jan. 11.	2880	5	144	111¼	stricted,
Feb. 17	2040	4.5	92	111	gluten
Mar. 1.	2400	5.7	137	112½	bread etc
Mar. 15	2400	5.9	142		

At this time his thirst was less and he was much relieved by the reduction of the quantity of urine passed, but was feeling nervous and weak.

Physical examination showed nothing abnormal except the marked emaciation.

M. C. CASE II.

Date	Quantity 24 hrs. c.c.	Specific Gravity	Albumin	Sugar 24 hrs. Grams	Acetone	Weight Pounds	Diet (Grams) Basic	Bread	Potatoes	Olive Oil	Whiskey	Carbohydrate (Grams) Intake	Output	Balance
Mar. 29, 1909	1740	1029	+	85	+		?	?				?	85	?
April 5.	1590	1028	+	44	+	110½	Standard	60				30	44	—14
14.	1740	1024	+	17	0	112½	Strict					0	17	—17
21.	1710	1015	+	trace	0	110½	"				30	0	tr.	+
28.	1020	1025	+	4	+	110	Standard	30			30	15	4	+11
May 5.	1530	1017	+	0	+	109	Strict			60	30	0	0	+
12.	1230	1024	+	14	0	111	"			60	30	0	14	—14
19.	960	1027	+	1	0	109½	Standard	20		60	30	10	1	+9
26.	990	1025	+	4	0	110	"		60	60	30	18	4	+14
June 2.	1200	1023	+	5	0	110½	"		120	60	30	36	5	+31
12.	1800	1012	+	0	0	110½	"	10	90	60	30	32	0	+32

Even after we have established a considerable carbohydrate tolerance, it will be found that an excessive amount of starchy food will result in glycosuria, and sooner or later in diminished carbohydrate tolerance; it is therefore admissible to allow a patient not more than 70 per cent. of the amount of carbohydrate food which it is found he can utilize without glycosuria. Directions should also be given to distribute this food equally in the three meals of the day, as by this means a considerably larger amount can be tolerated than when a larger quantity of starchy food is taken at one time.

Case II.—M. C., 48. Married. Piano manufacturer. There is no family history of diabetes. Father died of pneumonia. He is a moderate user of alcohol and tobacco. He had gonorrhea 30 years ago; denies syphilis. Always has been rather thin. Has never been seriously ill. For the past year he has had more or less "stomach trouble," characterized mainly by epigastric pain after eating.

He first came to me March 29, 1909, complaining of the presence of sugar in his urine, thirst, and polyuria. The preceding November he first noticed his thirst and polyuria. In December his urine was examined and sugar was found. He brought with him the following record:

The above record is characteristic of a type of diabetes more severe than Case I. When first observed he had a negative carbohydrate balance of 14, he was very much emaciated and nervous, and in addition to excreting a considerable amount of sugar, he exhibited a mild grade of acetonuria. As a result of three months' careful dietary regulations, he had converted his negative carbohydrate balance into a positive balance of 32 grams. His acetonuria had disappeared. He was feeling less nervous and more vigorous.

I should have felt much better satisfied if I could have observed him long enough to obtain an increase in weight, but when last seen no improvement in this direction had taken place. The administration of whiskey and olive oil was undertaken with the expectation (which I have frequently seen verified) that this addition to the caloric value of the restricted diet would result in an increase of weight, thus increasing his "margin of safety."

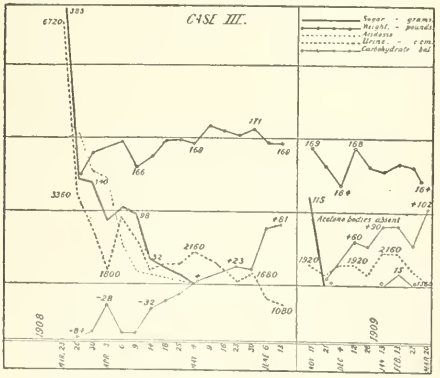
Case III.—I. L., 37 years of age, married, native of Finland; has been in U. S. 6 years. Carpenter. Family history good. Nine years ago, in India, he was in the hospital eight months with fever (up to 107½°) and chills; was told he had malaria at his time. Otherwise he has always been well and strong. He first came to me on March 20, 1908. In January, 1908, he had a short febrile attack, with general aches and pains. Immediately following this he began to pass large quantities of urine; he was obliged to urinate every hour. He was very thirsty and his mouth and throat were excessively dry. These symptoms have continued to the present time, and in addition he complains of some shortness of

breath and intermittent pains in his arms and legs. Sugar was discovered in his urine in January, 1908. In December, 1907, he weighed 195 pounds. When first seen he was excessively nervous, said he had not had a night's rest for a month on account of the polyuria. He feels weak, tires easily, and is, therefore, unable to work.

Physical Examination.—Height, 5 feet 6 inches; weight, 165 pounds. Good color, appears well nourished. Lungs normal. Heart not enlarged, rate 100, systolic murmur at the apex. Abdomen normal.

J. L. CASE III.

Date	Quantity 24 hrs. C. C.	Specific Gravity	Albumin.	Sugar 24 hrs. Grams.	Acidosis Index	Weight, Pounds	Diet (Grams) Basic	Bread	Potatoes	Carbohydrate (Grams) Intake	Output	Balance	Remarks
Mar. 23, 1908	6720	1038		383	10		Regular	?	?				Very nervous. Sleep interrupted; unable to work.
26,	3360	1033	0	144	10.2	165	Standard	100		60	144	—84	Tires very easily
30,	2640	1034	0	140	7.8	168	"	100		60	140	—80	
April 3,	1800	1035	0	88	7.2	166	"	100		60	88	—28	Night sleep uninterrupted
6,	2880	1032	0	106	2.5	169	"	50		30	106	—76	Less nervous
9,	2400	1036		98	1.5	166	"	50		30	98	—68	
14,	1800	1034	0	32	++	167	Strict				32	—32	
18,	1920	1028	0	21	+	170	"				21	—21	
25,	1920	1026	0	13	+	170	"				13	—13	
May 4,	2160	1028	0	0	0	169	"				0	+	
9,	2040	1030	0	0	0	172	Standard				0	+	Feels stronger and more energetic
16,	1800	1028		0	0	171	"				0	+	Working regularly
23,	1560	1030		0	0	170	"		75	23	0	+23	
30,	1680	1027	0	0	0	171	"		60	18	0	+18	
June 6,	1200	1040		0	0	169	"	100	60	78	0	+78	
13,	1080	1030		0	0	169	"	135		**81**	0	+81	Feels perfectly well
Nov. 11,	1920	1036	0	115	0	169		+			115	?	Has been eating "Jireh Bread." Easily fatigued
21,	1680	1030		0	+	166	Strict				0	+	Working regularly
Dec. 4,	1920	1027		0	0	164	"				0	+	
12,	1920	1028		0	0	168	Standard	100		60	0	+60	Feels well and strong
26,	1680	1029		0	0	166	"	60	60	54	0	+54	
Jan. 13, 1909	2160	1026		0	0	166	"	120	60	90	0	+90	
Feb. 13,	2160	1030	0	0	0	167	"	105	100	93	0	+93	
27,	1800	1030		0	0	166	"	60	60	54	0	+54	Feels well
Mar. 20,	1560	1028		0	0	164	"	120	100	102	0	+102	No complaints



A study of this record presents some very interesting and instructive facts. When first seen, the patient was passing over 6 quarts of urine, containing about three-quarters of a pound of glucose, and a considerable amount of acetone and diacetic acid, in 24 hours. On the "standard diet," plus an accessory diet of 100 grams of wheat bread, on March 26, he showed a *negative* carbohydrate balance of 84 grains. On a diet gradually restricted by reducing the amount of bread allowed, the carbohydrate tolerance rapidly increased, so that in six weeks (May 4th) he stopped excreting sugar and for the first time showed a positive carbohydrate tolerance. By June 13 he was able to take 135 grams of bread without the excretion of glucose, and showed a *positive* carbohydrate balance of 81 grams. It is also interesting to note how his acidosis cleared up as his carbohydrate tolerance improved, and entirely disappeared on the day that he first showed a positive carbohydrate balance. The general improvement in the patient's condition was equally remarkable: Thirst and polyuria had disappeared, he was able to get a good night's rest, and hed entirely lost his nervousness and general aches and pains. He felt vigorous and energetic, and was able to perform his usual work without fatigue.

The patient was not seen until five months later, when, feeling not as well as usual, and somewhat easily tired, he came for advice. Until the middle of October he had kept strictly to the diet which had been prescribed in June, which consisted practically of the "standard diet," plus 100 grams of wheat bread, or its equivalent in potato. In October, on the advice of a friend, he began to eat freely of "Jireh bread," a much-advertised diabetic food. The result is readily seen in his tabulated record, which shows on November 11 an excretion of 115 grams of sugar. His diet was again restricted, and the glycosuria cleared up very quickly. After a short period he was allowed to return to small measured quantities of carbohydrate food, and on March 20, 1909, when last seen, he had a *positive*

carbohydrate balance of 102 grams when he was tested with an accessory diet of 120 grams of wheat bread and 100 grams of potato. He was working regularly, and reported that he felt "as well as he ever had in his life."

Case IV.—E. M. H. 33. Single. Native of U. S. Supervising engineer of some important iron mines in Cuba. Mother died of nephritis; there has been no diabetes in his family; his family history is in other respects good. He has never had a serious illness; has spent most of his time in the open air. He indulges in about eight cigars and one cocktail a day. His usual weight has been 122 pounds. In March, 1909, he was struck on the head by a rock, which resulted, as far as he knows, in only temporary bruises. In July he noticed he was passing large quantities of urine; this was examined, and a large amount of sugar was found. His diet was somewhat restricted in starches and sugar, and he came North for a rest. During the summer the polyuria continued, with great thirst and polyphagia. He was obliged to get up two or three times at night to urinate. He lost weight progressively and became nervous and irritable, and wearied on the least exertion. He came first for advice on October 1, 1909.

The physical examination showed the following facts: Height, 5 feet 8 inches; weight, 115 pounds. Very thin, nervous and weak. Heart and lungs normal. Abdomen normal, neither liver nor spleen were enlarged. Knee jerks present. Pulse 80, regular, good force and volume. Slight thickening of radial arteries.

The record of his subsequent progress is as follows:

E. M. H. CASE IV.

Date	Quantity 24 hrs. c.c.	Albumin	Sugar 24 hrs. Grams	Ammonia 24 hrs. Grams	Sod. Bicarb Grams	Diet (Grams) Basic	Bread	Potatoes	Whiskey	Weight, pounds	Carbohydrate (Grams) Intake	Output	Balance	
Oct. 3, 1909	5160	0	387		0	Usual	?	?		115	?	387	?	In New York
7,	2250	+	88	3.634	0	Standard	90		60		54	88	—34	
8,	2280		78		0	"	90		60	114	54	78	—24	
11,	1710	tr	46	3.547	0	"	45		60	113	27	46	—19	
15,	1800	tr	34	3.427	0	"			60	116	0	34	—34	
20,	1680	tr	34	2.599	6½	"			60		0	34	—34	
23,	1800	tr	11	0.573	6½	"			60	119	0	11	—11	
Nov. 6,	1350	tr	18		?	Strict			60	117	0	18	—18	In Cuba
20,	1596	0	32		?	"			60	122	0	32	—32	
Dec. 15,	1620	0	36		?	"			60	126	0	36	—36	
30,	2137	tr	49		15	"			60	127	0	49	—49	
Jan. 14, 1910	1389	0	7		15	"			60	125	0	7	— 7	
Feb. 19,	1202	0	6		12	"			45	125	0	6	— 6	
Mar. 18,	1530	0	0	0.494	12	Strict			60	124	0	0	+	In New York
20,	1320	0	0	0.157	12	Standard	90		60	123	54	0	+54	
30,	1380	0	0	0.645	0	"		50	60	121	15	0	+15	
April 1,	1230	0	10	0.862	0	"	45	50	60	122	42	10	+32	

The above table covers three periods. During the first and last periods he was in New York and under close observation; during the intermediate period, November 1, 1909, to March 16, 1910, he was under the care of his physician in Cuba, who communicated with me by letter.

This is a case which I regard as a severe and dangerous type of diabetes, and in spite of the very great improvement I cannot but feel anxious as to the ultimate outcome.

The points of especial interest here are: (1) The great polyuria and glycosuria which were reduced to a small volume and a low grade; (2) the conversion of a negative carbohydrate balance of 34 to a positive balance of an equal size; (3) a considerable increase in weight (much to be desired in cases of this type); (4) the considerable degree of acidosis represented by an output of over 3.5 grams of ammonia which was for a time symptomatically combated with soda and later disappeared coincidently with the improvement in the carbohydrate tolerance; and (5) a very remarkable change of a nervous, depressed, and listless man into one who was able to do and enjoy a large amount of hard work without very great fatigue.

It will be noted that the caloric value of the food in this case was enhanced by the addition of alcohol; in his strict diet a large amount of fat was prescribed, and it was deemed inadvisable, in view of the considerable acidosis, to prescribe additional fats like olive oil, etc., especially as he could not be under conditions to permit of the exact estimation of the degree of his acidosis.

It is to be observed that in several of the cases cited there appears a considerable glucose excretion even when the patient was on the "standard" or absolutely "strict" diet. A part of this (say 10 grams) may be accounted for by the small amounts of carbohydrate in the prescribed diet. The remainder undoubtedly had its origin in the protein of the food. It has been definitely established that under abnormal conditions the protein molecule may furnish from 50 to 60 per cent. of its weight of glucose. In such cases, therefore, we find it of great aid in improving carbohydrate tolerance to reduce the protein content of the food to 100 grams or even less for short periods. This was the course adopted for short periods in Cases III and IV.

Other means are at our disposal for improving the carbohydrate tolerance of the diabetic. Exercise for the robust and overweight. Rest for the weak and emaciated. Freedom from care and worry for all. Drugs such as codeine, atropine, and arsenic may be of aid, but as our mainstay we must depend upon diet adjusted to individual needs.

The above examples will serve to illustrate what we can do for our diabetics of both mild and severe types when taken in hand at a comparatively early stage, and when they are kept under proper supervision and control.

The lack of space deters me at present from a discussion of the very advanced cases. At times we are able to obtain a carbohydrate balance of only a few grams, or in still more advances cases we must be content to convert a large negative balance into a smaller one. In these the acidosis problem becomes a very prominent factor, and it is all-important to watch the quantitative progress of the formation of the acetone bodies and combat this with all the means at our command. Often we can obtain the same proportionate improvement as has already been indicated in the less advanced types, but the improvement is usually less enduring and less effective.

What I wish to emphasize is the importance of taking proper care of the mild type of diabetics, and of subjecting them to suitable restrictions *early* in the course of the disease. By the painstaking control of the diet, under the guidance of accurate records based on careful observation, the progress of diabetes, in the majority of instances, may be so checked that it will never reach the most severe form of the disease. In other instances, although they become more severe in spite of our best efforts, we are nevertheless able to materially hinder the progress of the malady, we may save our patients much suffering and lengthen their lives by a number of years.

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RECENT PROGRESS IN ANESTHESIA.*

By JAMES TAYLOE GWATHMEY, M.D.,

NEW YORK.

The term "recent progress,'" as applied to the science of anesthetics, is capable of different interpretations. If we accept the definition placed upon the term by the custom of the American Medical Association, in publishing through its journal papers read eight or twelve months previously, I may safely consider myself timely in presenting certain phases of progress in this important department of surgery. If by the term is meant some late and generally accepted discovery, then my paper will of necessity be limited in its scope. If, on the contrary, it conveys the idea of facts known and applied by a few but not generally accepted by the medical profession at large, it will be possible for me to discuss, in a general way, some very important truths concerning the administration of anesthetics.

There is a great and growing necessity for some kind of medical clearing-house, some society or body of men whose duty it shall be to investigate, accept, suitably modify, or reject each new discovery. Furthermore, research and experimentation by individual physicians should be encouraged and fostered. The laboratories of our great colleges should be open to them, and they should be assisted in their experimentation by trained laboratory workers. If these two ideas could be put into practical execution progress would be made by leaps and bounds, and the worker would see the results of his efforts immediately made available.

The basis of my work may be found in the theory of narcosis formulated by Prof. Hans Meyer, of the University of Vienna, which is as follows:

"The narcotizing substances enter into a loose physicochemical combination with the vitally important lipoids of the cell, perhaps with the lecithin, and in so doing change their relationship to the other cell constituents through which an inhibition of the entire cell chemism results, and the narcosis immediately disappears as soon as the loose reversible combination dependent on the solution tension breaks up. Further, substances chemically absolutely indifferent, as the volatile saturated hydrocarbons, can act as narcotics.'

This theory of narcosis in a measure explains my own work in the administration of anesthetics at different temperatures. In 1904 I experimented with oxygen to determine its value as compared with air. Small animals were used as subjects. In these experiments I used a closed mask with an expiratory valve, exactly the same amount of enesthetic being employed to start with in each case, the flow of air or oxygen being so regulated that the technic in each instance was the same. In order to determine the difference in toxicity of the combinations used, the time was taken from the application of the mask to the stoppage of the heart. The results were so conclusive that I stated positively that oxygen increases the value of all anesthetics as regards life, without decreasing their anesthetic effect.

Again, in 1906, I experimented with the different anesthetics, especially with chloroform, at 100° F. and at room temperature. I found it took just twice as long to kill with the warm anesthetic as with the cold. Warm chloroform and oxygen are safer than ether and air, although the safety of all anesthetics is proportionately increased by the addition of oxygen and by warming.

If my theory of the value of heat as regards the safety of anesthetics be true, then especially is it indicated to assist in more rapid recovery after the anesthetic, and to prevent nausea and vomiting. With this idea in view, for the past six months I have been applying hot towels to the patient's face as soon as the anesthetic is discontinued. The results have been most gratifying. In order to test this last procedure properly I anesthetized three animals for ten minutes, afterwards placing them in receptacles, one at 0° F., another at 100° F., the third being allowed as a control, to come out in the room temperature. In each instance the animal in the hot chamber made a slightly more rapid recovery than the others. The animal in the cold box came out with chills, while the one in the room temperature came out a close second to the one in the hot box. The animals were changed in position on three successive days, but the results were the same.

Electric Sleep: Electrical anesthesia has not been developed to a stage where it is practical for clinical use, but it may be employed in the laboratory instead of chloroform and ether. My purpose in experimenting with electrical anesthesia was to cut down the current to one-third and supplement this with enough morphine to carry on the anesthesia without any unpleasant symptoms. With the assistance of Drs. Adams and Cunningham at one time, and later with Dr. Rabinovitch, I experimented along these lines. One or two beautiful tracings were obtained, but we were convinced that this branch of medicine had not been developed sufficiently to justify a continuance of the work. Most

*Read before a combined meeting of the Suffolk District Medical Society and the Boston Medical Library, Boston, Mass., Dec. 1, 1909; also, before the Audubon Medical Society, New York City, May 6, 1910.

of us were fully convinced, however, of its absolute safety. How any one can even accidentally kill an animal with the Leduc current, which is employed in this work, is incomprehensible to me. If the technic is finally developed so that the current will be available for clinical use it will be the safest enesthetic of which we now have knowledge. Even as it is today I would not hesitate to submit myself to the current, provided it be administered in the same way and carried no further than in our laboratory experiments. Dr. Rabinovitch used 6 to 10 volts and one and a half to two milliamperes, with a direct current interrupted six to twelve thousand times per minute. In the morphinized animals we used only two volts, 2/10 milliamperes and six thousand interruptions per minute.

The sequestration method of Dawbarn should receive a more thorough trial than it has been given. According to this procedure, the patient is thoroughly anesthetized, after which the thighs are corded, thus cutting off this amount of blood from the brain. The patient is then placed in the sitting posture, and the operation continued, either with or without an anesthetic, or with a very small amount. In fifteen minutes from the commencement of the anesthesia the cords are gradually loosened. I had the honor to assist Dr. Dawbarn in one case, which was most successful in every way. The doctor would operate for at least ten or fifteen minutes, when a few drops of the anesthetic would be given and the operation continued. Pulse, respiration, color, and reflexes were all that could be desired. The only contraindication to this method, according to Dr. Dawbarn, is a weak heart. He uses it especially in operations on the face and neck. He considers it perfectly safe, for if any untoward symptoms should arise, the anema of the brain upon which this anesthesia is dependent, could immediately be rectified by placing the patient in a horizontal, or if necessary, in the Trendelenburg position.

I use a modification of this method daily in the following manner: As the surgeon is completing the operation by sewing up the wound, I stop the anesthetic, and at the same time raise the head of the table slightly. Pillows are placed under the patient's head immediately upon being returned to the bed. This procedure lessens slightly the amount of anesthetic given. It also allows any mucus or saliva to drain away from the upper respiratory passages and olfactory nerve, where, if it remained, it would cause nausea and vomiting. The sequestration method should be developed as a modification of other anesthetics or modes of administration, and this will probably be its future place.

Anesthetic Shock: Anesthetic shock is something seldom touched upon, yet it is safe to say that over fifty per cent. of surgical cases are shocked before they reach the table or during the induction period of the operation, or afterward from an overdose given sometime during the administration. Anticipation of the unknown and therefore to-be-dreaded effects of the anesthetic produces some of the symptoms of shock in the vast majority of patients, but fortunately in over 99 per cent. of these cases the symptoms disappear when the third stage, or surgical anesthesia, is reached.

We have the history of a patient in whom the psychic element predominated to such an extent that he died from fright one hour before the time for the operation.

Hewitt of London gives the history of a patient whose dread of the anesthetic was such that before starting the narcosis water was dropped on the mask for a few minutes; but even this procedure did not avail and the patient died before a single drop of chloroform touched the mask.

Two similar incidents have recently come under my notice. In one a patient at Bellevue Hospital in New York City cut his throat in anticipation of an operation which was to be performed the following day. The other incident was related to me by a physician in whose practice it happened. The patient was on the table and had been given a few breaths of nitrous oxide gas, when he jumped from the table, fled from the room, and had not been seen by the doctor since. Such incidents should serve to impress upon surgeons the fact that all patients need preliminary treatment, both mental and medical, in order to eliminate the psychic element. It is interesting to note that the cases above mentioned were all men. In my experience they are the patients who exhibit this mental depression.

Preliminary medication should consist of morphine alone, morphine and hyacine, morphine and chloretone, or an enema of 1 oz. of whiskey and 7 oz. of saline solution. Children, old persons, the insane, the feeble-minded, obstetrical patients, and individuals in a state of coma are the only ones who, in my judgment, should be excluded from the list.

Morphine: In 1909 I sent out a reprint entitled "Mixed Narcosis," in which I advocated morphine to precede nitrous oxide gas and oxygen. In this article I stated four general rules for the administration of morphine, which are as follows: (1). Whenever morphine is to be given, it always should be given before, instead of after, the operation, in order to obtain the benefit of this drug in the induction and maintenance of anesthesia. (2). All athletes and alcoholics should have this preliminary dose of morphine. (3). In extremes of life, the very old and the very young, if morphine is given at all it should be administered with very great caution. (4). Whenever morphine is administered a lighter narcosis should be maintained than when this drug is not employed. Out of 200 replies to the question asked as to whether the readers agreed with my views concerning preliminary medication, and also with the four rules regarding morphine, only two were negative.

In addition to the cases cited above, we must not forget that in over ninety per cent. of fatalities occurring in the early stages of anesthesia the patients have been men in robust health, requiring but a slight operation. In the light of these statistics it is almost criminal to place an alcoholic or an athlete upon the table without endeavoring to eliminate this psychic element; also to abolish the physical control which enables them to force the poisonous blood from the lungs to the heart. The percentage of deaths from the attempt to operate under morphine and scopalamin, or hyacine alone, or supplemented only by a few drops of ether or chloroform is so great that this practice will never prevail; but the very fact that morphine has been administered in such extremely large doses, and in all classes of surgical cases; should awaken us to the fact that the objection to small physiological doses of morphine before an operation is more academic than real. When given thirty minutes beforehand and properly modified according to the age, size, and condition of the patient, I have never seen or heard of the morphine doing harm. On the other hand I have known many patients to suffer from lack of this preparation.

The vomiting center is physiologically situated between what are commonly known as the first and second stages of anesthesia, that is between the second stage and surgical narcosis with complete muscular relaxation. If the induction period is unnecessarily delayed this center will be "found." It may or may not be preceded by sneezing or coughing. In the midst of an operation, in attempting to lighten the anesthesia, it may manifest itself also to the discomfort of the anesthetist. Again, in coming out of the anesthetic, as this center is passed over, unconscious vomiting may occur.

With small doses of morphine given sufficiently ahead of time to obtain the desired effect, none of these things are liable to occur. The whole nervous system is obtunded; especially is this true of the olfactory nerve endings in the respiratory passages. The patient takes more kindly to the anesthetic, passing quietly and quickly into full surgical anesthesia.

If, during the operation, it is possible to ease up on the anesthetic without disturbing the surgeon, the patient can be held between light and deep narcosis without once disturbing the dangerous vomiting center. The patient comes out, as a usual thing, without either conscious or unconscious vomiting. The kidneys and lungs have also been saved unnecessary irritation by reducing the amount of pulmonary anesthetic one-third to one-half.

Finally, the anesthetist is able to discontinue the anesthetic much earlier. The patient usually continues to sleep, or rather doze, from the morphine given, for from a half to one hour after the effects of the pulmonary anesthetic have worn off. The acute pain from the operation is thus minimized and the necessity of an after dose of morphine is not so great.

One to two quarts of normal saline solution per rectum materially mitigates the thirst which arises from the morphine, assists the kidneys, and brings the patient out in far better condition than when this is neglected. This should be given as a routine practice, and for the special purposes here mentioned while the patient is still in full surgical anesthesia. A slight Trendelenburg position assists greatly in the retention of the fluid.

If the post-operative condition demands a sedative, an enema of one ounce of brandy and seven ounces of saline solution will have the effect of quieting the patient, and with much less danger of the nausea than frequently follows the repetition of morphine.

The average dose is 1/6 to ⅛ gr. morphine, with 1/150 gr. atropine for women, and ¼ to 1/6 gr. morphine, with 1/100 gr. atropine for men. In one of the large hospitals one-fiftieth to one-hundredth gr. of atropine is used without the morphine as a preliminary with beneficial results.

Atropine is especially indicated as a preliminary when chloroform or ethyl chloride is to be used, as it maintains the respiration, and with ethyl chloride prevents profuse salivation, with consequent nausea and vomiting.

Morphine is even more strongly indicated before local anesthesia and spinal analgesia than in pulmonary narcosis. In my opinion it is, in a certain measure, at least, an antidote to cocaine. While this is not generally accepted, I have seen enough experiments with guinea pigs to convince me that such is the case.

The latest and best development in pulmonary anesthetics is the use of oxygen and nitrous oxide gas, supplemented by small amounts of ether and chloroform. There is now in the market a Hewitt appliance, a White dental gas oxygen apparatus, a Brown anesthetizer, and a Teter apparatus, the last two from Cleveland, Ohio. My own gas-oxygen apparatus is a modification of Hewitt's, having an additional valve for the admission of air, and also to-and-fro breathing. It has been found that 80 per cent. of all the surgical cases can be anesthetized with this combination.

Rectal Anesthesia.—Complete narcosis by this method was first mentioned by Pirogoff in 1847. The early experimenters used first a pure ether, then a mechanical mixture of ether and water, and later a vapor generated by placing a vessel in warm water. The after effects and some fatalities from these crude methods resulted in its abandonment. It was resurrected by Dr. Cunningham of Boston in a paper calling the attention of the medical world to the fact that by the use of air as a vehicle for the ether vapor colonic anesthetization was possible and also safe. Dr. Noel B. Leggett of New York City modified and improved Cunningham's apparatus, and was the first to conduct a series of experiments on the lower animals. With the knowledge thus gained he successfully anesthetized fifteen or sixteen cases in the Roosevelt Hospital.

To Dr. Walter S. Sutton of Kansas City belongs the credit of fully perfecting this method of narcosis. This was while he was an interne in Roosevelt Hospital. The essential points of his technic are: (1) A mercurial manometer to prevent too great pressure within the colon. (2) A generator for the accurate admixture of oxygen and ether. (3) Two separate tube systems, one for conveying the vapor into the colon and one for withdrawing excess vapor, and also for trapping any solid or semi-solid excreta. (4) The whole apparatus so arranged that it is controlled by the anesthetist who sits at the head of the table, being thus in a position to observe the patient and to modify the anesthetic as required. Dr. Sutton reports 140 satisfactory cases with no untoward results. Definite intestinal lesions are, according to him, the only contraindication to this method.

The colon is thoroughly cleansed by a castor oil purge at night, followed the next morning by three or more high soapsuds enemata, given one and a half hours apart, to be repeated until the return is clear.

The anesthetic is always started by the pulmonary method and continued by the colon after the patient is placed upon the table. A pressure of 20 mm. is constantly maintained in the gut.

Unless the patient is already suffering from some respiratory embarrassment this method possesses no advantage over my own of giving the vapor through a tube placed either in the mouth or in the nose. The anesthetist sits at the head of the table in either case.

Vapor Anesthesia.—The vapor method consists of passing air or oxygen through the anesthetic to be used, thus conveying a known percentage to the patient. It was first employed by Dr. Snow in 1849. Junker's inhaler, brought out in 1867, is probably the best known. Dr. Braun of Leipsig modified Junker's inhaler so that either chloroform or ether alone or any combination of the two drugs may be given. My own modification of Dr. Braun's apparatus consists in: (1) Giving the patient the vapor warmed to the temperature of the blood and passed through hot water, or a hot, neutral, volatile oil.

(2) A bent tube in the ether and hot water bottles so arranged that a warm concentrated ether vapor is possible. The chloroform vapor in my own inhaler, as in Braun's, is known, and the vapors of chloroform or ether may be given alone or in any desired combination.

In operations upon the head and neck the vapor may be passed through a tube and an even narcosis easily maintained without in any way interfering with the surgeon. Oxygen can be substituted for air whenever necessary. The narcosis by this method is much safer than by the drop method. Less anesthetic is used and the patient comes out of the anesthetic with little or no nausea or vomiting. The apparatus as now perfected can also be used for rectal anesthesia.

Spinal Analgesia.—This method has proved its unquestionable utility. While it will never supplant pulmonary anesthetics given by modern methods, in certain selected cases and under special conditions it is of the greatest value and will always have a permanent place in surgery. Introduced by Bier in 1899, mistakes of operators at that time have since been corrected, and the technic is now so far perfected that results compare favorably with those of other methods. Bier and Tuffier are using it constantly in Berlin. Professor Arthur Barker, University College Hospital of London, is using it in all suitable cases. It is also being employed in the Hospital for Sick Children, Great Ormond street, London.

By preliminary medication with morphine, nervousness, physical and psychical pain, the duration of anesthesia, the sense of heat and cold, nausea, vomiting, acceleration of pulse, rise of temperature, and headache, either during or after the operation, are in a very great measure overcome. The danger from the drug itself has been met by using tropococaine, or some other substitute for cocaine, and by the preliminary use of morphine and atropine, bromides, or hyoscin and nitroglycerin.

The extent of the analgesia is determined by the dosage and the position of the patient in the horizontal, the Trendelenburg, or the latter position reversed.

The following points are in favor of the method: (1) The patient assists by coughing, as when mucus or blood is in the throat, or in herniotomy; (2) the speedy action of the agent, analgesia usually being secured in from three to ten minutes; (3) the services of an assistant are rendered unnecessary. The above is particularly applicable in emergency, military and naval surgery. A further advantage is the utility of the method in children. Over 90 per cent. of a large number of cases in which Bainbridge has operated under spinal analgesia have been in children from four months to fifteen years of age.

Chloroform and Ether.—Neither of these drugs should be administered without being prepared to switch if necessity demands a change. If chloroform be used it should be warmed by placing the receptacle from time to time in a basin of hot water. It should also be preceded by the hypodermic administration of atropine 1/150 to 1/50 gr. thirty minutes before the operation. This prevents the imperceptible breathing that is sometimes so alarming when chloroform is administered alone.

Chloroform is contraindicated as a preliminary anesthetic when the psychic element is present. It is usually given as a sequence to ether. Employed in this way, it is not attended by the same degree of danger as when administered in the beginning of the narcosis. It is also perfectly safe with the patient in the Trendelenburg position.

Ethyl Chloride and Nitrous Oxide Gas.—Ethyl chloride is used for alcoholics and athletes, and for the obese, and is better than nitrous oxide gas in these special cases. It does not compare with nitrous oxide gas in point of safety. The combination of nitrous oxide gas, oxygen and ethyl chloride has not as yet been used clinically, so far as I know, except in few cases. I have experimented in the laboratory with it and find it perfectly satisfactory and absolutely safe. In fact, it is almost impossible to kill an animal with this combination. I have intentionally carried the anesthesia to the fourth stage in several instances, but have never failed to resuscitate the animal.

The time is over-ripe for the making of a change from the foolish custom of allowing interns in our hospitals to give anesthetics. It is unjust both to the patient and to the intern. There should be one or more paid anesthetists attached to every hospital, and the times for operations so arranged that all anesthetics are given by or under the direction of these experts. It is difficult to understand the mental attitude of some of our great surgeons who, while rebelling at the custom of allowing incompetent men to engage in this work, go to the other extreme of allowing nurses to administer, in a routine way, some particular anesthetic, usually ether. The weak and strong points of all anesthetics are known, and certainly it is wrong to fit the anesthetic to the anesthetist instead of to the patient.

No patient should have a general anesthetic when a local anesthetic can be satisfactorily administered. It is remarked by a competent authority that at least 25 per cent. of all surgical cases can be operated upon under local anesthesia. Nitrous oxide gas and oxygen can be *satisfactorily* given in 30 per cent. of all cases, and these patients should have the benefit of this non-poisonous anesthetic whenever possible. No patient should be given a pulmonary anesthetic when for any reason it is contraindicated, or when a previous administration has left him in a debilitated and uncomfortable condition. Preference should be given to rectal, local, spinal, or morphine anesthesia, or the sequestration method, employed singly, in combination, or in sequence. If, after a pulmonary anesthesia is begun, the patient is not doing well, it is safe to switch to morphine alone, or to any of the methods mentioned above.

Finally, by a judicious selection of a sequence of anesthetics and a combination of the same, by proper preliminary medication, treatment on the table and after-treatment, we are able to assure every patient that so far as this part of the operation is concerned he will leave the table in as quiet and natural a state as before the induction of anesthesia.

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THE RESIDUAL APPENDIX.

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By the residual appendix is meant the appendix vermiformis or a portion of it remaining following: (a) appendical abscess, which may have been operated upon by incision and drainage, or may have remained unoperated, the pus having been absorbed, or discharged without operation, or, (b) general or spreading peritonitis due to appendicitis, when drainage only has been performed.

The subject is but little referred to in the textbooks, but our attention has been called to it a few times in the current literature during the past two years. An incident occurring recently in the writer's work where a supposed residual appendix was found and removed during the course of operation for ventral hernia one year subsequent to the opening of the appendical abscess, the surgeon in this case, a man of large reputation, having been quite positive that he removed the appendix at the primary operation, and the writer and his associates equally positive that they removed it at the secondary operation, has led me to present this subject. The points which I wish to dwell upon are as follows:

(1) When is it desirable to remove and when not to remove the appendix in operating upon appendical abscess or general peritonitis due to appendicitis? (2) In what proportion of abscess cases is the appendix removed? (3) In what proportion of cases where it is not removed does inflammation, either acute or chronic, recur? (4) Should we in all cases where there is not some prohibitive contraindication advise the removal of the residual appendix at a secondary operation? (5) If a secondary operation is to be performed, how soon after the primary operation should it be advised? (6) The importance of the surgeon who operates primarily stating explicitly what he has done. (7) The importance of protecting the primary operator from unfair criticism. The recent literature bears the following upon the subject:

Dr. George C. Ross, in the Transactions of the Philadelphia Academy of Surgery, at the meeting of November 2, 1908, published in the *Annals of Surgery*, February, 1908, page 276, stated that he had recently operated upon three cases of residual appendix, in two cases the operation being for acute attacks, while the third was for the relief of a persistent abdominal sinus. The second case was operated upon three years subsequent to his first operation, when the abscess was opened and drained at a large metropolitan hospital, and he was told that the appendix had been removed. The third case came to operation nine months following the opening and draining of an appendical abscess. A discharging sinus persisted, and although the record stated that a gangrenous appendix had been found and removed as a slough, yet at this second operation one inch of the proximal end of the appendix was found continuous with the cecum. Dr. Ross concludes that as long as any portion of the appendix in communication with the cecum remains, recurrent attacks of appendicitis are to be feared. He quotes Sir Frederic Treves, who states that out of one hundred cases of appendical abscess which came under his notice, sixteen had recurrences and eight subsequently had the formation of inflammatory exudates in the right iliac fossa, no doubt of appendical origin. Twenty-four per cent. of Sir Frederic Treves' cases had recurrence after operation. Rose quotes Williams in the *British Medical Journal*, 1907, who cites a curious incident of an acute inflammation in an appendix entirely separated from the cecum. The author goes on to say the large majority of surgeons heretofore have taken the position held by Dr. Deaver that it is advisable to remove the appendix whenever it is not so situated in the wall of an abscess that to remove it would be to spread infection over the general peritoneal cavity.

Dr. Stewart McGuire, at a meeting of the Southern Surgical and Gynecological Association, December, 1908 (published in the *Journal of the American Medical Association*, January 16, 1909, pp. 241), referred to a former article entitled "An Analysis of the Last 500 Cases of Appendicitis Operated on at St. Luke's Hospital," in which there were twenty-three cases of appendical abscess of the class adherent to the parietal peritoneum. In this group of cases the treatment had been simply incision and drainage, no effort being made to locate or remove the diseased appendix. In every instance the patients were told that the operation was not for appendicitis, but for an abscess, which was the result of the appendicitis, and that the appendix had not been removed. Two methods of investigation were followed: first, the opinions and practice of a number of eminent surgeons were obtained; and, second, the twenty-three patients whose cases were reported were written to and their subsequent histories ascertained. From the two lines of investigation the following conclusions may be drawn: While the surgeon may be justified in advising a secondary operation in all cases, as theoretically the safest plan to follow, he is not justified in persuading, urging, or starving a patient until he consents to have it done. The appendix should always be removed at the first operation if the abscess is small and not adherent to the abdominal wall beneath the incision.

It should be left only in neglected cases in which the abscess is large and attached to the parietal peritoneum. When this condition exists the appendix is usually gangrenous, undergoes liquefaction, and is eliminated with the discharges. In such cases suppuration continues as a rule for several weeks, and before a secondary operation could safely be done the patient is homesick, weakened physically by confinement, and depleted financially by the expenses incident to the stay in the hospital. Experience seems to show that if subsequent trouble develops the infection is not usually acute, and pus, if it is formed, is walled in by old adhesions. Therefore, the surgeon does his duty if he makes it clear to the patient that, owing to the complications which existed it was not safe to remove the appendix, and tells him that while a second operation is advisable it is not imperative, unless he has tenderness over the incision, colicky pains in the bowels, or persistent digestive disturbances, in any of which instances it is distinctly necessary for him to promptly seek surgical assistance.

An article by H. S. Clogg of London on the advisability of removing the appendix at the time of opening the appendicular abscess was published by the London *Lancet*, March 6, 1908. The paper deals with one hundred and thirty-one cases of localized appendicular suppuration. In twenty-three the appendix was removed at the time the abscess was opened, and in one hundred and eight it was not removed. Of the one hundred and eight cases carrying a residual or remnant of residual appendix, one died of portal pyemia, three had subphrenic abscess, two of which proved fatal. One had diffuse peritonitis, eighteen suffered from prolonged abdominal sinus, one from recurrence of suppuration after closure of the sinus, eleven had recurring nonsuppurative appendicitis. In forty-two cases out of the one hundred and eight, disease in the appendix recurred, four of which were rapidly fatal, fifty-four of the patients reported that they were well as regards their operation for appendicitis, and twelve could not be traced. It is quite possible that of the fifty-four well at the time of writing, others may have subsequent trouble. This author naturally

concludes that the appendix should be removed at the primary operation if possible and at all consistent with safety, and that, if it is not removed at time of primary operation, it should be later.

In the experience of the writer and his associate, Dr. George N. Bell, in a series of 1,000 operations for appendicitis, of which records have been kept, there were: Operations for appendical abscess in 99, or 10 per cent of the entire number; operations for general peritonitis and free pus in 128, or 13 per cent of the entire number; the appendix was found gangrenous in 54, or 54 per cent of the abscess cases, and in 80, or 62 per cent of general peritonitis and free pus cases; the abdomen was opened and drained without removal of the appendix in 40, or 41 per cent of the abscess cases; the abdomen was opened and drained without removal of the appendix in 15, or 11 per cent of the general peritonitis and free pus cases; the appendix was removed by subsequent operation in 18, or 45 per cent of the abscess cases; a residual appendix was removed because of recurrence of appendicitis in 6, or 15 per cent of the abscess cases; a residual appendix was removed because of persistent fistula in 1, or 2½ per cent of the abscess cases. Of these 18 secondary operations 17 recovered, and one, a delicate, nervous girl, who was operated upon three weeks after the primary operation, died at the end of thirty-six hours, probably of shock and hemorrhage, the operation being exceedingly difficult, the adhesions not having been absorbed, nor had the suppurative process entirely subsided. The last operation of this series, where a residual appendix had given rise to a fresh attack, occurred in a male of thirty-four years, who four years previously had been seriously ill for weeks from appendiceal abscess which ruptured and discharged by the bowel. Four years later, following a typical onset of appendicitis, he developed a large appendiceal abscess which we opened, and floating free in the pus of the large cavity was a gangrenous appendix, 10 cm. long, containing a large concretion.

Returning to the propositions enumerated:

(1) When is it desirable to remove and when not to remove the appendix in operating upon appendical abscess? To the author it would seem that in cases of free pus without limiting walls of adhesions, if the patient's condition will warrant, a decided effort should be made to remove the appendix. If there is a well-defined abscess and the appendix is free, or if it forms a portion of the wall of the abscess, the abscess being adherent to the peritoneum, and can be easily separated from its adhesions, it should be removed. On the other hand, if its removal entails breaking through the walls of adhesions with the attendant danger of general peritoneal infection, or if manipulation provokes serious hemorrhage, or if the patient's general condition is such that further operative procedure will not be well tolerated, it is considered, I believe, by most operators, wiser to be satisfied with what has been accomplished, but in this connection each case will be a law unto itself. There can be no fast and fixed rule, and in some cases will one's judgment be severely taxed.

(2) In what proportion of abscess cases is the appendix removed? Statistics are not complete or convincing in this regard. In the author's cases about 41 per cent were not removed.

(3) In what proportion of cases where it is not removed does inflammation, either acute or chronic, recur? We have seen in the cases of Sir Frederic Treves that 24 per cent had either acute or chronic inflammation. In Clogg's 108 cases, about 40 per cent. had recurring trouble, and in the author's series 15 per cent. had recurring trouble. These figures will give some idea as to the frequency of inflammatory recurrences in the residual appendix.

(4) Should we in all cases where there is not some prohibitive contraindication, advise the removal of the residual appendix at a secondary operation? In the light of our present knowledge upon this subject it seems to me that there is no doubt it is our duty to advise a secondary operation in each case, otherwise we assume unnecessary responsibility, and in the event of recurring trouble one could but regret that he had not given such advice. The liability to the occurrence of a ventral hernia should strengthen us in this opinion, for a certain proportion of drained cases will necessarily be followed by hernia, and at the time of removal of the residual appendix the wall may be strengthened. In our early work most of us felt that after a suppurative appendicitis the appendix had done its worst, and there was little further to be feared from it. We satisfied ourselves with the expression that the appendix had probably "sloughed away and become lost in the discharge." While that is occasionally true those who have seen the residual appendix in numbers of instances realize that it is probably an exception.

(5) If a secondary operation is to be performed, how soon after the primary operation should it be advised? Surgeons differ in this matter, a few insisting upon the patient remaining in the hospital until the second operation is performed, fearing if he goes out he will not return. Others postpone it for several months. Undoubtedly sinuses and adhesions clear up much more quickly in some than in others. The local and general condition of the patient must be taken into consideration. If the mass, which could be felt before operation, has subsided, the sinus has healed, and the patient's general condition is favorable, and six to eight weeks have expired, there can be no objection to its performance at that time. If there is still some tumefaction or a discharging sinus, or the patient has not regained strength following the first operation, it is better to give the case further opportunity for convalescence. If the sinus persists, however, that in itself will be an indication for the operation. We have been happily surprised to find that at the expiration of six to eight weeks large masses of exudate and adhesions found at the primary operation have been absorbed, and the secondary operation is comparatively simple.

(6) The importance of the surgeon, who operates primarily, stating explicitly what he has done. Unless the surgeon is positive that he has removed all of the appendix he should say so frankly to the family or patient, and state his reasons for leaving a portion or all of the appendix. It is not a matter to be ashamed of, nor to be concealed. If he is even in doubt as to what he has removed being a portion of the sloughing or broken down appendix, he should state that doubt.

(7) The importance of the surgeon who operates secondarily of protecting the primary operator from unfair criticism. If the surgeon operating upon the residual appendix—the primary operation having been performed by another, and if the appendix is found, it is better not to make the statement until the first surgeon has been conferred with,

and it should be made plain to the family or patient by the surgeon at this time that it is a highly proper procedure to drain an appendical abscess without removing the appendix, that it is done by the best of surgeons, and undoubtedly was the proper procedure in this case. If we are all careful to pursue this course it will avoid unpleasant complications and unfair criticism.

From our knowledge of the pathology of appendicitis and the comparative frequency with which appendicitis recurs sooner or later following an appendical abscess or general peritonitis caused by appendicitis, we must conclude that the residual appendix is much more subject to inflammation than the appendix which has not been diseased. If its mucosa is continuous with the cavity of the cecum it is still exposed to infection. In addition to that, its circulation has usually been partially destroyed, it has become adherent to the abdominal wall, or some other organ, and is in a position to be strained or traumatized. Moreover, there may be residual concretions and residual pockets of pus within the lumen which did not escape at the primary attack. If these deductions are correct there can be no doubt of our duty in advising a secondary operation, and explaining thoroughly to the patient the reasons for, and the advantages of, this procedure.

44 Hugh Street.

REPORT OF THE TREATMENT OF TYPHOID FEVER WITH VACCINE.*

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During my service at St. Luke's Hospital in the late summer and fall of 1909, I began the treatment of all cases of typhoid fever with vaccine. A review of the literature at that time showed the treatment to be still in the experimental stage, with doses ranging from 1,000,000 to 300,000,000 dead typhoid bacilli, and no uniformity as to the repetition of the dose. In our cases the dose was given subcutaneously in the region of the buttocks every second or third day, each dose being either 10 or 50 million dead bacilli. During the summer and fall we had 37 cases of typhoid fever; some of these cases occurred in the service of Dr. S. W. Lambert, and, being of the same season, are introduced for comparison.

Twenty-one (21) cases were treated by the older method of hydrotherapy, either by the tub bath or sponging.

Eleven (11) cases were treated with vaccine without hydrotherapy.

The remaining five (5) cases were too short a time under treatment to make any comparisons.

The diet in general, especially in the hydrotherapy cases, was of the high caloric variety. No drugs were employed, but strychnine and whiskey were used as stimulants in the severe cases. The bowels were moved by enemata.

The cases which were treated by hydrotherapy, barring a few which were given sponge baths because of poor response to tubbing, had a tub bath from 80° to 90° for 15 minutes with friction every four hours from noon until midnight inclusive if the rectal temperature was 103° or higher. At 8 A.M. all received a warm soap and water sponge.

*Read before the Medical Section of the Academy of Medicine, March 15, 1910.

Those treated by vaccination received no baths other than a daily warm soap and water sponge. In a very few cases 250,000,000 bacilli were employed but no different clinical or laboratory effect could be noticed between the smaller and larger doses. No fever reaction was obtained. No case ended by crisis. Occasionally a slight local erythema or itching was noticed at the point of injection, which cleared up without treatment. The agglutinins were markedly stimulated by the vaccines. Complete agglutination was frequently observed in dilutions as high as 1-500 to 1-1000, while cases without vaccines showed incomplete agglutination in 1-80 dilution. The febrile course in a few cases seemed shortened, but the abrupt change from the sustained fever to the amphobolic type seemed hastened by vaccination, averaging 17.1 in the cases treated by vaccines, and 23.2 in those getting tub baths.

The average day of admission from the beginning of the first symptom was 11.3 and 13.8; of defervescence 36.7 and 34.3 for the vaccination and hydrotherapy cases respectively. The temperature averaged equally high in both series. Hemorrhage was seen with equal frequency, though not so severe, in the vaccinated cases. Relapses were noted with more frequency in the vaccinated cases—30 per cent. as compared with 10 per cent. Relapses were in all cases mild. The cases which received vaccine were in no way selected.

No death occurred in the vaccinated cases; four occurred in the other series, one from hemorrhage one from toxemia, one from perforation and one from pulmonary thrombosis with necrosis of the whole left upper lobe of the lung.

Headache, gastrointestinal symptoms and toxemia were far less frequent in the vaccinated series than in the other cases, and the absence of discomfort seemed striking, while convalescence was more rapid.

A comparison of possible value of the effects of vaccine may be made in three cases which occurred in young adults of the same family in the better class of life who apparently were infected by oysters at about the same time.

The first, a robust man of 26 years, entered the hospital about five days before the other two. He received tub baths throughout his illness; he was profoundly sick; his temperature held at 104° to 105° for 39 days before assuming the amphobolic type; the latter stage of the disease was associated with severe chills and violent temperature reactions, once or twice reaching 107°, which probably came from a cholecystitis; he defervesced on the 62nd day and made an uninterrupted recovery.

The other two cases, husband and wife, entered the hospital together. The man, 33 years, also robust, had a temperature of 104° and marked toxemia; on the sixth day of his disease he received 50,000,000 dead bacilli injected subcutaneously; the dose was repeated every other day until the 14th. The response was rapid; by the eighth day, still with temperature of 104°, he was bright mentally and clamoring for food and said he felt like getting up. On the 13th day the fever broke and on the 17th day was normal. A very large hard spleen did not diminish in size, and on the 20th day fever returned and he had a nine-day relapse of very mild type with fever as the only symptom. Vaccination was resumed on the 20th day, 50,000,000 dead bacilli being given every other day until the 32nd. Convalescence was very rapid and complete.

The third case, the woman, presented three seri-

ous complications. She was 4 months pregnant, had a history of a former dilatation of the heart and carried a weak pulse ranging from 120 to 150 throughout the course of the disease. She had repeated profuse nasal hemorrhages which were controlled with great difficulty. For a few days she was treated by sponge baths, but her reaction was poor and because of exhaustion they had to be stopped. Vaccine was then employed reluctantly, because personal experience was at that time very limited; but on the 10th day we started with 10,000,000 dead bacilli every other day and later raised the dose to 50,000,000. The temperature continued to hold at 104° to 105° for twenty-one days; she was exceedingly weak, but her apathy and toxemia disappeared very shortly after vaccination was begun. She was fearful of the epistaxis and the dangers of abortion. The fever was prolonged to the 47th day, but after the 21st it became quite moderate and she appeared in a convalescent stage. During February of this year she gave birth to a healthy boy.

A fourth case, whose chart I will hand around for inspection, occurred in the recent epidemic above 116th street. I saw her first in consultation with Dr. Almgren. She was stuporous, moaned from severe occipital headache, and the diagnosis was in doubt. She was taken to St. Luke's on the sixth day of her illness and given sponge baths, with icebags to head. It was not before the ninth day that positive blood reaction was manifested. On the tenth day 10,000,000 bacilli were injected and continued every other day. Response was very rapid, with marked amelioration of the headache, and nourishment was taken better. She rested quietly. In spite of the sponge baths her fever until the 10th day held very closely to 104° or a little over; but after the administraion of the vaccine it never went above 104° and soon entered the amphobolic stage. Defervesence occurred on the 24th day. Convalescence was rapid, but one day there was a temperature of 101°, due to an abortive otitis media.

Conclusions.—It would be absurd to assume any positive value from vaccine therapy in typhoid fever in such a small series of cases; it would be equally absurd to rely on the impressions even of an old observer as to the benefit of such treatment on the same series. When we hear reports that starvation diet and the high caloric diet are both highly successful in typhoid fever; when after years of experience one has adopted what seems to be a rational diet and returns to the hospital service to hear the house physician tell of the wonderful results of the "Coleman" or "Shattuck" feeding; when we read of the annual fights of the pediatrists over the high proteid and high carbohydrate diet in infant feeding we realize the difficulties of observation without prejudice. But when the answer is plainly written, as it was in the case of diphtheria antitoxin, although there may have been bitter differences of opinion in the beginning, yet in time those who got the answer first were vindicated by the truth of their observations.

In our experience in the vaccine therapy of typhoid fever we can claim that the agglutinins were markedly stimulated, and there were no harmful results.

Are there any theories that may be advanced to capture the intelligence in this treatment?

Cure in all disease due to bacteria is probably accomplished by the autoprotective forces of the blood. As far as our present knowledge goes, these diseases are all local infections; they may become general from multiple foci; bacteriemia may result but the blood stream itself is not the culture medium. Bacteria may be found in it, but never easily and usually by a difficult cultural process. In spite of the fact that of late years typhoid fever has often been spoken of as a general blood infection, there is no evidence to show that Peyer's patches and the spleen are not the early sites of bacterial growth, with other foci only as complications. In no sense may it be considered a blood infection simply because the blood may hold bacteria just as the urine may.

Fever is due to some specific reaction between living cells or their plasma and bacteria or other living organisms or their products. It is not due to dead bacteria or their products in artificial culture media. An effort has been made to prove fever a beneficial and necessary protective reaction; but that it is ever beneficial is extremely doubtful. The employment of antitoxin serum shows that fever is not an essential reaction in its curative action. The familiar vaccination in smallpox produces full protection by a local reaction, and not because of a febrile movement. The argument that it would seem useless, even harmful, to introduce into the system the bodies of dead bacteria to cure a disease which is constantly poisoning the host with living bacteria or their products is a very superficial one. We assume that the cure in bacterial diseases is by the autoprotective forces of the blood, stimulated by the bacteria of the same disease or their products.

In pneumonia the onset is usually with a chill from toxic absorption; a vast capillary surface is exposed, and the clinical signs are those of a violent toxemia; if the protective forces respond, they do so quickly and decisively. In typhoid fever action is similar but slower. In these diseases we do not know how many bacteria or how much toxin is being absorbed by the minute; we do know that up to a certain point the system can stand the harmful effects and that it is protecting itself. If we can artificially stimulate the agglutinins, the opsonins, the precipitins and antibodies by the injection of dead bacteria which do not increase the fever nor add to the patient's danger, then we can say that the use of vaccine rests upon a sound basis; but to get the best results a great deal more is necessary to know; we do not know how often it should be employed, whether the dose should be uniform, whether it should begin very early with a large initial dose, or with small and increasing doses. The argument that we should use much larger doses because antitoxin is now employed in much larger doses than in the beginning is altogether fallacious. That we use much smaller doses of tuberculin now than formerly may be more reasonably argued. It has been conclusively shown that billions of dead typhoid bacilli may be introduced into the well without harmful reaction; we do not know certainly whether the same holds good in the case of those suffering from the disease.

From theory alone I predict a brilliant future for typhoid vaccine as a protective as well as a therapeutic agent.

To Dr. William R. Janeway, my house physician, who prepared the statistics of this report and aided me in the treatment of the cases, I give my sincere thanks.

40 West Seventy-first Street.

HEMOPHILIA TREATED BY TRANSFUSION.

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THE strange hereditary, hemorrhagic diathesis called hemophilia has been known for centuries, but its pathogenesis, and consequently its therapy, still baffle medical science. Of all the theories which have been proposed concerning the causation of this disease, the most tenable seems to be the one formulated by Sahli: that there is a chemical change in the blood vessel walls. The modern work on the coagulation of the blood, particularly the researches of Morawitz, has shown that the vessel walls secrete a substance, thrombokinase, or the zymoplastic substance of Schmidt. This activates the thrombogen contained in the blood plasma, forming prothrombin, which combines with the calcium salts to form thrombin, the fibrin ferment. Normally when the blood vessels are cut this substance is secreted by the vessel wall and clots are formed which close the mouths of the bleeding veins. But in hemophilia this secretion, according to Sahli, is lacking. This explains the fact that hemophilic individuals continue to bleed, although the coagulation time of the blood outside of the body may not be increased.

On the basis of this hypothesis it is rational to attempt to supply the missing substance by the use of normal blood. This principle in the treatment of the disease is not new. Normal serum has been used in these cases in various ways. It has been given by mouth, subcutaneously, and injected into the bleeding area. As early as 1874 Boisnot injected defibrinated blood into the vein of a boy who was suffering from uncontrollable hemorrhage, and who immediately recovered. These methods have achieved only partial success, and better results are promised by the direct transfusion of blood. Modern surgery has perfected the technique of this operation, making it a comparatively simple procedure. A few cases have been reported recently, most of them successful. The operation is a life-saving one. Whether it can effect a permanent cure of the disease is a question which can not be answered at the present time. The following case from the service of Dr. Henry Koplik, Mount Sinai Hospital, is of interest:

Hemophilia; Acute, Traumatic, Uncontrollable Hemorrhage; Severe Secondary Anemia; Coma; Transfusion; Recovery.—The patient is an Italian male child, one year of age. The parents are aware of the hemophilic tendency in the family, and give the following interesting family history: The mother of the patient had one brother and one sister, of whom the former died of hemorrhage, and the latter lost a son with hemorrhage following the extraction of a tooth. The patient also had a brother and a sister, and of these the boy died following an operation for cervical adenitis, while the girl bled for 36 hours after a slight injury to the teeth.

The patient was admitted to the pediatric wards of Mount Sinai Hospital on March 22, 1910. The past history is negative; he has never had any illness and has had no previous hemorrhage. A week before admission he fell against a chair, knocking out a tooth, and since then has bled continuously from the gum. On admission the patient was evidently suffering from severe anemia. The skin and mucous membranes were very pale, the child was restless and breathing rapidly, the pulse was rapid but of good quality. Examination of the mouth showed the left upper incisor tooth missing, and blood oozing from the cavity. The rectum was filled with hard black fecal masses, which on examination were found to contain blood. In addition the child showed some signs of ricketts; a rachitic rosary and somewhat enlarged liver and spleen. Otherwise the physical examination was negative.

The family history may be more clearly expressed by the accompanying diagram.

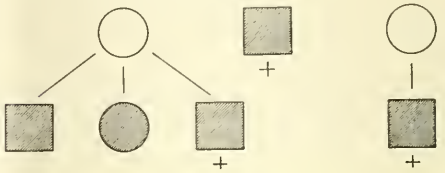

Diagram showing the family history of a case of hemophilia; the circles denote females, the squares males. The shaded figures indicate hemophilic individuals. The fatal cases are marked +.

This family history exemplifies the strong predilection of the disease for males. The single female affected had only a comparatively slight hemorrhage.

Examination of the blood on admission showed the following: R. B. C., 1,024,000; Hgb., 30 per cent. (Sahli); W. B. C., 5,000; Polynuclears, 51 per cent.; small lymphocytes, 31 per cent.; large lymphocytes, 17 per cent.; eosinophiles, 1 per cent.; coagulation time, 15 minutes. All efforts to check the bleeding were vain: local compression, application of diphtheria antitoxin, administration of calcium lactate, injection of sterile gelatin, etc. The apparent bleeding was very slight but continuous, and the child rapidly lost ground. On March 25, ten days after the injury, it was decided to try transfusion. At this time the hemoglobin had fallen to 11 per cent., and before the operation the child became comatose. The respirations were deep and rapid and of the Kussmaul type, the pulse rapid and feeble. It was feared that the child would die before preparations could be completed.

The transfusion was performed by Dr. Charles E. Elsberg, who used a modification of the Crile operation, which he has devised. The patient's father was the donor. The radial artery of the donor was anastomosed to the femoral vein of the child. The only difficulty encountered in the operation was in the exposure of this vein, the child's vessels being small and collapsed. The blood was allowed to flow for about fifteen minutes, and a marvelous transformation was observed. The waxen skin of the child became suffused with a red glow. Indeed, toward the end he became cyanotic on account of the injection of too much blood. At the same time the infant, who previously lay apparently lifeless, regained consciousness and began to cry. The hemoglobin rose from 11 per cent. to 90 per cent., and the coagulation time changed from 15 minutes to 7 minutes. The child remained in a semi-stuporous condition for two to three days, but after this rapidly improved. The coagulation time, which was diminished directly after the transfusion, again became lengthened. On March 28, three days after the operation, it was 18 minutes; on April 6, 12 minutes; and April 25, 9

minutes. There was no further bleeding, however, from the original site or from the operative wound. The hemoglobin remained high. On April 8 the blood examination showed R. B. C., 4,000,000; hemoglobin, 82 per cent.; on April 25, R. B. C., 4,400,000, hemaglobin 97 per cent. The child was discharged April 30, 1910, five weeks after transfusion, in excellent condition.

This transfusion was performed as an emergency operation on a moribund patient, and the result greatly exceeded our hopes. The child was suffering from a hemorrhage which we were unable to control, was completely comatose, had a pulse which was scarcely perceptible; and in a few minutes he would certainly have been dead. The immediate checking of the hemorrhage after transfusion and the rapid return to perfect health make a picture which it is seldom the privilege of the medical man to see.

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STATISTICAL ANALYSIS OF OVER SIXTY-EIGHT THOUSAND CASES OF TYPHOID FEVER.

REPORT NO. II.

MORTALITY.

BY ABDULLAH K. SALLOM, M.D.,
PHILADELPHIA.

IN this second report it is my object to present briefly the typhoid mortality along the same lines laid down in my preliminary report (MEDICAL RECORD, Nov. 20, 1909). The study of mortality, and of typhoid fever in particular, is indeed interesting and instructive. In this case it reveals a truly remarkable condition of affairs, which I have attempted to represent graphically by the accompanying charts.

As I stated in my preliminary report, there occurred in Philadelphia from January, 1898, to June, 1909, sixty-eight thousand nine hundred and forty-three (68,943) cases. Of this number eight thousand one hundred and two (8,102) died, giving a mortality of slightly over 11.75 per cent.

The prevalence of typhoid fever, as we all know, is markedly affected by season, and very early in the study the question naturally arose, Is mortality also affected in the same manner? That season does play an important rôle cannot be doubted if we but glance at Chart I.

The unbroken line represents the average number of cases occurring during each month of the year. The percentage mortality is represented by the dotted line. The figures to the left of the chart refer to the number of cases, while the percentage mortality is denoted in the column on the opposite side.

Starting with a mortality of slightly over 10 per cent., it rises during February and March to 12.37 per cent. Falling during April, it ascends during May and June. The July mortality is phenomenal, reaching the maximum of 17.61 per cent. Dropping as precipitately as it rose, the mortality for August is only 11.75 per cent., and falls to 10.21 per cent. during September. For October it again rises, only to fall during November, and rise in December.

The relationship of morbidity to mortality is indeed striking. Starting in January with an average of nearly seven hundred, the number of cases rises during February and then gradually falls, reaching its lowest ebb during July. On the other hand, mortality, starting with a minimum during January, rises to reach its maximum in July. During September, in which month we have the second maximum in morbidity, a second minimum in mortality is obtained. The one salient feature which this chart shows to a remarkable degree is the apparent relationship of morbidity to mortality.

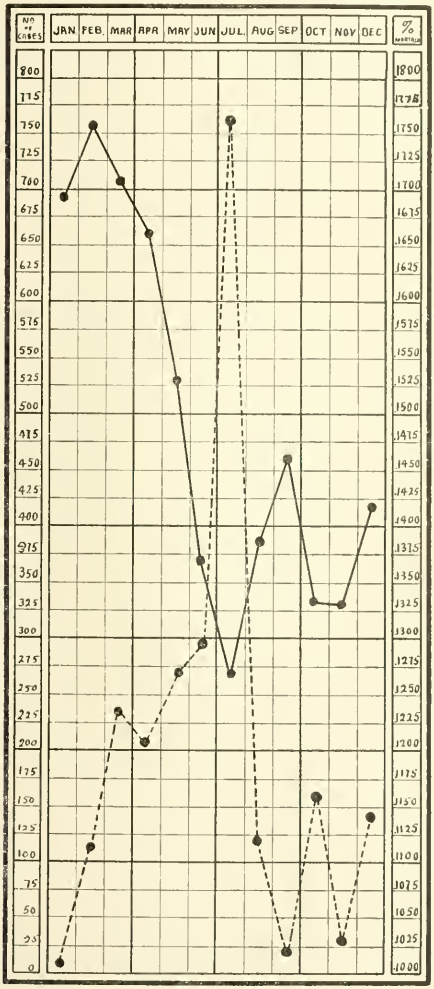

CHART I.—Showing average number of cases and percentage mortality of typhoid fever for each month of the year.

The importance of this condition from a prognostic point of view can hardly be overestimated, but a more careful study somewhat modifies the condition. We all know that typhoid fever is a

disease of from about four to seven weeks' duration. It becomes evident, therefore, that the majority of those dying in January will have contracted the disease in the preceding month. To

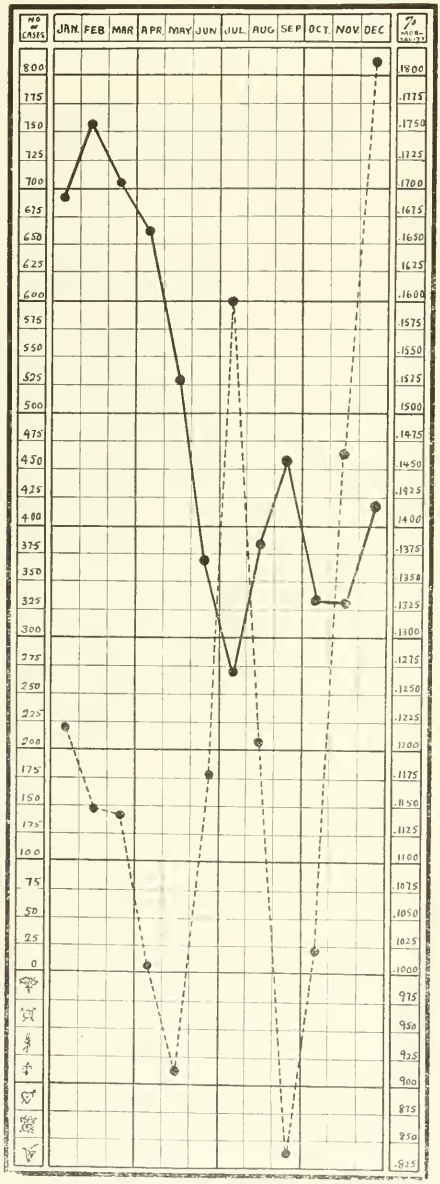

Chart 2.—Showing the average number of cases and the percentage mortality for each month, obtained by taking the mortality of the one month and the morbidity of the preceding month into consideration.

compute, therefore, the true percentage mortality for any one month the mortality of that month and the morbidity of the preceding month must be taken into consideration. Chart II is based on the percentage mortality obtained in this manner. At first glance this chart does not seem to show what the preceding chart does. Upon careful study, however, it collaborates it to a certain extent. It will be noticed that with the minimum morbidity of July the first maximum in mortality is present; and with the second maximum in morbidity occurring during September, the minimum in mortality is obtained.

Which of these charts shall we accept as representing the true percentage mortality? From the knowledge which I have gained by the study of these statistics I believe that season has a marked influence on typhoid mortality. Further than this, I prefer to leave it to the medical profession, to whom this report is respectfully submitted.

In conclusion, I desire to state that I hope in the very near future to submit further data upon the subject to prove definitely the validity of the following statement:

With the maximum morbidity a minimum percentage mortality is present, and vice versa; and further that as morbidity falls mortality rises.

1625 South Fifteenth Street.

Some Observations on Gastrointestinal Fermentation.—D. Sommerville says that there are two forms of fermentation: (1) the acid in the upper part, and (2) the alkaline in the lower part of the digestive tract, and mentions certain interesting facts which have come to light in the course of his experiments and observations. He says that it has long been known that where an individual consumes excessive quantities of protein, *i.e.* larger quantities than he can assimilate and finally oxidize, a more or less definite set of symptoms appears, characterized by headache, drowsiness, lassitude, and irritability; these symptoms are accompanied by an increase in the ratio of ethereal to preformed sulphates in the urine, as also an increase of the same sulphates to the total nitrogen (Amann's coefficient). Such a urine when subjected to a simple qualitative examination gives increased quantities of indol, indolacetic acid, phenol, skatol, and aromatic oxyacids, all products of intestinal putrefaction. The feces of such a patient when distilled and the distillate shaken up with a concentrated solution of mercuric chloride (Schmidt's reaction) yield the red color, changing to yellow fluorescence, indicative of hydrobilirubin, an index of reduction processes due to putrefactive bacteria. In this connection it may be noted that the variations in amounts of indol and phenol and their derivatives excreted in the urine and feces form a fairly accurate index of the degree of putrefaction going on in the intestine, since these substances are not formed in any other part of the body, nor through any other agency than that of putrefactive bacteria. This statement excludes, of course, any degree of putrefaction that may have been present in the protein food before ingestion. In health the amount of ethereal sulphates varies uniformly with the amount of protein consumed, and their ratio to the total nitrogen in the urine is approximately constant, viz., about 1.5:100. If carbohydrate be substituted for protein in the diet of such a patient, his physical and psychical attitudes towards men and things become quite changed. He loses his headache, becomes alert, and exchanges his irritability and moroseness for a more agreeable manner. Indol, indolacetic acid, and the aromatic oxyacids rapidly decrease, and in time completely disappear from his urine, whilst his hard, dark-brown, and extremely offensive feces give place at first to loose, but afterwards to formed soft grey and inoffensive material. Ethereal sulphates are always markedly reduced on milk diet, and the richer the milk in sugar the more marked the reduction.—*The Lancet.*

MEDICAL RECORD.

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New York, October 8, 1910.

POLIOENCEPHALITIS.

A FEW years ago acute anterior poliomyelitis was considered to be a primary local degenerative disease of the anterior horns of the gray matter of the spinal cord. With the recent rapid growth of knowledge of this disease, however, it has become recognized that the local lesion in the cord is but the sequel of an acute inflammation which is in itself but a part, and in fact not a necessary part, of a general constitutional infection or intoxication. Not only has it been pointed out on many occasions that during epidemics of typical poliomyelitis cases occur showing constitutional symptoms which lead the observer to expect at any moment the appearance of the tell-tale paralysis, but are aborted so that the little patient after a few days' illness is again returned to robust health, but it has also been shown, first by Strümpell, and later by many other authors, that in such epidemics similar cases occur, but with the striking difference that the paralysis resulting is of a cerebral rather than a spinal type. To such cases have been given the name Strümpell's paralysis or polioencephalitis.

In *The Practitioner* for July, 1910, Reginald Miller of London briefly and ably reviews the present knowledge of this disease. Its occurrence in epidemics of poliomyelitis, in the hot season, and in children between six months and six years of age, and the complete similarity of the symptoms of onset to those of poliomyelitis leave but little doubt that in the two symptom complexes we are dealing with different manifestations of one and the same disease. Miller in fact groups all of these allied conditions as one infection with four clinical forms —acute poliomyelitis, acute polioencephalomyelitis, acute polioencephalitis, and the abortive form causing no paralysis. While the nervous symptomatology of the myelitis cases is comparatively simple, consisting of little more than a flaccid paralysis and more or less hyperesthesia, that of the encephalitis group of cases may be as varied as are the innumerable functions of the different portions of the brain tissue.

By polioencephalitis superior is understood those cases in which the virus of the disease has localized its activities to the cortex, causing hemiplegias or mental degenerations. Under the title of polioencephalitis inferior are grouped affections of the muscles of the eye, the facial, or the auditory nerve. Encephalitis cerebelli is characterized by a sudden onset of ataxia, making a condition most difficult to diagnose, as it may be associated with nystagmus and scanning speech, and thus be easily confused with insular sclerosis. Encephalitis of the mid-brain shows the chief symptoms of acute tremor, hypertonus, and spasticity. Thalamic encephalitis, pontine cases, and poliomyelitis bulbi have all been seen, as have also acutely fatal cases supposed to be due to involvement of the medulla.

From the etiology and gross symptomatology of all these varied conditions it is evident that they belong to one great disease, of which poliomyelitis is but one clinical group. The use of two different names for two manifestations of one disease is unfortunate and confusing. A new term is desired, and when it is obtained, it must be some comprehensive word, containing a specific reference to neither the spinal cord nor the brain, which will enable the grouping of all of these clinical complexities as one great disease.

TYPHOID CARRIERS.

To how great an extent bacilli carriers are a means of dissemination are responsible for conveying typhoid fever is a question which is yet quite an open one. There are those who assert that "typhoid carriers" are among the most potent modes whereby infection is spread, while others declare that the situation in this connection has been greatly exaggerated and that infected human beings are really a comparatively negligible quantity insofar as the conveyance of the malady is concerned. Perhaps, in this matter it would be wise to steer a middle course and it might not be presumptuous to state that "typhoid carriers" are capable of spreading the disease to a somewhat limited extent, but at the same time the danger from this source is a real one and that measures should be sought to nullify or to limit the scope of the menace.

Some interesting studies on the subject have been undertaken recently in Great Britain, notably by Dr. D. S. Davies, medical officer of Healtht of Bristol, Dr. Walker Hall, Bristol; Dr. E. Emrys-Roberts of Cardiff, and Dr. I. Fletcher of Manchester. These authors have been publishing in the *Lancet* from time to time their conjoint researches and conclusions on various phases of the typhoid carrier question. In the *Lancet*, September 3, are some further observations on the subject chiefly dealing with treatment. The claim has been made more than once that the typhoid bacillus can be successfully eradicated from the human tissues by certain means of treatment, but the authors are of the opinion, basing their views on experiments and their own experience, that these conclusions would be modified or withdrawn were the carriers subjected to more rigorous and continued examinations.

The main subject of the experiments in Bristol Infirmary was a woman who contracted typhoid fever in 1905 and has been a carrier since that time. The authors were unable to make any experiments upon the bactericidal or opsonic properties of the blood serum, and their observations were confined to the examination of the typhoid organisms in

feces and urine to the agglutinia contents of the serum, and to the action of therapeutic agents. The action of lactic acid bacilli upon *B. typhosus* and *B. coli* was tested and discussed and a summary of the results shows that while varying degrees of inhibition of coli growth were obtained, the inhibitory effects upon the typhoid bacilli was very slight, practically nil. This finding is in accord with the experience of those who have given the soured milk therapy a prolonged trial. Of course, in "typhoid carrier" cases, at times bacilli cannot be detected in the excretions, but they frequently reappear. Autogenous vaccine was used in gradually increasing doses for a period of five months with no definite success. Other drug treatment employed did not produce the desired effect, and on the whole the outcome of the experiments was negative and somewhat discouraging. The authors also conclude that the data already accumulated are insufficient to permit of the slightest attempt at generalisation or deduction as to the employment of the Widal reaction as a means of diagnosis of suspected carriers or as method for investigating the condition of convalescents.

Thus, the report so far is the reverse of encouraging, although the fact must be borne in mind that in the Bristol Infirmary the material was limited and that the experiments were in no respect wide enough to be conclusive. As said before, our present knowledge of "typhoid carriers" is very restricted in regard to their numbers. With regard to their menace as a source of infection, our knowledge, too, is vague. Several cases of typhoid fever have undoubtedly been traced to "typhoid carriers," but whether they are a fertile source of infection cannot be definitely stated. The matter requires far more careful study than has yet been given to it.

TRYPSIN THERAPY OF LOCAL TUBERCULOUS AFFECTIONS.

The treatment of tuberculous abscesses, hygromata, lymph nodes, etc., by proteolytic enzymes has now been studied systematically for two years or more and there is abundant evidence that the treatment often gives satisfactory results. The theories advanced to explain this action vary, but the most plausible is the following: tuberculous pus contains no proteolytic enzyme, so that the addition of one converts the albumin and albumoses of the pus into more soluble end-products of peptonization with resulting absorption. Various proteolytic enzymes have been employed, to wit, commercial trypsin, trypsin activated by admixture with charcoal, and the enzyme of the leucocytes themselves. It would appear that 1 per cent. trypsin solution gives as good results as any other form of enzyme (see the Vienna letter in the Medical Record of September 3.) The number of reports on this subject is relatively small when we consider their favorable character. So far as we know no unfavorable reports have been published.

Authorities have differed somewhat as to technique and to indications and contraindications. Brüning (*Deutsche medizinische Wochenschrift*, September 1, 1910) has been at great pains to introduce some degree of system into this subject, but his conclusions are somewhat antagonistic to those of other workers in the field. For example, others have pronounced the treatment absolutely inoperative in tuberculous bone abscesses, but the author finds trypsin of value in small suppurating foci in bony tissue. He agrees with others in finding it of value in cold abscesses, but limits its use to small stationary lesions. In burrowing abscesses he cannot see that it is in any way superior to iodoform-glycerin. In joint tuberculosis as well as in large foci in bone he finds it unsuitable. This is likewise true for caseous lymphatic glands. It seems a fair generalization that trypsin accomplishes nothing in caseous or proliferative lesions. The *sine qua non*, in other words, is a fluid or semifluid collection, in which the enzyme is able to render soluble that which has been insoluble. Naturally, enlarged lymph nodes, which have not yet become caseated, are not amenable to trypsin treatment.

The author's technique differs somewhat from that ordinarily laid down. He punctures the abscess outright with a trocar and evacuates it. The trypsin solution is then thrown in (some authorities have injected the ferment directly into the unevacuated pus). It doubtless acts by peptonizing the residue of old pus as well as newly generated pus. The author has treated over 100 cases of local tuberculosis in this manner. He repeats the injection at about weekly intervals if indicated. He has never encountered anaphylaxis or drug exanthem as a result of trypsin injections.

Without going more deeply into the matter, we may look upon the trypsin treatment of local tuberculous foci as at least on a par with the old iodoform absorption treatment. Most surgeons undoubtedly favor the most radical treatment of local tuberculosis. Many, we know, refuse to temporize or palliate in such matters. But along such lines there can be no advance. Progress and conservation are often happily allied, and this appears to be the case with the subject in question.

Staphylococcus Vaccine in the Treatment of Cutaneous Lesions.

Antistreptococcus serum has been used with varying success for some time by different practitioners. The nonsuccess in certain cases seems to have been due to the varieties of streptococcus that have been the causative agent, and successful results have been obtained only when the serum was made from the same variety as caused the suppuration. Vaccines of the staphylococcus made for each individual from his own peculiar germ have been used by A. Mauté in various forms of skin lesions caused by the staphylococcus, and the results have been in some conditions markedly successful. In *La Presse Médicale*, for June 22, 1910, Mauté gives an account of his observations. He had poor success as long as he made use of the so-called stock vaccines, but when he made autogenous vaccines his results were good. He gives the method of producing vaccines sterilized by heat and by the presence of a small amount of phenic acid. It is possible to obtain a vaccine in four days from the beginning of the process of manufacture. Injection is made into the subcutaneous tissue of the thigh, and causes no

general or local reaction. The dose varies with the affection that is to be treated, from 250 to 1500 million bacteria, and injections are made five or six days apart. No regard need be had to the opsonic index. The author's observations include furunculosis and pustular acne. In acne the results were somewhat inconstant, being best when there was a distinct pustular condition, which was rapidly reduced to simple red spots without heads. In furunculosis the results were truly brilliant, the furuncles disappearing in a few weeks after two or three injections, and no others appearing.

Effect of Floods and Inundations on the Prevalence of Typhoid Fever.

At this season of the year when we see a rise in the number of cases of typhoid fever it seems appropriate to discuss the effect of floods and inundations on its increase. Jacques Bertillon in the *Presse Médicale*, for July 23, 1910, gives the results of a study of the effect of floods in various cities of Europe, notably the great flood of 1910, in Paris. It has been stated in various quarters that the effect of such a flood was to increase the dangers from typhoid fever and other epidemic diseases. The author, on the contrary, finds that the effect of the flood in Paris was not to increase the number of cases or of deaths from typhoid, but rather to decrease them. It would seem that the great washing out of the city streets had rather a cleansing effect than otherwise. A study was made of the occurrence of the fever in the *arrondissements* affected by the flood, and in others to which the flood did not reach, and it was rather higher in the unaffected locations. In the 54 quarters inundated there was a total of 44 deaths from typhoid in 13 weeks before the flood, and only 24 in the same number of weeks afterward. During and after the flood it is probable that the authorities were more careful in disinfection and in isolating cases that occurred than at more healthful times. In ten floods in the city of Dresden, however, typhoid fever was not increased, and the same was true in six floods in Vienna. After the analysis of all these cases it seems evident that the statement made that there is an increase of typhoid after floods is erroneous.

News of the Week.

College of Physicians and Surgeons.—The College of Physicians and Surgeons, Columbia University, New York, opened its 157th annual session on September 28, with a total enrollment of 302 students. The first year class numbers 75. Opening exercises were held on September 29, when Dr. W. G. MacCallum, Professor of Pathology, delivered an address on "The Future of Medicine."

Harvey Society.—The first lecture of the Harvey Society will be given at the Academy of Medicine, New York, on Saturday, October 15, at 8:30 o'clock, by Prof. H. Chiari of the University of Strassburg, whose subject will be "Die Bedeutung der pathologischen Autopsie und sonstiger pathologisch-anatomischer Untersuchungen." In addition to the subjects already published the society announces a lecture by Prof. Jacques Loeb of the Rockefeller Institute for November 19 on "The Prevention of the Toxic Action of Various Agencies through the Prevention of Oxidation in the Cell." Prof. Arthur R. Cushny of the University of London will lecture on January 14 on the "Therapeutics of Digitalis," and Prof. H. Gideon Wells of the University of Chicago on March 25 on "Calcification and Ossification." The lectures are open to the public.

University and Bellevue Medical College.—The opening exercises of the University and Bellevue Hospital Medical College were held in the Carnegie Building on September 28. One hundred and fifty students were registered in the freshmen class.

Cholera in Europe.—The existence of cholera in Naples, which had for some time been suspected, was not officially admitted until September 25. Before that time hundreds of cases and many deaths had been ascribed to "gastroenteritis," and accurate estimations of the real cases of cholera are not possible. In Russia the general situation is thought to be improving, although new cases have been reported in the eastern districts and in parts of Siberia. During the week ending September 30 215 new cases and 80 deaths were reported in St. Petersburg, a considerable decrease from the week preceding. The Russian Sanitary Bureau reported 198,246 cases and 92,329 deaths from the outbreak of the epidemic to the end of September.

Fair for Columbus Hospital.—A festival to raise funds for Columbus Hospital, New York, will be held at the Manhattan Casino on Columbus Day, October 12. The hospital has outgrown its present quarters and funds are needed to erect a ten-story addition containing 300 beds.

Keeping Out Hindus.—The determination that a large proportion of the Hindu immigrants are suffering from hookworm disease may be the means of stopping the influx of these people. The Hindus have been arriving in San Francisco recently at the rate of 300 a month, somewhat to the consternation of the residents of the Pacific Coast.

Charitable Bequests.—The Presbyterian Rest for Consumptives at White Plains, N. Y., receives a bequest of $1,000 in the will of the late Mrs. Laura P. Halstead.

The Nevada State Medical Association held its annual convention at Lake Tahoe on September 19 to 21. The following officers were elected for the ensuing year: *President*, Dr. Sidney K. Morrison, Reno; *Vice-President*, Dr. W. H. Hood, Reno; *Secretary*, Dr. M. A. Robinson, Reno.

The Hyde Park (Massachusetts) Medical Club at its meeting on September 19 elected the following officers: *President*, Dr. Charles Sturtevant; *Vice-Presidents*, Drs. John A. O'Connor and Clarence E. Bryant; *Secretary*, Dr. Arthur E. Grover; *Treasurer*, Dr. Edward H. Baxter; *Director for three years*, Dr. Charles F. Stack.

The Southwest Medical Society will hold its fall meetings at Springfield, Mo., on November 3 and 4. Dr. H. S. Hill of Springfield is the secretary of the society.

The Iowa Health Officers' Association at a recent meeting elected the following officers: *President*, Dr. Fred. Albert, Mason City; *Vice-President*, Dr. Samuel Bailey, Mt. Ayr; *Secretary and Treasurer*, Dr. W. G. Carhart, Marion.

The Knox County (Illinois) Medical Society at its annual meeting on September 22 elected the following officers for the ensuing year: *President*, Dr. D. J. Evans, Galesburg; *Vice-President*, Dr. C. E. Beecher, Gilson; *Secretary*, Dr. G. C. Bower; *Censor*, Dr. J. E. D. Silcox, Rio.

The North Berkshire (Massachusetts) Medical Association at its annual meeting on September 20 elected the following officers: *President*, Dr. William Galvin; *Vice-President*, Dr. L. J. O'Hara; *Secretary and Treasurer*, Dr. L. A. Jones; *Censors*, Drs. O. J. Brown, C. W. Wright, A. K. Boom, and F. H. Howard.

Pike County Medical Association.—The physicians of Pike County, Georgia, have recently formed an association with the following officers: *President*, Dr. J. M. Anderson, Barnesville; *Vice-President*, Dr. W. H. Aycock, Molena; *Secretary*, Dr. M. M. Head, Zebulon.

To Exclude Tuberculous Teachers.—The Board of Education of the city of Camden, N. J., has adopted rules looking toward the exclusion of tuberculous teachers from the public schools and also of tuberculous pupils from the Normal Training School.

Obituary Notes.—Dr. William Frederick Holthausen of Brooklyn, N. Y., a graduate of the College of Physicians and Surgeons, New York, in 1904, and formerly on the house staff of the Long Island College Hospital; a member of the New York State and Kings County Medical societies, was killed on September 24 when the trolley car in which he was riding collided with another car at Tipton, Ind. Dr. Holthausen, who was thirty years of age, was on his way to Kokomo, Ind., where he was to have been married on the following day.

Dr. G. L. McIntyre of New Martinsville, W. Va., a graduate of the Baltimore Medical College in the class of 1888, a veteran of the Civil War, died in the North Wheeling Hospital on September 12, aged 64 years.

Dr. Wear F. Armstrong of Henderson, Ky., a graduate of the Southwestern Homeopathic Medical College, Louisville, Ky., in 1899, died suddenly on September 12, aged 36 years.

Dr. Emil Wahl of Milwaukee, Wis., a graduate of the University of Leipzig, Germany, in 1884, was accidentally killed while hunting on Muskego Lake on September 9. He was 47 years of age.

Dr. William Cowpe Gardner of New York, a graduate of the Long Island College Hospital in 1892, a member of the New York State and County Medical societies, died at his home of heart disease on September 28, aged 55 years.

Dr. John Erhard of College Point, N. Y., a graduate of the Long Island College Hospital in 1896, died at his home on September 27, aged 48 years.

Dr. John Beverly Crowell of East Orange, N. J. a graduate of the College of Physicians and Surgeons in 1873, died suddenly at his home on September 21, aged 60 years.

Dr. Edward A. Wilcox of Minonk, Ill., a graduate of the Rush Medical College of Chicago in 1857, formerly a member of the State Senate, a member of the Illinois State and Woodford County Medical societies and of the North Central Medical Society, died at his home on September 23, aged 80 years.

Dr. Edwin M. Nelson of St. Louis, Mo., a graduate of the Miami Medical College of Cincinnati in 1874, formerly a lecturer at the St. Louis Medical College and editor of the St. Louis *Courier of Medicine*, one of the founders of the Protestant Hospital and of the St. Louis Training School for Nurses, a member of the American Medical Association and the Missouri State Medical Society, died at his home on September 20 after a long illness, aged 62 years.

Dr. Albini J. W. Dufault of Fall River, Mass., a graduate of the Medical Department of Laval University, Quebec, in 1905, died at his home on September 23, aged 28 years.

Dr. O. N. Dages of Boston, Mass., a graduate of the Harvard Medical School in 1910, and senior house officer in the Boston Floating Hospital, was drowned in Fort Pond, near Littleton, Mass., on September 21, while attempting to rescue a young woman who had gone beyond her depth when bathing. Dr. Dages, who was to have entered the Massachusetts General Hospital in March, 1911, as an interne, was 27 years of age.

Dr. Norman McNab of Montreal, Canada, a graduate of the Medical Department of McGill University in 1907, died of typhoid fever on September 16 at Edmonton, Alberta, aged 24 years.

Dr. Noah Howard Burt of Ocean City, N. J., died at the Hospital of the Universitiy of Pennsylvania at the age of 36 years on September 23. He was graduated from the medical department of the university in the class of 1895.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

THE COMING SESSION—WAR AGAINST CONSUMPTION, SANATORIUMS, ETC.—INDIAN MORTALITY—LUNACY REPORTS—PTOMAINE POISONING—ITEMS—OBITUARY.

London, September 16, 1910.

The approaching winter session which opens, as usual, at the commencement of October, is the chief subject when students or teachers meet, and even men busy in practice display an interest in an event which takes their memory back to their own student days. If any one were likely to forget it he is pretty sure to be reminded by the receipt of the prospectus for the coming session of his old school, for the deans and others have been busy bringing out these annual pamphlets, and lest any forget, the journals are reprinting the bulk of many, with other information, and so attracting to their pages a large additional number of advertisements. Each brings out its "educational," or "students'" number, the largest of the year, appealing, apparently, to parents who contemplate placing their sons in the profession, and to the sons who have determined to adopt or are inclined to follow the medical career.

The last development of the sanatorium is a group of shelters in which patients can be treated by fresh air and light. Such a group was opened on Monday by the Earl of Warwick as a memorial to the late Alfred Boyd. It is intended for patients of moderate means, and is a gift by Mr. Boyd's widow. The shelters have been designed by Dr. A. E. Lyster. The frame is of wood, and to this is attached canvas of an open texture, part of which can be opened or closed more or less according to wind and weather. Lord Warwick, in his speech, remarked that any poor man might have such a shelter in his own garden, where he could be attended by his own doctor, and cared for by his family and friends. After the opening a conference was held at the County Hall, Chelmsford, when Dr. Lyster explained the system and said there were thirteen unions in the county (Essex), and £1,600 would provide them all with such shelters, while less than

a halfpenny rate per union would cover the cost. Dr. Thresh, M. O. H. for the county, talked cheerily of seeing the way to eradicate the scourge of the white race. Dr. J. E. Squire, of the Association for Prevention of Consumption, was also optimistic, and Sir R. Douglas Powell wrote that after visiting the memorial it seemed to him that Dr. Lyster had provided the best method of dealing with consumption in rural and small urban districts. It was resolved to form an association to promote this method throughout the county, and Lord Warwick agreed to accept the presidency.

The Beninden Sanatorium, in Kent, has received a great addition in the shape of a "postoffice pavilion," erected in the course of a year, and formally presented on Monday by Mr. Samuel, on behalf of 45,000 postoffice members of the National Sanatorium Association. In his speech he declared that year by year the association "gave back life to scores and scores of men and women who felt life slipping away." He even went so far as to say that of all the splendid results of our civilization the finest of all is the "triumph of man over disease." A more reasonable statement of his was that the test of the state of the patients was not at the moment of leaving the institution, but after a sufficient lapse of time to show the durability of the cure. As to this, he said that after two years four-fifths of the patients discharged as arrested were in full work, and of those who had shown signs of improvement one-half were in full work—men and women all of whom would a few years ago have been doomed to speedy death. The National Sanatorium Association originated with societies of postoffice employees, and the subscription to this form of insurance against consumption is only two shillings a year.

At the meeting of the Dublin Hospitals' tuberculosis committee, on the 1st inst., Dr. J. T. Daniel made his report for the last quarter. During the quarter he had visited thirty-one patients at their homes, and forty-one others came to his house to see him. A summary of the two district nurses employed in the work was also submitted and approved, as was that of a nurse working in Teremure. The regulations under the Tuberculosis Act were considered, and a subcommittee was appointed to consider the limitations on notification under the act. The recommendation of the Dublin Hospitals' board that lady almoners should be appointed at all the clinical hospitals was considered and endorsed, these almoners to visit the homes of the out-patients and instruct and advise them concerning sanitary matters, the care of their health, and that of their families, diet, fresh air, exercise, and so on. The almoners are mostly in communication with charitable institutions, through which they can often assist the needy and thereby reinforce the effects of the hospital treatment. The system has been at work more than two years, and the results led the committee to strongly support it.

A Blue Book relating to India was issued last week. It contains a great mass of statistics on various matters; among them some as to the deaths in 1908. The deaths from cholera increased from 103,988, in 1907, to 170,694 in 1908. In the case of plague, there was a great decrease. From fevers a considerable increase, 5,424,372 persons dying in 1908, as compared with 4,464,881 in the previous year. During the last ten years the deaths from fevers have never been less than 4,000,000, but they have never before exceeded 5,000,000.

The Scottish Lunacy Commissioners state in their fifty-second annual report that there has been a fall in the number of pauper patients since the year 1903, which year they think a turning point; so that they anticipate no permanent increase in the number of registered lunatics in the future under present conditions, beyond the rise due to increase of population or such as may occur from mere accumulation through a diminished rate of discharge.

The inspectors for Ireland have issued their fifty-ninth report. There was an increase in 1909 of the same amount as the previous year, but rather less than the decennial average. A table gives the number of all lunatics from 1880 to 1909, which shows an increase in this period of 11,162. The largest increase is in the inmates of district asylums; the pauper lunatics in workhouses have decreased.

The outbreak of cerebrospinal meningitis displays a tendency to spread. Another death has occurred in Nottingham Hospital, and two boys from one of the most crowded districts in that city have been taken to the isolation hospital. Cases have appeared in Essex; one of them died in Chelmsford Hospital, and it is thought others may be fatal.

Further reports of ptomaine poisoning have been received, two from Staffordshire, three from Darlford, and all are attributed to tinned salmon. In one tin cigar leaves were found. A still more startling statement has appeared in some newspapers, to the effect that over 100 cases of ptomaine illness have happened in one of the prisons.

At an inquest on a child who died after the extraction of seven teeth under one anesthetic the jury found that a doctor ought to have been called to administer it.

The Senior Fellow of the Royal College of Surgeons is Mr. Steet, now 92 years of age. He was chief medical adviser at the General Post Office for some twenty years, and retired in 1891. His first diploma is dated 1840. He served on the consulting staff of the Spanish Consulate in London. I am told that at his great age his memory seems good, and his intellectual faculties unimpaired.

Deputy Inspector General John Jack, R. N., died on the 8th inst., at the age of 92. He took L. R. C. S., Edinburgh, in 1839, joined the navy in 1842, became staff surgeon in 1854, fleet surgeon in 1867, deputy inspector general of hospitals and fleets in 1875. He was the holder of the Sir Gilbert Blane gold medal awarded to medical officers for the most approved journals of their practice while in medical charge of a ship of war in the Royal Navy.

Mr. John Langton, Senior V.P., R.C.S., died on the 11th inst., aged 70. He was connected throughout his career with St. Bartholomew's Hospital, of which he was a student, and then passed through the various positions on the surgical side up to the consulting surgeoncy. At the Royal College of Surgeons he became a member in 1861, and fellow in 1865. He has served on the council and court of examiners, and been Hunterian professor, Bradshaw lecturer, etc. He examined in surgery for the Sister College, was consultant to the City Lying-In Hospital, the Trust Society, and other institutions. He edited Holden's "Manual of Dissections," and wrote valuable memoirs on hernia and other surgical subjects in St. Bartholomew's Hospital *Reports*, Heath's "Dictionary of Surgery," Medicochirurgical *Transactions*, etc.

Dr. Lombe Atthill, a former president of the Royal College of Physicians in Ireland, as well as of the Royal Academy of Medicine, died suddenly on Wednesday, at a railway station, after hurrying to

catch a train. He was born in 1827, educated at Dublin University, graduated there M.B., 1847; M.D., 1865. He took L.R.C.S.I. in 1847, and F.R.C.P.I. in 1860. He retired in 1898. He had been Master of the Rotunda, consulting obstetric physician to the Adelaide Hospital, and an examiner on the subject at the Queen's University, and other bodies. His "Lectures on Diseases of Women" reached a seventh edition in 1882. He contributed on his specialty to the *Dublin Quarterly* and other periodicals, and the obstetrical society of which he had been president.

Progress of Medical Science.

Boston Medical and Surgical Journal,

September 22, 1910.

The Influence of Exhaustion Upon Puerperal Morbidity. Based Upon a Study of 5,000 Puerperia. By John T. Williams.
Bacterial Vaccines in Pyogenic Infections of the Urinary Tract. By H. F. Hartwell.
The Place of Tuberculin in the Immunization of Urogenital Tuberculosis. By Geo. P. Sanborn.
Acute Pancreatitis, with the Report of Two Cases. By Philemon E. Truesdale.
The Value of Tuberculin in Tuberculosis of the Urinary Tract. By Hugh Cabot.
Persistent Vomiting of Pregnancy. By F. W. Johnson.

The Influence of Exhaustion upon Puerperal Morbidity.—J. T. Williams bases his paper on a study of 5000 puerperia, and presents the following conclusions: (1) A temperature of 100° F., or above, occurs at some time during the first twelve hours after delivery in about 20.5 per cent. of all cases. (2) The temperature curve during this period in the majority of cases corresponds with the diurnal variation. (3) This elevation of temperature does not necessarily correspond to the duration of labor, but probably does to its severity. (4) The pulse-rate is a less reliable index of exhaustion than the temperature. It most commonly falls during the first twelve hours, a rise in the majority of cases accompanying a corresponding rise of temperature. (5) Puerperal morbidity, with the exception of mastitis, increases in direct proportion to the duration of labor. (6) This increase affects equally all the more common complications of the puerperium. (7) Cases in which there is an elevation of temperature during the first twelve hours after delivery are followed by a higher morbidity than those in which there is not; and when this temperature reaches to 101° or over, the subsequent morbidity is 38.09 per cent. (8) An elevation of pulse at the end of labor is of comparatively slight prognostic importance from this standpoint, but is followed by a slightly increased morbidity. (9) The morbidity is greatest after the high operations, but here, as is also true of the low operations and spontaneous delivery, the morbidity increases in direct proportion to the duration of labor. (10) The morbidity after low forceps is less than after spontaneous delivery, presumably because labor is shortened and exhaustion lessened. (11) From every standpoint from which it has been considered it is evident that exhaustion during labor has a distinct influence toward increasing puerperal morbidity.

Bacterial Vaccines in Pyogenic Infections of the Urinary Tract.—H. F. Hartwell reports his experience in twenty-five cases and gives two histories in detail. He says that the milder cases of bladder infections have responded well to this form of treatment. After the first few inoculations the irritation, frequency, and pain in micturition were lessened and steadily diminished. The condition of the urine showed a corresponding but slower improvement. The bacilluria as in kidney infection was very obstinate. In a few of the bladder cases the urine was obtained free from bacteria after a prolonged treatment, but usually only in conjunction with a urinary antiseptic. In the severe cases of cystitis where there were marked changes in the bladder wall and mucosa, vaccines did not appear to have any effect. In the acute and subacute infections of the kidney pelvis, vaccines seem to offer promising results, but the author regards his number of cases as too small to afford definite conclusions. From his own experience he would say that they are indicated in acute pyelitis which does not respond to ordinary measures. They will probably furnish us with a means of attacking postoperative foci such as an infected ureter stump, which are difficult otherwise to clear up. In cystitis, in a limited number of cases, they offer a less troublesome, possibly a more rapid therapy than that by irrigations and ordinary antiseptics.

The Place of Tuberculin in the Immunization of Urogenital Tuberculosis.—C. P. Sanborn gives the following indications for the use of tuberculin in this class of cases: (1) When we cannot extirpate the organ involved, as the bladder. (2) In organs in which the disease is in an early stage without any considerable disintegration. (3) In case the disease involves both kidneys where it is deemed unwise to operate on either. (4) Postoperatively, in case it is apparent that all tubercular tissue was not removed or where organs affected could not be well extirpated. (5) In any case involving the bladder. (6) In any case in which there is a suspicion that tuberculous tissue has been left behind.

Acute Pancreatitis.—P. H. Truesdale reports two cases, both operated on and recovering.

Value of Tuberculin in Tuberculosis of the Urinary Tract.—H. T. Cabot finds that the remedy has been chiefly valuable in stamping out the secondary processes in the bladder and ureter.

Persistent Vomiting of Pregnancy.—E. W. Johnson reports one case. In one pregnancy all nourishment by mouth was stopped and every two hours a minim of iodine and creosote were dropped on the tongue. In a second pregnancy in the same patient five grains of thyroid extract were given subcutaneously every eight hours. Relief followed in both instances.

New York Medical Journal

September 24, 1910.

Ambulance Surgery—Its Problems. By Thomas A. Cheatham.
Epistaxis in Its Relation to Various Constitutional Diseases. By Harold Hays.
Ether. By Joseph B. Hogan.
Observations on the Treatment of Peritonitis. By M. F. Goldberger.
The Munich Psychiatric Course of 1909. By Louis Casamajor and Morris J. Karpas.
Standardization of Blood Pressure. By Abdullah K. Sallom.
Dr. Pohly's Cases of "Anemic Ulcer" of the Throat. By G. Frank Lydston.
Aconite. By John Knott.

Problems of Ambulance Surgery.—Thomas A. Cheatham describes the ambulance system of New York City, and the problems of diagnosis and treatment that present themselves to the ambulance surgeon. Amid the crowded and heterogeneous conditions of the large city there is an ideal field for diagnostic experience, and for coping with problems that embrace every phase of medicine.

Epistaxis in Relation to Constitutional Diseases.—Harold Hays states that the constitutional causes of epistaxis are alterations in the constituents of the blood, disease of the blood vessels, obstruction to the circulation, vicarious discharge, lowered resistance of the tissues due to chemical and bacterial toxins, and pathological infective changes in the nasal mucosa caused by a general disease. The constitutional diseases with which epistaxis is associated are divided into seven groups: Group I, infectious diseases; typhoid fever, etc. Group II, anemias and other blood conditions. Group III, circulatory diseases, including diseases of the heart, liver, kidneys, and blood vessels. Group IV, respiratory diseases. Group V, specific local inflammations, as syphilis, tuberculosis, leprosy, carcinoma. Group VI, miscellaneous diseases: vicarious menstruation, caisson disease. Group VII, drug poisoning: phosphorus, chloralamide, salicylic acid compounds.

Practical Administration of Ether.—Joseph B. Hogan, among other things, emphasizes several points that will do much toward lessening the tendency to or even obviating nausea and vomiting. They are: proper previous diet, thorough bowel elimination, mental preparedness, gradual induction of anesthesia, assisting drainage of the nose and throat by the lateral position of the head, and finally the administration of the minimum amount of ether necessary to attain the desired state of anesthesia.

The Treatment of Peritonitis.—M. F. Goldberger reports the results of the treatment of twenty-nine cases of appendicitis with diffuse peritonitis, with the aid of the Fowler position and the Murphy method of proctolysis. It depended upon "early and direct attack of the infection, minimal disturbance of the surrounding tissues, and intelligent after-care." The abdomen was opened, appendix was located, ligated, and removed, intestinal contents and pus were allowed to flow out and were mopped up with gauze sponges, the gut was handled as little as possible, drainage was instituted and the abdomen was closed around the drains. The patient was kept in the Fowler position from two to six days, and the drains were gradually removed within one week. The Fowler position is the only means by which pus and toxic products in the peritoneal cavity are kept in the pelvis, where the absorptive powers of the peritoneum and lymph glands are much less than at the diaphragmatic region. As soon as the patient is put to bed proctolysis is begun. This is one of the simplest of procedures, and should be continued from one to three days, or until the toxic symptoms disappear, and during this period, in severe cases, the nozzle should never be removed from the rectum. As a cardiac stimulant, camphorated oil, hypodermically, was found of value. Intravenous saline solution, with adrenalin, was the most powerful agent for combating shock before, during, or after operation. Eserine salicylate, 1/64 grain, every four hours, for four doses, following operation, was of value in stimulating the involuntary muscle of the intestine, aiding in the expulsion of gases, and in the prevention of adynamic ileus. For the latter, when vomiting was present, gastric lavage was practised, and carminative enemas with magnesium sulphate were given. For mechanical ileus surgical intervention is the only solution. The cases successfully terminated with no deaths.

The Munich Psychiatric Course of 1909.—Louis Casamajor and Morris J. Karpas describe the postgraduate course of psychiatry established by Professor Kraepelin.

Standardization of Blood Pressure.—Abdullah K. Sallom found that normally the blood pressure does not vary more than about 0.3 millimeters of mercury, and is to be expressed by the following equation: Mm. Hg. $\div$ (W. C. $\times$C.) = P.; in which mm. Hg. represents the height of the column of mercury; W. C. the width of the cuff employed; C. the circumference of the arm, and P. the pressure. The pressure exerted by any fluid depends upon its height and the size of its base. Hence, the area upon which the pressure is exerted plays a most important rôle. If the systolic pressure of a given case is 125 mm. Hg., and if 24 square inches is the total area of the cuff, one square inch will support a column of 5.21 mm. Hg. This is known as the pressure per square inch. Age has been found to have no influence upon this unit pressure. The contradictory statement of other observers has been due to the fact that the circumference of the arm was not taken into consideration. The same is true in regard to sex. Many cases showing differences in the systolic blood pressure as denoted by the height of the column of mercury, nevertheless when standardized gave practically the same ratio for the square inch. The author finds it convenient to express the blood pressure readings as standardized in terms of units. These are obtained by taking the figure or figures before and the first figure after the decimal to represent the number of units. For example, 4.82 mm. Hg. per sq. inch would be spoken of as 48 units. With this unit system it is assured that undreamed of results will be obtained and that the subject will assume an importance equal even to the study of temperature.

Cases of Anemic Ulcer of the Throat.—G. Frank Lydston questions the diagnosis of these cases as reported in a previous number of the journal.

Aconite.—John Knott continues his article on this drug; its place in history, mythology, criminology, botany, therapeutics, and toxicology.

Journal of the American Medical Association,

September 24, 1910.

Alopecia and Seborrhea. By Charles J. White.
A Study of the Bacterial Flora of the Nasal Mucosa in the Presence of Rhinitis. By Will Walter.
Choked Disc in Its Relation to Cerebral Tumor and Trephining. By Alfred Saenger.
A Case of Diffuse, Purulent, Ventriculoseptal Myocarditis with Adams-Stokes' Syndrome. By Harvey G. Beck and William Royal Stokes.
Study of a Case of Hearthlock with Alternation of the Systolic and Diastolic Jugular Waves. By Isaac Ivan Lemann.
Instruction of the Public in Antituberculosis Measures by a Traveling Car Exhibit. By George Homan.
The External Preparations of the U. S. P. and National Formulary. By C. S. N. Hallberg.
Medicopharmaceutical Ethics. By A. S. Musante.
The New Test for Cancer of the Stomach, with Suggested Improvement. By J. W. Weinstein.
A Clinical Study of a Case of Pseudoleukemic Anemia of Infancy (Von Jaksch). By Theodore J. Elterich.
Dislocation of Shoulder Joint Complicated by Fracture, with Report of Two Cases. By John S. McEwan.
A Contribution to Experimental Human Poliomyelitis. By Simon Flexner.
The Arsenical Treatment of Syphilis. By John B. Murphy.

Alopecia and Seborrhea.—C. J. White formulates the lowing conclusions upon a study of 794 cases: (1) Alopecia accompanied by dandruff is the commonest type of loss of hair. (2) Women are more prone to alopecia than men in the proportion of 54 to 46. (3) Possible and principal causal factors of alopecia are hereditary in 30 per cent., dandruff in 79 per cent., systemic depression in 20 per cent., fever in 11 per cent., and maltreatment of the scalp in 50 per cent. (4) Alopecia simplex develops before the age of 30 in 84 per cent. of men, but in only 33 per cent. of women. Dandruff behaves in a similar manner and before the age of 25 attacks 61 per cent. of its future male victims, but only 32 per cent. of its female. (6) Loss of hair in alopecia furfuracea comports itself with these previous two findings, appearing before the age of 25 in 67 per cent. of the men, but in only 34 per cent. of the women. Men are attacked earlier than women with alopecia and seborrhea, but eventually women rather than men fall victims to these conditions. (7) When dandruff is present it is apt to be abundant rather than slight, oily rather than dry, and to be accompanied by itching. (8) Drugs most successful in the treatment of dandruff and loss of hair are bichloride of mercury, tannic acid, and chloral hydrate. (9) From a temporary view while therapeutic results are disheartening, a good response follows in 48 per cent. of men and 56 per cent. of women. Seborrhea simplex is a disease of childhood or early adult life, developing before the age of 30 in 71 per cent. of men and 96 per cent. of women. Other seborrheas of the skin, such as acne vulgaris, acne rosacea, eczema seborrheicum and Fordyce's disease, may accompany loss of hair and dandruff. (10) Dyspepsia, on the other hand, exists in a surprisingly small percentage of these cases. Seborrhea simplex is a truer form of dandruff than that accompanying loss of hair. (11) In alopecia areata dandruff is a frequent accompaniment, and we also find one attack of the disease apt to be followed by one or more later outbreaks. (12) In alopecia areata and in ringworm of the scalp the region most affected is the occipital.

Study of the Bacterial Flora of the Nasal Mucosa in the Presence of Rhinitis.—W. Walter has investigated 250 cases. He says that the evidence seems indicative that the diphtheroids, particularly the *Bacillus segmentosus* of

Cautley are concerned in the production of common cold in its typical manifestation in the nose, and that there is much evidence that it occurs in epidemic form. The *M. catarrhalis* is much more general in its manifestation, and probably more severe in its effects, while the symbiosis of the two increases the virulence. The pneumobacillus of Friedlaender is much more concerned in chronic conditions and is probably identical with the ozena bacillus. The pneumococcus of Fraenkel flourishes in any part of the respiratory tract, and when virulent has been found in pure culture. Clinically the segmentosus is most likely to be in the nose, but may cause otitis media; *M. catarrhalis* is most apt to invade the larynx and trachea, but may occur in the ear or nose with variable frequency. The pneumobacillus is mostly confined to the nose and sinuses. Pyogenic cocci are non-pathogenic locally except as secondary invaders. The bacterial flora of the nose in America does not materially differ from that of other countries, but the ratio of finding must be largely governed by environment, occupation, social position, etc.

Choked Disc in Relation to Cerebral Tumor and Trephining.—A. Saenger discusses theories of choked disc and reviews the literature of the subject with the theories of various authors and summarizes nineteen personal cases. In two of these choked disc decreased only after the trephining hole had been enlarged, allowing a great outflow of cerebrospinal fluid. In two cases decompression had no effect whatever so far as the choked disc was concerned. These were cases of extraordinarily large-sized, rapidly increasing brain tumors. In only one case, a tumor of the base, the operation was followed by high fever and speedy death. In all the rest the effect of decompression on choked disc was obvious. By decompression the author implies not merely trephining, but removal of the dura. In all the author reports 26 cases of decompression. Seven were tumors of the cerebellum, three were cases of tumors of the acoustic nerve, one, a tumor of the parietal lobe, the patient living for nine months, three were tumors of the frontal lobe, three tumors of the base. In the latter decompression was of no avail. Five cases are referred to, all presenting symptoms of a brain tumor, choked disc, headache, vomiting, etc. When decompression was performed there was no tumor found. All the patients recovered and are now leading active lives.

A Case of Diffuse Purulent Ventriculo-Septal Myocarditis with Adams-Stokes' Syndrome.—H. G. Beck and W. R. Stokes report this case of diffuse suppurative myocarditis. Clinical history indicates that the patient had been suffering from syncopal attacks for seven months. It is difficult to account for the earlier attacks unless it can be believed that there were recurrent purulent infiltrations of the bundle of His with damage to the muscular fibers. There was found on autopsy an acute primary purulent infiltration involving the bundle of His.

A Study of a Case of Heart Block.—See MEDICAL RECORD, Vol. 77, page 1029.

Instruction of the Public in Antituberculosis Measures by a Traveling Car Exhibit.—George Homan gives a description of a car used in Missouri with an account of its tour throughout the State. At different points there was hearty cooperation with the local authorities, societies, etc.

External Preparations of the U. S. P. and the National Formulary.—S. N. Hallberg discusses various preparations of the U. S. Pharmacopœia and National Formulary.

Medico-Pharmaceutical Ethics.—A. S. Musante speaks of drugstore prescribing, substitution, crude dispensing, etc.

New Test for Cancer of the Stomach with Suggested Improvements.—Description of the tryptophan test, by J. W. Weinstein. A serious obstacle in the way of its employment reliably is the fact that free hydrochloric acid interferes with the activity of the cancer enzyme, or may destroy it altogether.

Clinical Study of a Case of Pseudoleukemic Anemia of Infancy.—T. J. Elterich reports the carefully prepared history of one case with autopsy findings.

Dislocation of Shoulder Joint Complicated by Fracture.—J. S. McEwan reports two cases of this complication, in one of which he operated. The success in this case leads him to advise operation in all similar cases.

The Contribution of Experimental to Human Poliomyelitis.—S. Flexner states that the experimental study of poliomyelitis has yielded a large number of important facts relating to the disease occurring through infection in man. He is inclined to the belief that there may be several varieties of poliomyelitis, but that the epidemic form, like the epidemic form of meningitis, may be distinguished from the rest by being invariably the product of a specific microorganism.

The Arsenical Treatment of Syphilis.—J. B. Murphy reports a case of chancre derived from a common drinking cup, which case showed marked improvement after a two weeks' treatment with sodium cacodylate.

The Lancet

September 17, 1910.

Vaccine Therapy: Its Administration, Value and Limitations. By Sir Almroth E. Wright.
A Case of Chondrocarcinoma of the Testis. By William Sheen, H. A. Scholberg and R. L. Mackenzie Wallis.
The Enucleation of Tonsils with the Guillotine. By Samuel S. Whillis and Frederick C. Pybus.
Verminous Appendicitis. By H. A. Lediard.
A Note on the Toxicology of Carbon Monoxide. By W. James Wilson.
The Ventilation of Ships, Particularly Merchant Ships. By Fleet-Surgeon W. E. Home.
The Pioneer in the Hygiene of Ventilation. By David Fraser Harris.
The Benenden Sanatorium and Industrial Insurance for the Treatment of Phthisis. By T. D. Lister and W. D. Wilkins.

Vaccine Therapy.—Sir Almroth E. Wright discusses the administration, value, and limitations of this new therapeutic measure, whose fundamental principle is to exploit in the interest of the infected tissues the unexercised immunizing capacities of the uninfected tissues. As regards its clinical limitations, these are not so narrow as have been contended. Vaccine therapy promises to be brilliantly successful in pneumonia; it holds out promise in typhoid fever and in many forms of rheumatism; it supplies the only ray of hope in endocarditis; inoculation or a system of regulated autoinoculation is the only standby in phthisis; it has already proved its superiority over operative procedures in tuberculous glands and many other forms of tuberculous infection; it has also given very favorable results in diseases of the mouth, nose, ear, and genitourinary system. Extensive tuberculous ulcers have healed up under vaccine therapy without the formation of scar tissue. *x*-ray dermatitis, with extensive streptococcus infection, inflammatory trouble at the roots of the teeth, and pruritus ani have all responded favorably to the use of vaccine. It is probable, also, that these may yet be of value in hay fever, urinary calculus, indigestion, vomiting, and flatulent distention of the stomach, epilepsy, cancer, diabetes, and enuresis. As regards the bacteriological limitations, it is noted that a complete and exact diagnosis is a necessary preliminary to a successful application of vaccine therapy. The risk of accepting an incomplete for a complete diagnosis is most conspicuous in connection with syphilitic and tuberculous infections. In cases of long-standing infections repeated inoculations are necessary. The measurement of the opsonic power of the blood is a partial evaluation of the antibacterial defences of the body; it increases and diminishes in correlation with the patient's clinical condition. In ordinary cases of localized streptococcus, or staphylococcus infection, it is not necessary to measure

the opsonic index, for in these cases the appropriate doses of vaccine are known, and the clinical symptoms furnish a sufficient guide. This is also true of acne and croupous pneumonia. In dealing with a case of staphylococcus infection, such as sycosis, which has obtained a firm hold upon the patient, it is often necessary to regulate the dose by means of estimations of the opsonic index. This holds true of the chronic streptococcus infections associated with tuberculous diseases of bone, and of the chronic coliform infections.

Chondrocarcinoma of the Testis.—William Sheen, H. A. Scholberg, and R. L. Mackenzie Wallis report a rare case of this growth, belonging to the class "embryoma."

Enucleation of Tonsils with the Guillotine.—Samuel S. Whillis and Frederick C. Pybus state that the importance of total removal of diseased tonsils is not sufficiently recognized. By a special method of using the Lennox Brown modification of the McKenzie guillotine, they were able in nearly fifty per cent. of all cases, including tonsils of all shapes and sizes, to enucleate the tonsil complete in its capsule in one piece. The anatomical condition of the tonsillar lacunæ makes them readily retain any infected material, and they have been found to contain most pathogenic organisms. In a fair proportion of cases the tonsil is not enlarged, but is considerably diseased, and the doctrine of septicity, not size, is an important one. Frequently the most septic cases are those in which there may be a considerable mass embedded in the pharyngeal wall, while there is seen only a small slit between the faucial pillars. The baneful effects of tonsillar infection are numerous, as follows: Recurrent sore throats, peritonsillar abscess due to infection through the bases of the lacunæ, foul breath, and bad tastes in the mouth, tuberculosis of the cervical glands originating from infection through the tonsil, acute and chronic rheumatism resulting from streptococcic infection, and a small septic tonsil may be the cause of a general ill-health, and often the undiscovered focus of some distant infection. The advantages of tonsillar enucleation by means of the guillotine are that the method is simple, rapid (the total time required to do ten cases being forty minutes), it can be performed under ethyl chloride anesthesia, is applicable to tonsils of all shapes and sizes, the whole operation is under direct vision, and the pressure exerted by the finger and by the guillotine can be regulated to a nicety.

Verminous Appendicitis.—H. A. Lediard reports a case of appendicitis in a child in which the appendix after removal was found to contain a nest of actively moving threadworms.

Toxicology of Carbon Monoxide.—W. James Wilson comments upon the increased toxicity of water-gas as compared with coal-gas.

British Medical Journal,

September 17, 1910.

Remarks on Eighteen Cases of Spinal Analgesia by the Stovaine-Strychnine Method of Jonnesco, Including Six Cases of High Dorsal Puncture. By Lawrie McGavin.
Remarks on Anesthetizing Patients for Operations on the Throat, Nose and Accessory Sinuses. By Stuart V. Stock.
State Insurance and the Poor Law Commission. By J. H. Keay.
State Invalidity and Sick Insurance. By E. Rowland Fothergill.

Spinal Analgesia by the Stovaine-Strychnine Method of Jonnesco.—Lawrie McGavin, in reporting the results of the use of this method in eighteen cases states that Jonnesco's method is based on the supposition that the addition of neutral strychnine sulphate to the stovaine employed is capable of overcoming the danger of respiratory paralysis when the injection is made between the spines of the first and second dorsal vertebræ, or when, the solution having been injected at a lower level, it has been purposely allowed to gravitate to the upper regions of the cord, the patient being in the Trendelenberg position He states that he has not been convinced of the safety of Jonnesco's method; that it has not borne out the contention that the addition of strychnine is capable of preventing respiratory paralysis. Although the latter occurs in some cases, in others there is no sign of it. The method appears to be fraught with considerable danger. Four successful cases of high puncture serve, so far as analgesia above the phrenics is concerned, to show that the method has, at least, some element of possibility in it; it is, however, uncertain, imperfect at present, and of doubtful value in replacing general anesthesia. The cases of low puncture serve to show little else than that strychnine can be injected into the spinal canal without producing spastic symptoms, and that it undoubtedly results in a shortening of the period of analgesia usually resulting from the use of stovaine alone. The effects of the analgesia on the cranial nerves appear to be irregular. The first, second, third, and fourth nerves remain unaffected; the fifth and seventh are at times under control; the sixth, eighth, ninth, tenth, and twelfth are unaffected, while the eleventh may or may not be paralyzed. Stovaine is not a cardiac depressant, although it is to some extent a vasodilator. The author can see no object in adding strychnine to cases of low spinal analgesia, since no difficulty has been found without its use even when such analgesia has been pushed to the level of the clavicles. This height is not to be aimed at. The author prefers the stovaine-glucose method of Barker, by means of which 500 operations have been performed in the Seamen's Hospital with entire satisfaction.

Anesthesia for Operations on the Throat, Nose, and Accessory Sinuses.—Stuart V. Stock describes his routine method of inducing anesthesia with ethyl chloride and ether, and then, after a varying time, of substituting the two-bottle method—namely, a plain domette-covered mask (Murray's) and two drop bottles, one containing chloroform, the other ether. These two anesthetics are added to the mask in such quantities and at such intervals as may be thought necessary, the smallest possible amount of chloroform being used, and at times altogether omitted, resulting in a pure open ether administration. The method is superior to using a definite mixture of the two drugs, as the proportions can be so easily varied to suit individual cases.

State Insurance and the Poor Law Commission.—J. H. Keay states that State insurance would provide an adequate remedy for a great deal of poverty and pauperism due to inadequate medical attendance. He discusses this subject in relation to private practice, to voluntary insurance by means of clubs, friendly societies, and provident dispensaries, to charity through the medium of hospitals and medical missions, and describes a system of compulsory insurance.

State Invalidity and Sick Insurance.—E. Rowland Fothergill states that the physical deterioration resulting from unemployment, insufficient or bad food and housing, and neglected ailments, with all the consequent injury to succeeding generations, require that the State recognize their existence and urgency, and should take steps to stop this human wastage. The scheme should be worked on an insurance basis, and the State would guarantee to the beneficiaries medical attendance during accident and illness, sick pay during accident and illness, pensions when permanently out of work through illness before being seventy years of age, sustenance and medical attendance for the families of those laid by, and adequate wages during unemployment due to no cause over which the beneficiary had a control, or which is a result of physical defects. In addition, the State would guarantee to trade unions, friendly societies, State hospitals and dispensaries, nursing and convalescent homes, nursing associations, and all branches of the medical profession, adequate funds wherewith to meet the claims on their respective services.

Berliner klinische Wochenschrift,

September 5, 1910.

Early Symptoms of Tetanus (continued from last number).—Evler continues the description of the prodromes and early symptoms of tetanus traumaticus, which well illustrate the subtle and multiform nature of the symptoms before trismus sets in. Precardial anxiety and oppression are doubtless of medullary origin, and are seen in other intoxications. A not uncommon early symptom is cough of a spasmodic type which closely simulates pertussis. Epileptiform convulsions may accompany trismus. Contrary to certain teachings, there may be little or no fever in the early stages. The pulse varies greatly—may be slow or rapid by turns. Dicrotism or skipping a pulse-beat may be present. As already stated, the pulse is stronger in an affected limb. Trismus is preceded by paroxysms of yawning; the jaws may "snap" in this act and may even be subluxated. These acts of yawning are accompanied by pains in the temporal and masseter muscles. Nose-bleed is common. Some cases suggest a toxemia; others rather a simple anemia. Sometimes the cheeks are flushed, at others pale, with pallid lips. The expression in general changes, the patient looking woebegone. The particular expression sometimes seen and due to spasm of the "smiling" muscles—commonly known as *risus sardonicus*—is well enough known to readers. Hyperacusis occurs, resembling that produced by non-toxic doses of strychnia. This is usually followed by auditory hallucinations and deafness—due perhaps to spasm in the tensor tympani and stapedius muscles. Of special interest is the sudden blanching of individual hairs or hair tufts. Stiffness of the limbs, with rheumatoid pains, is a common symptom. With these in an undoubted hypersensitiveness to cold and a resulting tendency for artificial heat in all forms. There is weakness in the total musculature and an intentions-tremor in all common acts like shaving. These weaknesses may be accompanied at times by violent spasmodic acts. Thus a patient who can hardly protrude his tongue may have it bitten by a spasm of the chewing muscles. Increased perspiration is an early and constant symptom, the sweat possessing, from old records to the present, all kinds of disagreeable properties. Speech disturbances are common and variable. So many nervous symptoms occur that tetanus, it would seem, should be placed under the neuroses, as has often been done. If tetanus be not a traumatic neurosis, then there is no such category of disease—judged clinically, of course. The same is true of rabies humana, and both conditions may exist on a purely neurotic basis. The author devotes much space to diagnosis, in which a score of diseases may require differentiation; likewise to the early treatment largely in the prodromic stage and with special reference to serotherapy.

Vaccine Treatment of Gonorrheal Complications.—Reiter and Friedlander have passed on this subject, which is of exclusively British origin, in a favorable, albeit critical, fashion. Reiter, taking the theoretic end, deduces from Wright's original postulates the following principles of treatment: (1) Affections localized and not severe may be selected by serological methods and treated with complete serological control. (2) In markedly localized disease small immunizing doses must be first used; then, after three to five days, medium doses should be used on an increasing scale. The increase should not be extended too far, and after a maximum is reached no injection should be given for a week or ten days, after which it may be resumed at the leaving-off dose. Exceptions in which higher quantities are given are furnished only in exceptional cases—as when gonorrheal furuncles threaten to break through the skin. The practical end, handled by Friedlander, comes out as follows: Epididymitis in all stages—twenty-five cases—was treated beneficially in a majority of cases. Reading between the lines we must conclude that the resource proved very satisfactory. In a small series of cases of acute prostatitis there was no evidence that the treatment made good. The remaining material, comprising gonorrhea of the adnexa of both sexes, did not show, by reason perhaps of the small number of cases, that the vaccine treatment offered any advantage. Friedlander sums up as follows: There were unusually good results in both acute and subacute gonorrheal prostatitis. In all other complications the results were dubious. He would, in fact, continue to employ the silver treatment in some of its manifold phases.

Wassermann's Reaction with "606."—Lange, assistant to Wechselmann, sums up his experience as follows: He has now treated 268 cases with "606," which have been submitted to Wassermann's test at various times. It is apparently assumed that all these cases gave at the outset a positive Wassermann. But after four or five weeks positive cases were limited to 153. Further study of the article shows that eighteen of the original cases untreated gave a negative reaction, although these comprised one case of syphilis maligna and one of early tabes. This leaves sixteen cases, and of these nine had gone through thorough mercurial treatment. There were two cases of clinical chancre which gave a negative Wassermann and no results from "606." So the remaining cases may be reasoned away in such manner as to throw doubt on our ability to recognize or treat syphilis according to rule. In this series many of the subjects were practically predoomed to death by the heart, lungs, arteries, kidneys, etc. To drag in an allied factor in such miscellaneous material would seem unfair. All this participation of syphilis in lethal or dangerous affections must needs be eliminated in considering individual series.

Münchener medizinische Wochenschrift,

September 6, 1910.

A Procedure for Nitrous Oxide-Oxygen Anesthesia.—Neu, as a result of animal experiment plus clinical experience, believes that an extreme combination of anesthetics may lead to a desired result. Thus in a given case he combines morphine, scopolamin, introus oxide and oxygen, thereby acquiring an ideal narcosis, with no deleterious effects on the heart and lungs, and without unpleasant sequelæ of any sort.

On the Action of "606" on Psoriasis and Lichen Ruber.—Schwabe, after relating several cases, states that the action of 606 upon these two diseases is of especial interest. It has been assumed that these two affections are of spirillic origin, so that a spirillotropic substance like 606 might naturally attack them. Despite theory, however, numerous cases of these chronic skin diseases have actually yielded to the 606 remedy. It is, however, possible that psoriasis and lichen may be actually due to a specific neurodermatitis which comes readily under the domain of an antisyphilitic remedy. At present the skin conditions may be due either primarily or secondarily to the exciting cause.

Amyloidosis in Japan.—Tanaka notes the relative infrequency of general amyloid disease in Japan. This refers naturally to the clinical expression of the disease. A microscopic study of the viscera of miscellaneous cadavers, especially those dead from tuberculosis, syphilis, cancer, shows abundant evidence of amyloidosis. It affects, however, local tissues, and is demonstrable by special chemical reactions. Thus we may find foci of amyloidosis in a kidney without functional anomalies; or we may find the same as part of a picture of chronic nephritis. The same is true of other tissues which tend to show amyloidosis. According to the degree or quality present, the amyloid

element may be regarded as actively pathogenic or only accidentally present. The author believes that amyloid tissue is no other than a combination of nitrogenous albumins with chondroitin sulphuric acid. That amyloidosis cuts no greater figure in the visceral pathology of the Japanese is explained by the vegetarian or N-poor diet of the average Japanese.

Gonorrheal Peritonitis in Man.—Bodenstein refers naturally to the paucity of cases of peritoneal gonorrhea in man as compared with the frequent incidence of this sort in women. Without going beyond the details in a particular instance, the author cites an illustrative case. Youth aged 22, with typical urethral discharge. Treated with a silver salt and urotropin. About two weeks after diagnosis patient showed a decided inflammatory reaction, and was operated on for appendicitis. Nothing found in the ordinary expectation, but evidences of serositis. The old experience that peritonitis may result from spermatocystitis is only emphasized in that connection.

Deutsche medizinische Wochenschrift,

September 8, 1910.

Toxemia of Pregnancy.—Hofbauer reviews to date our knowledge of this condition or, better, of these conditions. The development of the fetus and its envelopes has a certain reaction upon the mother which under definite conditions assumes the picture of a severe autointoxication. It no longer appears likely that the toxemia is due to the failure of the mother to produce antibodies to neutralize the supposedly foreign albumins of the fetus, placenta, etc. The evidence to-day accuses certain enzymes formed in the placenta, concerning which we know but little. Even in normal pregnancy degenerative processes in the liver and kidney may be demonstrated, the result of fetal influences. At the same time we find a hyperplasia of the glands which possess an internal secretion, such as the thyroid. With such associated changes practically constant, and indicative of metabolic anomalies, it is not difficult to understand that these normal anomalies may pass readily into definite toxicoses, manifested in one case by eclampsia, in another by pernicious vomiting. Thus far our knowledge of these conditions is histological and biochemical, etc. We have not attained further to a knowledge of the pathogenesis of these autointoxications.

Bronze-Diabetes.—Ridder does not seem to have advanced our knowledge of this obscure affection. His paper consists of the relation of a case, with a recapitulation of the views of authorities. His own case may be summed up as follows: Four years before the death of a certain patient there appeared pigmentation of the extremities, with slight edema over the tibiæ. There was evidently no diagnosis made at the time. One year later enlarged liver was made out, with diagnosis of "hypertrophic cirrhosis of the liver" with cutaneous pigmentation. At this period there was no diabetes, alimentary glycosuria, or carbohydrate intolerance. But six months before death the picture became one of typical bronze-diabetes. This case admittedly throws no light on the latter affection, cases of which tend to exist *sui generis*. In the author's, as in many other cases, it is impossible to establish a consequential relationship between suppositious causal factors and the disease itself. There are elements which are known to set up disease, but not the disease in question. The only constant element is the injury of the liver parenchyma by some unknown noxa, which betrays its presence by pigmentary changes, yet which cannot be recognized anatomically. The injury to the liver parenchyma is shown by the accumulation of the products of blood decomposition in that gland and eventually in other glands. These offending substances finally set up pancreatic glycosuria.

Influence of Momburg's Method on the Heart and Circulation.—Tornai, in discussing Momburg's aorta compression warns against its too free use in diagnostic procedures. The recent tendency has been to employ it as a test of the circulation. He would never employ it in heart disease, arteriosclerosis, nephritis, Basedow's disease, or even in simple plethora. Any patient with one of these diseases may die on the table as a result of aortic compression. It is cold comfort to assert that no blood was lost in the trial. The author appears to deal throughout with abdominal compression with a rubber tube. In some cases, at least, powerful heart stimulants were freely used during the experiments.

Clinical Value of the Pinoff Levulose Test for Sugar in the Urine.—Fleischer and Takeda deal wholly with the Pinoff test for levulose as advanced in 1905. They conclude that its value for the recognition of levulose in the urine is useful only under certain conditions. In comparison with the Selivanoff reaction it may be said that both are certain, yet both may fail.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

L'AEROPHAGIE. Par le Dr. H. MAUBAN. 12mo; paper; 160 pages; illustrated; 2 fr. 50. G. Steinheil, Paris, France.

PRAKTISCHE WINKE FÜR DIE CHLORARME ERNÄHRUNG. Von Prof. Dr. H. STRAUSS. 8vo; paper; 37 pages; M., 1.00. S. Karger, Berlin, Germany.

DIE KOPULATION DER NETZHAUT MIT DER ADERHAUT DURCH KONTAKTVERBINDUNG ZWISCHEN SINNESEPITHEL UND PIGMENTEPITHEL. Von. Dr. R. HALBEN. 8vo; paper; 31 pages; M., 1.00. S. Karger, Berlin, Germany.

THE PRACTITIONER'S CASE BOOK. Folio; 239 pages. Interstate Medical Journal Co., St. Louis, Mo.

SYPHILIS. By THOMAS PUGH BEDDOES, M.B., B.C. (Camb.), F.R.C.S. (Eng.). 8vo; cloth; 230 pages; $2.00 net. Paul B. Hoeber, New York.

TRANSACTIONS OF THE AMERICAN DERMATOLOGICAL ASSOCIATION AT ITS THIRTY-THIRD ANNUAL MEETING, Philadelphia, June 3, 4, 5, 1909. 8vo; paper; illustrated. Association.

THERAPEUTIC ACTION OF LIGHT. By C. E. ROGERS, M.D. 8vo; cloth; 323 pages; illustrated. Corydon E. Rogers, New York.

OPERATIVE SURGERY. Vol. II. By TREVES and HUTCHINSON. 8vo; 821 pages; illustrated; half morocco. Lea & Febiger, Philadelphia, Pa.

LECTURES ON SURGICAL NURSING. By E. STANMORE BISHOP, F.R.C.S. Eng. 16mo.; cloth: 143 pages; illustrated; $1.00. Wm. Wood & Co., New York.

AIDS TO MICROSCOPIC DIAGNOSIS. By ERNEST BLAKE KNOX, B.A., M.D. (Dubl. Univ.). 16mo; cloth; 156 pages; $1.00. Wm. Wood & Co., New York.

DIFFICULT LABOR. By G. ERNEST HERMAN, M.B. Lond., F.R.C.P., F.R.C.S. 12mo; cloth; 147 pages; illustrated; $2.50. Wm. Wood & Co., New York.

DISEASES OF THE EAR. By A. A. GRAY, M.D. 8vo; cloth; 388 pages; illustrated; $4.25. Wm. Wood & Co., New York.

SCARLET FEVER. By ROBERT MILNE, M.D., Aber. 8vo; cloth; 80 pages; $1.00. Wm. Wood & Co., New York.

TROPICAL MEDICINE AND HYGIENE. By DANIELS AND ALCOCK. 8vo; cloth; 283 pages; illustrated; $3.00 net. Wm. Wood & Co., New York.

PULMONARY TUBERCULOSIS AND SANATORIUM TREATMENT. By C. MUTHU, M.D., M.R.C.S., L.R.C.P. 8vo; cloth; 201 pages; illustrated; $2.00 net. Wm. Wood & Co., New York.

DISEASES OF THE COLON. By P. LOCKHART MUMMERY, F.R.C.S. 8vo; cloth; 322 pages; illustrated; $3.25. Wm. Wood & Co., New York.

LECTURES ON COSMETIC TREATMENT. By EDMUND SAALFELD, M.D. 12mo; 186 pages; cloth; $1.75. Paul B. Hoeber, New York.

ELEMENTARY MATERIA MEDICA. By J. W. SCOTT, Jr., Ph.G. 12mo; cloth; 125 pages. Author.

Book Reviews.

Dislocations and Joint Fractures. By Frederic J. Cotton, A.M., M.D., First Assistant Surgeon to the Boston City Hospital: Assistant Professor of Clinical Surgery in Tufts College Medical School, Boston. With 1201 illustrations, 830 from drawings by the author. Philadelphia and London: W. B. Saunders Co., 1910.

This appearance of a work fully covering the subject of dislocations and joint fractures is justified by the vast progress that has been made within recent years in the diagnosis and treatment of these conditions, which progress may be attributed largely to the employment of the *x*-rays as an accessory method of diagnosis. Moreover, to quote the author, "injuries to and about joints constitute one of the most doubtful fields of surgery, a field strewn with wrecks,—the products of mistakes and of unavoidable difficulties, prolific in discontent and in resultant actions at law—actions based only too often on unavoidable uncertainty or error." The value of a work of this kind to the general practitioner is obvious, for he is called upon, and should be able, to treat most fractures and dislocations. The author discusses the common types of fracture and luxation, their diagnosis and characteristic *x*-ray appearances, and describes with the aid of numerous illustrations the methods of reduction and the application of apparatus. The common failures in reduction and the expected complications are carefully detailed, together with the methods of their detection and remedy. After-treatment and prognosis are also fully covered. One of the many admirable features of this book is the fact that of the 1201 illustrations more than two-thirds are from original drawings by the author, whose artistic skill enabled him to make the illustrations integrally a part of the text.

Théorie Physico-Chimique de la Vie, et Générations Spontanées. Par Stéphane Leduc, Professor à l'École de Médecine de Nantes. Paris: A. Poinat, 1910.

In the non-technical language suitable for the general reader the author presents the results of his investigations into the artificial production of life, and an elaborate theory of its chemicophysical origin. He shows how it is possible, by means of the diffusion of liquids, to obtain structures similar to cellular tissues, for example, striated structures indistinguishable from the microscopic appearance of striated muscle, and polypoid forms identical in appearance with those belonging to the lower orders of life. Moreover, by the same process, he is able to reproduce the complicated movements observed in cells during the process of karyokinesis. The subject matter of his thesis is comprised under the separate headings of life and living beings, solutions, electrolytic solutions, colloids, diffusion, and osmosis, periodicity, cohesion, and crystallization, karyokinesis, energy, synthetic biology, osmotic growth and morphogenesis, osmotic phenomena of life and physiogenesis, and evolution and spontaneous generation.

Mammalian Anatomy, with Special Reference to the Cat. By Alvin Davison, Ph.D., Ex-Fellow of Princeton University: Professor of Biology in Lafayette College. Philadelphia: P. Blakiston's Son & Co., 1910.

The issuance of a second edition of this manual is evidence of the growing demand of a knowledge of mammalian anatomy as one of the first requisites for entering upon an intelligent study of medicine, as well as for students of modern psychology, the teachers of physiology in high schools, and the directors of gymnasiums.

The Expectation of Life of the Consumptive After Sanatorium Treatment. By Noel Dean Bardswell, M.D., M.R.C.P., F.R.S. (Ed.), Medical Superintendent, King Edward VII Sanatorium, Edinburgh, Glasgow, and London: Henry Frowde and Hodder & Stoughton, 1910.

The criterion of the value of any method of treatment of a chronic disease must be the ultimate results attained. This is especially so in the case of a disease which, like tuberculosis, tends to repeated relapse even after long periods of quiescence. It is only recently that any systematic investigation of the subsequent histories of patients discharged from sanatoria has been published. This has been done at the Adirondack Cottage Sanitarium and is especially valuable—first, because of the long period (twenty-five years) which the investigation covers, and, second, because of the thorough and satisfactory method of the investigation. The present author, while dealing with a much smaller number of cases, has, nevertheless, followed a similar method in his work which accordingly makes a comparison of results the more valuable.

The present work is an inquiry into the subsequent histories of 241 cases discharged from sanatoria from 1901 to 1905 inclusive, according to the method adopted by Brown in the Adirondack Cottage Sanitarium, using a practically identical nomenclature as to classification. As might be expected, the inquiry shows the superior advantage of treatment during the "incipient" stage of the disease. Nevertheless, it is encouraging and not a little gratifying to note the comparative longevity among the "Moderately Advanced" cases discharged "Improved" or "Arrested."

Roughly speaking, the author has found that approximately 50 per cent. of all patients, representing all stages of the disease upon their admission to sanatoria, are found to survive at the end of from five to eight years subsequent to their discharge. Much detailed information is given as to social condition and occupation following sanatorium treatment and a considerable part of the volume is given over to individual histories of the 241 cases. The work is a valuable addition to our statistics on tuberculosis.

A Textbook of Experimental Physiology. For Students of Medicine. By N. H. Alcock, M.D., D.Sc., and F. O'B. Ellison, M.D., St. Mary's Hospital Medical School, University of London. With a preface by E. H. Starling, Jodrell Professor of Physiology in the University of London. Philadelphia: P. Blakiston's Son & Co., 1909.

This work is aimed to put into practice the syllabus of practical physiology as prescribed by the University of London, and to furnish the medical student with such essentials in experimental physiology as will assist him in the comprehension and treatment of diseases. According to Professor Starling the medical student "should have a mental image of the organs of the animal body, that the latter becomes, so to speak, transparent, and he is able mentally to picture the disorders of function, which he infers from the signs and symptoms utilised by the medical man for the purposes of diagnosis."

A Short Handbook of Cosmetics. By Dr. Max Joseph, Berlin. Third Edition, with 151 Recipes. Authorized English Translation. New York: E. B. Treat & Co., 1910.

As the author states in his preface, the subject of cosmetics has been too long neglected by physicians. In recent years the importance of the knowledge of this department of dermatology is being realized more and more among practitioners. This small volume treats in a satisfactory way of cosmetics of the skin, hair, nails, and mouth. There is a good index.

The Family Health. By Myer Solis-Cohen, M.D., Fellow of the College of Physicians of Philadelphia. Philadelphia: The Penn Publishing Company, 1910.

Although it is said that "he who doctors himself has a fool for a patient," nevertheless there is a wide field for just such a book as Dr. Solis-Cohen has written for laymen. The subject matter is presented in popular form and includes the consideration of personal hygiene, problems of public health, care of infants, management of the sick, domestic medicine, and emergencies. The style is simple and clear, although scientific reasons are given for the measures advised. The table of contents is given in considerable detail, but there is no index.

The Practitioner's Case Book: For Recording and Preserving Clinical Histories. Prepared and Arranged by the Editorial Staff of the Interstate Medical Journal. Imperial octavo; 286 pages; full cloth binding. Printed on bond writing-paper. With 80 colored anatomical charts (detachable), showing outlines of body and skeleton in light red and the viscera in pale blue. Index for listing patients both by name and case number. St. Louis: Interstate Medical Journal Co., 1910.

The above title gives a sufficiently clear idea of the nature of this volume. Two pages facing each other are allotted to the history of each patient, ample space being provided for notes of physical examination and of subsequent developments of the case. The detachable charts facilitate very much the recording of the findings. Of course no cut-and-dried *schema* can ever fit all cases, yet the forms contained in this book should prove very useful to beginning practitioners in helping them to keep an orderly account of their clinical material. The volume is recommended to such physicians as have not succumbed to the allurements of the more modern separate card system of keeping their notes.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held May 17, 1910.

DR. C. N. B. CAMAC IN THE CHAIR.

THIS meeting was occupied by reports from the medical departments and laboratories of the Presbyterian Hospital.

A Simple Method of Enumerating Vaccines.—Drs. R. L. HUTTON and F. DU BOIS presented this communication. No one knew when giving vaccines how many organisms he was giving, and this was because of the large percentage of error in the most careful enumeration of the vaccine. They had found that the most careful work with the Wright method of enumeration gave results which varied from 19 to 66 per cent. In their own series thus far with this method the average variation had been 35 per cent. The method of enumeration used by Emery, that was, by means of the blood pipette and counting chamber, such as was used for counting red blood cells, was very much more accurate. In no case had the percentage of variation been higher than 20 per cent. and the average variation was 10 per cent. Both of these methods took considerable time and were fatiguing to the eyes. In seeking a method which would give more accurate results than Wright's and at the same time eliminate the necessity of using the microscope, they had been led to experiment with the method used by Gabritchensky. This consisted in centrifuging the emulsion and determining the number of organisms of a given kind contained in a given volume of the sediment. In the preparation of vaccines from streptococcus obtained by blood culture and from staphylococcus aureus the method had given them very satisfactory results. When compared with their most accurate determinations by microscope, the variation averaged about 15 per cent. In no case was there a variation of more than 31 per cent. and variations of 1, 4, 5, and 3 per cent. were noted in certain cases. Consequently they felt that this method was more accurate than Wright's, nearly as accurate as the blood pipette, and was more rapid and saving to the eyes of the bacteriologist than either. The method was as follows: After the emulsion had been collected in the capsule, filtered, shaken thoroughly, and heated, it was pured into a specially made glass centrifuging tube, the lower portion of which was accurately graduated to read in hundredths of a centimeter up to 15. The tube was then placed in a centrifuge capable of about 3000 revolutions per minute and centrifuged for ten minutes at top speed, or until the supernatant fluid became clear, and the volume of sediment had remained unchanged during the last five minutes of centrifugalization. The amount of sediment was then read off in terms of one hundredth centimeter, and upon this the number of organisms in the whole amount of vaccine was calculated. Their reason for making this report public so soon, before a much larger series had been studied, was to call the attention of those who were preparing vaccines to a method which would save them time and work was to call the attention of those who were preparing vac- with the microscope without any loss of accuracy in results. As the number of cases tested in this way increased the factors would no doubt be subject to slight change, but the results would be much less variable than those obtained by Wright.

An Apparatus for the Collection of the Excreta of Infants.—Dr. EUGENE F. DUBOIS exhibited this apparatus. He said that in the study of infant feeding it was of the utmost importance to be able to make accurate analyses of urine and feces. In most of the devices in use for this purpose the child's body was supported on pillows and the buttocks were hung over a dish to catch the feces. The legs were tied to canvas strips which were tied to the sides of the crib or to a bar above the crib. The apparatus which Dr. DuBois showed was very compact and did not need to be tied to the crib. The child lay on the mattress with the buttocks in a trough which immobilized the pelvis and kept the anus over the receptacle for the feces. The thighs were held firmly against the slanting part of the mattress by means of cloth bands. This was the only restraint necessary, though he usually pinned one band over the lower part of the abdomen. The urine was collected by the device used by Dr. Howland, a test tube made to fit the penis and held securely in place by means of a girdle. The tube led to a flask, which should be a large one, as a seven months' old baby could sometimes void a third of his own weight of urine in twenty-four hours. The receptacle which Dr. DuBois had used for collecting the feces was a sugar scoop with the handle sawed off. The apparatus had the disadvantage of being rather hard to make. Its advantages, however, were that it was compact, fitted easily in a bassinette, could be moved outdoors or in the bathroom or held in the mother's lap. It could be laid flat or tilted to an angle of forty-five degrees. The child was supported on a broad surface and there was no danger of pressure. There was a minimum of restraint and the child could kick, wave his arms, and twist his body from side to side. If hot water bottles or blankets were needed they did not interfere with the apparatus. This particular frame would fit babies from seven to eighteen months of age.

Demonstration of Lesions of the Appendix Produced by Oxyuris Vermicularis.—Drs. R. L. CECIL and KENNETH BULKLEY gave this demonstration. They said that the importance of intestinal parasites as the exciting cause of appendicitis had been first emphasized by Metchnikoff in 1901, when he reported three cases, in all of which the feces were found to contain the ova ascaris and trichocephalus. In all three cases the administration of a vermifuge was followed by the passage of the ascarides and by the complete and permanent recovery of the patient without operation. From time to time various other writers had reported cases of appendicitis associated with ascarides. He had found reports of forty-seven cases where oxyuris was found in the appendix. The number of oxyurides present had varied from one to more than one hundred. Thirty per cent. of these cases were under fifteen years of age. Sixty-six per cent. of the cases were females. Erdman, Carson and others thought that oxyuris appendicitis presented a characteristic clinical picture Observers had disagreed concerning the actual rôle played by the oxyuris in the appendix. Oppe, Manasch and others thought that the movements of the worm could cause appendixicolic, but that they were incapable of causing definite inflammatory changes. Wagener, Metchnikoff, Higgins, Lewinson, and Winkler, who had investigated the pathological condition, claimed that these parasites might either predispose to bacterial infection of the organ by causing an erosion of the superficial mucosa, or they might burrow into the wall of the appendix and thus become themselves the exciting cause of the disease. The five cases of appendicitis associated with the oxyuris which they reported were from the surgical service of the Presbyterian Hospital. They all occurred in children under fifteen years of age. Four out of the five patients were females. The symptoms were about the same in every case, namely, acute onset with pain in the right lower quadrant, nausea, vomiting, and tenderness over McBurney's point. In two of the cases there was an absence of muscular rigidity. In three there had been previous attacks. All five showed a rise of one or two degrees in temperature and a moderate leucocytosis. The percentage

of eosinophiles was determined in only two cases. In one it was only 1 per cent. and in the other it was 44. The microscopic appearance of the appendix in all the cases was practically the same. The serosa was smooth but injected. On opening the appendix the lumen was found to contain bloody mucus in which were imbedded the oxyurides. The mucosa was swollen, reddened, and in two instances definitely ulcerated. Microscopical sections of the appendices showed an infiltration of leucocytes, chiefly eosinophiles and lymphoid cells. The veins were distended with blood and the leucocytes were loaded with blood pigment. The lumen of the appendix was filled with an exudate composed of blood, mucus and leucocytes. The inflammation was of the acute non-suppurative type The appendices showed a number of interesting lesions which had been produced by the oxyurides. They had been able to demonstrate these by cutting serial sections. An exhibition of these sections showed that oxyuris vermicularis might inhabit the appendix; that the male parasite was able to burrow into the mucosa and produce a focal necrosis, and definite inflammatory changes which consisted of hemorrhages into the tissue, infiltration of eosinophiles, and lymphoid cells and the usual phenomena of repair. There was some evidence that the oxyuris was a blood-sucking parasite. They hoped to make further researches on this point. It was their intention to study a large number of children's appendices with special reference to the oxyuris. The problems which they had set before themselves were: (1) The incidence of oxyuris in normal children's appendices. (2) The incidence of oxyuris in the appendicitis of children. (3) The determination of the percentage of the appendices containing oxyurides which showed lesions directly traceable to the parasite. They felt that the condition was one that was commoner than was supposed. The sections presented demonstrated that the thread worm could produce more than an attack of appendix colic; it was capable of boring into the wall of the appendix and of exciting there definite and characteristic lesions.

A Case of Diabetic Coma Treated with Maximum Doses of Bicarbonate of Sodium.—Dr. Francis P. Kinnicutt reported the case of a housemaid admitted to the Presbyterian Hospital on March 14 from whom it was impossible to obtain any satisfactory history previous to her present illness. For three weeks previous to her admission she had had extreme thirst, weakness, and loss of strength and weight. At the time of her admission she was stuporous, respirations were 24, full and deep, and suggested the respiration characteristic of a severe acidosis. The patient passed into a state of semicoma. The urine was examined and found to contain 3.50 per cent. of sugar, diacetic acid and acetone and also a trace of albumin and granular casts. At 7 a. m. alkaline treatment was begun, intravenously, by enteroclysis, and by mouth. During the first 24 hours 1,940 grains of sodium bicarbonate were administered and retained. In the next 24 hours 2,640 grains were successfully administered and in the following 24 hours 2,440 grains. From this time until her death at 5 o'clock the same day only small amounts could be administered. On account of a thrombosis of the veins used for intravenous injections they could not be used further. The coma gradually increased with the diminution of the quantity of sodium bicarbonate taken. The heart progressively failed until death occurred. During the period of the administration of the very large amounts of alkali the characteristic symptoms of a severe acidosis markedly improved and respirations assumed a more normal character, the patient was able to answer questions intelligently, and expressed herself as feeling better. A favorable outcome had been deemed possible, but with the inability to continue the administration of the alkali the deep coma developed. The total amount of bicarbonate of soda given and retained had rarely been exceeded in the treatment of diabetic coma. The laboratory studies of this case were of interest. The sugar content of the blood was estimated and amounted to 0.83 per cent. and 1.0 per cent. This was among the highest figures recorded. Any excess of 0.15 per cent. was regarded as hyperglycemia and among the highest figures recorded were those of Naunyn, 0.7 per cent. and Lepine 1.06 per cent. An analysis of the blood was also made to ascertain the fat content, .75 to .85 being normally present in the blood. Only in the severest cases of diabetes and when toxic symptoms were grave did lipemia appear. In such cases high values were exceptionally obtained, that was, from 4 to 5 per cent. Stadelmann once found 15 per cent. and Fischer 18.1 per cent. In the present instance the percentage of fat was below normal, .1092 per cent. In the great majority of cases of slight diabetes one found from one to one and a half grams of ammonia in 24 hours' urine; in severe cases 6 grams might be found. Ten grams were found exceptionally when coma was imminent. With the administration of a fixed alkali the amount of ammonia excreted might drop greatly. The ammonia in this case was found to be low in the 24-hour urine and similarly the total nitrogen, .845 gram and 4.25 grams respectively. The proportion of ammonia nitrogen to the total nitrogen excretion was 20.46 per cent., the normal being 2 to 5 per cent. In the absence of acidosis the relation between the total urinary nitrogen and the ammonia nitrogen was the same in diabetes as in health and was remarkably constant. With the development of acidosis the absolute and relative amount of ammonia nitrogen excreted was increased and might be regarded as an approximate measure of the acidosis. In the case under discussion, the examination of the urine at the time of admission showed 3.59 per cent. sugar and in subsequent examinations the percentage of sugar did not exceed 1.1 although the percentage found in the blood was 1 per cent. It seemed that there was an increased permeability of the kidneys to sugar as well as to nitrogen. The acetone bodies estimated by the citron test were 11.174 grams in the 24-hour urine. The pancreatic reaction (Cammidge's test) was positive.

A Contribution to the Study of the Metabolism in Arthritis Deformans.—Dr. David Bovaird said that one of the most interesting problems in general medicine was the study of the etiology of a group of cases characterized as chronic arthritis, not of infectious origin, not of gouty origin, but a term that was used for want of a better and more definite one. The prevalent theories regarding the origin of this condition were considered. Attempts had been made to obtain a specific organism as the causative factor, but none had been found. During the past two years a number of cases had been seen, so-called arthritis deformans, and an effort had been made to go into the metabolic changes of these cases. Nothing was noted concerning the phosphorus metabolism, but the metabolism of calcium was marked, there being found a retention of this element. A diet containing the least possible amount of calcium, one suggested by Dr. Wolf, was given these patients; the caloric value of the food and the calcium content were reduced to the least possible amount, and the patients were kept on this for months. The polyarthritis diminished to a certain extent; as a rule, none of the patients were injured by this treatment and all seemed to be somewhat benefited. The coagulation time of the blood in all of the cases reported was normal.

Dr. Francis P. Kinnicutt said that he had had *x*-ray pictures taken at intervals during the treatment of these patients and, so far as one could judge, the bone lesions were unaffected; this was perhaps what was to be expected.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirty-sixth Annual Meeting, Held at Detroit, Mich., September 13, 14, and 15, 1910.

THE PRESIDENT, DR. FRANK P. NORBURY, HOSPITAL, ILLINOIS, IN THE CHAIR.

AFTER invocation by Rev. Edward H. Pence, and addresses of welcome by Hon. Philip Breitmeyer, Mayor of Detroit, by Dr. J. H. Carstens, President of the Michigan State Medical Society, and by Dr. A. D. Holmes, President of the Wayne County Medical Society, which were responded to on behalf of the association by Dr. Edwin Walker, Evansville, Ind., the Medical and Surgical Sections convened for the reading and discussion of papers.

Pain in Abdominal Diseases.—Dr. WILLIAM M. HARSHA of Chicago stated that in order to interpret pain properly, a careful history of the case was necessary, as pain must be considered in relation to other factors in a given case, and without these it lost its chief importance. The relation of pain to taking food was also of great value, particularly in duodenal or gastric ulcer or the various stenoses, benign or malignant. The direction and extent of painful radiation and the association with the hyperesthesia, local tenderness, and muscular rigidity were of the greatest importance both as indications of the site and gravity of the lesion. The arm pain in angina pectoris, the shoulder or upward radiation in gall-bladder disease, and downward, forward, and testicular pain in nephritic colic were well-known examples. The pain of abdominal disease might be either spontaneous or elicited by pressure, body movement, or position, and it might be influenced by psychical, thermic, mechanical, or chemical means, all of which might be utilized in cases to aid in exact diagnosis. Diseased viscera caused pain at or near their various sites, but there were many exceptions which lent importance to the reflex or referred pains. In most visceral lesions there was a disturbance manifested variously by pain, tenderness, hyperesthesia, or muscular rigidity on certain areas of the external or protective portions of the body. As moderate shock or fright would emphasize a vanishing or latent pain, he had tried the faradic current in suitable cases, and in two instances he had been able to locate more definitely the trouble. A great majority of abdominal diseases, especially of the more acute variety, were first heralded by pain rather than by change of size, position, or other physical conditions. The surgeon could often gauge the urgency in a given case by the character and severity of pain. Taking cognizance of the value of pain associated with local distensions and peristalsis, or the absence of peristalsis, they might locate a stenosis or other forms of obstruction, calling to their aid submerged palpation, or palpation in the bath, which would enable them to detect induration which was otherwise not palpable. By observing the time relation of pain to other symptoms, the effect of food, drugs, cathartics, cold, fatigue, movement, position, jarring, fist percussion, anesthetics, or electric stimulation, they should be able to increase the percentage of correct diagnoses. The safety of abdominal section might have caused them to relax their efforts at exact diagnosis. It had happened many times that laparotomy had been done for appendicitis when a movable kidney, pyelonephritis, ureteral stone, typhoid fever, diaphragmatic pleurisy, salpingitis, or other conditions were present. Age, sex, occupation, or previous history might give valuable aid. In childhood intestinal troubles prevailed, and they were likely to encounter appendicitis, intussusception, or tuberculosis, and in advanced age malignant disease. In women the pelvic organs were frequent sites of disease, while gallstones were more frequent. Lead colic might simulate organic disease. A history of indigestion, with vague epigastric pain, might aid in determining a perforation of the duodenum or stomach, and a record of previous inflammatory trouble in the abdomen might explain a sudden intestinal obstruction. Among the less frequent conditions might be mentioned the meteorism with abdominal pain, resulting from the embarrassed portal circulation in cardiac insufficiency. He had recently seen a case of this kind where the pain was so pronounced and distention so great that abdominal tumor was suspected by one physician. They should consider the possibility of disease of the central nervous system, such as tabes, herpes, or hysteria, disease of the spine, as caries, or spondylitis deformans. They should also consider the possibility of disease of the thorax, referring pain and rigidity to the abdomen, or of one kidney, referring the pain from stone to the opposite side. Excluding pain from the cord, spine, or reflex causes, they should remember that diseased viscera might be at the normal site, displaced especially by prolapse, or transposed. On the surgeon fell the burden of responsibility for exact diagnosis, as his operative experience should add to his knowledge.

Dr. WILLIAM FULLER of Chicago said the man who could best interpret the significance of pain was the one who had suffered some pain. While he did not think it was necessary to have all the acute abdominal diseases in which there was great pain to make a diagnosis, he thought a little knowledge gained in a practical way helped out very much. He stated that Dr. Harsha's paper contained two excellent points. First, was the emphasis that he laid upon the fact that abdominal pains might be severe even in trivial abdominal affections. Second, very serious abdominal affections might be unattended by pain.

Dr. CHANNING W. BARRETT of Chicago stated that when a patient complained of pain generally over the abdomen from appendicitis or gall-bladder trouble they found frequently that by putting the finger upon the point that was affected or supposed to be affected and making a little pressure it caused the surrounding pain to disappear. They could then go over the rest of the abdomen, and while the patient might complain of local pain, the rest of the pain was gone. Another point in regard to eliciting pain before the anesthetic was given. An anesthetic was of great value sometimes in pelvic conditions and abdominal conditions, but he thought they gained more knowledge of pelvic and abdominal conditions by examining the patient first without an anesthetic, finding out all they could, and they found then in giving an anesthetic some things that were apparent before the anesthetic had disappeared.

Dr. L. W. BREMERMAN of Chicago stated that in diseases of the kidney or the ureter, he had seen cases in which there was hematuria, with marked pain over the region of the kidney, the kidney being felt on palpation, with excessive tenderness over the kidney; a kidney lesion was diagnosed, and surgical intervention recommended. Upon cystoscopic examination of the individual, he discovered that the hematuria was developing from the supposedly healthy kidney, the urine from the supposedly diseased kidney being normal. Every method of examination should be resorted to before an absolute diagnosis was made.

Dr. HARSHA said the thing that most impressed him in studying this subject was the need of considering three or four different sources of abdominal pain. First, the central nervous system; second, the spine; third, the reflexes, and fourth, the visceral diseases themselves.

The Cause and Significance of Tubal Rupture in Extrauterine Pregnancy.—Dr. CHANNING W. BARRETT of Chicago read a paper on this subject in which he drew the following conclusions: 1. Pregnancy, which was considered to be always extrauterine in the beginning assumed pathological significance when it underwent ectopic attach-

ment. 2. The ovum attached in the tube had a parasitic action, having a malignant tendency in that it destroyed maternal tissues, embedded itself in the tube wall and tended toward death of the mother, but in "making its bed dug its own grave." 3. The growth of the ovum or enlargement of dead ovum mass together with the destruction and thinning of the tube wall led to almost certain rupture of the tube. 4. The primary rupture might be partial and even slight, or it might be complete and even fatal. 5. If complete, a subsequent rupture or subsequent ruptures were the rule. 6. With rupture free hemorrhage more or less severe occurred, which was never to be looked upon lightly and which might prove fatal. 7. The loss of blood might be through one rapid fatal hemorrhage or there might be a series of lesser hemorrhages. 8. If the patient did not succumb to loss of blood the presence of the blood and the ovum in the abdominal cavity acted as irritating foreign substances leading to loss of function and pathological changes in the viscera, and perhaps to local or general infection, thrombosis, embolism, etc. 9. The dead ovum was only slightly less harmful from the standpoint of infection. 10. A study of the pathology made all treatment looking toward killing the ovum appear irrational. 11. Patients in good condition with or without ruptures were almost certain to have future trouble and should have an operation as soon as was consistent with good work. 12. Patients in bad condition with concealed hemorrhage from the cause in question had collapse in proportion to the amount of blood lost, and rational treatment must look with certainty toward the stopping of further hemorrhage. 13. An opening of the abdomen with clamping or ligature of the vessels was the only reliable means of controlling internal hemorrhage, and if done rapidly and with care was little tax upon the patient. 14. The clinical experience of the world and a study of the pathology of this condition pointed to the danger of delay. 15. The more desperate the case while the patient yet lived, the greater the call for immediate action.

Dr. Edwin Walker of Evansville, Indiana, said he fully agreed with the essayist, and so far as his personal knowledge went, he knew of one death from repeated hemorrhages; but most of the deaths had been in delayed cases in which sepsis had occurred after operation. The teaching that they should wait in these cases was not sound. He felt that the position taken by Robb was untenable. Those patients that had been operated upon promptly in his experience had recovered.

Dr. Joseph Rilus Eastman of Indianapolis said this was 1910, and it was a pity that it was necessary for Dr. Barrett to present a paper like the one he had read. The teaching that it was wise to allow a woman to bleed into her own abdomen, or into her tube or uterus, while the surgeon stood by with his arms folded and fell back upon soft pillows or relied on Providence, was absolutely pernicious. If a vessel were bleeding upon the surface of her body, what man would be so negligent or so indolent as to stand by and allow her to bleed to death?

Dr. Charles Stoltz of South Bend, Indiana, stated he thought the more energy they expended in teaching that these conditions were to be met and not dallied with the better. The men who had received the proper teaching would recognize these conditions, and they would usually find some one who was competent to meet the conditions speedily, or they might be competent to operate themselves, because if there was any delay, or if the patient was carried from one place to another, she might just as surely die in one community as another. He did not know Robb, who said that shock meant nothing but hemorrhage, but if he made that statement he wanted to forget it, as he would rather act upon the theory that shock was hemorrhage, and hemorrhage was shock.

Special Points in Advanced Extrauterine Pregnancy.—Dr. Shelby C. Carson of Greensboro, Alabama, in this paper directed special attention to the control of hemorrhage during the operation. Although his experience was nil, he ventured the suggestion that the operation for advanced extrauterine pregnancy be done in two stages when necessary or advisable, at an interval of forty-eight to sixty hours, according to the judgment of the operator. In the first place, let the abdomen be opened, the child delivered, the iliac tightly compressed by metal bands, and further, to be doubly sure, the ovarian and uterine arteries clamped by rubber-covered forceps, if they could be approached. In the second stage, separate the sac, release the blood vessels after ligating the anomalous ones, and closing the abdomen. Sometimes hysterectomy was imperative. This differed from and apparently was superior to the old method of uniting the sac to the incision and waiting weeks for its separation, since by this method the danger from sepsis was eliminated.

Dr. J. H. Carstens of Detroit stated he had one woman that went to term, a general practitioner having made the diagnosis. He operated on her in two stages. The placenta seemed to be attached to the intestines and the rectum, and he did not have the courage to remove it. He thought the best thing would be to leave the placenta alone, and so he removed the fetus, separated the peritoneum with the sac, and drained. The woman was septic at the time of operation, and finally died from sepsis. The placenta did not separate. Little shreds came away through the abdominal incision.

Dr. William M. Harsha of Chicago said he had never heard satisfactorily explained the cause of the intense pain that came on in cases of tubal rupture. The extent of pain and the broad radiations of it were great in comparison to the very small area apparently involved. A woman with tubal rupture suffered pain from her chest to her thighs—sometimes, at least. The broad radiations, with the intense character of the pain, made it almost impossible to get from these patients a rational explanation or history. These were the cases in which he believed a good dose of morphine was indicated. It would first abolish the cardinal or reflex pains to a certain degree and help to localize the trouble. Second, it would limit the hemorrhage, but before administering morphine one should observe carefully the character of the pain, the extent of the radiations, the time, and the urgency of the condition. After recognizing these, morphine would answer two indications, namely, to relieve the shock and put the patient in a better condition for operation, and to some degree arrest the hemorrhage.

Dr. Channing W. Barrett of Chicago said in regard to dealing with extrauterine pregnancy that was advanced, they found that in the early months the ovum was not considered. The probabilities were that so far as the ovum was concerned it would die, and the chances were that it would kill the woman sooner or later. A few years ago they would have said that at any time during the extrauterine pregnancy, early or late, the ovum should be removed at the earliest possible moment. The teaching had been that if the ovum had passed the fifth month, or along about there, they should wait for viability. He would be inclined yet, even in spite of that teaching, to remove the ovum when found, if it had reached a viable period, looking to the interest of the child and mother.

Requirements and Limitations of Nitrous Oxide and Oxygen Anesthesia.—Dr. Charles K. Teter of Cleveland, Ohio, said the greatest advancement in general anesthetics made in recent years had been the development and use of nitrous oxide and oxygen in major surgery, and in general surgery he had seen within the past few years nitrous oxide and oxygen come from a very limited use to one of almost unlimited application. He had been

one of the foremost in advocating the superiority of nitrous oxide and oxygen as an anesthetic. He had been compelled to do so because of the almost phenomenal success he had had with it. He had administered nitrous oxide and oxygen over sixteen thousand times in all conditions and for almost every conceivable operation, and having had this practical experience, which alone was essential to appreciate the excellency of this agent, he wished to give the profession the benefit of it. It was freer from post-anesthetic complications than any other general anesthetic known. It was by far the most difficult general anesthetic to administer because of the following reasons: 1. The physical properties of nitrous oxide were such that this gas must be given from 80 to 90 per cent. pure, in order that a sufficient saturation of the gas in the blood might be had to produce that change in the nerve cell which brought about the anesthetic state. 2. The anesthetic properties of nitrous oxide and oxygen were extremely evanescent. The patient could pass from complete surgical anesthesia to a conscious state within sixty seconds. The extreme rapidity of induction and elimination made the administration of this anesthetic difficult. 3. Muscular tone was maintained to a much greater extent than it was under ether or chloroform, due probably to an increased percentage of carbon dioxide in the blood. The requirements for the proper administration of nitrous oxide and oxygen were: 1. A thorough understanding of the technique of administration and action of nitrous oxide and oxygen. 2. The apparatus must be accurate, have attachments for the administration of other general anesthetic agents, and be easily sterilized.

Dr. L. W. Bremerman of Chicago said that in his special work, which dealt entirely with the bladder, the ureters, and kidney, or conditions involving the genitourinary tract, he had employed as a general anesthetic a combination of nitrous oxide gas and oxygen exclusively during the last two or three years. As it became necessary to perform major surgical operations upon the aged, particularly for the removal of the prostate, he could not recommend more highly any other anesthetic than the use of nitrous oxide gas and oxygen. It produced none of the untoward after effects, such as nausea and vomiting. The patient was usually awake before he left the operating room. It had a great tendency to reduce the shock of the operation by shortening the length of the anesthetic, and in his hands it had given perfect satisfaction.

Dr. Fenton B. Turck of Chicago said that some years ago he conducted a series of experiments on animals with chloroform and ether with a view of determining the changes that occurred in the blood. It was found by these experiments that there was a loss in the antibodies and ferments in the blood, and that there was diminished resistance to bacteria, as was shown by the agglutinins, precipitins, and other substances which were found in the antibodies in the blood. It was found that these animals went into shock very easily in which there was a lowered condition of the blood. These experiments showed the effects of ether and chloroform on the serum itself, and two conclusions were arrived at, one being that there was an actual direct chemical effect on the serum, and the other was that biological changes took place and acted on the cells as toxins.

Further Observations on Acetabular Fracture with Intrapelvic or Central Dislocation of the Femoral Head.—Dr. William Fuller of Chicago detailed two cases of this class of fracture and presented for consideration a few points in a general way pertaining to this important but, as yet, imperfectly understood subject. So close was the relation between fractures and the changes that took place in the bone, whatever they might be, that all such injuries resulting from trivial or slight degrees of violence should be regarded as possibly belonging to this class. Efforts had been made by several observers to put the etiology of fractures on a physical basis by studying the mechanical capabilities of bone. The great strength of the pelvic bones, their peculiar and powerful articulations and liberal muscular supply, were factors which singly and combined contributed much to the neutralization of all forms of direct violence exerted on this portion of the body. While Katz's theory of the mechanism of certain acetabular fractures would probably hold good, it was also worthy of mention that the experiments of Kusmin demonstrated that this fracture could or would not occur unless the force be applied with the femur in abduction. When the legs were kept parallel the acetabulum remained unfractured. From impacted fractures of the femoral neck central dislocation of the femoral head might be differentiated by the age of the patient and the comparatively high degree of injury in the latter instance. The remarkably sunken appearance of the greater trochanter and its slightly altered relation to Nelaton's line were points which distinguished the dislocation. The certainty with which the femoral head might be palpated in either of the anterior dislocations of the femur and its increase in length in the thyroid dislocation would serve to differentiate any one of these dislocations from a central one. In the dorsal dislocation, especially to one above the obturator internus tendon, the trochanter was far above Nelaton's line, the thigh was adducted, flexed, and the axis of the dislocated femur crossed the lower end of the opposite one. Moreover, in the simple dislocation all movements would be less free than when the head and neck occupied a central position. It was not intended that the symptoms of acetabular fracture as here given were in the least to minimize the importance of the radiograph, but that each and every manifestation of all hip injuries, of whatever nature, should be carefully and cautiously considered. In no instance should the clinical findings settle the diagnosis, as they were frequently misleading, and the conclusions based thereon should invariably be corroborated by the roentgenologist. In case of failure to replace the head of the femur within the acetabulum, operative interference might offer the only hope of satisfactorily dealing with such a condition; but the particular type of operation and the advantages to be gained by it would depend much upon factors opposing the reduction.

The Rôle of the Bacillus Coli Communis in Acute and Chronic Dilatation of the Stomach.—Dr. Fenton B. Turck of Chicago presented some facts with reference to the rôle of the *Bacillus coli* in the gastrointestinal tract in producing lesions in the liver, kidney, stomach, and other organs. Experiments were begun with intravenous and intraperitoneal injections into dogs, rabbits, guinea-pigs, and rats. The results obtained were variable and inconstant. On feeding animals with bouillon cultures of the *Bacillus coli* daily over a period ranging from three to fourteen months lesions were found in the stomach, duodenum, liver, kidney, brain, and spinal cord varying according to the methods, quantity, and character of culture. It was found that animals fed with cultures of *Bacillus coli* would acquire acute or chronic dilatation of the stomach by overworking or overloading that organ. Examination of the blood showed that it remained sterile during the experiments, and the heart's blood at death was also sterile. In feeding cultures of the *Colon bacillus* pronounced changes were revealed in the blood and tissues. Agglutination of *Bacillus coli* by the dog's serum was noted, hemolysis of the blood was evident; cytolysis and autocytolysis of the cells of the mucous membrane of the stomach, kidney, liver, and other organs were marked on microscopical examination. The picture was not one of reaction to an infection, but rather a systemic condition of induced cellular change. To obtain spontaneous, acute, or chronic dilatation of the stomach in

animals it is necessary to first feed the animals with cultures of *Bacillus coli* over a long period of time, followed by over-use of the stomach, especially increasing the intragastric pressure. Acute and chronic dilatation of the stomach was due to the fatigue of the gastric muscles. The author pointed out the indications for treatment in acute dilatation of the stomach. The usual methods of treatment were gastric lavage; diet, frequent but light meals; drugs, such as tonics, laxatives, alkalies, or acid, as indicated; electricity and exercise; hydrotherapy, balneology, rest, anr recreation. In case of failure of the above methods surgical operation was indicated. For the last seventeen years he had followed these indications and methods: (1) Reduce the fatigue of the gastric muscle by rest, followed by appropriate exercise of the gastric muscle, inducing normal peristalsis. (2) Sterilization, as far as possible, of the gastrointestinal tract. (3) Restore the integrity of the splanchnic circulation.

Gastrostomy as a Curative Measure per se in Non-malignant Strictures of the Esophagus.—Dr. JOSEPH RILUS EASTMAN of Indianapolis said the directly beneficial effects of gastrostomy in cases of so-called benign strictures of the esophagus were not generally appreciated. They had been too slow to break away from old notions, which were developed in the preaseptic era, when the performance of gastrostomy was attended with considerable danger. Ewald, in discussing a report of successful dilatation of a diphtheritic stricture of Rosenheim referred to a peculiar observation which he had made in dealing with such benign stenoses, namely, the remarkable circumstance that cicatricial strictures for which gastrostomy had been made nearly always improved steadily after the stomach fistula had been provided and food had been introduced through the fistula instead of through the gullet, that is, the stricture gradually developed a larger caliber without any other treatment whatsoever. Ewald explained these phenomena in the following manner: After the gastrostomy was made it became possible to fill the stomach with food. The pull of the full stomach downward gradually stretched to some degree the elastic esophagus. When the stomach became empty the downward pull ceased, then the pressure of the food mass above the stricture had its effect upon the stretched and more yielding strictured segment. More compact masses of food might then squeeze through. The explanation of the phenomena given by Ewald could hardly be applied to all cases. After the swallowing of a hot or caustic fluid the mucosa of the gullet might become deformed in many ways. Among many interesting deforming processes are, for example, the complete tube cast-like separation of the mucous membrane described by Strauss, the esophagitis desiccans superficialis of Rosenberg, and esophagitis exfoliativa. In these conditions, after the mucosa had become loosened from the underlying tissues and thrown into folds or ridges, or pockets it was easy to understand that the passage of food or of a bougie must be attended with great mechanical difficulty. It also seemed fair to believe that the downward traction due to the filled stomach must have the effect in some instances of smoothing the valve-like folds and irregularities of the loosened membrane, thus permitting the passage of food through a previously impassable esophageal lumen. The gastrostomy was curative *per se* for another and more important reason. The rest afforded the esophagus was of the greatest value in allaying the inflammation which preceded or attended practically all benign strictures. If ulceration was present the passage of food, or, what was worse, the arrest of food, with consequent fermentation, must maintain or increase the activity.

Fracture-Dislocation of the Atlas and Axis.—Dr. CARL E. BLACK of Jacksonville, Ill., reported a case in which operative reduction was adopted. He called attention to the essential diagnostic points and gave some reasons why operative interference had not been adopted more frequently. He summarized the treatment of such injuries as follows: (1) Immediate reduction under an anesthetic. Walton had his patient sit in a chair while he turned the head still farther from the dislocated side. The head was then tilted to the sound side and extended while the column was rotated back into place. Hueter's method by rotation might be used. When the atlas was dislocated, before any method of reduction was undertaken, they should be sure that the odontoid process was not fractured. If the odontoid process was fractured they were advised by some to follow the second indication and place the patient in a plaster cast, which would immobilize the seat of injury until healing could take place, and then reduce the deformity. The objections to this plan are that it failed to give the patient any opportunity of relief before degeneration of the cord could take place, and subjected him to further pressure from callus, and finally it would usually be found impossible to effect reduction after so long a time. The third plan was operative interference. While considerations of the cord were all important in such injuries they should not be deterred from making every reasonable effort to restore the dislocated or fractured spinal vertebræ, because many questions regarding the degeneration and regeneration of the cord were in the stage of controversy and remained unsettled. It would seem to be their plain duty to effect a restoration of the bony column as far as it could be done without further endangering the cord, except in those cases where the cord was hopelessly crushed beyond the possibility of the recovery of lost functions. The mechanical difficulties were great and often insurmountable, but perseverance, with reasonable efforts to overcome them, would certainly tell in time. It was a reasonable proposition that an injured cord had a better chance in a spinal canal with sufficient room than it had when held under even mild compression. For this reason the second indication should usually be omitted and the injured parts exposed thoroughly. If the case was one of dislocation efforts at reduction could be repeated under the direction of the eye and finger, and failing in this a laminectomy could be made. This mistake of the treatment of the case reported was a failure to appreciate the compression produced by the posterior arch of the atlas.

Preparation Required for the Practice of General Surgery.—Dr. G. W. GREEN of Chicago said the public had a right to demand of the surgeon: (1) A good foundation in the shape of a diploma from a good school. (2) Considerable time spent with a master of surgery, so that he had the following knowledge: (*a*) sufficient experience to make a correct diagnosis; (*b*) sufficient experience to know what it was best to do when a diagnosis was made; (*c*) that he should know just how to do the work and have enough practice to have a definite surgical technique of his own, so that he was capable of performing the operation he essayed or any complication which might arise from that operation in an average length of time; (*d*) that his mortality should be as low, and his postoperative results as good, as those of the average surgeon. In return the surgeon had a right to expect a fair remuneration and respect from the public, but no more than any other member with equal qualifications specializing in any other branch of this, one of the noblest professions on the face of the earth.

Tuberculosis of Bones and Joints.—Dr. EDWARD M. BROWN of Chicago read an exhaustive paper on this subject. Among other things, he said: The treatment of tubercular joint disease was (1) general or constitutional; (2) specific or serum treatment; (3) local. For practical purposes the local treatment might be divided into injection treatment, mechanical, and operative. The advantages

of operative treatment were: (1) The disease could at once be thoroughly eradicated, or so nearly so that the patient easily overcame the disease. (2) Dissemination of the disease was prevented. (3) The treatment was shortened. (4) The general condition of the patient rapidly improved. (5) The length of the limb and function of the joint were preserved to the best possible degree.

The Responsibility of Physicians in the Traumatic Neuroses.—Dr. H. H. Drysdale of Cleveland, Ohio, in this paper discussed the history and manifestations of the traumatic neuroses in detail. In studying these conditions etiologically he had arrived at the conclusion that the true genesis, in a large majority of cases, was psychic, and that it was fright, fear of death, anticipated pain, and anguish received unexpectedly by a totally unprepared sensorium which was the chief element to be considered. Psychologically fright was a fundamental emotion. Violent in action, it would under certain conditions of mind pervert the sense faculty, disturb the kinesthetic equipoise, and deform the physical and psychical personality. He considered the manifestations of these conditions to be the involuntary expression of a break in the bodily feeling. These by degrees tended to organize and combined to form a morbid mental state, a delusive conception, as it were, toward which every though converged. A faulty environment frequently did more harm than the actual injury, as it tended to make the individual introspective and depressed, and as a consequence he threw aside the normal weapons of defence and surrendered himself to the misfortune which had assailed him. From an experience of 108 cases investigated from the standpoint of the corporation as well as that of the patient, and which included in many instances the prelitigation, also the postlitigation period, he had made several observations which he believed, if put into practice, would place the responsibility of adjusting these trying conditions on a scientific basis, and thus obliterate much of the confusion and disquietude which surrounded the traumatic functional disorders of the nervous system.

Hygroma of the Testicle.—Dr. Charles M. Harpster of Toledo, Ohio, in his paper stated a hygroma was essentially a serous cyst. The bacillus of tuberculosis was often found, and the hygroma, if a true one, always contained hard caseous masses and rice bodies. A true hygroma of the testicle and cord was rare. The case he related was a man, forty-five years of age, who for a number of years suffered from a hydrocele, and this was frequently tapped by his family physician. Some months ago it was tapped and considerable blood and some pus were withdrawn. This alarmed the patient, and in consultation with the attending physician he found the testicle considerably enlarged and very painful, with some slight general disturbance. The cord and testicle were removed. Tubercle bacilli were found in the rice bodies and tissue of the sac. Syphilis undoubtedly had been contracted, but denied by the patient.

Dr. Richard Dewey of Wauwatosa, Wis., reported a case of manic-depressive insanity, with satyriasis, which was complicated by an abscess of the appendix. The starvation treatment was resorted to, followed by evacuation of the abscess and recovery.

Dr. Frank Smithies of Ann Arbor, Mich., discussed some of the newer methods for the detection of tubercle bacilli, with particular reference to the so-called antiformin method.

The Tubercle Bacillus Cultivated from Cases of Primary Tuberculous Cervical Adenitis.—Dr. William Litterer of Nashville, Tenn., in his paper stated nine consecutive cases of primary tuberculous cervical adenitis were examined, which resulted in the isolation of five cultures of *Bacillus tuberculosis* of the typus humanus and the four cultures of the typus bovinus. The classification of the types being made on the same basis of four tests, to wit, first, the morphological characters of the bacilli; second, the dysgenetic or eugenetic character of the cultures; third, the relative virulence toward rabbits, and fourth, the reaction curve in 5 per cent. glycerin bouillon. This latter test served admirably to distinguish between the two types, provided there were repeated application and careful control over a period, in some instances, of eighteen months. He had found that the differences in the growth of the two types, dysgenetic and eugenetic, on Dorcet's egg medium to be very valuable in differentiating the bovine from the human type of bacillus. Rabbit virulence had probably been more uniformly satisfactory than any of the tests in determining the differences between the two types of bacilli.

The Teaching of Clinical Psychiatry; a Medical Educational Problem.—The President, Dr. Frank P. Norbury of Hospital, Ill., said the subject of the address was chosen as a text in order to present certain imperative demands of medical education of to-day. What was sought was to utilize the opportunities at hand, develop new ones, create higher ideals, readjusting ethical educational standards. The fundamental fact of the present controversy regarding medical education was that it was a part of the educational propaganda of the century—a world movement. In this country this progress was based first on the integration of the educational system; second, the standardizing of undergraduate work; third, the standardizing of professional courses in medicine. Modern medical education was in the transitory stage in teaching clinical medicine. Clinical medicine to-day included the interpreters as well as the research workers. Medical sociology was the enlarged appreciation of the value of clinical medicine extended to the problems of etiology, preventive medicine, occupational diseases, and general and special civic problems. The scope and value of such work were unappreciated by the unthinking masses of the profession. Clinical psychiatry was prominent in this field of newer clinical activity. It was in contact with more points in life, its realities, its ignorance, its prejudices, its ethical discordance, and falsifications, than any other department of medicine. A real need existed to-day for the teaching of these master problems of the age. The teacher must be a biologist in its widest clinical interpretation, a sociologist, that he might grasp all etiological factors, and an internist, that he might be in touch with all of the physical factors entering into the problem. Modern medical teaching must give to the student the opportunity to see the whole at near range. The teaching of psychiatry was a state need, just as much as any other problem of preventive medicine.

Diagnosis of Surgical Lesions of the Kidney with Especial Reference to the Value of the X-Ray and the Cystoscope.—Dr. Louis Frank of Louisville, Ky., delivered the Address in Surgery. He said: Although the diagnosis of the character of new growths in the kidney might be impossible before operation the recognition of a surgical lesion and of the surgical indications were not, as a rule, attended with great difficulty, provided a thorough, painstaking, and complete examination of the individual was made. In renal calculus they had at hand means for physical examination which in the presence of even very obscure symptoms would render the diagnosis in most all cases practically certain. These were the cystoscope and the radiograph. The cystoscopic examination frequently showed a swollen ureteral orifice. The passage of the ureteral catheter would at once reveal from which kidney the blood or pus in the urine was coming. The cystoscope was not nearly so valuable an aid as the röntgen ray. It did reveal whether or not one kidney alone was involved, or whether or not a kidney had ceased to functionate. Although secondary in value in the diagnosis of renal calculus to the *x*-ray and to the clinical history,

the cystoscope should always be employed previous to operation as an aid in ascertaining which was the diseased kidney and the condition of the other kidney in regard to the character and condition of its excretions. As a confirmatory diagnostic means the greatest value of the radiograph was in connection with renal calculi. The predominant signs of most renal affections of a surgical character were pain, hemorrhage, urinary disturbance, and tumor. One or more might be absent or they might all be present in any given case.

The Modern Doctor, His Successes, His Failures, His Future.—Dr. JOHN K. MITCHELL of Philadelphia delivered the Address in Medicine, and among other things said: A time would come, since the disappearance of all disease was unlikely, when governments would make a more organized contest against it, would teach and enlist all physicians in a common army as they now educated and paid the soldier. This must come, because with improved sanitation and the constant advance of preventive means illness would grow infrequent, so that unless he was a paid servant of the state the physician would not be able to exist. When that army was enlisted the occurrence of preventable diseases would be as much a matter for court martial and the punishment of the person who allowed it to pass him as the failure in duty of a soldier asleep at his post. In that golden future in which sickness would be as rare as war was now instead of being a single-handed fighter the doctor would serve as an enlisted man in the great battle for life and strength against illness and pain; he would have no new duties, perhaps, but new powers, ability to enforce obedience to laws of health, until, under wiser ways of life, death, the one unmedicinable disease, came only to the aged, approaching without notice, to be met without fear, bringing an ending peaceful and calm after an active life and a quiet old age.

Myositis Ossificans Progressiva.—Dr. ARTHUR R. ELLIOTT of Chicago presented the clinical history of a case of this disease, showing *x*-ray pictures which clearly demonstrated the bony deposits in various muscular areas. The patient, a girl of seventeen, first displayed symptoms of the disease at the age of two. The involvement of the muscular system was widespread, resulting in many deformities, and much restriction of movement. The general health had not as yet been greatly affected. Congenital malformations of the hands and feet existed, such as were observed in about 75 per cent. of recorded cases. This clinical record was the one hundred and second in the history of the disease since the first case was discovered by Fuke in the "Philosophical Transactions" in 1740. The etiology and pathology of the disease were briefly discussed.

Neurological and Psychiatric Aspect of Tuberculosis.—Dr. CHARLES H. HUGHES of St. Louis stated too much attention had been devoted to the classical form of lesion of pulmonary tuberculosis and too little to the other conditions of the organism, especially to the state of the nervous system and what impression was made upon the patient's mind. He was dealing somewhat with the detrimental effect of adverse psychical suggestion, and he wished to enter a protest and be as emphatic as he could against the pronouncement positively, where it could be avoided, of a diagnosis of tuberculosis to the patient in its earlier stages, and the putting of the patient upon the outdoor treatment alone of tuberculosis. He entered his protest against ignoring the detrimental effects of psychical suggestion and would speak of the beneficial effects of it in the treatment of pulmonary and other forms of tuberculosis. To tell a patient, when he had his first hemorrhage and the microscope revealed occasional tubercle bacilli, that he had tuberculosis and must sleep out of doors, or in a cold room, with his body well wrapped, or sleep with his face out of a window in all kinds of weather for the purpose of giving him fresh air, a thing to which he had never been accustomed, exerted a detrimental influence, an adverse psychical suggestion, and was a most potent influence in determining the fate of that individual. He had in mind a case that came under his observation. A friend of his was sent to Colorado at the time of his first hemorrhage. He was a vigorous man, but led a sedentary life. He neglected those physical influences that were necessary to rejuvenate the blood and increase its vital resistance, to build up the metabolism, and improve the cytological processes. He went to Colorado under the psychic impression that he was affected with pulmonary tuberculosis, a sort of suggestion which sealed the fate of more patients than those who suffered from tuberculosis. He went there, occupied a cold room, and slept with his head out of a window, with a cage arrangement so as to screen himself against mosquitos. He declined steadily. He was dead now, although he went there as a strong man physically. The adverse influence on that individual of psychical suggestion sealed his fate—at least, prematurely. If the diagnosis and possible prognosis had been withheld in that case in his opinion, from what he knew now, the man might have been living to-day. The man who hastened to give a localized and fatal prognosis in a case did not thoroughly comprehend the influence of mind over organisms. He did not fully comprehend the influence of the higher psychic centers over the lower centers of metabolism, upward or downward. True therapeutics depended upon exalting the metabolisms of the organism and not in depressing them. Not enough attention was given, from a psychotherapeutic standpoint and from a neurotherapeutic point of view, to take care of the isolated nerve centers of the tuberculous patient, and in order to accomplish that his digestion must be aided by continuous and unremitting hyperdigestion, artificially enforced, and an amount of sleep adequately secured.

Pulmonary Tuberculosis and Syphilis with Brief Reports of Three Cases.—Dr. ROBERT H. BABCOCK of Chicago cited the views of different writers as to the mutual influence on each other of the association of these two infections and showed that the effect of the second infection depended largely on the stage of the primary disease. He then narrated the salient points in three instances coming under his observation in the past year in all of which pulmonary tuberculosis was developed in the late stage of syphilis with apparently a retarding effect on the tuberculosis. His conclusions were as follows: 1. The effect of the association of pulmonary tuberculosis and syphilis seemed to depend largely upon the stage of the primary disease during which the second infection was acquired. 2. The acquisition of syphilis during the incipient or early period of tuberculosis appeared to be of a negative influence or even in some instances to exert a retarding or curative effect on the tuberculosis. 3. Syphilis acquired by a consumptive in an advanced stage was likely to aid the downward progress of the tuberculosis. 4. Tuberculosis when developed during the primary or secondary stage of syphilis offered a bad prognosis and was apt to run a rapid course. 5. When pulmonary tuberculosis developed during the third or late stage of syphilis, it was apt to pursue a slow course, probably because of the tendency of the lues to sclerosis during this stage. 6. The association of these two diseases did not preclude the mercurial treatment of the syphilis by intramuscular injections and inunctions, but iodine if administered at all must be used cautiously because of its tendency to hasten softening of the tuberculous foci. 7. During the antisyphilitic medication there should be no relaxation in the hygienic measures recognized as necessary in the management of the tuberculosis.

Preliminary Report of Cases Treated by Dr. Carl Spengler's Tuberculosis Immune Blood.—Dr. W. F. WOOLSTON of Chicago said Spengler had pointed out that

in previously immunized patients, after an injection of an antigen, the following relative change in position of the stored up immune substances took place: In about half an hour the quantity of serum immune substances increased, with a decrease in the immune substances of the red blood cells; and in a few days the deficiency in red blood cells had again been balanced or overbalanced and the serum left deficient of these bodies. Dr. Spengler was of the opinion that the leucocytes played a part in the absorption of these bodies. It would be seen that he regarded the erythrocytes as the main source of the production of immune bodies. In healthy animals after tuberculous poison had been injected the immune bodies were demonstrable in the red blood cells. They appeared to be adherent to the hemoglobin and could be separated chemically or mechanically. He had not as yet, with the limited time and number of patients, been able always to say beforehand just which cases would improve. However, the acute miliary had shown the most striking results, as health had been regained in a comparatively short time. Some of the chronic cases had shown no improvement and two of them seemed to have old lesions stimulated to activity. Some of the untoward effects had been a diarrhea which had been easily controlled by some mild intestinal antiseptic. In a case of one nine-year old patient a rash occurred after the first injection which disappeared in twenty-four to thirty-six hours. Among the earliest signs of improvement were the disappearance of lassitude, an improvement in the appetite, a decrease in the amount of sputum and number of bacilli, a gain in weight, an improvement in sleep, and a lowering of temperature and pulse. The toxic pulse, however, took more time to reduce, and sometimes heart stimulants were indicated to aid in the myocardial power. The conclusions of writers who had used this tuberculosis immune blood serum were favorable as to its efficiency.

Prostatic Hypertrophy.—Dr. JOHN E. CANNADY of Charleston, W. Va., in his paper stated prostatic hypertrophy was the greatest curse of age in man. The chief indications for operative relief of obstruction were difficulty in urination and residual urine. He spoke of the value of bladder irrigation and the administration of urotropin and sodium benzoate. This combination was well borne by the stomach. Matters of diet and water drinking were of paramount importance. The choice of operation, whether suprapubic or perineal, depended largely on the individuality of the operator. The value of suprapubic cystotomy was pointed out. He spoke of Hunter McQuire's method and emphasized the necessity for rapid work. The popularity of the different methods was largely a matter of geography, like chloroform and ether. He spoke of the results of Freyer and Young, and pointed out the advantages of a non-toxic local anesthetic, such as novocain in doing a cystotomy. Only a brief general anesthesia was necessary for the completion of the two-stage operation. He spoke of the management of the patient before, between, and after the various steps of the operation. They should always bear in mind the conservation of the patient's strength. The two-stage operation cut the danger in half. Normal saline irrigation was of great value. The end results were almost ideal in the average case, there being both anatomical and physiological restoration of urethra and bladder. He reported illustrative cases showing the management of the normal case.

The Interpretation of Jaundice.—Dr. CHARLES N. SMITH of Toledo, Ohio, gave an interpretation of jaundice as observed in gallstone disease and its associated conditions—the interpretation of a symptom which was both infrequent and inconstant, and, at best, indicative only of complications, or terminal events.

Dr. J. H. CARSTENS of Detroit said the common everyday catarrhal jaundice was of great importance. It was caused by gastroduodenal catarrh so-called. A patient would have jaundice and in the course of five or six weeks it would disappear, and whether treatment had any effect or not he had grave doubts. He had had this form of jaundice himself. He took everything his physicians told him to take—sweet oil, calomel, and many other things, but the jaundice continued. He then restricted his diet to nitrogenous food, and did not take any kind of carbohydrates, oils, fats, etc., but some good lean beef, some eggs and water, and in a short time the jaundice disappeared.

Dr. R. N. MURRAY of Flint, Michigan, stated after suffering from jaundice for a considerable period of time and having tried various remedies, at the request of some Flint physician, he took ammonium chloride in ten to fifteen grains every two hours, and in four days the jaundice cleared up.

A New Principle in the Treatment of Graves' Disease.—Dr. GEORGE W. CRILE of Cleveland said the benefits which followed the ligation of the superior thyroid artery were due, for the most part, to the break of the nerve supply which was inevitable in the course of the ligation. In Graves' disease the thyroid showed a work hyperplasia, and the brain cells showed a work exhaustion. In Graves' disease the brain sent a more or less constant flow of stimuli into the thyroid gland. The thyroid responded by an increase of its secretion. This increased secretion of the thyroid caused an increased activity of the brain cells. In this manner the brain and the thyroid reciprocally goaded each other, and this deadlock, if not broken, continued until one or the other was worn out. This, he believed, was the explanation of the curious ending one occasionally observed, namely, the sequence of myxedema and Graves'. Breaking of the nerve connection between the brain and the thyroid gland rendered Graves' disease curable. No case of Graves' disease was cured by operation alone, and no case was cured until the thyroid gland and the brain were both restored to the normal. This was best secured by operating in such a manner that there was no excitation of the nervous system, nor of the thyroid glands; hence no volatile outburst during or after the operation, and no operative danger; then placing the patient in a rest cure for a month or more, depending upon the severity of the disease. If, on the other hand, the patient after the operation was at once immersed in the environment in which the disease originated, there would be many disappointments. The plan of treatment by a combination of a benign operation, followed by a prolonged rest cure, would restore the patient in so far as tissues were not already irreparably destroyed to the bloom of health.

Cleft Palate.—Dr. G. V. I. BROWN of Milwaukee read a paper in which he described the surgical operative steps in closure of cleft palate.

Surgery of the Great Sciatic Nerve.—Dr. B. M. RICKETTS of Cincinnati read a paper on this subject in which he reported two cases of complete severance with subsequent anastomosis. He drew the following conclusions: 1. Compression for sciatic neuralgia hardly justified the effort. 2. Acupuncture with the injection of electricity or medicaments through an open incision was to be recommended. 3. Acupuncture without open incision was most difficult and uncertain to accomplish. 4. The use of a metal wire and tube for direct multiple injections should be encouraged. 5. Stretching the nerve for neuralgia had been more or less beneficial, and second in choice before more radical measures were employed. 6. Neurotomy without suture was to be condemned, but it should be employed before sacrificing any of the nerve tissue. 7. Neurectomy was the last of surgical measures to be

employed for neuralgia. 8. Neurorrhaphy (primary or secondary) should be done in cases where the nerve had been partially or completely severed by any cause. 9. The great sciatic nerve might be completely divided and remain so indefinitely without great loss of sensation. 10. Both sensation and motion might be improved or completely restored by coapting the severed ends with sutures. 11. Small needle and silk were attended with less trauma than those of larger size. 12. Anesthesia might be local or general.

Office Treatment of Antral Disease.—Dr. WILLIAM W. PENNELL of Mt. Vernon, Ohio, said many simple forms of empyema were amenable to office treatment. The requisite amount of drainage could be made under cocaine anesthesia. There were cases where tooth extraction and curettement and closure of the alveolar fistula had to be practised, but these were made simpler by efficient drainage, astringent washes and cleanliness. Even the graver forms were made more amenable to radical operation where drainage and washings had been practised as preparatory treatment. After drainage had been established, washes of sterile normal salt solution were the only medicaments used in simple empyema; while in those having dental complications, extraction of teeth, and those having thickened antral membrane from prolonged inflammation, curettement, and the use of astringents, were added to the simple washes.

Surgery of Musculospiral Paralysis.—Dr. A. H. BARKLEY of Lexington, Ky., read a paper on this subject in which he drew the following conclusions: 1. Many cases had been operated on but comparatively few reported. 2. In cases of trauma associated injury of the musculospiral nerve might be and frequently was overlooked. 3. The anatomical position of this nerve rendered it peculiarly liable to trauma. 4. Injuries, such as fractures, falls, and blows, were the most frequent cause in the order named. 5. It occurred with equal frequency in both arms, the middle and lower third being the most often affected. 6. The musculospiral was injured more often than any other nerve and not infrequently served as ground for legal action. 7. More frequent in males and might occur at any age, more especially between ten and thirty years. 8. In cases where complete loss of sensation and motor function followed severe injury, the probabilities were that the nerve had been injured and operative interference was indicated. Cases following slight trauma often recovered without operation; however, if no improvement was noticed after two or three months, operation was justified. 9. Secondary cases sometimes presented technical difficulties not present in primary cases. 10. No one symptom was pathognomonic and the pathological condition varied so widely that it was impossible to state before operation with much certainty the exact condition present in a given case. 11. Prognosis was good in clean cases. Especially was this true where operation had been resorted to early. One of the most important determining factors was the length of time the injury to the nerve had existed. 12. Operative treatment depended on the individual case: the earlier the operation the better the result. Small round needles and fine silk had given best results in the hands of the writer. 13. All patients with injuries to the arm, especially fractures, should be impressed with the possibility of musculospiral development.

The Acute Abdominal Manifestations of Syphilis.—Dr. LOUIS A. LEVISON of Toledo in a paper on this subject summarized as follows: 1. Syphilis showing acute abdominal manifestations was not uncommon, but was not generally recognized. 2. The liver was the organ most often affected. 3. Abdominal manifestations occurred more often in the tertiary stage. 4. Syphilis of the stomach could simulate most of the ordinary gastric diseases. 5. The symptoms of acute abdominal manifestations of syphilis were in no way diagnostic and included pain, tenderness, fever, jaundice, chills, and sweats. 6. The gastric crises of tabes might be considered syphilitic in their nature.

The Wassermann Test.—Dr. W. T. MEFFORD of Chicago spoke on the value of this test to the physician. As to what class of patients he would recommend for a Wassermann test, he would say: all persons giving a history of syphilis, either inherited or acquired, and all persons with clinical symptoms simulating syphilis, and in late manifestations of syphilis. He would use it as he would a urinary or sputum examination, or blood count, placing the Wassermann test side by side with these as an assistance in making up the clinical findings. In all cases where he got a positive Wassermann or an active syphilis either alone or associated with other diseases, he would put the patient upon mercurial treatment. Of all conditions in which syphilis was associated, where he got the best results in treatment had been in syphilis associated with the heart and arterial system. Next the liver. He had not got the improvement in tuberculosis associated with syphilis that he expected or had hoped for by specific treatment, or the treatment of syphilis.

Pyloric Stenosis in the Infant.—Dr. W. D. HAINES of Cincinnati reported a case on which he had operated for the relief of this condition. The child was removed to a hospital and posterior no loop gastrojejunostomy was performed. Twenty-four hours after the operation the child showed no distress after taking nourishment and had continued free from his old symptoms. Except constipation, all of the symptoms had disappeared and though still undersized the child was thriving and playful five months after operation.

Pleural Effusions, Their Diagnosis and Treatment.—Dr. E. B. MONTGOMERY of Quincy, Ill., in this paper pointed out the importance of early diagnosis, and as a means of deciding doubtful cases, in addition to auscultation and percussion, needling, not only once, but repeatedly, if necessary. The use of sodium salicylate was advised as a medical treatment of small serous effusions, to be followed by aspiration if the fluid did not disappear in ten days or two weeks. For empyema the importance of a bacteriological diagnosis of the character of the infection was urged as a preliminary to correct treatment. Some pneumococcus empyemas yielded readily after aspiration to injection of two ounces of two per cent. formalin-glycerin. Others required intercostal incision and continuous drainage by one of the various types of drainage tubes, rib resection being rarely called for. To hasten the cure of small empyematous cavities and fistulæ, attention was called to the value of injections of Beck's thirty-three per cent. bismuth-vaselin paste.

Etiology of the Functional Neuroses.—Dr. ELEANORA S. EVERHARD AND DR. GERTRUDE FELKER of Dayton, Ohio, contributed a joint paper on this subject in which they drew the following conclusions: 1. That the common element in the attributed causes of the functional neuroses was to be found in the fact that the mental processes were not directed; therefore, the patient was the victim of any stimulus which chance might keep before the mind, and that there was no limit to the destruction of efficiency which might result. 2. That those symptoms commonly called nervousness were worthy of serious consideration because they indicated some degree of lack of control of nerve processes. 3. That self-indulgence by training the mind to follow the lines of least resistance predisposed to these neuroses. 4. That the value of living in accord with the laws of hygiene could not be overestimated, both because of its influence upon nutrition, and because it required a measure of self-control, but that alone was insufficient. 5. That conditions of life which demanded of

the individual in his vocation or avocation less exercise of attention and will than he was capable of enduring without fatigue bore to his nervous system the same relation that lack of muscular exercise bore to his muscular system. 6. That intelligent education at any age was effective, but since the ideal was prevention, the habit of directing mental processes should be established early.

Dr. Charles F. Read of Hospital, Ill., spoke of the psychic factors in the causation of certain functional psychoses, and presented clinical studies.

Dr. Liston H. Montgomery of Chicago read a paper in which he spoke of the rôle of the physician, philanthropist, publicist, and politician, regarding a federal department of health. He said that when a national department of health was established it would be capable of rendering the greatest amount of good to the greatest number of happy people, and thereby the prospects of longevity of man, ideal citizenship, and posterity would be greatly enhanced, for which the medical profession would stand as sponsor.

Standardization of Bacterins.—Dr. Roswell T. Pettit of Ottawa, Ill., spoke of the value of bacterin therapy as a general aid to local treatment in certain types of bacterial infections which was at the present time pretty well established. In the preparation of vaccines he did not try to estimate the number of bacteria present in a given volume. He took up a twenty-four hour blood agar growth of streptococci in a definite amount of salt solution, shook thoroughly, centrifuged to throw down the clumps, put in a bottle specially prepared and killed by heat or carbolic acid. Then he made a one-tenth of one-hundredth dilution of this full emulsion and gave an initial dose of five c.c. of the one-hundredth dilution. This induced very little or no reaction. The dosage was then increased up through the one-tenth dilution and full emulsion to the point of local reaction. Then he proceeded very slowly, keeping in mind that the reaction induced and results obtained were the true indices of dosage. The reaction to be aimed at was a slight or moderate local reaction, an area of redness about the size of a dollar, without the localizing or general phenomena. By using increasing doses up through a series of dilutions this could be procured with a fair degree of accuracy and an estimation of the number of bacteria used was entirely superfluous. The full emulsion could be called one hundred per cent. and ten per cent. and one per cent. dilution of this full emulsion made. The doses could be recorded as 1, 2, 5, 7 c.c., etc., of the one per cent., ten per cent., or one hundred per cent. emulsions. The advantages of a dilution method of estimating bacterial suspensions over a numerical were several. 1. The reaction, the real index of dosage, was relied upon and the empirical administration of bacterins was made less possible. 2. An index of antibody production was aimed at. 3. By using this method vaccines could be prepared with much greater rapidity, at least an hour was saved on each bacterin prepared, and if bacterins proved to be of value in acute infections—and the recent work of Dr. Rosenow of Chicago on artificial immunization in pneumonia seemed to point in this direction—the time saved would be a very important factor.

Dr. Nathan Rosewater of Cleveland read a paper in which he pointed out the non-operative treatment of the prolapsed and dilated stomach and abdominal viscera.

Treatment of Pernicious Anemia Associated with Achylia Gastrica.—Dr. Alfred C. Croftan of Chicago submitted a clinical report in regard to the treatment of a certain group of pernicious anemia cases and described three cases that had been improved rapidly and have remained symptomatically well, without remissions, until the present date. The one constant factor observed in the cases of pernicious anemia observed during a period of years that were not distinctly attributed to the effect of syphilis, carcinoma, parasites or profound and continuous loss of blood was a lack of hydrochloric acid from the stomach contents, associated with a variety of digestive disturbances, allied with varying degrees of chronic undernutrition. That all cases of hypochlorhydria and all cases of chronic undernutrition did not develop pernicious anemia called for the inclusion of some specific factor or factors, hitherto unknown. At all events, the supplying of large quantities of hydrochloric acid together with abundant proteids by mouth and by rectum seemed a favorable point of attack and was persistently carried through with gratifying results. The dosage, technique of proteid, overfeeding, and the general hospital management of such cases were described in full. From the results obtained the conclusion was drawn that a trial of this plan in this group of cases was decidedly worth while and seemed to produce results not otherwise attainable by any means so far described.

The Diagnosis of Trifacial Neuralgia.—Dr. Hugh T. Patrick of Chicago said in the vast majority of cases the diagnosis of the tic douloureux should be easy and certain as the traits of the disease were few and striking. But the author had had quite a number of other disorders referred to him as trifacial neuralgia. The most frequent had been migraine and sinus disease. Others were syphilis, brain tumor, alveolar abscess, and other dental disease, nasal disease, herpes zoster, neurasthenia and lesion of the optic thalamus. The pain of trifacial neuralgia was practically unique. There was nothing else just like it. It was short and sharp, in the beginning only a flash or jab, or shot. The interval might be anywhere from a second or two to weeks or months. In the fully developed disorder the paroxysms might last a minute or two and the free intervals be so short that the pain seemed continuous. It never really was so. Nearly every patient had intermissions of weeks,, months, or even years during which he was entirely free from pain. One of the most striking peculiarities of the affection was that the paroxysms or jabs of pain were started by slight peripheral irritation, such as washing the face, using a handkerchief, stroking the mustache or the touch of a glass to the lips. He thought that the automatic act of winking often acted as an excitant. Such slight sensory stimulus in the area of one division of the nerve might occasion pain in another division. For instance, touching the lower lip might start a pain not in this region, but in the supra-orbital area.

Water, the Main Factor in Prevention of Disease.—Dr. J. C. Minor of Hot Springs, Ark., said the significant points in his paper were: First, nutrition and elimination were the main factors in maintaining health; but of the two, elimination was absolutely necessary and must be continuous and invariably performed equally by the sewers of the body. One could not flush sewers without water, and if regular flushing was to be had the water must be furnished the body regularly, and the purer the better. Second, normal resisting power prevented invasion of any and all diseases. Normal resisting power depended upon normal distribution of food, normal lubrication of all body structures, and normal excretion of all waste products. Third, unless food were distributed to the system properly it would become a detriment instead of help to the system. It could not be distributed to the system properly without the proper amount of water taken in at the proper time. The stomach was the kitchen in which pabulum was prepared for the system. The small intestine was the table from which the system was served. The system would be served with only just enough, the remainder of the ingesta was thrown through the cecal valve into the sewer. If food was badly digested the system rejected it. If food was in greater amount than the system required the surplus was also rejected. All the

rejected food was an irritant to the cecal region and its continuity. Might it not be a cause for appendicitis? Fourth, there was a proper time for taking the proper amount of water. One's judgment should govern the measure of water to be taken with food. To take too much water just before, during, or just after a meal would be, so to speak, to put the fire in the kitchen out, while not enough fluid would compel the stomach to borrow too heavily from the systemic volume.

The Gradual Evolution of a Sane Therapy in Tuberculosis.—Dr. F. M. POTTENGER of Monrovia, Cal., contributed a paper on this subject. Among other things he said: The position of the sanatorium in the rational treatment of tuberculosis was very important. If the sanatorium was conducted on the proper lines it afforded the best circumstances under which the known measures, which had influence in building up and curing the patient, might be applied. The home treatment, however, was one of the greatest boons to tuberculous patients, because most patients were not able to be treated in sanatoria and must be treated in their own homes. The true position of home treatment, however, could be readily understood by the fact that it was an attempt to apply sanatorium régime and sanatorium conditions to the home.

Intestinal Surgery with a Demonstration of a New Method of Suturing the Bowel.—Dr. A. E. BENJAMIN of Minneapolis stated the various instruments and appliances formerly used to facilitate the surgeon in his work upon the intestines had about all been discarded for the simple, but efficient, method of intestinal anastomosis by thread and needle. The work should be carefully, but rapidly, performed, which was often the case where the surgeon had from practice or experimental work upon the lower animals become skillful in the use of needle and thread. A positive blood supply to the tissues making up the anastomosis was necessary. The end-to-end method was not so certain; therefore, the side-to-side anastomosis should be chosen when convenient. The evolution of the intestinal suture had brought them to the point where they were certain of good results, when the sutures were properly applied and were of the right material. Nonabsorbable suture material should be cast off into the lumen of the intestine after serving its period of usefulness, and this was best accomplished when used for the inner layer. There was then less destruction of tissue. When placed externally it produced unnecessary adhesions, plastic exudate and fibrous bands. It might interfere with proper bowel function, because of its prolonged irritation. Absorbable suture material used for the outer layer was soon taken care of and did not cripple the action of the intestine. The application of the suture in the intestinal work had been carefully studied. It must serve the purposes of controlling hemorrhage, proper coaptation of the tissues, security against leakage, must avoid pursing, be quickly introduced, and not strangulate the tissue. The back lock stitch of Pagenstecher's thread as applied by the author for the inner layer served all these purposes. Experimental work had demonstrated that chromic catgut lasted sufficiently long when employed as the outer suture for positive and firm union to occur. The after-treatment of cases of suturing the bowel should be carefully supervised by limiting the diet, starvation treatment, if necessary, until the union was sufficiently strong before it became necessary for the bowels to be called upon to pass their contents onward.

Officers.—The following officers were elected: *President*, Dr. Robt. H. Babcock, Chicago; *Vice-Presidents*, Drs. Arthur D. Holmes, Detroit, and Charles E. Barnett, Fort Wayne, Ind.; *Secretary*, Dr. Henry Enos Tuley, Louisville; *Treasurer*, Dr. S. C. Stanton, Chicago.

The selection of the place of meeting for 1911 was left to the Executive Committee with power to act.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

STATE BOARD OF MEDICAL EXAMINERS FOR THE STATE OF TEXAS.

Austin, June 28-30, 1910.

ANATOMY.

1. Give the origin, relation, course, and distribution of the posterior tibial artery.
2. Give the muscles of the orbital region, describing one, giving its attachments and insertion with its action and nerve supply.
3. Describe the posterior triangular space of neck, naming the structures found therein, together with their relation to each other.
4. Describe the ulna, giving its muscular attachments.
5. Describe knee joint, giving the osseous and ligamentous structures that enter into its formation.
6. Describe the collateral circulation around the elbow.
7. Describe the perineum, giving the nerve and blood supply to the parts, together with their source and relations.
8. Name the extensor group of muscles of the forearm; describe one fully, giving its attachment, and insertion, together with its action and nerve supply.
9. Describe the brachial plexus of nerves.
10. Outline and give a gross description of the liver, together with its relation to the internal organs.

HISTOLOGY.

1. Describe the histological structure of the skin.
2. Describe the histological structure of the pancreas.
3. Describe the histological structure of the tonsils.
4. Where is unstriped muscular tissue found?
5. Describe the Pacinian corpuscles.
6. Give the histological difference between the wall of an artery and the wall of a vein.
7. Name the genital organs of the male system and describe the vas deferens.
8. Name the genital organs of the female system and, if any, what is the difference between the mucosa of the body of the uterus and that of the cervix.
9. Enumerate the different epithelia, giving a locality or organ in which each is found, predominates.
10. Describe the microscopical appearance of a cross-section of a nerve fiber.

PHYSIOLOGY.

1. (*a*) Name the nerves supplying the tongue; (*b*) give the function of each.
2. Give the velocity of the blood flow (*a*) in the large arteries; (*b*) capillaries; (*c*) give time necessary for a complete circulation of the blood; (*d*) give velocity of nerve impulse.
3. To classify all the senses as external and internal; name five belonging to each class.
4. Give action and tell where found of the following enzymes: (*a*) amylopsin, (*b*) invertase, (*c*) lipase, (*d*) pepsin, (*e*) erepsin.
5. What tissues of the body possess marked power of contractility?
6. (*a*) Name the nerves supplying the heart, (*b*) give function of each.
7. What artificial stimuli may produce muscular contraction?
8. What is the normal blood pressure in an adult, expressed in millimeters?
9. Define the following terms: (*a*) tidal, (*b*) complemental, (*c*) supplemental, (*d*) residual air, and (*e*) vital capacity.
10. Define (*a*) miosis, (*b*) mydriasis, (*c*) eupnea, (*d*) necremia, (*e*) hydremia, (*f*) choluria, (*g*) biotomy, (*h*) albuminuria, (*i*) alopeceia, (*j*) chemosis.

CHEMISTRY.

1. Give (*a*) toxic symptoms of bismuth, (*b*) say how they may occur, (*c*) and describe a test for same.
2. Give (*a*) symptoms of fatal dose, and (*b*) treatment of ammonium hydroxide poisoning.
3. Give Graham's law covering diffusion of gases.
4. The presence of ammonia in excess of 0.05 mg. per liter in water indicates what?
5. (*a*) What is acetone, (*b*) clinical significance, (*c*) describe a practical test for same.
5. Define hemoglobinuria and give a test for hemoglobin.
7. Give a simple, practical test for pus in the urine.

8. (*a*) What is muscarin, (*b*) where found, (*c*) symptoms of poisoning, (*d*) antidote?
9. How is the specific gravity of a gas determined?
10. Differentiate dialysis and osmosis.

BACTERIOLOGY.

1. Describe the Gram's method of staining.
2. Name three pathogenic bacteria that are stained by the Gram's method.
3. Name or give examples of three different bacteria which do not stain readily.
4. Describe the process of staining blood.
5. In normal blood, stained, describe the various cells.
6. Name three different pus producing bacteria.
7. What are the chief effects of bacterial growth?
8. Before being accepted as the cause of a given disease a germ must conform to what is known as "Koch's four laws"; name them.
9. In diagnosis, name the means for identifying bacteria.
10. What are ptomaines and toxins?

PHYSICAL DIAGNOSIS.

1. Give the physical signs of Raynaud's disease and describe the different grades.
2. What is meant by dyspnea; in what disease is it a prominent symptom?
3. Name six causes for the displacement of the cardiac apex.
4. Name the points to be noted when taking the pulse.
5. Give the most important signs of thoracic aneurysm.
6. Name the different groups of emphysema; and describe each briefly.
7. What organs can be felt through the abdominal walls by palpitation?
8. Name the most common diseases affecting the peritoneum, and the commonest cause of local peritonitis.
9. What is meant by jaundice, and give some of the causes?
10. Name some of the symptoms of intestinal diseases.

PATHOLOGY.

1. Panaritium tendinæum: Give its pathology and give reason why a felon of the thumb and little finger is more liable to spread into the palm of the hand than felon of the three middle fingers.
2. Wounds: In a wound of any kind, septic or aseptic, certain principles of treatent if faithfully carried out will greatly contribute toward a union by first intention; please name these principles.
3. Poisons: Caustics and irritants—describe their effects upon the body tissues and how these effects are brought about.
4. Give causes of catarrhal jaundice, and its effects upon the system.
5. Give pathology of pleurisy and name the two diseases it most commonly occurs in as a complication.
6. Give pathology of phlegmonous tonsillitis.
7. Give pathology of yellow atrophy of the liver.
8. Name three varieties of sarcoma, and describe the cells of each variety named.
9. Typhoid fever: Give its cause and pathology.
10. Dermoid cysts: To what class of tumors do they belong, and on what parts of the body do they most frequently occur?

OBSTETRICS.

1. Describe the human embryo during the fourth, sixth and eighth month, giving the appearance and weight.
2. What effect would double ovariotomy have on the fetus of five months' gestation?
3. Describe changes occurring in the blood during gestation.
4. What are the effects of an acute zymotic disease during pregnancy on (*a*) mother, (*b*) child?
5. What are the dangers to (*a*) mother, (*b*) the child, from gonorrhea during pregnancy and labor?
6. What is the significance of glycosuria during pregnancy, and the frequency of its occurrence during pregnancy?
7. Causes, pathology, and treatment of puerperal eclampsia and the danger signs of impending eclampsia?
8. Give the varieties of puerperal eclampsia and their differential diagnosis.
9. What is Tarnier's sign of inevitable abortion, and give its importance in the diagnosis of inevitable abortion?
10. Give formation of caput succedaneum and where does the caput succedaneum appear in the third position?

GYNECOLOGY.

1. Give clinical symptoms of stenosis of the cervix, and give remedy.
2. Give differential clinical diagnosis of cervical stenosis and atresia of the vagina.
3. Give the classification and causes of dysmenorrhea.
4. Give the causes of and remedy for procidentia.
5. Give differential diagnosis of ovaritis and appendicitis in a young woman; would you or would you not advise operative procedure in either condition?
6. For what pathological condition would you advise amputation of the cervix?
7. What are the relations between menstruation and ovulation?
8. Give the hygiene of the menstrual period.
9. What is artificial menopause, its etiology and the pathological conditions that justify it?
10. When and for what purpose would you use the following suture material: silk, silkworm gut, plain catgut, chromic catgut and silver wire, in gynecological work?

SURGERY.

1. How do you prepare patients for the administration of anesthetics?
2. How do you treat acute synovitis?
3. How is the callus disposed about a fracture?
4. What are the causes of gangrene?
5. What complications accompany fractured ribs?
6. What symptoms denote malignant disease of the prostate?
7. What changes take place in strangulated hernia?
8. What precautions are observed in excising a joint?
9. Under what circumstances should the head of the femur be excised?
10. Give differential diagnosis between intracapsular fracture and an extracapsular.

HYGIENE.

1. Why and how is carbon dioxide deleterious to health?
2. Name the chemical germicides most commonly used and the proportions employed?
3. What is the difference between fermentation, oxidation, and putrefaction?
4. Mention the preventable epidemic diseases, and state how you would stop the spread of each.
5. Name and describe the principal chemical elements of food, giving the use of each?
6. ...at is the effect of alcohol upon the nerve centers; circulation?
7. How are impurities in water classified; how can they be detected, and why is the presence of organic material in drinking water deleterious?
8. Give the principal factors upon which natural and acquired immunity depend?
9. Give period of detention of persons exposed to the following infectious diseases: Smallpox, measles, scarlet fever, diphtheria, cholera, typhoid fever, and yellow fever?
10. Give the formation of the four standard disinfecting solutions.

MEDICAL JURISPRUDENCE.

1. Give the eight varieties and classification of insanity.
2. What is meant by justifiable abortion; (*b*) and differentiate justifiable abortion from criminal abortion.
3. Give the chemical tests of blood.
4. (*a*) What is meant by rape; (*b*) give the three important constant symptoms or signs as medical testimony in alleged rape?
5. What do you understand by age of consent in reference to rape?
6. Give common cause of death from wounds.
7. Describe death from and give the post-mortem signs of strangulation.
8. Describe, define, and differentiate illusion, delusion, and hallucination, and the lucid interval.
9. What are the effects of exposure to extreme heat?
10. By what means may the dead be identified?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

STATE BOARD OF MEDICAL EXAMINERS FOR THE STATE OF TEXAS.

Austin, June 28-30, 1910.

ANATOMY.

1. The *posterior tibial artery* is the continuation downward of the popliteal artery. It begins at the lower border of the popliteus muscle; it ends midway between the internal malleolus and the tuberosity of the os calcis, where it divides into the external and internal plantar arteries. Its *branches* are: Peroneal, nutrient, muscular, cutaneous,

communicating, internal calcanean, and malleolar cutaneous. *Relationships. In front:* Tibialis posticus, flexor longus digitorum, tibia, and ankle joint. *Behind:* Skin, fascia, gastrocnemius, soleus, posterior tibial nerve, and abductor hallucis. *On inner side:* Posterior tibial nerve, at upper part. *On outer side:* Posterior tibial nerve, at lower part.

2. See Cunningham's "Anatomy" (1909), page 399; or Gray's "Anatomy" (1908), page 374.

3. See Gray's "Anatomy" (1908), page 620.

4. See Cunningham's "Anatomy" (1909), page 194; or Gray's "Anatomy" (1908), page 186.

5. See Cunningham's "Anatomy" (1909), page 297; or Gray's "Anatomy" (1908), page 336.

6. The vessels anastomosing *in front of the internal condyle* are: Anastomotica magna, anterior ulnar recurrent, and anterior terminal branch of inferior profunda; *behind the internal condyle:* Anastomotica magna, posterior ulnar recurrent, and posterior terminal branch of inferior profunda; *in front of external condyle:* Radial recurrent and anterior terminal branch of superior profunda; *behind external condyle:* Anastomotica magna, interosseous recurrent, and posterior terminal branch of superior profunda.

7. See Cunningham's "Anatomy" (1909), page 1277; or Gray's "Anatomy" (1908), page 1549.

8. See Cunningham's "Anatomy" (1909), page 348; or Gray's "Anatomy" (1908), page 486.

9. The *brachial plexus* is formed by the union and subsequent division of the anterior divisions of the fifth, sixth, seventh, and eighth cervical and the first dorsal nerves. The union of the fifth and sixth makes the upper trunk; the seventh forms the middle trunk, and the eighth cervical and first dorsal make the lower trunk. Each of these trunks is divided into an anterior and a posterior branch. The anterior branches, from the upper and middle trunks, make the upper or outer cord of the plexus; the anterior branch of the lower trunk becomes the lower or inner cord; the three posterior branches unite to form the posterior or middle cord. The plexus lies between the Scalenus anticus and medius. The *branches* are: (1) Above the clavicle; communicating, muscular, posterior thoracic, and suprascapular. (2) *From outer cord:* External anterior thoracic, musculocutaneous, and outer head of median. (3) *From inner cord:* Internal anterior thoracic, lesser internal cutaneous, ulnar, and inner head of median. (4) *From posterior cord:* Subscapular, circumflex, and musculospiral.

10. See Cunningham's "Anatomy" (1909), page 1108; or Gray's "Anatomy" (1908), page 1334.

HISTOLOGY.

1. See Cunningham's "Anatomy" (1909), page 772; or Gray's "Anatomy" (1908), page 1190.

2. See Gray's "Anatomy" (1908), page 1359.

See Gray's "Anatomy" (1908), page 1223.

4. *Unstriped muscular tissue* is found in the alimentary tract from the middle third of the esophagus to the anus, in the ducts of glands, in the trachea and bronchial tubes, within the eyeball, the internal urinary and genital systems, circulatory (except the heart) and lymphatic systems, and the capsules of some organs.

5. See Cunningham's "Anatomy" (1909), page 775; or Gray's "Anatomy" (1908), page 830.

6. See Cunningham's "Anatomy" (1909), page 781; or Gray's "Anatomy" (1908), pages 586 and 722.

7. See Cunningham's "Anatomy" (1909), pages 1159 and 1162; or Gray's "Anatomy" (1908), pages 1457 and 1484.

8. See Cunningham's "Anatomy" (1909), pages 1181 and 1191; or Gray's "Anatomy" (1908), pages 1489 and 1504.

9. KINDS OF EPITHELIUM. (1) *Pavement* or *Squamous:* A single layer of flat, nucleated cells, cemented together at their edges; found in descending limb of Henle's loop. (2) *Stratified squamous:* In layers of cells that are unlike in form; found in the epidermis. (3) *Columnar:* Tall, cylindrical cells arranged in a single layer; found in penile part of urethra. (4) *Cuboidal:* Similar to columnar, but the cells are shorter; found in thyroid gland. (5) *Ciliated:* Columnar cells with hair-like processes (cilia) on their free surface; found in Fallopian tubes. (6) *Transitional:* When the cells are neither arranged in a single layer like squamous, nor yet in many superimposed layers like stratified, but in two or three layers; found in pelvis of ureter.

10. See Gray's "Anatomy" (1908), page 825.

PHYSIOLOGY.

1. *Nerve supply of tongue:* (1) Hypoglossal, to muscles —the motor nerve; (2) Chorda tympani, nerve of taste to the anterior two-thirds; (3) glossopharyngeal, nerve of taste and also of general sensation to the posterior two-thirds; (4) Lingual (or Gustatory), nerve of sensation to anterior two-thirds.

2. (*a*) In large arteries, about a foot a second; (*b*) in capillaries, about an inch a minute; (*c*) complete circulation time, about 23 seconds; (*d*) velocity of nerve impulse: motor impulses, about 33 meters a second; sensory impulses, about 30 to 33 meters a second.

3. *External senses:* Sight, hearing, taste, smell, pressure, and temperature (heat and cold). *Internal senses:* Pain, muscular sense, the sensations from the semicircular canals and vestibule of the internal ear, hunger, thirst, sexual sense, and fatigue.

4. (*a*) *Amylopsin* is found in the pancreatic juice; it converts starches into maltose. (*b*) *Invertase* is found in the succus entericus; it converts maltose into glucose. (*c*) *Lipase* is found in the pancreatic juice; it emulsifies and saponifies fats. (*d*) *Pepsin* is found in the gastric juice; it changes proteids into proteoses and peptones in an acid medium. (*e*) *Erepsin* is found in succus entericus; it breaks up albumoses, peptones, casein, and changes them into leucin, tyrosin, and ammonia.

5. Muscles; also protoplasm, and the cilia of ciliated epithelium.

6. The *nerves which control the heart* are: (1) The pneumogastric nerve, which slows or inhibits the heart-beats; (2) the sympathetic nerves, which accelerate or augment the beats; and (3) the intrinsic cardiac ganglia, which enable the heart to continue beating for some time after it is removed from the body.

7. Muscular contraction may be produced by: Mechanical, chemical, thermic, and electric stimuli.

8. The normal arterial blood pressure varies; the systolic pressure being about 120 to 150 mm. of mercury, and the diastolic from about 90 to 120 mm. of mercury.

9. *Tidal air* is the air which is constantly passing in and out of the lungs during ordinary calm respiration. It measures about 30 cubic inches.

Complemental air is the air which can be taken in beyond what is normally inspired in ordinary breathing. It measures about 100 cubic inches.

Supplemental air is the air which can be expelled at an extraordinary expiration. It measures about 100 cubic inches.

Residual air is the air which still remains in the lungs after the deepest expirations. It measures about 100 cubic inches.

Vital capacity is the amount of air which can be expelled from the lungs by an extraordinary expiration after the most forcible inspiration. It includes the tidal, complemental, and reserve air, and measures about 225 to 230 cubic inches.

10. *Miosis* is a diminution in size of the pupil. *Mydriasis* is dilatation of the pupil. *Eupnea* is normal or easy respiration. *Necremia* is a loss of vitality of the blood. *Hydremia* is a watery condition of the blood. *Choluria* is a condition of bile in the urine. *Biotomy* is vivisection. *Albuminuria* is albumin in the urine. *Alopecia* is baldness. *Chemosis* is swelling and edema of the ocular conjunctiva.

CHEMISTRY.

1. The toxic symptoms of *bismuth* are generally attributed to contamination with arsenic or other impurity. "The *symptoms* observed are stomatitis, metallic taste, tenderness of the gums, dark discoloration of the tongue, diarrhea, pigmentation, and ulceration of the intestinal tract, especially the large bowel. The urine contains albumin and casts and occasionally a dark precipitate or a white precipitate, becoming dark on standing."—(Riley's *Toxicology.*) *Test:* Solutions suspected of containing *bismuth* may be examined by the *Reinsch's test,* as follows: To the suspected fluid add a little pure HCl; suspend in the fluid a small strip of bright copper foil, and boil. If a deposit forms on the copper, remove the copper, wash it with pure water, dry on filter paper, but be careful not to rub off the deposit. Coil up the copper and put it into a clean, dry glass tube, open at both ends, and apply heat at the part where the copper is. If bismuth is present no mirror will be formed in the tube.

2. AMMONIUM HYDROXIDE POISONING. *Symptoms:* "When a solution is swallowed the symptoms depend on the state of concentration. A sufficient quantity of the gas escapes from the stronger solutions during the act of swallowing to endanger the lungs or cause death by suffocation. A large dose may cause death almost as quickly as hydrocyanic acid by inducing spasm of the glottis, or shock, by its intense irritation of the stomach. When the dose is not so large or is less concentrated there is immediate severe pain in the mouth and throat, soon extending to the stomach, vomiting of soapy mucus, intense pain and tenderness of the abdomen, aphonia, frequently accom-

panied by profuse salivation. The glands under the jaw and the lymphatics of the neck frequently become swollen and tender. Secondary results, including chronic laryngitis, edema of the glottis, stricture of the esophagus, etc., are apt to follow recovery from the acute effects of the poison, but they do not follow so uniformly, nor are they generally so severe as those following poisoning by the fixed alkalies. *Treatment:* Do not use the stomach pump. Give the mild vegetable acids, dilute vinegar, lemon or lime juice, orange juice, dilute solutions of citric or tartaric acids, cream of tartar, etc. Vegetable or animal oils, milk, cream, and demulcent drinks may be given in the absence of the acids or following their administration. The dilute mineral acids may be given if due caution is used to have them sufficiently dilute and not to give them in excess."—(Kiley's *Toxicology.*)

3. *Graham's law of diffusion of gases:* The rates of diffusion of two gases into each other are in the inverse ratio of the square roots of their densities.

4. It indicates (probably) organic matter of animal origin, sewage.

5. ACETONE is dimethyl ketone. *Clinical significance:* It is found in normal individuals, particularly stout persons, with deprivation of food, in febrile diseases when the febrile condition is prolonged, in certain mental diseases, such as general paresis, melancholia, and epilepsy, after chloroform narcosis, in puerperal eclampsia, and in diabetes. *Test:* Add a few drops of a freshly prepared solution of sodium nitroprussid, and then KHO or NaHO solution, when, in the presence of acetone, the liquid is colored ruby-red, and, on supersaturation with acetic acid, changes to purple.

6. HEMOGLOBINURIA is the presence of hemoglobin in the urine. *Test:* To a few drops of urine in a test tube add one drop of a freshly prepared tincture of guaiacum and a little ozonic ether, and shake; a blue color is produced if hemoglobin is present.

7. *Test for pus in urine:* Add an equal quantity of potassium hydroxide to the suspected urine; if pus is present a viscid gelatinous mass will be formed.

8. *Muscarin* is an alkaloid found in the Agaricus muscarius, and during the putrefactive decomposition of proteins. It is a monamin. "When administered to animals, muscarin causes increased secretion of saliva and tears; vomiting; evacuation of feces, at first solid, later liquid; contraction of the pupils, almost to the extent of closure; diminution of the rapidity of the pulse; interference with respiration and locomotion; gradual sinking of the heart's action and respiration; and death. Atropin prevents the action of muscarin and diminishes its intensity when already established."—(Witthaus' *Manual of Chemistry.*)

9. The specific gravity of a gas can be determined by dividing its molecular weight by that of the gas taken as a unit.

10. *Dialysis* is the process of separating substances from each other by placing the mixture containing them in a vessel with porous walls and immersing it in water, when the more diffusible substances pass through the walls.

Osmosis is this passage of a liquid or of substances in solution through a porous membrane.

BACTERIOLOGY.

1. *Gram's method of staining:* Stain a cover glass preparation for two or three minutes in anilin gentian-violet. Wash in water. Treat with Gram's solution (iodine, 1 gram; potassium iodide, 2 grams; water, 300 c.c.) for a minute and a half, when the preparation becomes nearly black. Decolorize with strong or absolute alcohol for at least five minutes, wash, dry, and mount. Sometimes a contrast stain of Bismarck brown or eosin is used.

2. *Gram-positive: Tubercle bacillus, Klebs-Loeffler bacillus, Tetanus bacillus.*

3. *Gram-negative: Bacillus typhosus, Bacillus coli communis, Spirillum of Asiatic cholera.*

4 and 5. See French's "Practice of Medicine" (1907), page 1176.

6. *Staphylococcus pyogenes aureus, Staphylococcus pyogenes albus,* and *Streptococcus pyogenes.*

7. *Chief effects of bacterial growth* are: Colors, odors, light, ferments, putrefaction, toxins, diseases, acids, alkalies, indol, liquefaction of gelatin nitrates, and phosphorescence.

8. Koch's four laws in regard to the bacterial cause of disease are: (1) The microorganism must be found in the tissues, blood, or secretions of a person or animal sick or dead of the disease; (2) the microorganism must be isolated and cultivated from these same sources; it must also be grown for several generations in artificial culture media; (3) the pure cultures, when thus obtained, must, on inoculation into a healthy and susceptible animal, produce the diseases in question, and (4) the same microorganisms must again be found in the tissues, blood, or secretions of the inoculated animal.

9. By cultural characteristics, staining properties, morphology, and animal inoculation.

10. *Ptomaines* are the putrefactive products of dead animal tissues or fluids.

Toxins are the poisonous products of pathogenic bacteria or of ptomaines or leucomaines.

PHYSICAL DIAGNOSIS.

1. See French's "Practice of Medicine" (1907), page 1159; or Osler's "Practice of Medicine" (1909), page 1100.

2. *Dyspnea* is breathing that is painful, or difficult, or laborious. It is a prominent symptom in pneumonia or asthma.

3. *Six causes of displacement of cardiac apex:* Pericardial effusion, cardiac hypertrophy, cardiac dilatation, mediastinal tumor, enlarged liver, and pleural effusions.

4. In taking the pulse note: The force, frequency, rhythm, tension, amplitude, duration, the condition of the artery.

5. See French's "Practice of Medicine" (1907), page 630; or Osler's "Practice of Medicine" (1909), page 857.

6. See French's "Practice of Medicine" (1907), page 679; or Osler's "Practice of Medicine" (1909), page 633.

7. Stomach, small intestine, large intestines, liver, gallbladder, spleen, kidneys, uterus.

8. See French's "Practice of Medicine" (1907), page 863; or Osler's "Practice of Medicine" (1909), page 580.

9. See French's "Practice of Medicine" (1907), page 842; or Osler's "Practice of Medicine" (1909), page 534.

10. *Some of the symptoms of intestinal disease:* Pain; tenderness; diarrhea; constipation; flatulence; colic; fever; furred tongue; anorexia; scanty urine; nausea; vomiting; the stools may be abnormal in color, odor, quantity, or consistency, or may contain blood, pus, or other abnormal material; tenesmus.

PATHOLOGY.

1. See Rose and Carless' "Surgery" (1908), page 247; or Da Costa's "Surgery" (1908), page 648.

2. See Rose and Carless' "Surgery" (1908), page 231; or Da Costa's "Surgery" (1908), page 244.

3. *Caustics and irritants* "exercise a destructive effect upon the cells with which they come in contact, partly by abstraction of water and partly as result of a coagulating power or similar action. The acids and mineral caustics usually produce dry and more or less discolored areas of necrosis; the caustic alkalies cause a sort of gelatinous change or a saponification of the tissue. The degree of injury depends upon the poison and the amount in contact with the tissues. There may be only a superficial injury of the outer layer of epithelial cells, or extensive destruction. Reactive inflammation is almost always present, and often, especially in the mucous membranes, the inflammatory reaction is extensive, though the corrosive action of the poison is limited in depth and extent. The affected part may present slight areas of necrosis with reactive hyperemia and inflammation beneath and around them, or deep eschars, vesicles, or large bullæ. In the process of healing extensive scars may form, and these may be serious in their effects, as in the case of strictures of the esophagus."—(Stengel's *Pathology.*)

4. See French's "Practice of Medicine" (1907), page 842; or Osler's "Practice of Medicine" (1909), page 534.

5. See French's "Practice of Medicine" (1907), pages 690, 691, and 695; or Osler's "Practice of Medicine" (1909), pages 643, 645, and 649.

6. See French's "Practice of Medicine" (1907), page 719; or Osler's "Practice of Medicine" (1909), page 445.

7. See French's "Practice of Medicine" (1907), page 821; or Osler's "Practice of Medicine" (1909), page 539.

8. See Rose and Carless' "Surgery" (1908), page 190; or Da Costa's "Surgery" (1908), page 320.

9. See French's "Practice of Medicine" (1907), pages 65 and 70; or Osler's "Practice of Medicine" (1909), pages 57 and 65.

10. *Dermoid cysts* belong to the class teratomata. They most frequently occur in the ovary, orbitonasal cleft, angle of orbit, neck, eyelids, coccyx, floor of mouth, testicle, brain, eye, mediastinum.

OBSTETRICS.

1. See Williams' "Obstetrics" (1909), page 146; or Hirst's "Obstetrics" (1909), page 85.

2. See Hirst's "Obstetrics" (1909), page 549.

3. See Williams' "Obstetrics" (1909), page 172; or Hirst's "Obstetrics" (1909), page 185.

4 See Williams' "Obstetrics" (1909), page 480.

5. See Williams' "Obstetrics" (1909), pages 483 and 854; or Hirst's "Obstetrics" (1909), pages 227 and 727.

6. See Williams' "Obstetrics" (1909), page 493; or Hirst's "Obstetrics" (1909), page 253.

7. *Puerperal eclampsia* is an acute morbid condition, occurring during pregnancy, labor, or the puerperal state, and is characterized by tonic and clonic convulsions, which affect first the voluntary and then the involuntary muscles; there is total loss of consciousness, which tends either to coma or to sleep, and the condition may terminate in recovery or death. The *causes* may be: Uremia, albuminuria, imperfect elimination of carbon dioxide by the lungs, medicinal poisons, septic infection; predisposing causes are renal disease and imperfect elimination by the skin, bowels, and kidneys. *Preventive treatment:* (1) The amount of nitrogenous food should be diminished to a minimum; (2) the production and absorption of poisonous materials in the intestines and body tissues should be limited and their elimination should be aided by improving the action of the bowels, the kidneys, the liver, the skin, and the lungs; (3) the source of the fetal metabolic products and the peripheral irritation in the uterus should, if necessary, be removed by evacuating that organ. *Curative treatment:* (1) Controlling the convulsions (by chloroform, veratrum, or chloral; (2) elimination of the poison or poisons which are presumed to cause the convulsions; (3) emptying the uterus under deep anesthesia, by some method that is rapid and that will cause as little injury to the woman as possible.

The danger signals of impending eclampsia are: Headache; tinnitus aurium; dizziness; pain over stomach; digestive, visual, and nervous disturbances; general debility; insomnia, vomiting, and vertigo.

8. See Williams' "Obstetrics" (1909), pages 517, 518, 524, and 540; or Hirst's Obstetrics" (1909), pages 628 and 632.

9. See Hirst's "Obstetrics" (1909), page 277.

10. See William's "Obstetrics" (1909), page 271.

GYNECOLOGY.

1. Stenosis of Cervix. *Symptoms:* Pain during menstrual period, increase in size of uterus, and retention of menstrual (and other) secretions; this latter may extend to the Fallopian tubes. *Remedy:* Find, and dilate the canal, pack with iodoform gauze, and keep patent by occasionally dilating.

2. In *cervical stenosis*, the vagina is patent, the os and cervix can be seen, and the symptoms are as above (Question 1.). In *atresia of the vagina*, there is destruction or adhesion of the vagina, so that the os and cervix can not be seen. There is amenorrhea, recurrent pains at the menstrual period, with bulging at the perineum, and inability for coitus.

3. *Dysmenorrhea is classified* as: Congestive, ovarian, membranous, obstructive and neuralgic. *Causes:* Pelvic congestion, pelvic inflammation, malnutrition, overwork, lack of development, neuralgia, stenosis or obstruction of the cervix, prolapse or displacement of the uterus.

4. Causes of downward displacements of the uterus: (1) *Pressure from above* (pelvic or abdominal tumors, ascites, tight or heavy clothing, straining at stool, muscular exertion, fecal accumulations, habitual overdistention of the bladder); (2) *weakening and relaxation of the uterine supports* (subinvolution, senile atrophy of pelvic floor, abnormally large pelvis, increased weight of uterus, puerperal traumatisms, pressure from above, traction from below); (3) *increased weight of uterus* (congestion, subinvolution, metritis, pregnancy, fluid in the endometrium, uterine tumors); (4) *traction from below* (vaginal cicatrices, falling of pelvic floor, contraction and congenital shortening of vagina, tumors of cervix or vagina).—(From Dudley's *Gynecology.*)

Treatment: "Operative, unless some contraindication to operation exists. In such a case some *mechanic device* should be tried for the support of the uterus. Pessaries are not to be recommended, as their constant use leads to irritation and excoriation of the vaginal walls. Probably the best means for supporting the uterus is by Braun's colpeurynter. This is worn only during the day, and can be introduced by the patient herself every morning. The uterus is replaced and the colpeurynter well anointed with carbolized vaseline and containing about an ounce of water, is introduced into the vagina. It is then distended with air, thus making an even pressure on the vaginal walls and not causing ulcerations. *Operative treatment* gives the most satisfactory results in prolapse. In slight cases of prolapse repair of the perineum will effect a cure. The severer grades will require, in addition, some operation on the anterior vagina. The best of these is Martin's operation for cystocele. If the cervix is hypertrophied it should be amputated. Three operations—on the perineum, for cystocele, and amputation of the cervix—are required in the usual case of prolapse. In addition, hystrorrhaphy may be advisable, since there can be no prolapse so long as the uterus maintains its normal position of anteflexion. These operations failing, hysterectomy may be performed."

5. In *appendicitis* the pain is of sudden onset and is localized in the right iliac fossa; there is abdominal rigidity, chiefly of the right rectus muscle, and tenderness at McBurney's point; there are usually fever, nausea, vomiting, and constipation.

In *inflammation of the right ovary* the pain is not localized, but may be bilateral, and spreads to the vagina and rectum; there is no tenderness at McBurney's point; it is usually worse just before the menstrual period, which sometimes affords relief; on vaginal examination the ovary is found to be tender. Operation would be advised if indicated.

6. Hypertrophied and badly lacerated cervix.

7. The relation existing between ovulation and menstruation is not known. The two processes are usually coexistent, but they may be independent of each other. The following theories have been held: (1) Menstruation is dependent upon ovulation; (2) ovulation is dependent upon menstruation; (3) they are independent of each other; (4) they both depend upon some other (at present unknown) cause.

8. *Hygiene of the menstrual period:* "The care of women during the menstrual period is based upon common-sense principles and the general laws of hygiene. During the first twenty-four hours of the flow the pelvic organs are intensely congested, and it is therefore advisable for a woman to remain in her room in bed or lying on a sofa. Her duties subsequently should be as light as possible, and while the flow lasts all forms of active exercise, such as long walks, riding, or cycling, should be forbidden. Cold bathing in any form should be avoided, as it tends to check the flow and brings about chronic congestive conditions of the pelvic organs. For the same reason exposure to the inclemencies of the weather and sitting in drafts should be carefully guarded against. The laws of cleanliness should be strictly enforced and the body kept clean and the skin active by a general sponge bath of tepid water and soap. The external organs should also be cleaned twice or thrice daily with tepid water and soap, as the discharges are apt to become rancid and offensive, especially in warm weather. The napkins should be changed frequently and not allowed to become over-saturated and foul. Vaginal injections should not be employed while the flow continues unless ordered by a physician for therapeutic reasons. Sexual intercourse should also be avoided, as the congestion of the pelvic organs is increased by the act of copulation, and it may result in chronic inflammation or the formation of a pelvic hematocele. The diet during menstruation should be simple and easily digested, and all varieties of spiced or highly-seasoned foods should be interdicted. Alcoholic stimulants are also injurious, as they tend to prolong the flow and increase the pelvic congestion."—(Ashton's *Gynecology.*)

9. *Artificial menopause* is the menopause prematurely induced by removal of the ovaries. This is done for tubo-ovarian abscess, pyosalpinx, tubercular salpingitis, diseases of the ovaries.

10. Sutures in gynecological work: *Silk:* For skin, intestinal work, shortening round ligaments, shortening uterosacral ligaments, ventral fixation, or ventral suspension, urethral, and ureteral and bladder work and rectal work. *Silk worm gut:* Skin (through and through and subcuticular), fascia (buried and temporary), perineum, anterior wall and cervix (temporary sutures); ventral fixation (buried and temporary sutures). *Plain catgut:* Skin, fascia, peritoneum, broad ligaments, ovary, tube, bladder, rectum, perineum, anterior wall, muscle, fat. *Chromic catgut:* Same as plain catgut, but especially in fascia, cervix and anterior wall. *Silver wire:* Vesico-vaginal fistulæ, cervix, perineum, anterior wall, fascia, subcuticular.

SURGERY.

1. See Rose and Carless' "Surgery" (1908), page 1324; or Da Costa's "Surgery" (1908), page 1026.

2. See Rose and Carless' "Surgery" (1908), page 643; or Da Costa's "Surgery" (1908), page 546.

3. See Rose and Carless' Surgery" (1908), page 472; or Da Costa's "Surgery" (1908), page 457.

4. See Rose and Carless' "Surgery" (1908), page 102; or Da Costa's "Surgery" (1908), page 168.

5. See Da Costa's "Surgery" (1908), page 476.

6. See Rose and Carless' "Surgery" (1908), page 1230; or Da Costa's "Surgery" (1908), page 1196.

7. See Rose and Carless' "Surgery" (1908), page 1097; or Da Costa's "Surgery" (1908), page 992.

8. See Rose and Carless' "Surgery" (1908), page 691; or Da Costa's "Surgery" (1908), page 621.
9. See Rose and Carless' "Surgery" (1908), pages 694 and 690; or Da Costa's "Surgery" (1908), pages 627 and 621.

INTRACAPSULAR FRACTURE OF FEMUR.	EXTRACAPSULAR FRACTURE OF FEMUR.
1. CAUSE—Indirect violence, therefore little local injury.	1. CAUSE—Direct violence, therefore marked bruising over trochanter.
2. Crepitus usual.	2. Crepitus frequently absent.
3. No absolute loss of power.	3. Marked loss of power.
4. Shortening slight, may increase later, through atrophy of the neck.	4. Shortening greater, 1½ to 2 inches.
5. Trochanter usually of normal shape and size.	5. Trochanter thickened owing to impaction and formation of callus.

(*Essentials of Surgery.*)

HYGIENE.

1. Carbon dioxide is irrespirable, and suffocates; it is not a poison in the strict meaning of the term. Ordinarily carbon dioxide is injurious by diminishing the amount of oxygen.

2. *Chemical germicides:* Corrosive sublimate 1:5,000 to 1:1,000; carbolic acid, 1:40 to 1:20; creolin, 1 to 5 per cent.; formaldehyde, 40 per cent.; lysol, 1 to 3 per cent.; chloride of lime, 1:100.

3. *Fermentation* is a chemical transformation of *carbohydrates* as the result of the activity of microorganisms.

Putrefaction is the decomposition of dead *protein* matter as the result of the activity of certain microorganisms.

Oxidation is the act of union of oxygen with another element or compound.

4. Probably all the epidemic diseases are preventable; certainly smallpox, typhoid, diphtheria, malaria, and yellow fever can be prevented. The spread of any epidemic can be prevented by proper isolation, quarantine, and hygiene; and by the use of special precautions such as vaccination (for smallpox), immunizing doses of antitoxin (in diphtheria), keeping out or destroying mosquitos (in malaria and yellow fever), etc.

5. The *alimentary principles of food,* are:

I. Inorganic { Water. / Salts.

II. Organic { Nitrogenous—Proteids. / Non-nitrogenous. { Carbohydrates. / Fats.

The *function* (and constituents) are shown in the following table, adapted from Notter and Firth's *Hygiene:*

FOOD.	FUNCTIONS.
Proteids.	
1. All substances containing nitrogen, of a composition identical with, or nearly that of albumin; proportion of N to C being nearly as 2 to 7.	Formation and repair of tissues and fluids of the body. Regulation of the absorption and utilization of oxygen. May also form fat and carbohydrate, and yield energy sometimes. In most foods the above, both animal and vegetable, are largely converted into albumoses and peptones during digestion.
2. Substances containing a larger proportion of N are apparently less nutritious; proportion of N to C about 2 to 5½.	These perform the above functions less perfectly, or only under particular circumstances.
3. Extractive matters, such as are contained in the juice of the flesh.	These substances appear essentially as regulators of digestion and assimilation, especially with reference to the gelatin group.
Carbohydrates.	
Substances containing no N, but made up of C, H and O; the O being exactly sufficient to convert all the H into H_2O.	Production of energy and animal heat by oxidation. Form fats and possibly some proteids.
Fats.	
Substances containing no N, but made up of C, H and O; the proportion of O being *less* than sufficient to convert all the H into H_2O.	Supply of fatty tissues, nutrition of nervous system; supply of energy, and animal heat by oxidation.
Salts.	Support of bony skeleton, supply of HCl for digestion, regulation of energy and nutrition.

6. On the *nerve centers,* alcohol is first a powerful excitant, afterwards a depressant; it increases reflex activity and in large doses produces lack of coordination. On the *circulation,* it causes a rise of arterial pressure, and increases the rapidity and force of the heart.

7. *Impurities in water* are *classified,* as: Mineral, vegetable, or animal. They can be detected by chemical analysis, physical tests, and bacteriological examination. The presence of organic material in drinking water may denote sewage and disease germs.

8. See French's "Practice of Medicine" (1907), page 60.
9. See French's or Osler's "Practice of Medicine," in index, under head of these diseases.
10. See above, No. 2.

MEDICAL JURISPRUDENCE.

1. Melancholia, mania, idiocy, imbecility, monomania, general paralysis of insane, dementia, certain forms of mania with distinct etiological relations.

2. Abortion is the premature expulsion of the product of conception (at any period of gestation), whether ovum, embryo, or fetus. It is *justifiable* and not criminal when it is due to natural causes, or when done by a physician, after proper consultation, for sufficient cause. The chief conditions that justify the induction of abortion are: (1) Certain pelvic deformities; (2) placenta prævia; (3) pernicious anemia; (4) toxemia of pregnancy; (5) habitual death of the fetus toward the end of pregnancy; (6) hydatidiform mole; (7) habitually large fetal head. But when performed, or attempted, for any other reason, or under any other condition, it is *criminal.*

3. *Chemical tests for blood:* "(1) The red coloring matter of the blood dissolves readily in cold water. The color of this solution is not changed to crimson, but to green, by the addition of a few parts of a weak ammoniacal solution. (2) If a strong solution of ammonia be used, the red liquid will become somewhat brownish. (3) If this red solution be boiled, it becomes coagulated and the color a dirty brown, which settles out of the solution, leaving the water above. (4) Blood in any amount reacts always to the various albumin tests. (5) When a freshly prepared tincture of guaiacum is added to the original solution there is a reddish white precipitate. If to this is added an ethereal solution of peroxide of hydrogen, the color is changed to blue." (Dwight's *Jurisprudence.*)

4. *Rape* is carnal knowledge of a female by a man, unlawfully, forcibly, and without her free consent.

The *medical evidence* is based on: (1) Marks of violence about the woman's genital organs; (2) wounds, bruises, or other marks of injury on the woman or on the accused; (3) blood stains and seminal stains on the person or clothing of either party; and (4) the presence of any venereal disease on either party.

5. *Age of consent* is the age below which a female is incapable of giving legal consent to sexual connection, and such connection on the part of a man is rape, in spite of her consent or desire.

6. *The common causes of death from wounds* are: Hemorrhage, infection, shock, direct injury to a vital organ.

7. "*Strangulation* produces death by asphyxia together with pressure upon the great vessels, especially the jugular vein. As the result of pressure upon the vein, there are created a congestion of the vessels of the brain and a certain amount of interference with the heart's action." (Dwight's *Jurisprudence.*)

In *death by strangulation:* The blood is of a dark color, owing to complete reduction of the hemoglobin. The proportion of carbonic acid is increased, and owing to its excess the blood coagulates slowly or imperfectly; hence it remains fluid or forms few and soft coagula. The large veins, the pulmonary artery, and the cavities of the right side of the heart may be distended with dark fluid blood, but this is by no means necessarily the case. The left side is usually empty, or nearly so. The lungs may be con-

gested, but are often pallid and anemic, though the dependent parts usually exhibit appearances of hypostatic engorgement. The abdominal viscera, especially the kidneys, are often congested. The appearance of the brain varies; it may be anemic or more or less congested. Special signs characterize special modes of causation of asphyxia.—(From Quain's *Dictionary of Medicine*.)

8. A *delusion* is a belief in something which has no real existence, but is purely imaginary; and out of which the person cannot be reasoned. An *illusion* is a false or perverted impression, received through one of the senses. An *hallucination* is the same as an illusion, but without any material basis.

If an individual believes himself to be made of glass, and is afraid of being touched lest he be broken, he is suffering from a *delusion*. If the whistling of the wind is mistaken for a voice telling a person to do a certain thing—that would be an *illusion*. If a person fancied he heard a voice when there was nothing at all to be heard, that would be an *hallucination*.

A *lucid interval* (in insanity) is a period in which there is a temporary cessation of the insanity, or a complete restoration to reason.

9. *Effects of extreme heat*, are: "Unconsciousness, dry skin, rapid or stertorous respiration, pulse usually rapid; if the temperature is high, it may run up to 112° F., and if it persists death follows within a short time. These signs may vary and simulate death from cerebral hemorrhage. When the individual recovers, it may be followed by delirium, and cases have been reported in which insanity was the result. Persistent headache is a fairly constant sequel, and the person affected is usually more susceptible to heat than was the case previous to exposure." (Dwight's *Jurisprudence*.)

10. *Identification of the dead* is based on: Deformities, tattoo marks, scars, general appearance, apparent age, figure, size, dress, moles, birthmarks, professional stigmata, examination of hair, condition of the teeth, color of hair and eyes.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION	
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan. . .
Arizona*	Ancil Martin, Phoenix	Phoenix	Jan. 2
Arkansas	F. T. Murphy, Brinkley	Little Rock	Nov. 8
California*	Chas. L. Tisdale, 929 Butler Building, San Francisco	Los Angeles	Dec. 6
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	Jan. 3
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov. 14
Delaware	J. H. Wilson, Dover	Dover	Dec. 13
Dist. of Col'bia.	Geo. C. Ober, Washington	Washington	Oct. 11
Florida*	I. D. Fernandez, Jacksonville	Palatka	Nov. 9
Georgia	T. H. Goss, Athens	Atlanta	Oct. 11
Idaho*	W. F. Howard, Pocatello		April 4
Illinois	J. A. Egan, Springfield	Chicago	Oct. —
Indiana	W. T. Gott, Crawfordsville	Indianapolis	Jan. 10
Iowa	Louis A. Thomas, Des Moines	Des Moines	
Kansas	H. A. Dykes, Lebanon	Topeka	Oct. 11
Kentucky	J. N. McCormack, Bowling Green	Louisville	
Louisiana	E. L. McGehee, New Orleans	New Orleans	Oct. 18
Maine	P. W. Searle, Portland	Portland	Nov. 8
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec. 13
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Sept. 13
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Lansing	Oct. 11
Minnesota	W. S. Fullerton, St. Paul	St. Paul	April 4
Mississippi	S. H. McLean, Jackson	Jackson	Oct. 11
Missouri	Frank B. Hiller, Jefferson City	Jefferson City	
Montana*	Wm. C. Riddell, Helena	Helena	April 4
Nebraska	C. A. Carr, Lincoln	Lincoln	Nov. 9
Nevada	S. L. Lee, Carson City	Carson City	Nov. 2
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	Jan. 3
New Jersey	H. G. Norton, Trenton	Trenton	Oct. 18
New Mexico	J. A. Massie, Santa Fe	Santa Pe	Oct. 10
New York	G.P.Wheelock, Univ.of State of New York, Albany	New York, Albany, Syracuse, Buffalo	Jan. 31
N. Carolina	B. K. Hays, Oxford	Charlotte	June 14
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	Jan. 3
Ohio	Geo. H. Matson, Columbus	Columbus	Dec. 13
Oklahoma*	F. P. Davis, Enid	Guthrie	Oct. 11
Oregon	B. E. Miller, Portland	Portland	Jan. 3
Pennsylvania*	N. C. Shaeffer, Harrisburg	Philadelphia, Pittsburg	Dec. ..
Rhode Island*	G. T. Swarts, Providence	Providence	Jan. 5
S. Carolina	H. H. Wyman, Aiken	Columbus	June 13
S. Dakota	F. W. Freyberg, Mitchell	Watertown,	Jan. 11
Tennessee	C. A. Abernathy, Pulaski	Memphis, Nashville, Knoxville	May 28
Texas	R. H. McLeod, Palestine	Palestine	Nov. 22
Utah	R. W. Fisher, Salt Lake City	Salt Lake City	Jan. 2
Vermont	W. Scott Nay, Underhill	Montpelier	Jan. 10
Virginia	R. S. Martin, Stuart	Lynchburg	Dec. 20
Washington*	T. C. McPadden, Seattle	Spokane	Jan. 3
W. Virginia	H. A. Barbee, Point Pleasant	Charleston	
Wisconsin	J. M. Beffel, Milwaukee	Milwaukee	Jan. 10
Wyoming	S. B. Miller, Laramie	Laramie	Oct. 12

* No reciprocicity recognized by these States.

† Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of October 1, 1910:

	Cases	Deaths
Tuberculosis Pulmonalis	578	178
Diphtheria	267	13
Measles	60	8
Scarlet Fever	78	3
Smallpox	—	—
Varicella	20	—
Typhoid Fever	136	24
Whooping Cough	48	4
Cerebrospinal Meningitis	3	5
Malarial Fever	—	—
Totals	1,190	235

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, during the week ended September 30, 1910:

CHOLERA.

PLACE.	DATE.	CASES.	DEATHS.
India: Bombay	Aug. 17-23	..	1
Calcutta	Aug. 14-20	..	6
Negapatam	Aug. 30-Aug. 12	..	18
Madras	Aug. 13-19	..	2
Italy: Bari, province—			
Andria	Aug. 27-Sept. 4	5	4
Barletta	Aug. 27-Sept. 4	30	21
Biotonto	Aug. 27-Sept. 4	1	..
Canosa	Aug. 27-Sept. 4	1	..
Molfetta	Aug. 27-Sept. 4	19	13
Trani	Aug. 27-Sept. 4	8	5
Spinazzola	Aug. 27-Sept. 4	8	5
Foggia, province—			
Cerignola	Aug. 27-Sept. 4	3	3
Margherita di Savoia	Aug. 27-Sept. 4	7	8
San Ferdinando	Aug. 27-Sept. 4	8	8
Trinitapoli	Aug. 27-Sept. 4	25	17
Java: Batavia	Aug. 7-13	20	12
Soerabaya	July 3-15	21	11
Persia: Enzeli	Aug. 20	..	*a*3
Erzeroum, province	Aug. 31-Sept. 2	10	8
Roumania: Galatz	Sept. 16	1	1*

*An Italian seaman.

a From the Veröffentlichungen des Kaiserlichen Gesundheitsamtes, Sept. 7, 1910.

Russia, general	Aug. 14-20	16,106	7,743
Cronstadt, city	Aug. 14-20	78	41
Governments—			
St. Petersburg	Aug. 14-20	60	41
St. Petersburg	Aug. 14-20	359	176
Olonetz	Aug. 14-20	1	1
Vologda	Aug. 14-20	69	47
Pskov	Aug. 14-20	2	1
Novgorod	Aug. 14-20	29	15
Minsk	Aug. 14-20	30	14
Mogulew	Aug. 14-20	15	15
Vitebsk	Aug. 14-20	6	2
Smolensk	Aug. 14-20	2	1
Podolia	Aug. 14-20	137	64
Volynia	Aug. 14-20	6	4
Kieff	Aug. 14-20	242	97
Tchernigow	Aug. 14-20	82	31
Poltava	Aug. 14-20	264	107
Kharkow	Aug. 14-20	274	159
Orel	Aug. 14-20	70	29
Koursk	Aug. 14-20	416	206
Voronega	Aug. 14-20	1,119	554
Tambow	Aug. 14-20	480	233
Toula	Aug. 14-20	10	3
Riazan	Aug. 14-20	225	130
Moscow	Aug. 14-20	37	20
Tver	Aug. 14-20	1	..
Iaroslaw	Aug. 14-20	187	107
Kostroma	Aug. 14-20	208	71
Nijni-Novgorod	Aug. 14-20	219	130
Kazan	Aug. 14-20	88	30
Simbirsk	Aug. 14-20	738	363
Samara	Aug. 14-20	733	327
Saratov	Aug. 14-20	780	362
Astrakhan	Aug. 14-20	194	85
Stavropol	Aug. 14-20	480	256
Perm	Aug. 14-20	107	32
Viatka	Aug. 14-20	34	18
Oufa	Aug. 14-20	169	105
Orenburg	Aug. 14-20	189	112
Ekaterinoslaw	Aug. 14-20	1,944	857
Tauride	Aug. 14-20	216	122
Kherson	Aug. 14-20	749	299
Black Sea	Aug. 14-20	16	15
Baku	Aug. 14-20	142	80
Tiflis	Aug. 14-20	187	70
Koutais	Aug. 14-20	59	20
Erivan	Aug. 14-20	197	122
Tomsk	Aug. 14-20	8	1
Tobol	Aug. 14-20	33	8
Warsaw	Aug. 25-Sept. 2	25	28
Territory of Tourgai	Aug. 14-20	11	7
Territory of the Oural	Aug. 14-20	10	8
Territory of the Don	Aug. 14-20	2,213	1,089
Territory of Kuban	Aug. 14-20	1,056	547

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Original Articles.

PRACTICAL POINTS IN THE MANAGEMENT OF POLIOMYELITIS AND ITS SEQUELÆ.*

By HENRY LING TAYLOR, M. D.,

NEW YORK.

Acute poliomyelitis, or infantile spinal paralysis, occurs in epidemics and also sporadically in most of the civilized countries of the world. Recent extensive epidemics in New York, Massachusetts, Wisconsin, Nebraska, Scandinavia, and Germany have drawn renewed attention to its frequent occurrence, wide distribution, and disastrous consequences. It is predominantly a disease of midsummer and early autumn, and of the first years of childhood. In the New York epidemic of 1907 over 60 per cent. of the cases occurred before the fourth birthday, and over 90 per cent. before the sixth. It is, however, much more common in adolescents and adults than is usually supposed. In a group of four cases occurring in Southampton, N. Y., in the autumn of 1908, the ages were infancy, 13, 19, and 40 years, respectively. Many of the adult cases have passed under the title of Landry's paralysis, or under other designations. A recent case in a youth of 18 was diagnosed as typhoid fever, and the subsequent weakness, lameness, and wasting in the right leg were explained as a complicating neuritis. Numbers of cases of scoliosis in young adults have been traced to a previous attack of poliomyelitis, which in some instances left no permanent limb palsy, as in the case of a woman of 19 who had an attack of fever and weakness in the limbs, followed by lameness, which passed off entirely. Two years later there was a severe scoliosis with partial palsy of the back and abdominal muscles, for which she sought advice.

The negro race in America seems to be less susceptible than the white. Further study is needed as to the geographical and racial distribution of poliomyeltis. An investigation of its occurrence and communicability has been undertaken by the Massachusetts Board of Health since 1907, and it is to be hoped that New Jersey and other States will join in a systematic statistical study.

Poliomyelitis attacks all classes, the healthy as frequently as the delicate. It often occurs during teething, also after over-heating or over-exertion, especially if followed by a sudden wetting or chilling. It also not infrequently follows within a few hours or days after a definite moderate trauma, such as a blow or a fall.

In epidemics, two or more cases in a family or house have occasionally occurred, but in the New York epidemic of 1907 700 houses were reported with one case in each, and only 23 with two (18) or three (5). The disease has been communicated to monkeys and from monkey to monkey for several generations, by Flexner and others, and the virus has been found to be filtrable and ultra-microscopic. The writer has never observed a second attack in the same individual.

It has been definitely shown by Strauss and others that an extensive small cell infiltration surrounds the vessels of the infected area; that the cord is edematous; that the motor cells atrophy secondarily; that the pia of the spine, bulb, and base of the brain are regularly involved, even in those cases showing no cerebral, bulbar, or meningeal symptoms.

Fig. 1.—No. 1 of table; age 18; two years after attack; paralysis left side abdomen; legs somewhat affected, but walks well; scoliosis.

The onset is sudden, usually with fever and constitutional symptoms for a few hours or days, and the palsy follows in a short time. Prostration and inability to walk for a considerable time are common. It is now recognized that bulbar, cerebral, facial, neck, and trunk palsies are not very rare. Indeed, Wickmann, who studied the Swedish epidemic of 1905, divides the disease into eight clinical types, as follows: (1) Spinal poliomyelitic type. (2) Ascending or descending palsy. (3) Bulbar or

*Read at the annual meeting of the New Jersey State Pediatric Society, Atlantic City, June 27, 1910.

pontine type. (4) Cerebral type. (5) Ataxic type. (6) Polyneuritic type. (7) Meningeal type. (8) Abortive type.

In epidemics there are numbers of quickly fatal cases; also cases without palsy, or in which the palsy soon clears up. The writer has notes of cases

Fig. 2.—No. 7 of table; age 3 years; two months after attack; paralysis upper abdomen and both legs.

showing dysphagia, aphonia, ocular and facial palsies, and temporary palsy of the bladder and rectum. Unconsciousness and delirium are rare, except in the fatal cases, but apathy and moderate stiffness and retraction of the neck are not uncommon. It is well, however, to bear in mind that the spinal is the typical and common form, and that the other types are exceptional.

The limb palsies are of very irregular distribution and often escape observation until the prostration abates and the patient tries to get up. In other cases neuromuscular soreness and pains, which are very common, mark the palsy and often lead to a diagnosis of rheumatism. In a few cases there is no history of an attack, but lameness is noticed after the child begins to walk. In others, the child may wake up weak or lame in one leg, without constitutional symptoms. Better observation would doubtless reveal fever in many such cases. A few cases with moderate palsy never stop walking.

Abdominal palsy is quite common, though often overlooked. The New York Committee report only 8 cases from their material of about 750. The writer has notes of 16 cases where the abdominal muscles were paralyzed on one or both sides, indicated by a local or general protuberance of the abdomen, or a bulging caused by coughing or crying. In most of these cases there was arm palsy, and in all leg palsy at first. In nearly all, the arm palsy recovered; more or less permanent leg palsy remained, but was not always bilateral or severe. The abdominal palsy was sometimes in the upper part, sometimes in the lower, sometimes in the loin, on one or both sides; in two cases the entire abdomen was affected. The abdominal palsy was found in both fresh and older cases, and was sometimes an important factor in increasing the disability in sitting, standing, and walking. In half the cases there was marked or severe scoliosis.

In case 16 of the table walking was improved and backache relieved by trunk support alone.

The palsy, whatever its distribution, is always a palsy of relaxation and wasting, never spastic. The deep reflexes of the affected part are usually obliterated, but in a few cases of leg palsy the knee reflexes are exaggerated, as pointed out by Pierce Clark. Vasomotor paresis, shown by blueness and coldness, is nearly always present in the affected extremity. Wasting begins quickly, and, unless the muscles soon recover, is permanent in some degree. It usually involves the bones and other tissues, as well as the muscles. Growth is impaired, and a difference of one or two inches in the length of the limbs is common after a few years, when one extremity is paralyzed.

Fig. 3.—No. 10 of table; age 3; one week after attack; paralysis right side abdomen and chest; legs only slightly affected; scoliosis.

The active process is over in a few weeks, and there is nearly always a strong tendency to spontaneous improvement in some, at least of the paralyzed areas. Some muscles recover entirely, others partially, and others not at all. This is easily understood from the recession of the edema in the cord

and consequent relief of pressure on certain cells before they are destroyed. This improvement usually takes place in the first six months, but in the large majority of cases a considerable permanent atrophy and palsy in one or more limbs is left.

the ligaments, which yield in the end to the continual forcing. Permanent thigh flexion is usually combined with eversion and abduction; knee flexion, often with knock-knee and outward rotation of the leg; pes equinus often, with knee hypertension.

CASES OF POLIOMYELITIS WITH ABDOMINAL PALSY.

No.	Age	Sex	Age onset	Palsy at onset	Palsy permanent	Abdomen	Scoliosis	Present Condition
1 H.C.	18	m	16	Arms and legs	Left leg	Left upper and lower	Marked to left	Can walk a mile
2 E.E.	2	m	1½	Arms and legs	Left leg	Upper abdomen		Cannot walk
3 L.C.	9	f	4	Legs	R. leg ⅝ short	Right lower	Rt. dorsal, l. lumbar	Walks well
4 F.A.	3	m	2½	Arms and legs	Both legs, r. arm	Both sides	To left	Cannot stand or sit
5 T.H.	21¼	m	1½	Both legs, r. arm		Right, lower		Cannot walk
6 D.W.	2	m	13½	2 legs, l. hand	Both legs	Right side		Cannot walk
7 F.C.	3	f	3	2 legs, r. arm	Both legs	Upper, both sides		Cannot walk
8	21	f	19	L. arm, l. leg		Abdomen and back	Marked, to left	
9 G.S.	2	m				Abdomen, more on rt.	To left	
10 F.W.	3	f	3	Legs weak	Partial, legs	Rt. abdomen, rt. chest	To right	Attack 1 week ago
11 N.E.	4½	m	43¼	2 arms, r. leg	Right leg	Lower abd. and back		Walks
12 M.E.	15½	m	9½	Arms and legs	Right leg	Right abdomen		Cannot walk
13 L.H.	3	f	2½	Legs and neck	Double footdrop	Left side, severe		
14 I.L.	19¼	f	1	Arms, legs, neck	Right leg	Left side	To left	Cannot walk
15 J.D.	8	m	6	Arms and legs	Legs and hands	Right side		Cannot walk
16 M.W.	21	f	13	Legs	Both, partial	Abdomen nearly total	No scoliosis	Walks short distance, pain back

Another marked characteristic of the period of recovery is the tendency to the acquisition of fixed deformities, partly from accommodation to habitual postures, whether the result of voluntary choice, of unbalanced muscular action, or the pull of gravity, or of a combination of these factors. If the feet drop habitually, a fixed equinus may result in a few weeks; if the child is seated all day, fixed thigh and knee flexion often result.

Habitual strain also frequently results in deformity, or increases it, as when lateral deformity of the

Fig. 4.—No. 11 of table; age 4½; three months after attack; paralysis of abdomen and back.

foot, knock-knee, and hyperextension of the knee follow attempts to bear weight on the weakened and unsupported limb. The muscles which should guard the joint being disabled, the strain falls upon

The head of the humerus may fall away from the glenoid cavity from the continuous unsupported pull of gravity, and dislocation of the hip occasionally occurs from relaxation at that joint. In such cases

Fig. 5.—No. 12 of table; age 15 months; six months after attack; paralysis right abdomen and right leg.

the head of the femur can readily be slipped in and out of the socket, but cannot be retained in place without an operation to contract the capsule or to fix the joint.

Poliomyelitis is not known to be especially associated with other diseases, but often occurs accidentally with other affections, and some of the combinations may be puzzling. It is often seen in rachitic children, which, considering the frequency of rickets at the age most liable to poliomyelitis, is not strange. One should distinguish in these cases between essential palsy and hypotonia of rickets.

A girl had poliomyelitis at 4, at 10 she had an attack of chorea. The choreic movements were decidedly worse on the paralyzed side.

A baby was born with obstetric palsy of the right arm. At 8 months she had a typical attack of poliomyelitis with paralysis of both legs, the left recovering, and thereafter presented both forms of palsy.

A boy had an attack of poliomyelitis at one and a half, resulting in a cold, weak, and wasted left leg. He afterward developed tuberculosis of the lumbar spine. Without a careful history, this combination might be puzzling.

Cases of scoliosis are occasionally seen where the history or a careful examination of the limbs discloses a previous attack of poliomyelitis. Fixed scoliosis does not result in these cases from inequality of the length of the legs alone, but is due to paralysis of the spinal or abdominal muscles.

The diagnosis is practically impossible until the paralysis is declared, except in epidemics. In fever of sudden onset in summer, one should always test the muscular power of the limbs. Poliomyelitis has often been mistaken for cerebrospinal meningitis, typhoid fever, acute rheumatism, ptomain poisoning, and gastroenteritis. The flaccid motor palsy of sudden onset, without delirium or unconsciousness, distinguishes it from all of these. Landray's paralysis and many polyneuritides are undoubtedly in many cases nothing more than poliomyelitis.

Prevention lies in the avoidance of infected districts during an epidemic, isolation of the sick, and avoidance of over-exertion, over-eating, and sudden chilling in hot weather. A prophylactic serum may be discovered, but one would hesitate to give it to a healthy child, unless in an infected house; when the paralysis is declared, it is too late.

The prognosis as regards life is usually good, though in severe epidemics there is a moderate mortality. Partial recovery of power in some of the recently paralyzed muscles may be looked for; full recovery in all rarely takes place. After one year, usually after six months, further spontaneous recovery of power cannot be expected, and, if the child walks on a damaged limb without proper mechanical support, the deformity and weakness are often aggravated. Children can always be put on their feet and made to walk, even years after the attack, if one limb has fair power, no matter how weak its mate. Even if both legs are practically helpless, locomotion with crutches and splints may often be accomplished. Deformity of the limbs can nearly always be corrected, no matter of how long standing.

The conventional treatment by massage and electricity is completely ineffectual. Improvement occurs only during the stage of spontaneous recovery. This was publicly acknowledged by Dr. Bernard Sachs of New York, a distinguished neurologist, and Chairman of the Collective Investigation Committee of the New York Epidemic of 1907, at the Congress of American Physicians and Surgeons in May, 1910, in these words:

"I consider that time given to massage and electricity in these cases is time wasted; I cannot see that such methods do any definite good, and a great deal more benefit would be obtained by early institution of orthopedic measures."

This has been the practically unanimous opinion of orthopedic surgeons for a generation.

The most important indication in the first four to six weeks of the disease is rest in bed, in order to avoid irritating the site of the lesion and that the antitoxic forces of the body may have an opportunity to limit or repel the infection. As we do not yet understand the nature of the virus or how to combat it, the treatment should be hygienic and symptomatic; the bowels should be regulated and the child made comfortable, kept well nourished, and in the fresh air. Furthermore, as deformities, such as foot-drop, hip and knee flexion, and the like, may be acquired within a few weeks, these must be prevented by attention to posture, and, when necessary, by moderate stretchings and splinting. Even if the child is disposed to stand or walk, he should not be allowed to do so until a careful examination shows that the active process is over, and that the limbs and joints are strong enough to stand the strain. If not, he should be kept quiet until the proper supports are prepared. The prevention of strain and deformity, however, is not the only function of splints in these cases. There is nothing more damaging to a weak or palsied muscle than continuous elongation or stretching; on the other hand, if the paralyzed muscle is protected from traction and held in the shortened posture by proper splints, damage will be limited and a larger recovery of power, or at least a better utilization of latent but previously unavailable force, is often seen, and this may occur many years after the attack.

A man of thirty-seven, who had had poliomyelitis in early childhood, and had not placed his right foot on the ground for twenty-five years, came on a crutch with the leg dangling, the knee flexed to nearly a right angle, and the foot in extreme equinus. The leg was atrophied to skin and bone and there was no apparent power to extend the ankle. The knee was straightened and made stable by an excision, and the foot was brought up to a right angle after achillotomy. The result was very satisfactory, and, to the astonishment of everyone, good power of extension at the ankle was restored.

Many of these cases, more or less lame and helpless, seek the practitioner months or years after the attack. Though full recovery can no longer be expected, the condition of these advanced cases can nearly always be much improved. The indications are to improve local circulation, nutrition, static and muscular balance, and to correct deformity. It is extremely important that an accurate physical survey of the child should be made, the nature, degree, and cause of his disability defined, and measures devised for its mitigation. More of practical value can be learned from systematic testing of the voluntary power of the various muscle groups than from an electrical examination. Such tests are made by noting the patient's postures and movements, including locomotion, by asking him to execute the movements it is desired to test, and by noting the reaction to tickling the soles or to a light pin-prick. Weakened muscle groups, faulty muscle and static balance, inequality in length of the lower limbs, and vasomotor power should be observed.

For the nutritive and circulatory inadequacy and retardation of growth, vibration, local, spinal, and epiphyseal, is our most powerful remedy but one, namely, the normalized use of the part; that is, its use in proper relations and without undue strain.

The following history illustrates the treatment without splints or operation of a moderately early case of medium severity: A young man of eighteen came three months after his attack, limping badly, with a wasted right leg. He had two inches thigh atrophy, and three-quarters of an inch calf atrophy, partial quadriceps palsy, and pes equinovalgus. He could not completely straighten the knee nor invert the foot, and the heel cord was short. The patient was vibrated by a powerful vibrator at the sides of the spine and over the weakened muscles for a few minutes three times weekly. He was also given voluntary and resistive movements for weak muscle groups, the heel cord was stretched with Shaffer's stretcher, and he was trained in walking and in general posture. He had no mechanical support except Whitman plates for foot balance. After five months he walked several miles, and had no limp. His heel-cord contraction was gone, and the thigh had gained an inch and the calf three-quarters of an inch in circumference. The strong leg has also gained considerably from overuse, as is always the case.

The following case also illustrates treatment without splints or operation, and the stimulation of the growth of the limb in length through vibration:

A girl of two years and nine months came seven years ago with a weak and atrophied left leg and a pes valgus, as the result of an attack of poliomyelitis at seven months. As she walked fairly the shoe was raised and balanced, and a powerful vibrator was used over the knee epiphyses, spine, and leg, two or three times a week for several months each winter since. The child has improved markedly in general health and in walking, and in the strength and circulation of the leg. Each leg has grown ten inches in length in six years, the difference between the two being three-eighths of an inch, the same as at the beginning of treatment.

When there are fixed deformities, these must first be corrected, which, with the exception of scoliosis, may usually be done with simple tenotomies, myotomies, and fastiotomies, followed by proper retention apparatus, giving only needed support and imposing no unnecessary restriction. Abdomminal palsy and scoliosis may require trunk support through an orthopedic corset.

The matter of overcoming deformities and equalizing muscle balance is usually of far greater importance than the questions of full joint action or of general muscular development. When the opponents to a certain muscle are practically dead, to cultivate the functionating muscle only increases distortion and aggravates the difficulty. What is needed is not more power but a better balance and a better distribution of power, which may often be accomplished by orthopedic and surgical treatment, or by such a simple measure as balancing the shoe, or by increasing the thickness of the sole of the shoe on the short side.

When the only effect of the contraction of an active muscle is to distort the part and make useful function more difficult, it may be, and frequently is, the part of wisdom to lock up such a part by an operation or a brace—thereby vastly increasing symmetry and supporting power and sacrificing only deleterious action.

The points in the foregoing remarks to be emphasized are:

1. The not infrequent occurrence of poliomyelitis in adolescents and adults.
2. The fairly frequent occurrence of abdominal palsy.
3. The uselessness of massage and electricity.
4. The value of rest in bed in the early stage, and of orthopedic and surgical treatment, both early and late.
5. The necessity for a systematic statistical investigation by State Societies and Boards of Health.

Most of the references will be found in the Report of the Collective Investigation Committee on the New York Epidemic of 1907, published in 1910 in the Monograph Series of the *Journal of Nervous and Mental Diseases.*

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BACTERIAL VACCINES IN THE TREATMENT OF DISEASES AMONG THE AGED.

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The successful use of bacterial vaccines in the treatment of disease necessitates an ability on the part of the patient to react to them. Active immunity to the infecting agent is produced by an increase of the opsonins, and probably other cooperative factors, very different from the immunity produced by the injection of diphtheria antitoxin, for instance, in which case the patient is a mere passive agent. In the latter case, the immunizing agent is actually introduced into the system, already prepared; in the former, certain body cells are stimulated to produce the immunizing agents, and in case they have too little vitality to do so the treatment fails.

The foregoing should not lead to a belief that bacterial vaccines have no value among patients debilitated by age and chronic disease. In this hospital 77 per cent. of the patients have been found to be between sixty and eighty years of age,* and the principal clinical diagnoses among nearly two thousand admissions to the hospital during the past three and one-half years are as follows, expressed in percentages:

Acute alcoholism	27.	Hemiplegia	2.4
Gastritis	9.	Asthma	2.3
Chronic endocarditis	5.4	Myocarditis	1.5
Rheumatism	4.5	Malaria	1.5
Debility	4.	Diabetes	1.
Bronchitis	3.8	Insane	1.
Chronic nephritis	3.7	Pulmonary Tuberculosis	.9
Cancer	3.5	Blind	.9
Senility	3.3	Fracture of femur	.8
Influenza	3.	Locomotor ataxia	.8
Pneumonia	2.4	Gout	.7

The average mortality among the above cases was 13 per cent., and the principal causes of death were:

Chronic nephritis	18.5	Pulmonary tuberculosis	3.7
Cancer	13.	Enterocolitis	3.
Chronic endocarditis	12.	Senile gangrene	2.
Senility	8.	Locomotor ataxia	1.2
Pneumonia	6.5	Diabetes	1.2
Pyleonephritis	5.	Angina pectoris	.8
Cerebral hemorrhage	4.5	Aneurysm of aorta	.8
Senile dementia	4.	Fracture of femur	.8

Of the cases coming to autopsy, the principal causes of death are shown in the following table:

*Below 60 years of age, 11 per cent.; between 60 and 70, 35.5 per cent.; between 70 and 80, 42 per cent.; between 80 and 90, 11 per cent.; over 90, 0.2 per cent.

Cancer	39.	Peritonitis	2.7
Chronic nephritis	16.	Purulent pericarditis	2.7
Pyelonephritis	15.	Subdiaphragmatic abscess	1.
Chronic endocarditis	9.5	Empyema	1.
Pneumonia	5.	Abscess of liver	1.
Aneurysm of aorta	2.7	Perinephritic abscess	1.

Thirteen per cent. of all the deaths were due to cancer, with the following distribution:

Stomach	19	Colon	3
Stomach and liver	16	Cecum	3
Liver	9	Prostate	3
Sigmoid and rectum	9	Face	3
Pancreas	6	Liver and Pancreas	3
Bladder	6	Larynx	3
Sigmoid and liver	6	Esophagus	3
Mouth and tongue	6		

Thirty-five per cent. of all the fatal cases of cancer were primary in the stomach; 34 per cent. were in the liver, the greater number of these being secondary to malignant disease of some part of the gastrointestinal tract; 22 per cent. were in some part of the large intestines. Of the new admissions to the Harbor (not necessarily hospital patients) 26 per cent. have chronic nephritis, 17 per cent. have chronic endocarditis, and a much larger proportion are suffering from myocardial degenerations. Three per cent. have sugar in their urine, although but 1 per cent. of the patients die directly from diabetes.

Bacterial vaccines, prepared in our laboratory, have been employed among the classes of patients above enumerated and, in almost all instances, under physical conditions which have long been considered adverse to favorable prognoses.

Case I.—Mr. M., age 72. *Osteomyelitis of the tibia, septicemia, acute endocarditis, cerebral embolism.* The prognosis was bad from the start, on account of the age and general condition of the patient. He had severe chronic nephritis and arteriosclerosis. Heart considerably hypertrophied but no murmurs present. The process began suddenly with a chill, four days before the local condition presented itself, with a temperature of 102.6, leucocytes 20,700, polynuclears 74 per cent. The inflammation of the superficial tissues extended as high as the knee, with especially great swelling and edema about the left ankle. Temperature 102-104, leucocytes 20,700, polynuclears 79 per cent. Three incisions with local analgesia were made over the lower end of the tibia down to the bone. About 100 c.c. of pus found and bare bone felt. Cultures from the pus showed *Staphylococcus pyogenes albus.* The treatment consisted of wet bichloride dressings, through-and-through irrigations b.i.d., and Bier's hyperemia method. Ten days later the local condition had greatly improved, drainage was free, and the inflammation confined to the lower end of the leg and about the ankle; but the general condition of the patient was failing. Temperature varied between 100° and 102.5°. Several days later gangrene set in about the ankle posteriorly; patient developed a soft, blowing mitral systolic murmur and a left facial paralysis. Apparently an acute endocarditis and cerebral embolism had developed. Blood cultures revealed the *Staphylococcus pyogenes albus.* Patient was given an injection of autogenous staphylococcus vaccine, repeated in forty-eight hours. Despite the hopeless condition that the patient was in he reacted fairly well to the vaccine, the temperature dropping from 106 to normal for the only time during the course of the disease. He died very suddenly during an attack of vomiting, probably due to a second cerebral embolism. No autopsy.

Case II.—Mr. C., age 76. *Lupus vulgaris.* Patient had been afflicted with lupus for years, with deep ulcers all over the face and about the eyes. Had been treated with antiseptic lotions and ointments, curetting the sloughs, *x*-ray, almost to the point of burning, etc., with but little benefit. As the result of the ulceration and the new connective tissue his face was terribly scarred. It was covered with crusts, with supupration going on underneath, and with many ulcers. In fact, his appearance was so repulsive that some of his fellow-patients objected to his being at table with them. His eyelids were so scarred and deformed that he could not open them, except slightly on one side, where a plastic operation had been performed, making use of the occipitofrontalis muscle. The principal organism found was the *Staphylococcus pyogenes aureus.* The patient was given an autogenous vaccine, 1,000,000,000 at a dose, every five to nine days, for about three months, at the end of which time all the ulcers on the face had healed except a deep one on the point of the chin, which had hard, indurated, everted edges, and looked malignant. Subsequently a small piece taken from its edge showed it to be an epithelioma. About this time the patient began to complain of great pain in the abdomen and diarrhea, and had to be given morphine. A mass could be felt indistinctly in the left inguinal region, and the liver was greatly enlarged. The patient failed steadily for the next three months, and died after being comatose for three days. Autopsy revealed a carcinoma of the sigmoid and an enormous secondary growth in the liver. No ulcers on the face at the time of death, except the epithelioma on the chin.

Case III.—Mr. A. *Osteomyelitis of the femur.* Following a previous injury the patient had a deformity of the left leg, and insisted that an attempt be made to straighten it. In an attempt to overcome this deformity osteoclasia of the left tibia and fibula was performed at the junction of the upper and middle thirds of the leg. Gangrene set in almost immediately as a result of a large hematoma—the entire calf and soft tissues about the wound sloughed away. The foot and lower part of the leg (which still partly retained their vitality and were cold and cyanotic, but not gangrenous) were separated from the upper part of the leg by an interval of about four inches, and connected merely by the large nerves and blood vessels surrounded by a little tissue. The dead ends of the bones protruded into the wound a couple of inches. Patient was running a septic temperature, but amputation was postponed trying first to get him into a better general condition. The knee joint became infected six weeks after the original operation, and with the patient in a desperate condition amputation was performed at the junction of the middle and lower thirds of the thigh. No attempt was made to form flaps, and the wound was left wide open. Patient left the operating table barely alive. Ten weeks later the patient was in fairly good condition, except that he was suffering from the effects of a toxic peripheral neuritis of the right arm, and was operated upon again; at this operation four inches of the femur had to be sacrificed to allow formation of the flaps. Patient stood the operation well, but the stump would not heal. Suppurating sinuses remained at each angle of the wound and in the center of the stump, all communicating. He remained in this condition for the next nine months, in spite of every effort being made to get the sinuses to heal. At the end of this time he

was operated upon again, and a sequestrum about the size of a half dollar, which had partly separated from the end of the bone, was removed. Still the wound would not close; a couple of communicating sinuses were left at the angles of the wound, discharging about two c.c. of pus daily. Cultures from the same showed the *Staphylococcus pyogenes albus*. He was treated for the next month by an injection every three to five days of an autogenous staphylococcus vaccine in doses of 250,000,000 to 1,000,000,000. One sinus soon closed, another small sequestrum was removed, and the stump healed at last. He has had no further trouble with it (eight months later), and now wears an artificial leg with great satisfaction.

Case IV.—Mr. W., age 72. *Cellulitis of right foot, leg, and thigh.* Prognosis was bad on account of the age of the patient, the severity of the infection, and the presence of chronic endocarditis. The infection followed the paring of a corn and spread rapidly up through foot and leg, in spite of amputation, first of the toe, then leg, and finally of midthigh, the wound being left open widely for drainage. Cultures from the tissues showed streptococcus and staphylococcus. The microscopic examination of the pus revealed, in addition, the *Bacillus aerogenes capsulatus*. The tissues were infiltrated with gas; practically no pus present. The infection was controlled at last by autogenous vaccines of streptococcus and staphylococcus, injections of permanganate of potassium into the tissues, in and above the site of the infection, free drainage, wet dressings, etc. After the infection was controlled and the stump granulating, a final operation was performed to make satisfactory flaps for the stump. Patient has regained his usual health, wears an artificial leg, and appears in exceptionally fine physical condition.

Case V.—Mr. M., age 73. *Streptococcus cellulitis of hand, chronic nephritis, and very severe arteriosclerosis.* The infection resulted from striking a man in the mouth, a tooth causing an abrasion on the right index finger near the distal end of the proximal phalanx. A periostitis of the phalanx followed, which was incised and drained, but the infection spread, necessitating the amputation of the finger. However, the infection spread to the hand, resulting in a diffuse cellulitis of the entire hand, extending above the wrist. Cultures from the pus showed almost a pure culture of streptococcus. Toxemia severe. Rather than mutilate or amputate the patient's only remaining hand (inasmuch as he had lost his left arm at the elbow years ago), the attempt was made to control the infection with a vaccine. The hand was treated with wet dressings and an autogenous streptococcus vaccine every two or three days, for four doses, thirty-five to fifty million at a dose, which controlled the infection very satisfactorily. The wound granulated and the patient made a very satisfactory recovery. Except for the loss of the index finger, but little permanent disability exists.

Case VI.—Mr. F., age 67. *Acute appendicitis.* Patient had chronic nephritis and was very alcoholic. The attack came on at the end of a prolonged spree and the patient was on the verge of delirium tremens. Condition was very bad for an operation. He was brought to the hospital, with all the classical symptoms and signs of a severe, acute attack of appendicitis. Vomiting almost continuously. Great pain in the abdomen, tympanites, and rigidity. Extreme tenderness over the region of the appendix. Temperature 101.6, pulse 110, leucocytes 22,000, polynuclears 88 per cent. Bowels cleaned by enemata. Absolute rest in bed. Nothing by mouth except very small quantities of water. Pain controlled by anodynes, ice-bag, etc. The next day all the symptoms were much worse. Temperature 102°, pulse 120, leucocytes 26,680, polynuclears 94 per cent. Great pain in the abdomen, very marked tenderness and rigidity. Still vomiting. He was given 150,000,000 of a vaccine, made from the interior of an appendix removed the day before (from a patient suffering from an acute appendicitis) and consisting of a mixture of streptococci and colon bacilli. The temperature fell by lysis during the next two days to normal. The pain, tenderness, and rigidity of the abdomen gradually improved for the next four days. Out of bed one week after entrance into the hospital, and discharged from the hospital four days later, entirely recovered.

Case VII.—Mr. C., age 66. *Demented. Streptococcus cellulitis of the right leg and thigh.* The infection started from an abrasion on the outer side of the right leg, just above the ankle. A local abscess resulted, which was incised and drained. This did not control the infection, however, which spread up the leg and thigh to the body. The tissues about the incision and of the thigh as high as the body were red, swollen, indurated, and tender. Not very much discharge from the wound. Temperature high, pulse rapid. Examination of the discharge showed a pure culture of the streptococcus. Patient was given an autogenous streptococcus vaccine every four days in doses of fifty, seventy-five and one hundred million. The infection gradually subsided, and in three weeks had entirely disappeared, except for a small sinus, about half an inch deep, leading upward from the original incision into the superficial tissues, and patient was able to be up about the ward in a wheel chair. However, he gradually failed and died one month later of general debility and dementia.

Case VIII.—Mr. M., age 82. *Ischiorectal abscess.* Six months before the patient had developed a very large ischiorectal abscess which was operated upon and a large quantity of pus and sloughs removed. The incision closed imperfectly, leaving a discharging sinus which would close for a few days and then open and discharge again for some time. Patient's general condition was too bad to attempt any very radical measures. He was treated by an autogenous colon vaccine, made from the discharge, in doses of fifty, one hundred and one hundred and fifty million every three days. The beneficial effect was very marked. The original incision closed and the perineum looked better than it had for months. At the present writing, nearly a month later, the condition is very satisfactory, the troublesome sinus being entirely closed.

Bronchitis. These were all severe cases of acute bronchitis, with temperatures between 100° and 105°, many râles over both lungs, and in the two latter cases, at least, there was suspicion of the presence of bronchopneumonia, but on account of the complicating emphysema small areas of consolidation could not be detected. The cases were all as severe as ordinary cases of pneumonia. All the patients were old and feeble, and had chronic nephritis, and the prognosis seemed unfavorable in each case.

Case IX.—Mr. C., age 86. *Arteriosclerosis very marked; heart greatly hypertrophied and its action irregular and intermittent.* Came to the hospital

with a severe attack of acute bronchitis, following exposure two days before. Had a severe, hard, dry cough every few minutes, with very little expectoration. Great soreness beneath the sternum. Scattered râles over the posterior of both lungs. No evidences of consolidation. Temperature 101°.

A single dose of vaccine, 50,000,000, brought the temperature to normal, and the patient rapidly recovered from the acute symptoms but was so feeble as the result of his attack that he was not expected to live for some time, and did not recuperate sufficiently to leave the hospital till seven months later. He is enjoying vigorous health for one of his years at the present writing.

Case X.—Mr. A., age 74. Came into the hospital with an attack of acute bronchitis due to exposure. Examination of the lungs revealed emphysema and coarse râles over the posterior of both lungs. Lucocytes 13,000, polynuclears 84 per cent. Was treated for a week by the usual measures with no improvement. Temperature between 100° and 102°, leucocytes 15,400, polynuclears 93 per cent. Large quantities of mucopurulent sputum. The temperature then suddenly went up to 105°, with neither chill nor particular change in the physical signs in the lungs. A single dose of autogenous vaccine, 200,000,000, was given; the temperature fell by lysis and all the symptoms and signs rapidly cleared up and the patient made an uneventful recovery. He is still too feeble, mentally and physically, to leave the hospital, at the present writing, one month later.

Case XI.—Mr. S., age 84. Came into the hospital complaining of having taken a severe cold, of feeling chilly, and of general pains. Coughing almost continuously; not much expectoration. Temperature at entrance 104.4°, pulse 100, weak and irregular; respirations 30. Face flushed and cyanotic. Examination of the lungs revealed fine and coarse râles over both bases, especially marked at the left base; but too much emphysema was present to detect any small areas of consolidation, if present. Leucocytes 12,000, polynuclears 80 per cent. He was treated for several days by the usual methods with little or no improvement. Temperature between 100° and 102°. Was then given an injection of autogenous vaccine, 35,000,000, mostly streptococci. This was repeated in forty-eight hours by a dose of 50,000,000. The temperature fell by lysis and all the symptoms and signs rapidly cleared up. He was discharged from the hospital five days later and is in excellent health.

Case XII.—Mr. C., age 86. *Very severe acute bronchitis and asthma.* Was brought to the hospital suffering intensely from dyspnea; incessant cough, with very profuse frothy expectoration; pain in the chest, and marked cyanosis coming on a few hours before, though he had been feeling badly for several days. Temperature 103.4°, pulse 120, respirations 30. Lungs emphysematous. Coarse râles present in every part of both lungs. After four days of treatment by the usual methods the bronchial condition was but little changed, except that the asthma had improved somewhat. Temperature running between 100° and 103°. On account of the asthma and emphysema it was impossible to detect the presence or absence of any small areas of consolidation. He was given 200,000,000 of an autogenous vaccine, repeated in twenty-four hours by 300,000,000. The temperature fell by lysis and three days later was normal. Convalescence was slow, but satisfactory. Was discharged from the hospital three weeks after entrance. No attempt was made in these bronchitis cases to isolate any one particular form of bacteria for the vaccine. The vaccines contained all the forms that grew from the washed sputum and the dosage was varied according to the predominating form of bacteria.

Pneumonia. The use of the pneumococcus vaccine has been very successful here in the treatment of lobar pneumonia, especially when the age of the patients, their complicating chronic diseases, and personal histories are considered. The mortality among similar pneumonia patients here, previous to the use of the vaccine was 66 per cent. A series of six cases of lobar pneumonia among the aged, treated by vaccines, has been published in detail, together with the method of preparation and administration.* Although these cases were all typical and severe cases of lobar pneumonia, two of them being double, and the patients between 66 and 83 years of age, they all recovered, indicating very markedly the value of the vaccine treatment.

Case XIII.—Mr. M. Had chronic nephritis and marked hypertrophy of the heart. He was very alcoholic and the present attack came on at the end of an alcoholic debauch. He was brought to the hosptial in a condition bordering upon collapse. Pulse rapid (112), irregular and intermittent. Extremities cold and cyanotic. Retching and vomiting almost continuously. Had had a chill several hours before entrance. Complained of great pain in the abdomen. Temperature 103°, leucocytes 17,600, polynuclears 96 per cent. No physical signs in the lungs. The pneumonia did not reveal itself till thirty-six hours later, when he began to have a short, hacking cough, pain in the right side, and rusty, tenacious sputum containing great numbers of pneumococci. The next day the patient had developed a frank pneumonia of a large part of the right lung, complicated with an extensive pleurisy which caused great pain in the right side. Still vomiting. Coughing almost continuously and expectorating considerable bloody sputum. Temperature 102°, pulse 120, irregular, intermittent, and of low tension, respirations 32. The prognosis was considered hopeless, and last rites of his church administered. He was given pneumococcic vaccine, 35,000,000. The next day his general condition was somewhat better, but the lower and middle lobe of the right lung were solid. He was given a second dose of autogenous vaccine, 50,000,000, forty-eight hours after the first. Four days later the temperature was normal and the lung softening. Out of bed two days later, with only a little pain in the right side, due to the pleurisy. Was discharged from the hospital ten days later, in excellent condition.

Case XIV.—Mr. L., age 90. Came to the hospital complaining of pain in the left side and severe cough. Said that he had caught a severe cold the day before. Was chilly, but had had no definite chill. Patient was senile and feeble. Arteriosclerosis very marked. Temperature 101°, pulse 126, respirations 28, leucocytes 18,000, polynuclears 82 per cent. Had a severe, hard cough; slightly rusty sputum, containing pneumococci. Slight dullness and many fine crepitant râles over the posterior of the left lower lobe. He was given pneumococcus vaccine, 35,000,000. Three days later the temperature was normal, and the patient sitting up. Cough was much less and the physical signs had nearly disappeared from the lung. He was discharged from the

*Medical Record, February 12, 1910.

hospital nine days after entrance, having entirely recovered his usual state of health, which is remarkably good for one of his years.

Case XVI.—Mr. M., age 72. *Had chronic nephritis, spondylitis deformans, and was very feeble.* The patient was brought to the hospital, complaining of a short, dry, hacking cough and distress in the right side. Said that he had had a chill the day before and had been feeling badly for several days. Temperature 101°, pulse 80, respirations 26. Examination of the lungs revealed a few fine crepitant râles over the posterior of the lower lobe of the right lung. No sputum. The next day he had typical rusty sputum containing large numbers of pneumococci; a severe pain in the right side and a temperature of 104.6°. Dullness and many fine crepitant râles over the posterior of the lower lobe of the right lung. He was given pneumococcus vaccine, 50,000,000. The temperature fell by lysis and was normal three days later. He was up and about the ward one week after entrance into the hospital and his lungs were in normal condition. He did not regain his strength, however, and died a month later of general debility.

Case XVII.—Mr. W., age 67. *Had chronic nephritis and chronic endocarditis.* Patient was brought to the hospital complaining of a severe cough, shortness of breath, pain in the left side and fever. Said that he had had a chill two days before. He was feeble, cyanotic, and suffering from dyspnea. There was consolidation of the lower lobe of the left lung, which, the next day, seemed so very flat on percussion as to arouse the suspicion of the presence of fluid. Was aspirated, but no fluid found except a little frothy blood. Temperature continued between 101° and 103°. Leucocytes 25,000, polynuclears 90 per cent. He was treated by the usual methods, stimulation, etc., plus the injection of vaccine once a day for three days in doses of twenty-five to fifty million. Six days after entrance the temperature was normal and the lung resolving, but the patient did not improve in his general condition and five days later he suddenly died of cardiac failure. Autopsy showed the left lung in the last stages of resolution and with no remaining consolidation. Very extensive fibrinous pleurisy on the left side. Pericardium contained about eight ounces of thick creamy pus. The patient had died of purulent pericarditis.

Case XVIII.—Mr. B., age 80. Patient was brought to the hospital in a very feeble condition with considerable cough, pain in the right side, and scanty, rusty sputum containing pneumococci. Temperature 101°, pulse 100, respirations 26, leucocytes 14,000, polynuclears 80 per cent. Dullness and many fine crepitant râles over the posterior of the lower lobe of the right lung. He was given pneumococcus vaccine 50,000,000. Three days later the temperature was normal and the lung clearing. Out of bed three days later, but is so senile and feeble that he is still unable to leave the hospital, at this writing, two months later.

Case XIX.—Mr. L., age 69. *Had severe chronic nephritis.* Patient was brought to the hospital complaining of severe pain in the right side; hard, dry cough with bloody expectoration and chilly sensations. He was very anemic. Arteriosclerosis very marked. Heart hypertrophied. Temperature 102°, pulse 90, respirations 26. Later in the day temperature rose to 106°, pulse 110, respirations 32, leucocytes 22,000, polynuclears 87 per cent. There was beginning consolidation of the posterior of the right lung with typical rusty sputum containing large numbers of pneumococci. He was given pneumococcus vaccine 50,000,000. Two days later the pneumonia had spread to the lower lobe of the left lung. Temperature 104.2°, pulse 96, respirations 44. The respiration was very much embarrassed on account of the amount of the lung involved. The same dose of the vaccine was repeated. The next day the patient was in a very bad condition. The entire left lung was solid as well as the lower lobe of the right; 75,000,000 of the vaccine administered. The next day the temperature began to fall and the right lung to soften, but the heart was beginning to fail. Pulse very rapid, weak, and irregular and did not respond to stimulation. Died the next day of cardiac failure. Autopsy showed the right lung almost entirely resolved; the lower lobe of the left lung nearly resolved and the upper lobe of the left lung in the stage of gray hepatization. The heart was greatly dilated and filled with blood clots. Heart muscle very friable. Kidneys showed chronic interstitial nephritis. In this last case there was little or no response to the use of the vaccine. But in all the other cases the reaction seemed marked and apparently demonstrated the value of the treatment. The mortality of this series of pneumonia cases is 16 per cent., a marked contrast to the 66 per cent. mortality in similar cases, treated here, prior to the use of the vaccines.

COMPLEMENT-FIXATION TESTS IN THROMBOANGIITIS OBLITERANS.

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The etiology of the disease to which I have applied the term "thromboangiitis obliterans"[1] (which has been variously called "endarteritis obliterans" and "Angiosklerotische Gangraen" by German authors), is still a matter for investigation. Some authors have attributed the lesions to lues, because temporary improvement in the subjective state as well as amelioration of some of the clinical manifestations, may occur after the administration of mercury. I have elsewhere[2] alluded to the fact that a cure by antiluetic treatment, or in fact by any other known drug, is hardly to be expected, for the symptoms are dependent on the disturbance of circulation produced by extensive obliteration, first by occlusive coagulation of blood and later by organization of connective tissue. Neither the recent thrombi nor the vascularized, canalized, obturating tissue can be removed by medication.

Before advancing arguments for and against the possible syphilitic origin of this remarkable disease, let me give a brief description of the usual clinical manifestations.

The malady is still frequently confounded with erythromelalgia, Raynaud's disease, and arteriosclerosis of the vessels of the lower extremities. Beginning in most instances with indefinite pains in the sole of one foot, in the ankle, or in the toes, the patients soon notice that they are disturbed in their walk by the sudden onset of cramp-like sensations in the calf or elsewhere in the leg. These feelings make them take frequent rests, often inducing them to investigate the condition of their

limbs. Some take off their shoes and rub the parts in the hope of either dispelling the pain or banishing the uncomfortable numbness in the toes and feet. Others say that the feet become cold and numb when the temperature is low and when the weather is inclement.

After the lapse of weeks, months, and even years, evidences of trophic disturbance make their appearance. Following the cutting of a nail, or without apparent cause, an abraded spot or hemorrhagic bleb, a pustule, or a dry, dead patch of skin develops near the tip of one of the toes or under a nail. Now the local pain becomes excruciating during the night as well as day, so that some of the sufferers beg for amputation of the affected part.

It is during the first attack of trophic disorder that the physician usually notices another characteristic symptom, namely, a peculiar blush of the toes and forepart of the foot, sometimes extending to the ankle or slightly above, when the limb is in a dependent position. Upon allowing the limb to hang down, the affected toe soon assumes a bright red hue which is seen to pass to the other toes and then up the back of the foot for a variable distance. The elevated extremity, on the contrary, rapidly becomes blanched. Sometimes the superficial ulcer will heal under conservative treatment and the patient will either recover perfectly or his symptoms will become chronic. At this period his limb will show scars left by previous ulcers; the dorsalis pedis and the posterior tibial artery usually fail to pulsate, and ischemia in the elevated position and redness or "erythromelia" in the dependent position are regularly elicited. Sooner or later, however, an ulcer will give way to dry gangrene, and amputation will be the issue.

Because of the striking condition of redness in the dependent position, and because of the increase of local pain when the limb is hanging down, a number of clinicians have been wont to diagnosticate "erythromelalgia" in these patients. Some cases have been regarded as examples of Raynaud's disease, because in them the symptoms of blanching and cyanosis of the parts were prominent features. Athough resembling erythromelalgia and Raynaud's disease in a number of symptoms, the picture of thromboangiitis obliterans, as we see it, is so characteristic and definite that we must regard it as a distinct clinical entity.

Pathological studies* have shown the following: Most of the larger arteries, and sometimes the veins as well, are obliterated over a large extent of their course. All stages in the occlusive change may occur in the various vessels of an extremity or in the same vessel in different parts of its course. The closure of the vessels is effected by red obturating thrombi; these become organized, vascularized, and canalized. Recent red thrombosis may involve large portions of arteries or veins and is not secondary to the gangrenous process. It occurs even when no gangrene is present. In short, we are dealing with lesions of considerable extent apparently initiated by the formation of occlusive thrombi, chiefly in arteries, but not confined to these, followed by organization or healing with an attempt at the production of a collateral circulation.

From the pathological standpoint the marked periarteritis, which is so frequently a characteristic lesion, might suggest syphilis. However, a thorough study* made by Miss A. Oppenheimer and the author, failed to reveal the presence of the *Spirochæta pallida* in a large number of vessels removed from amputated limbs. In short, nothing definite was ascertained in our histological studies to throw light on the etiology of the process.

Clinically, I have rarely been able to elicit a history of lues. Only two patients out of a total of about 80 cases had had a syphilitic infection. It is rather striking that males only seem to be affected by the disease. Were syphilis responsible, we should expect a certain proportion of female patients in our large list.

In view of the fact that the suspicion of lues is still so frequently entertained in attempts at explaining the cause of the condition, it seemed advisable to make the usual serological tests. Twenty-nine consecutive cases, as they came under my observation at Mount Sinai Hospital, in the dispensary, and in my private practice, were tested by Dr. Kaliski. The clinical course of many of these patients had been followed by me for a number of years, and careful notes made. In 17 cases, the diagnosis was confirmed by the pathological examination of vessels of the amputated limbs; in the remaining twelve the diagnosis was clear, and not a single doubtful case was included in the list.

For the sake of completeness, brief abstracts of the twenty-nine cases are here given.

Case I.—M. P., 34 years old; Russian Hebrew; admitted to Mt. Sinai Hospital, May, 1908. Denies luetic infection. A history of migrating phlebitis of the left forearm and arm, and of the left saphenous vein. Physical examination: Absence of pulsation in dorsalis pedis and posterior tibial arteries; marked erythromelia of the right leg. Same physical signs in the left leg with evidences of thrombophlebitis of the long saphenous vein. Dec., 1908, trophic ulcers appeared and walking was impossible.

Case II.—A. G., 40 years old; Austrian Hebrew; seen Feb. 12, 1909. No history of syphilis; father of three healthy children; pain along inner side of left leg and ankle for a year, especially on exertion. Physical examination: Absence of pulsation in right femoral, popliteal, posterior tibial, and dorsalis pedis arteries. All arteries of the left leg pulsate. Dec., 1909, migrating phlebitis of the right external saphenous. Jan. 30, 1910, typical erythromelia, marked ischemia on elevation, and a hard nodule in the course of the external saphenous vein.

Case III.—D. B., 35 years old; Russian Hebrew; admitted to Mt. Sinai Hospital, July, 1904. No evidence of lues. Attacks of phlebitis involving arm and leg veins. In 1905, symptoms of thromboangiitis obliterans. During 1907 a small gangrenous area appeared at the tip of the middle finger of the right hand. During 1908 and 1909 the severe type of the disease without gangrene developed in both legs. Trophic ulcers, marked erythromelia and pulseless vessels below the groin.

Case IV.—H. R., 32 years old; Russian Hebrew; Mt. Sinai Dispensary, 1908. No history of lues. The right leg was the seat of migrating phlebitis; all the vessels pulsating. The left posterior tibial and dorsalis pedis arteries could not be felt. In Dec., 1908, ischemia and erythromelia of both legs were marked. Jan. 31, 1909, amputation of the left leg at the upper fourth for beginning gangrene of the big toe. Pathological examination showed occlusion of the dorsalis pedis, peroneal, plantar, and posterior tibial arteries.

Case V.—S. R., 38 years old; Austrian Hebrew; Mt. Sinai Hospital, May 15, 1909. No history of

*Complete histological studies will be reported in the near future.

lues. No children. In 1903, ulceration of the big toe of the left foot. One-half year later amputation of the toe for gangrene. Ten weeks ago severe pain in the third toe of the right foot. This has now become gangrenous. Physical examination showed the usual typical phenomena. May 17, 1909, amputation of the third toe; June 16, amputation of the second and fourth toes, and finally, July 23, a Gritti amputation was necessary. Pathological examination of the vessels showed the typical lesions of thromboangiitis obliterans.

Case VI.—K. B., 30 years old; Russian Hebrew; Mt. Siani Hospital, Dec. 15, 1909. No history of lues. Onset three months ago with pain in the sole of the left foot; some difficulty in walking for about six months. Symptoms of intermittent claudication have developed lately, and after a slight trauma two months ago the big toe of the left foot became ulcerated. Since then the fourth toe has also become ulcerated and is gangrenous at the tip. Physical examination: Ulceration of the big toe, superficial gangrene of the fourth toe, a small granulating wound at the base of the fifth toe, and marked erythromelia. Absence of pulsation of the left dorsalis pedis, posterior tibial and popliteal arteries. The vessels of the right leg pulsate normally.

Case VII.—M. Y., 44 years old; Christian Pole. No history of lues. Has no children. Five years ago a history of trouble in the right leg, ulcer formation, and migrating phlebitis. For two years pain in the ankle and calf of the left leg. For two months pain in the second toe of the left foot and a feeling of coldness. Physical examination: Marked blanching on elevation, and erythromelia. The second toe is becoming gangrenous at the tip.

Case VIII.—R. L., 60 years old; Russian Hebrew; Mt. Sinai Hospital, Aug. 31, 1908. No history of lues. Four years ago had the same trouble in the left leg which was amputated at that time. For two years has had a sensation of coldness in the right foot; pain on walking. Four weeks ago the pain became so severe that walking was impossible and the forepart of the foot began to turn red. A gangrenous patch of skin developed at the outer border of the big toe. Physical examination: Absence of pulsation in the dorsalis pedis, posterior tibial, popliteal, and femoral arteries on the right side. Erythromelia even in the horizontal position. Sept. 2, amputation at the lower third of the leg. Pathological examination showed the typical lesions of thromboangiitis obliterans.

Case IX.—E. B., 36 years old; Russian Hebrew; Jan. 17, 1909. No history of lues. Onset with thrombophlebitis in the region of the inner aspect of the right leg, preceded by cramp-like pains on walking for more than a month. Physical examination: Phlebitis of the saphenous, absence of pulsation in the dorsalis pedis and posterior tibial arteries of both legs; cyanosis of the big toe of the right foot. March, 1909, the discoloration of the big toe persists and there are no trophic disorders. Symptoms of intermittent claudication still present.

Case X.—M. K., 44 years old; Russian Hebrew; Mt. Sinai Hospital, Dec. 8, 1908. No history of lues. Presents the typical association of migrating phlebitis. Onset with phlebitis, later, cramps in the calf of the right leg after walking a short distance. Physical examination showed evidences of circulatory disturbances in the right lower extremity; pulseless dorsalis pedis and posterior tibial arteries; typical erythromelia and ischemia. In Feb., 1909, gangrene of the fourth toe; Feb. 23, Gritti amputation. Pathological examination showed typical lesions of thromboangiitis with occlusion of the plantars, peroneal, posterior tibial, and lower part of popliteal arteries.

Case XI.—J. C., 45 years old; Russian Hebrew; Mt. Sinai Hospital May, 1908. No history of lues. Onset four years ago with symptoms in the right leg; pain in the sole of the foot lasting for eight months, followed by complete cure, the only evidences of previous disturbances being the absence of pulsation of the dorsalis and posterior tibial arteries. Symptoms in the left foot for about a year leading to gangrene of the big toe. Physical examination: Typical erythromelia and ischemia and gangrene of the big toe spreading to the dorsum. Amputation at the knee. Pathological examination showed typical lesions of thromboangiitis obliterans.

Case XII.—B. B., 34 years old; Russian Hebrew; June 17, 1909. No history of lues. Had pain in the right calf on walking eight years ago, together with hard cords and lumps over both forearms and legs. Since then recurring attacks of phlebitis in the territory of the saphenous. For two years the left leg has given him concern. In Jan., 1909, ulcers developed at the tip of the big toe of the left leg and also over the little toe of the right. Physical examination: Toes of the right leg have a tense, reddened appearance. There are the usual evidences of trophic disorder; marked erythromelia; ischemia in elevated position is intense and excites severe pain. The femoral artery pulsates; the popliteal, posterior tibial, and dorsalis pedis cannot be felt. The left leg is similarly affected. There is a trophic ulcer at the tip of the big toe and all the vessels, femoral included, fail to pulsate.

Case XIII.—A. G., Russian Hebrew, 33 years old; Nov. 27, 1908. No history of lues. Three years ago, pain in the sole of the left foot on walking which has been so severe for the past year that he is now unable to walk. In Oct., 1907, an ulcer developed on the fourth toe which healed after several weeks. Complains of coldness and pallor of the feet when the weather is inclement. Physical examination: Absence of pulsation of the right dorsalis pedis and of the posterior tibial and dorsalis pedis of the left foot. Both feet are cold and slightly ischemic in the elevated position. Patient has been kept under observation until April, 1910. Symptoms of intermittent claudication persist, but no trophic ulcers have developed.

Case XIV.—W. T., 26 years old; Russian Hebrew; Mt. Sinai Hospital, July 10, 1909. No history of lues. History of similar trouble in the left leg which was amputated in May, 1907, for gangrene of the third toe. There has been pain in the left calf for three months with coldness of the foot, followed by the development of a dry patch over the third toe. History of phlebitis of the veins of the right leg in Dec., 1908. He now has pain in the right leg interfering with walking. Physical examination: Typical erythromelia, evidence of phlebitis in the territory of the saphenous. Pathological examination of the amputated left leg showed the typical lesions of thromboangiitis obliterans.

Case XV.—M. G., 37 years old; Russian Hebrew. Aug. 9, 1909. No history of lues. One year ago migrating phlebitis of both lower extremities. Six months ago coldness of the right foot which has been followed by red discoloration of the forepart of the foot, associated with a feeling as if pins and

needles were sticking him. There have been cramp-like pains in the calf on walking for the past three months. The left leg is painful because of the presence of thrombosed veins, and cramps on walking. Physical examination: Right internal saphenous forms a hard cord. The left saphenous has evidently been recently thrombosed. Dorsalis pedis and posterior tibial arteries of both legs are pulseless. Marked ischemia on elevation, and erythromelia in the dependent position of both legs. Amputation of the right leg at the Sydenham Hospital, a portion of the posterior artery received for examination and the diagnosis of thromboangiitis obliterans made.

Case XVI.—H. R., 30 years old; Russian Hebrew; Mt. Sinai Hospital, Sept. 6, 1909. No history of lues. Seven years ago, onset with pain and numbness in the right calf on walking, relieved by short periods of rest. Six weeks later swelling and redness of the big toe with the formation of a trophic ulcer under the nail. Since then a number of ulcers have appeared and healed spontaneoulsy. Finally gangrene of all the toes of the right leg necessitating amputation in the upper part of the leg. The left leg has given him symptoms for eight weeks; the toes have become swollen and discolored at their tips; evidently about to become gangrenous. Physical examination: Gangrene of the big toe and marked edema of the whole foot. None of the vessels of the leg pulsate. Amputation of the left leg at the middle, Sept. 11. Pathological examination showed the lesions of thromboangiitis obliterans.

Case XVII.—D. F., 40 years old; Russian Hebrew, Nov. 7, 1909. Symptoms of intermittent claudication in the right lower extremity without trophic disorder. Left leg negative. Physical examination shows absence of pulsation of popliteal, posterior tibial, and dorsalis pedis. Marked ischemia and erythromelia. Clinical diagnosis: Thromboangiitis obliterans. No history of lues obtainable.

Case XVIII.—C. H., 25 years old; parents Russian Hebrews; Mt. Sinai Hospital, Dec. 23, 1909. No history of lues. Pain in the left leg on walking for about a year. Red discoloration of the foot for four months. Beginning ulceration of the third, fourth, and fifth toes. Physical examination: Ulceration of the third, fourth, and fifth toes, marked ischemia on elevation, and erythromelia in the dependent position. Left popliteal, posterior tibial, and dorsalis pedis arteries are pulseless. Progressive gangrene, making amputation of the leg necessary. Pathological examination shows lesions of thromoboangiitis obliterans.

Case XIX.—I. L., 35 years old; Russian Hebrew; Mt. Sinai Hospital, Oct. 1, 1906. No history of lues. Usual history. Amputation of the left leg at the mid-calf on Oct. 3. Pathological examination showed the usual lesions. July 1, 1907, readmission to the hospital for amputation of the right leg at the request of the patient because of intense pain. Dec. 15, 1909, readmission for necrosis of the right stump.

Case XX.—M. C., 24 years old; Russian Hebrew; Mt Sinai Hospital, March 18, 1908. No history of lues. Onset first on the left side, and a year later on the right. Spontaneous cure of the left leg. Feb. 12, 1910, gangrene of the big toe with the usual accompanying symptoms.

Case XXI.—A. K., 27 years old; Russian Hebrew; Mt. Sinai Hospital, Jan. 24, 1906. No history of lues. Admission for pain in the middle finger of the left hand, gangrene of the tips of the middle and fourth fingers of the right hand with spontaneous cure. Feb. 25, 1907, ulceration of the second toe of the left foot. Amputation below the knee. Readmission for necrosis of the stump. Gritti amputation Jan. 2, 1909, followed by healing. Pathological examination: Thromboangiitis obliterans. Dec. 30, 1909, gangrene of the tip of the little finger of the right hand and amputation of the finger. Feb., 1910, typical symptoms developing in the right foot.

Case XXII.—I. W., 48 years old; Russian Hebrew; Mt. Sinai Hospital, Dec. 25, 1909. No history of lues. Symptoms of intermittent claudication in the right leg for about two years. For six weeks pain in the big and little toes of the right foot and recently the big toe has become black. Physical examination: Gangrene at the tip of the big toe, marked ischemia in the elevated position, erythromelia in the dependent position. No pulsation in the posterior tibial or dorsalis pedis.

Case XXIII.—S. S., 40 years old; Russian Hebrew, Feb. 5, 1910. No history of lues. Trouble in walking for about a year. Evidences of migrating phlebitis in the territory of the right saphenous. Unable to walk because of pain in both feet, especially in the right. Physical examination: Marked erythromelia in the right foot; marked blanching on elevation, somewhat less marked on the left. The posterior tibial and dorsalis pedis arteries do not pulsate on either side.

Case XXIV.—S. W., 37 years old; Russian Hebrew, March 9, 1910. No history of lues. About a year and a half ago the big toe of the left foot began to pain him and showed a reddish discoloration. He had had some trouble in walking for about two and a half years because of cramps in the left calf. Four weeks ago an ulcer formed on the big toe of the left foot. Physical examination: The forepart of the left foot shows moderate erythromelia in the dependent position, and the nail of the big toe is being lifted off by an accumulation of serum. The right foot is also slightly red and swollen, and shows a number of fissures. Both feet become markedly blanched on elevation. The posterior tibial and dorsalis pedis arteries of both feet are pulseless; the right popliteal pulsates faintly, the left not at all.

Case XXV.—S. A., 35 years old; Russian Hebrew; Mt. Sinai Hospital, Aug. 11, 1903. No history of lues. Swelling of the great toe of the left foot about three years ago, followed by pain on walking ever since. For past two days severe pain with the development of a gangrenous patch on the dorsum of the left leg. Amputation. Pathological diagnosis: Thromboangiitis obliterans. March 15, 1907, amputation of right leg for gangrene. March 10, 1910, amputation of the left arm for gangrene of the fingers. Pathological examination: Thromboangiitis obliterans.

Case XXVI.—M. S., 48 years old; Russian Hebrew; Mt. Sinai Hospital, March 29, 1910. No history of lues. Typical history with the development of ulceration of the fourth toe of the left leg. Amputation three years ago. Six months ago symptoms in the right foot. Physical examination: Dry gangrene of the fourth toe; absence of pulsation in popliteal, posterior tibial and dorsalis pedis arteries.

Case XXVII.—J. R., 32 years old; Russian Hebrew, Sept., 1909. No history of lues. In 1894 he had pain in the left calf on walking. Two years

later an obstinate ulcer appeared which finally healed. He has been free from trouble since. Physical examination on Sept. 11, 1909, shows an absence of pulsation in all the vessels of both lower extremities; evidently a case of spontaneous cure with extensive obliteration of vessels without symptoms.

Case XXVIII.—H. F., 40 years old; Russian Hebrew; Mt. Sinai Hospital, Feb. 11, 1910. No history of lues. Usual history of intermittent claudication with the development of redness of the forepart of the left leg about four months ago. Physical examination: Dry gangrene of the big toe of the left foot, marked erythromelia, and blanching of the limb on elevation. Popliteal, posterior tibial, and dorsalis pedis of both legs are pulseless. Feb. 12, 1910, amputation of the upper fourth of the leg. Pathological examination; Thromboangiitis obliterans.

Case XXIX.—A. L., 45 years old; Russian Hebrew; Oct. 10, 1909. Pain in the calf of both legs for about seven years, which has become so much aggravated on the right side that walking is now impossible. Physical examination: absence of pulsation in the right dorsalis pedis and posterior tibial; on the left side the posterior tibial alone is pulseless. March 1, 1910, right foot found much paler than the left; the big toe is slightly cyanotic. Moderate ischemia on elevation and moderate erythromelia in the dependent position. The left leg looks practically normal.

REPORT BY DR. KALISKI.

Complement fixation tests for syphilis were made in the above twenty-nine cases. The regular Wassermann system and the Noguchi antihuman modification were applied in each case, while in fifteen of the cases, in addition to the above tests, the Bauer modification of the Wassermann system was also performed.

The tests were carried out according to the protocols of the originators of the above systems. In the Bauer test a slight modification was made in the cases lacking natural amboceptor or where this hemolytic agent was not present to the extent of two units, in that the deficiency was made up by the addition of a double dose of artificial amboceptor. Methyl alcoholic saturated solutions of pure lipoids obtained from syphilitic or normal liver or heart or from beef liver or guinea pigs' hearts by alcohol extraction and subsequent acetone fractionization were utilized as antigen.

As will be seen by reference to the above, the cases under consideration were examined at various times from June, 1909, up to June, 1910, each patient's serum being tested, together with a fairly large number of cases sent from the wards and clinic of the Mount Sinai Hospital for diagnosis. At each examination, therefore, besides the usual positive and negative controls necessary in every series of tests, there was a sufficiently large number of positive and negative cases to test the efficiency of the antigen extract.

It is of significance that in every one of the twenty-nine cases examined the reaction was definitely negative with all the tests applied. In two cases the reaction was repeated at intervals of one and three months, respectively, with the same outcome.

Inasmuch as mercurial treatment is able to influence the reaction, occasionally changing a positive outcome to a negative one, we have tried to ascertain to what extent this has been a factor. In thirteen of the cases there was absolutely no history of the patients receiving antispecific treatment during or prior to the course of the disease. Five of the patients did not know whether they had received any treatment of the above nature. Seven had been inmates of hospitals where it is possible that they received some medication, which may have been mercurial, although we could not determine this definitely. Four of the patients received mercurial treatment, although in none could this be said to have been thorough. Some of the patients had received varying amounts of potassium iodide from time to time. On the whole, it seems fair to assume that in only four of the cases could the treatment be considered a factor influencing the outcome of the reaction. In none of these patients did the course of treatment precede the examination of the blood within a sufficiently short space of time to influence it directly. Further, in only one of the cases was the treatment of so vigorous a nature as to be entited to be called "sufficient treatment," and thus possibly influence the reaction.

Let us for a moment look over the results of investigators, too numerous to mention individually, in the later stages of syphilis, for it is to the later period of this disease that we would refer thromboangiitis obliterans if it were a syphilitic disease. Bruck has collected the results of a large number of investigators showing 50 to 60 per cent. of positive reactions. With manifest lesions in the late stage of lues, and especially with lesions of the vessels, the results are apt to approach or even exceed the latter figure. In 867 cases of late latent lues, including those that had received treatment, with or without manifest lesions, the above-mentioned author reports 30.5 per cent. of positive results. In 660 cases examined in this country more recently, without manifest lesions, 55 per cent. were positive with the Wassermann system and 63 per cent. with the Noguchi method. In about 75 cases of treated and untreated tertiary syphilis, with and without lesions, examined at the Mt. Sinai Hospital during the past year, 60 per cent. were positive with the Wassermann system and 80 per cent. with the Noguchi. These cases include those that had received some treatment. Hoehne found in a study of over two hundred luetics that about one-third persisted in giving a positive reaction in spite of treatment.

It is evident from the above citations that in spite of treatment positive results may be expected in a fair proportion of the cases. Even energetic treatment is not always sufficient to dissipate the reaction in a positive case; and once negative, the reaction is apt to return in a certain number of the cases, especially with an exacerbation of lesions.

A negative result, we concede, cannot in any given case be construed as evidence of the absence of syphilis. Still from the facts adduced above it is evident that a certain proportion of positive results is to be expected in a series of cases of possible syphilitic origin. Inasmuch as not a single positive reaction was obtained in twenty-nine consecutive cases of thromboangiitis obliterans, it is fair to assume that this disease is probably not of luetic origin.

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THE RELATIVE VALUE OF SYMPTOMS, PHYSICAL SIGNS, TUBERCULIN, AND THE X-RAY IN THE DIAGNOSIS OF TUBERCULOSIS.*

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So voluminous is the literature pertaining to the early diagnosis of tuberculosis that I feel almost like apologizing for choosing so trite a subject. My excuse is, that while incipient cases are detected somewhat more frequently perhaps than a few years ago, at least in the larger cities, there are still many mistakes made in diagnosis. These errors are the result of not appreciating the full significance of the various physical signs and symptoms.

The incorrect diagnoses are of two varieties, the more common being the failure to recognize definite indications of the disease. The other mistake is the erroneous diagnosis of tuberculosis on insufficient evidence. As this latter error is not generally discussed, we will devote a few minutes to its consideration.

Two classes of physicians make this mistake. One comprises the very conscientious men who are thoroughly alive to the urgent need of the early detection of the malady and examine their patients with minute care, but with an eye for positive signs only. Totally disregarding the overwhelming negative evidence, they pin their diagnosis to a single sign. These are they who make tuberculous mountains out of benign molehills.

In the other class we find those physicians who, either because of insufficient time or laziness, do not make a careful examination, but rely upon one of the aids to diagnosis, failing to realize that these measures are aids to diagnosis only when considered with all the clinical evidence. There are many who do not appreciate that it takes from half an hour to an hour to obtain a history, make a careful examination, and give the necessary advice. Even then a second or third examination may be needed before an opinion can be given. Finally, it should be remembered that the absence of physical signs, like the failure to find tubercle bacilli in the sputum, does not exclude tuberculosis when the symptoms point to that diagnosis. When these two facts are universally understood, the day of early diagnoses will dawn. The physician who awaits the finding of tubercle bacilli in the sputum before hazarding a diagnosis of tuberculosis wastes invaluable time for which no subsequent activity and diligence on his part can atone.

In the short time allotted to this paper we can consider only a few of the more important physical signs and symptoms. The general appearance of the patient is very untrustworthy evidence, as Barnes[1] found that over 60 per cent. of his incipient cases appeared to be in good health.

Physical Signs.—Contrary to some statements, inspection ofttimes gives us information of the greatest value. While retraction at the apex suggests an old lesion, which may or may not be active, distinct lagging with diminished expansion of the apex is one of the most important signs we have of an active lesion. Turban considers it[2] "certain evidence of lung disease." In children it is occasionally due to enlarged bronchial glands. Tenderness to palpation seems more common in the acute than in the chronic cases, and while not present in the majority of patients, its occurrence has considerable significance. Lagging, tenderness, with possibly slight muscle spasm at an apex, almost invariably means an active lesion at that site. Tenderness over the upper thoracic spines, the spinalgia of Petruschky,[3] while not pathognomonic of tuberculous disease of the bronchial glands, is quite a constant sign in early cases with toxic symptoms. The point of maximum tenderness seems to be at about the fifth thoracic vertebra. Advanced cases do not present this phenomenon.

Dullness at the apex usually signifies a tuberculous lesion at that site. Several clinicians have demonstrated, however, that especially in children this dullness may be due to induration collapse at the apex, the result of obstructive nasal breathing from adenoids. Grancher,[4] and more recently Bing,[5] attribute this dullness to enlarged bronchial glands, which may or may not be tuberculous. Dullness over the fifth and sixth thoracic spines, and to the side of these vertebræ, is very suggestive of bronchial gland enlargement. To be of value percussion must be performed *very gently*, as the sense of resistance is of about as much significance as the character of the note obtained.

Auscultation is the most valuable of our clinical methods, but the practice of listening only for râles cannot be too strongly condemned. In auscultating, the character of the respiratory murmur should receive our first attention, all adventitious sounds being disregarded for the time being. The first change in breathing consists in a weakening of the respiratory murmur, which assumes a tremulous character, referred to as rude or ganular breathing. The presence of marked bronchovesicular breathing without râles at one apex, should make one examine the other apex with great care, as the more recent lesion will often be found there. Cogwheel respiration in the first and second interspaces on one side with faint breathing above the clavicle, is very suggestive of a lesion at the apex. Bronchial breathing and whispered bronchophony over the upper thoracic spines is usually indicative of enlargement of the bronchial glands.

We next seek for râles and they will often be unrecognized unless we have the patient cough at the end of expiration. The presence of râles over a limited area on several examinations suggests a tuberculous focus, especially when they are heard over the upper part of the lung. But râles at an apex may be due to other conditions. Koch[6] states that 15 per cent. of his patients with apical catarrh failed to react to tuberculin. Lord[7] has reported a few cases of influenza with persistent râles at the apex. If the lesion is tuberculous, one cannot say from râles alone that the disease is active. I have known them to persist for years after all symptoms disappeared. Do not think that I consider râles of little significance. When accompanied by symptoms, they are, perhaps, the most important single sign of tuberculous disease. Frequently, however, the diagnosis must be made in their absence. From râles alone one cannot diagnose clinical tuberculosis. We must not lose sight of the fact that there is a great difference between clinical tuberculosis, which gives symptoms and needs treatment and anatomical tuberculosis, which for the time being is not giving symptoms, and does not need treatment.

The physician with a good ear and poor judgment is almost as dangerous to the community as

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the man who examines the lungs through the clothing and impressively tells his patient that he is "sound as a dollar." The former fills sanatoria with the nontuberculous; the latter, graveyards with consumptives.

Clinical History.—This is so important that the whole time allotted to this paper might well be spent in its discussion. Careful inquiry must be made as to the exposure to tuberculosis, either in the family, in business, or in social relations, bearing in mind that in some cases the infection comes from a tuberculous servant. The state of the health during childhood and adolescence must be carefully investigated, as not uncommonly the first symptoms appeared many years previously. We are apt to overlook the fact that tuberculosis may exist for years without completely disabling the person, or causing much lung destruction. The history of these individuals is punctuated with times of "running down," but owing to their resistance, or the mildness of the infection, the battle has been a draw. Two histories will illustrate this:

Case I.—Mrs. E. G., aged 44. When a child was never strong. At 12 was thin and pale and doctors feared she might "run into consumption." When 25 years old she ran down and had a bad cough the greater part of a year. Six and one-half years ago the patient had another hard cold, which terminated in a mild pneumonia. Following this, was told that her lungs were "weak." Each winter would have severe colds. For the few months before I saw her she had been running down and coughing slightly. A large part of her life she felt "dragged out" and tired, but she and her physician attributed it to a retroversion and laceration of the uterus. Notwithstanding that the infection was at least nineteen years old, she had only a slight lesion at both apices.

Case II.—Miss E. G., aged 32. As a child had poor appetite and was weak and delicate. Had bilateral pneumonia at 15 months; the infectious diseases, including whooping cough, in early life. At 16 had night sweats and a cough of such severity that she would get "black in the face." Recovered, and for two years was in good health; then she again began to cough, and the abdomen became swollen. Again recovered, but from the 20th to 22d year had a cough that necessitated taking hold of something to support herself during the paroxysms. Six years ago had ovary and appendix removed, and intestines were "said to be involved." The few months previous to my seeing her she had been fairly well, except for a slight cough, and extreme weariness. As she expressed it, she had been "chronically tired and lazy" as long as she could remember. Although of sixteen years' duration, her lesion was almost wholly limited to the lungs above the clavicles, the active process being at the left apex. The periodical hard attacks of coughing suggested bronchial gland involvement, and the physical signs and *x*-ray picture showed this to be the case.

A patient's statement concerning his past illness should never be accepted without going thoroughly into his symptoms at that time to determine whether he really had "malaria," "grip," or "nervous prostration," as the case may be. As to his present symptoms, one should inquire concerning cough, fatigue, spitting of blood, night sweats, lost weight, pain in the chest, anorexia, indigestion, dyspnea, and interscapular backache. Unless one have a special history blank, it is very easy to omit one or more questions, and by so doing the key to the diagnosis may be missed.

Cough and blood spitting are two symptoms which often send a patient to his physician, or to a throat specialist. No man doing special work has greater opportunity to further the early diagnosis of tuberculosis than the laryngologist. He who treats a chronic cough without first having the lungs declared sound by one proficient in chest examinations, is assuming a grave responsibility. Only recently I found advanced disease of the whole of the right lung with infiltration of the left apex in a patient who was receiving throat treatments for his cough. The laryngologist had examined the lungs and found them all right. On the other hand, I have detected a very early lesion in a number of patients who had been refused treatment by throat specialists till their lungs had been examined. The fact that the cough of tuberculosis may be temporarily helped by throat treatments quiets any suspicion as to the gravity of the condition.

The patient should be asked if he coughs until he gags or vomits. Though all patients with tuberculosis do not have such a cough, a very large percentage of those who gag or vomit have tuberculous disease of the lungs or bronchial glands. Professor Delafield used to say that pertussis and tuberculosis were the two diseases in which the patient coughed until he vomited. This occurs more frequently as an early symptom than blood spitting, and it has nearly as much significance.

While hemorrhage in the great majority of cases means tuberculosis, and should always be treated as such until proven otherwise, one may have blood-streaked expectoration from ruptured varicose veins in the post-pharynx and naves, and also from the unconscious sucking of the gums. I know a man who was a patient at one of the best sanatoria in this country for several months before it was ascertained that the blood he expectorated came from his gums. The diagnosis was made more difficult because of a positive reaction to the subcutaneous tuberculin test. Blood spitting from mitral stenosis is often mistaken for tuberculosis, one reason being the disappearance of the murmur when compensation is lost. The diagnosis must not be made hastily as both diseases may be present. Fatal hemorrhages have occurred from the erosion of blood-vessels by tuberculous bronchial glands when the lungs were free from disease.

A young adult, previously ambitious, who complains of a constant weariness should always excite our suspicion, especially if he has a rise of temperature and an unduly rapid pulse after moderate exercise.

Tuberculin.—The most widely used aid to diagnosis is tuberculin. While a positive reaction is specific and always signifies a tuberculous focus somewhere in the body, considered by itself, it by no means proves the individual to be clinically tuberculous. A focal reaction in lung, gland, or bone, as the case may be, proves the tuberculous nature of the lesion.

The subcutaneous test is the most reliable. Owing to the large number of severe reactions reported from the employment of the conjunctival test, this method is less extensively used than it was a year ago. It is, however, not without its advocates. From their observation of the results in a large series of cases, Haman and Wolman reported at the recent meeting of the National Association for

the Study and Prevention of Tuberculosis that they considered it a safe and very valuable diagnostic measure when used in suitable cases. They advocate a 1 per cent. solution of "old tuberculin." Though I have never had any bad results from its use, I discarded it about two years ago because of the ill effects reported by others. I have always felt, however, that most of these bad results were due in part to its use where it was clearly contraindicated and also to the employment of too strong solutions.

The skin test of Von Pirquet loses much of its significance as the age increases. Yet an early strong reaction in an adult with suspicious signs and symptoms, increases somewhat the probability of the condition being tuberculous. The faint reactions are very confusing, as they occur in many in good health, and also in a certain percentage of the patients that are going to do badly. I have seen several patients in whom the prognosis seemed good, but whose skin reaction was faint and evanescent, progress to a fatal termination in a few months. Wolf-Eisner's contention that the type of reaction will often foretell the outcome has considerable to substantiate it. A negative skin test in a suspected case does not absolutely exclude tuberculosis, though it makes the diagnosis unlikely. The subcutaneous test is sometimes positive when the von Pirquet test is negative.

To sum up, we have in tuberculin a diagnostic aid of real value if it is used in conjunction with the symptoms and physical signs. But the physician who would arrive at a diagnosis by merely scratching the skin and dropping thereon some tuberculin, might as well settle the question by the toss of a coin.

X-ray Examination.—The *x*-ray, which has proven so valuable in many lines of work, is of much assistance in the diagnosis of pulmonary conditions. The negative must not only be perfect, but the interpretation thereof is of value only when made by one who has had a large experience in this particular field as it is the most difficult of all *x*-ray work. Incipient cases that have been carefully examined come to postmortem but rarely, so that much more can be learned by the comparison of the physical signs and *x*-ray findings in a series of early cases than by the autopsies of advanced cases.

Dr. Arthur C. Heublein and I have studied over fifty cases in which I had previously made a clinical diagnosis. To insure an unbiased opinion, the plates were studied by numbers, not by names. In one case the physical signs indicated a lesion from the right apex to the second interspace (inner third), but the radiograph showed involvement of the greater part of the lung. In a second case, a lesion at one apex was suspected, but the *x*-ray showed both to be involved. In two cases where history and physical signs pointed conclusively to an early process, the *x*-ray failed to show it. In the remaining cases, most of whom had very early lesions, the *x*-ray and the clinical diagnosis agreed.

The *x*-ray is the greatest stimulus to careful diagnosis we have, and there is no better way to ascertain one's diagnostic ability—or limitation—than to compare his physical signs with the *x*-ray plate. In deep-seated lesions, especially of the lower two-thirds of the lung, the *x*-ray will sometimes demonstrate a lesion that does not give physical signs. When the involvement is slight, it may be necessary to make several plates before a diagnosis can be given.

In conclusion, if we are to detect incipient tuberculosis, we must inspect, palpate, percuss, and auscultate our patient. More than that, we must question him, and question him at length. The physician who cannot or will not devote at least half an hour to this consultation should refer his patient to one who will, as an incomplete examination gives the patient an unwarranted sense of safety.

Our eyes, fingers, and ears are like the scouts of an army who bring to headquarters information of varying importance. The observation of one would appear to show the urgent need of immediate retreat, but that of the others would make this action seem unwise. Only after all the reports have been carefully weighed is it decided which is the most expedient course to pursue.

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PERSONAL OBSERVATIONS ON THE EHRLICH-HATA 606.

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For some weeks past I have had the opportunity of observing at close range the workings of the new Ehrlich-Hata preparation familiarly known as 606. In the laboratory of Professor Ehrlich, at Frankfort, where experiments are still in progress on animals, and in most of the skin and venereal clinics of Berlin the new preparation has been freely used, with the result that some 3,000 cases treated with it have already been reported.

It appears to be too early, as yet, to make any positive statement on the value of this preparation in syphilis and parasyphilitic conditions, but there can be no doubt, in view of the results thus far obtained, that a great step forward has been made. The reports made by those who have given the remedy the largest trial, particularly Wechselmann, Alt, Michaelis, and Kromayer, carry with them a measure of enthusiasm that seems nothing less than extravagant, but when one sees the patients and the progress they have made under the new treatment, this enthusiasm seems more than justified.

The principal work is being done by Wechselmann at the Rudolph Virchow Hospital in Berlin. He has treated over nine hundred cases, having been among the first to receive the remedy from Ehrlich. Wechselmann's technique is the one principally used in the European clinics, but there are two other methods of administration that are growing in popularity, namely those of Alt and Kromayer. The growing favor of these methods lies not in any appreciable increase of efficiency, but rather in the greater simplicity of their preparation.

It is not the purpose of this paper to discuss the preparation of the solution used, but rather to offer a review of the methods of injecting the remedy and the results obtained. I have had the opportunity of studying about 250 cases, and have seen about 35 injections given at the various clinics. The results may be tabulated as follows:

As to Dosage:—The dose administered varies from 0.4 gram to 0.6, and in some cases to 0.8 and even 1.0 gram, but the general tendency is in favor of 0.6 as the safest and most effective dose for a male adult of normal size and weight. In women 0.5 is used, and in children 0.025 is given. Professor Ehrlich has expressed the opinion that the proper dose in proportion to the body weight is about one gram per 60 to 70 kilograms of body weight.

Site of the Injection:—It may be given intravenously or intramuscularly. The former method was tried by some experimenters, but nearly all have given it up in favor of the intramuscular injection. For the latter some employ the site of the buttocks while others prefer the muscles of the back, immediately under the lower angle of the scapula. My observation leads me to the belief that the gluteal injection is the one that will be commonly adopted in the course of time.

Method of Injection:—The solution is freshly prepared with the greatest aseptic care, immediately before it is to be given. The site chosen is sterilized with either iodin or ether and alcohol, and the solution is injected in a manner similar to that of the mercury preparations. Care is taken that the solution does not enter the blood vessels, unless one of the soluble methods is used. After the injection has been given the needle is quickly withdrawn, moderate pressure is made over the injected area, the skin is again painted with iodin, and is covered with a piece of sterile gauze, which is held in place by a strip of adhesive plaster. The patient is put to bed and kept there for four or five days, and longer if necessary. Kromayer divides the dose and injects half of it into each of the buttocks. He believes this diminishes the risk of infiltration and abscess formation.

After Effects:—In the vast majority of cases the injection is quite painless. In a few that I saw the pain was very severe, and lasted with diminishing severity for three or four days. The paraffin injection, used by Kromayer and Lesser, seems to be absolutely without pain. In an old woman with a gumma of the ankle, who had been injected in the back by Michaelis, there was considerable subsequent pain, not only at the site of the injection, but also down to the region of the buttocks and along the arm and forearm of the injected side. Most of the patients stated that they felt very little or no pain at any time.

For some time after the injection an infiltrate remains, similar to that often seen after the injection of salicylate of mercury, but it soon disappears. Occasionally this infiltrate becomes acutely inflamed, and in some cases an abscess forms with necrosis of the surrounding tissues. I saw three or four such cases. It is difficult to say whether this complication is due to the preparation itself or to an external infection due to faulty technique, but I am of the opinion that the latter is the more likely cause. The painful infiltrate is affected favorably by the application of heat; sometimes cold is more effective. At all times it should be treated along surgical lines.

I believe that those who are injected in the back are more liable to severe pain and abscess formation than those injected in the buttocks. I did not see a single case of abscess in the buttock.

A fair proportion of patients develop some fever after the injection, the temperature often rising to 100° to 102° F., but this lasts only a few days and then drops to the normal. Occasionally the rise in temperature appears on the fourth or fifth day, and remains for several days.

In a small proportion of cases an exanthem, covering the entire body, appears soon after the injection and remains for some time. This is ascribed to the rapid absorption of the arsenic. As soon however, as the arsenic is eliminated, these symptoms pass off.

Effect on the Primary Lesion:—The primary lesion heals very rapidly in most cases, sometimes disappearing entirely within one to two weeks after the injection. Within a few days a softening of the lesion and distinct evidences of healing set in; the infiltrate, however, remains for some time after the visible signs of the sore have disappeared.

I have seen a marked improvement within 48 hours after the injection, in a few cases, and in others it has taken as long as two or three weeks for the lesion to disappear. The remedy seems to offer the possibility of an earlier removal of the initial lesion than by any means hitherto known, except excision. The locality of the lesion does not interfere in any way with the result.

Effects on the Secondary Lesions:—Secondary lesions occasionally disappear within several days after the injection, but usually it takes about two weeks for all the secondaries to disappear. The glandular enlargement in the neck remains long after the mucous patches have passed off. It is at times startling to observe the wonderful improvement in these early cases.

Effects on Late Manifestations:—In many cases gummata that have resisted mercury and the iodides for years have disappeared in from three to six weeks, and have not since recurred. In some cases the improvement was very slow and in others the remedy seemed to have had no apparent effect, but these cases were very exceptional.

In parasyphilitic conditions and in nerve lesions of syphilitic origin the remedy has been tried by Konrad Alt and others, with promising success. The results are not so brilliant in these nerve cases, but the experimenters express themselves as being hopeful of success. At the annual gathering of German physicians and naturalists at Königsberg, whither I had the privilege of accompanying Professor Ehrlich, Professor Alt, in the discussion on 606 said, in this connection: "For the nerve specialist and psychiatrist the most important feature of the new Ehrlich-Hata remedy is to be found in the increased possibility of furnishing an effective prophylactic against the severest diseases of the nerves and the mind, namely, tabes and general paralysis." This utterance is in accord with the commonly expressed view that the function of the new remedy will be to prevent late lesions of the nervous system rather than to cure them.

In Inherited Syphilis:—Wechselmann has already reported a number of cases of infants treated with the new remedy with considerable success. I saw a number of these young patients, and in some instances the result of a single injection seemed nothing less than marvelous. Others, on the other hand, did not seem to respond to the remedy so

well, while still others, very few in number, showed no response whatever. There can be no doubt, however, of one thing: The results in these cases warrant the dictum that every case of infantile inherited syphilis should be treated with "606," if it is hoped to save the infant's life.

Recurrence:—A slight proportion of cases seem to recur after six to eight weeks. Possibly, the dose in these cases was insufficient. At any rate, I have seen a very few cases (not more than 5 per cent. of the total number) in which a recurrence of the roseola or the mucous patches took place after they had disappeared. In these cases a second injection has been very effective. Wechselmann has just reported a number of cases in which reinjections of 606 have been made with success. He believes that the injection may be repeated with safety within one week, but it is better to wait three or four weeks before repeating.

Effects on the Wassermann Reaction:—In the majority of cases the reaction changes from positive to negative after six to eight weeks, that is, when all spirochetes have been destroyed. If any of these survive the injection the reaction is apt to remain positive, even though the clinical manifestations of the disease have disappeared. Most observers seem to confirm the view that 606 tends to destroy the spirochetes, and to that extent the change from positive to negative takes place; but the effect varies in individuals. In the majority of cases, with a dose less than 0.6 gm., it takes from 30 to 60 days for the reaction to become negative. Herxheimer of Frankfort believes that three-fourths of all cases become negative after 50 days. The strength of the dose undoubtedly has an important bearing on the Wassermann reaction, *i.e.* the stronger the dose the earlier and more certainly will the reaction change from positive to negative. Another observation that is commonly noted is that the reaction is more apt to change from positive to negative in primary cases than in late lesions. This observtion has been confirmed by Pinkus of Berlin.

Effect on the Body Weight:—A gain in weight is a very constant effect in cases injected with 606. With few exceptions the patients show an appreciable gain, sometimes of many pounds, in addition to which the general well-being and appetite of the patient are materially improved. Some patients who entered the hospital as veritable skeletons have gained 20 to 30 pounds in the course of a month or six weeks after the injection.

A few illustrative cases observed in the various clinics will be of interest:

Case I.—Woman with old lues, saddle nose. For several months has had a large gummy tumor of the upper lip with infiltration of the entire surrounding tissues, which made it almost impossible to open the mouth. Speech and swallowing were very difficult. In spite of long continued treatment by mercury, the gumma continued to grow larger. Twelve hours after the injection of 0.5 gm. a decrease in the swelling began, and on the next day the patient was able to open the mouth wider than it was possible for many weeks. In a few days there was continued healing and subsequent recovery.

Case II.—Man, saddle nose, foul-smelling ozena and headache, which made it impossible for him to work, for many months. Had been treated with mercury and potassium iodide for a long time without effect. Three days after the injection of 0.6 gm. headache was better; six days later there was hardly any smell from the nose. Recovery.

Case III.—Man with mucous patches of the mouth; had just finished a course of mercurial inunctions without effect; 24 hours after the injection, the patches were hardly noticeable, and in 20 days they had disappeared.

Case IV.—Girl, 19; waitress. Presented a deep ulceration on the tongue and mucous membrane of the mouth. She had just received 20 bichloride injections, and though the exanthem had disappeared, the patches remained. Was given 0.3 gm. and three days later the patient was sent home practically well. Wassermann remained positive for five weeks and then became negative.

Case V.—Man, very much emaciated, the whole body covered with papules and ulcerous syphilides; mucous patches in the mouth and tongue, and necrosis of the tonsils. The patient had received 30 injections of Hg without benefit. Was given 0.6 gm. In fifteen days all the symptoms had disappeared, and the patient had gained 12 pounds. Wassermann remained positive.

Case VI.—Girl 21, marked roseola with broad necrotic condylomata on the vulva and anus, mucous patches on tongue and mouth. Duration eight weeks, no treatment. Spirochetes numerous. Was given 0.4 gm. Two days later marked improvement, no spirochetes found. Thirteen days later patient was discharged well. Wassermann remained positive.

Case VII.—Girl 20, entered hospital in very poor condition; she was very much emaciated and could neither speak nor swallow. There were many broken down papules on the face and forehead, rupia on the limbs. Tonsils, uvula, and larynx much destroyed with ulcerations. Duration six months; had been treated with mercurial inunctions and injections, and with KI. Was given 0.5 gm. The next day swallowing became easier; a few days later the voice became normal and recovery was so rapid that fourteen days after the injection the patient was sent home practically cured.

My observations lead me to this general conclusion: The new 606 preparation exerts a marvelous effect on a large proportion of the cases in which it is used properly; in some cases its effects are not so striking, but the results are, nevertheless, very good; in a few cases the result is negative. We may safely say that if this preparation is not a complete specific for syphilis and allied conditions, we have in it apparently the most potent and effective remedy that science has yet produced for the treatment of these diseases.

105 East Nineteenth Street.

REPORT OF THREE CASES TREATED WITH ANTIGONOCOCCUS SERUM.*

By M. ZIGLER, M.D.,

New York,

Instructor in Genitourinary and Venereal Diseases in the Post-Graduate Medical School and Hospital, Assistant Dermatologist Lebanon Hospital, O. P. D.

The subject of my paper this evening is a report of three cases treated with antigonococcus serum. I cannot, however, go on to the report of these cases without a few prefatory remarks on the history and preparation of this serum. We are indebted to Dr. John C. Torrey of Cornell University, whose researches in this particular field of serum therapy made the introduction of antigonococcus serum possible. The serum as used to-day is prepared accord-

*Read at a meeting of the Bronx Medical Society, May 11, 1910.

ing to his method from the blood of rams that have been treated with gradually increasing doses of dead and live cultures of the most virulent strains of gonococci.

I shall quote from Torrey's article on agglutinins and precipitins in antigonococcus serium. He says: "It has been proven that the gonococcus belongs to a heterogeneous rather than to a homogeneous family, in fact it may be divided into several groups each raising agglutinins which are specific for its own group." It is for this reason that we use a polyvalent serum.

Willaim T. Belfield in "Progressive Medicine" says "the great value of both sera and vaccines in gonorrheal lesions of serous membranes (*i.e.* gonorrheal rheumatism so-called) is absolutely confirmed, while the failure of both to definitely improve gonococcus infections of mucous membranes seems supported by further evidence." Herbst thinks that most failures and reoccurrences in serum treatment of arthritis arise from either failure to remove the infection from the genital tract or insufficient dosage of treatment.

We shall now go on to the consideration of these three cases.

Case I.—Mrs. M., age 30, American, came to my office April, 1908, with the following history: Married three years, she has a baby two years old. Immediately after birth of child she complained of burning on urination and profuse purulent discharge, which continued about three months. About ten days after the onset of discharge patient began to complain of pain, stiffness, and limitation of motion in small joints of both hands, followed by pain in the wrists, shoulders, and left hip. She had been under antirheumatic treatment for four months without any improvement. In fact she became progressively worse; pain in the wrist and shoulders had become so severe and constant that she was unable to sleep and was obliged to have assistance in order to dress herself and comb her hair. Her best weight was 140 pounds. At present she only weighs 105 pounds—a loss of 35 pounds in two years. Physical examination at that time showed that she was poorly nourished, pale, and markedly anemic with hemic murmur at the base. Chest otherwise normal. Fingers showed thickening and limitation of motion of the joints of the middle and proximal and middle and distal phalangeal articulations. Smear from urethra and vagina negative. Treatment.—For the three months of April, May, and June, 1908, patient received huge doses of aspirin, later sodium salicylate, and still late potassium iodide, during which time strict antirheumatic diet was ordered. Practically no improvement was noted. Electricity tried, faradic, and galvanic, for several weeks with same result. Patient became discouraged and discontinued her visits to the office for about four months during which time her symptoms remained the same. On her return I made the diagnosis of gonorrheal arthritis and decided to give antigonococcus serum. The administration of the serum was as follows: The injections were all given into the subcutaneous tissues of the arm, by means of a large hypodermic syringe similar to the antitoxin syringe used in diphtheria. First injection October 23, 1908. One c.c. of a polyvalent serum from which there was no improvement. Five days later a second injection given, 1 c.c., with no improvement. Three days later a third injection, 2 c.c. of serum. Within one hour patient's arm on side injected became very painful and swollen from the shoulder down to the finger tips. This continued for about six hours and then disappeared. For the first time slight improvement in the shoulder and hipjoint noted. Seven days later a fourth injection, 2 c.c., which was also followed by marked swelling of the arm injected and in addition a generalized urticaria developed. The latter subsided in 72 hours. Marked improvement noted in all the joints affected commencing in three hours after the injection and continuing until about 24 hours before the next when all the symptoms returned, but not as severe as they were originally, in other words a 48-hour respite of symptoms. Fifth injection three days later, 2 c.c. of serum, results about the same as above; that is marked improvement for 48 hours, then slight return of symptoms. Patient now begins to feel hopeful. Sixth injection, 2 c.c. Patient for the first time had no return of pain since the last injection, although there was a four-day interval between this injection and the previous one. Three days later seventh injection, 2 c.c., with practically no pain. Patient begins to notice some improvement in ability to flex and extend fingers. Motion in shoulder also more free. Eighth injection three days later, same as above; patient feels stronger and better in every way. Ninth injection, 2 c.c.; patient felt so much improved that she neglected treatment for seven days with the result that on the fifth day symptoms returned with pain especially severe in the shoulders and hip; but she admits that the pain is in no sense a relapse, for although she was uncomfortable during the day, yet she was able to sleep well. Tenth injection, 2 c.c. Since the last treatment patient has felt very comfortable. She noted relief from pain within a few hours after the administration of the serum. In December patient received five injections. There was so marked an improvement in the symptoms shown that I decided to cut down the number of injections for the following months. For each of the following three months the patient had three injections. During this time there was absolutely no return of symptoms, marked improvement in motility of joints affected, with general condition much better. Only one injection given in the month of April. In May two were given. The end of May, 1909, patient was discharged cured. One month ago I received a communication from this patient stating that she is in good condition, so much so that she is able to do all her own housework. She sleeps well, appetite good, and has gained 20 pounds.

Case II.—Mr. H., aged 58 years; married, business man. Had gonorrhea 10 years ago. Came to the office of his physician on April 20, 1909, with acute gonorrhea. Smear taken at that time showed the diplococcus of Neisser. He was put under treatment immediately with antiblenorrhagics and locally injections of argyrol, 5 and 10 per cent. Nine days later he developed acute arthritis of the right wrist, which became red, hot, and painful. He received large doses of salicylate of sodium with no improvement. Four days later the left knee became involved, and he was obliged to take to bed. Salicylates were continued for another week and then discontinued and Bier treatment instituted. The doctor used an ordinary Esmarck bandage about 2 inches wide, applied night and morning for several days. He started with half-hour sessions and gradually increased length of application. The result of this treatment was also unsatisfactory. This was the state of the patient when the doctor consulted me for therapeusis. Taking into considera-

tion the history and duration of this case with inefficiency of the treatment instituted covering a period of 16 days, I advised antigonococcus serum. Accordingly on that day patient received 2 c.c. of polyvalent serum. No improvement noted. Following day he received another injection of 2 c.c. Joint pains remained the same. Third day received a third injection of 2 c.c.; slight improvement followed for the first time. Fourth day received fourth injection of 2 c.c. Patient much better, sitting up in bed, with marked diminution of pain and swelling. Twenty-four hours later received a fifth injection, 2 c.c. Improvement continued. One day later received the sixth and last injection, 2 c.c. Wrist normal and no pain in knee joint. Some exudate, however, still present. Seven days later, wrist was absolutely normal, knee almost so and patient was able to attend to business. The serum injections caused no untoward reaction in this patient.

Case III.—Mr. X. American, single, age 31 years. Had gonorrhea four years ago, which lasted eight months. No complications. Three years ago a second attack, which was followed in four months by pain in the sacrum, left knee, heel, and shoulders, of such character that patient spent many restless and uncomfortable nights. At times pain became so severe that he was obliged to go to bed for three or four days of every month. These symptoms, together with anorexia and loss of weight, persisted for two years and failed to respond to antirheumatic and all other treatments. Treatment was as follows: Patient received nine injections of antigonococcus serum, 2 c.c. at three-day intervals. After the third injection there was slight improvement in the joint symptoms. At the completion of the treatment, the affected joints showed absence of pain but poor motility. The treatment was followed by massage resulting in complete recovery.

It is rather difficult to draw conclusions from so few cases. You will notice, however, that cases I and III were injected at intervals of three to four days, being chronic ones. While case II, being acute, received injections at 24-hour intervals in an attempt to minimize destruction of joint tissue by the action of the gonococcus. There is absolutely no doubt in my mind when I think over the usual protracted and maiming course of these arthritic cases that this treatment is absolutely specific and that there is no excuse for any physician allowing this class of patients to go on into the crippled stage without first trying this serum. According to Dr. Torrey no case of gonorrhea complicated by arthritis, endocarditis, epididymitis, or pleuritis should be treated without serum in conjunction with usual methods.

1097 Forest Avenue.

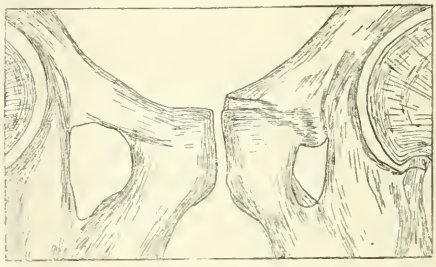
A FRACTURE OF THE PUBIC BONE.

By TRUMAN ABBE, M.D.,

WASHINGTON, D. C.

Fractures of the pelvis as part of a general crushing accident are recognized and described in our text books, but the following case of fracture of a single bone in the pelvis is rather unusual on account of the slightness of the injury and the light weight of the patient. In place of the usual fracture of the neck of the femur that we get in older patients with a fall on the hip, in this case the femur was not injured, but the pelvis suffered.

Mr. B., white, 74 years of age, weight 120 pounds, and in good, active health, on October 15, 1909, while crossing the street encountered an automobile and two motorcycles. He dodged all these, but in turning slipped on a banana peel and fell, striking on his left tuber ischi. Unable to rise, he was carried to his home and put to bed, where he was unable even to turn over in bed. Two days later I saw him in consultation with Dr. Keech. He was unable to turn over in bed or to move the left leg fully at the hip. Thigh flexion to 45° was possible, but beyond that great pain was felt in the adductor muscles; full extension was possible and comfortable. The functions of the leg were normal. No ecchymosis or sign of displacement or abnormal position were visible. Moderately heavy percussion on the heel caused no pain, but heavy percussion gave pain in the pubic region and in the adductor muscles. Partial motion of the leg showed the flexion at the hip to be limited as in the active motion to about 45°, and abduction also to be somewhat limited. Pressing the great trochanters together caused pain and a similar crowding together of the iliac crests gave the same pain. A separation of the iliac crests also gave the same pain. The left tuber ischi was tender, but only with



Fracture of the Pubis.

a dull soreness, not the acute tenderness of the anterior region. Pressure on the symphysis pubic caused acute, cutting pain, accentuated about one and a half inches to left of the median line. This seemed to be the starting point of all the pains. There was no bladder or urethral trouble further than a slight irritability which the patient thought no more than common in cool weather, or when lying down. We made a diagnosis of fracture of the pubic bone and strapped the pelvis with a girdle of adhesive plaster and applied a firm bandage, giving marked relief and ability to turn in bed. Two days later he began to spit blood-specked mucus, and moist râles appeared throughout the bases of his lungs. Strychnine, 1/30 of a grain three times a day, and some deep-breathing exercises repeated every hour cleaned up that pulmonary congestion in forty-eight hours, and no further signs of pulmonary trouble developed.

At the end of six weeks the patient was allowed to put his weight on his feet for a few minutes, and a week later he was walking around with a cane. The unsteady walk, with his feet far apart, soon disappeared and the gait six months later was as good as ever. At twelve weeks he came to the office and we took an *x*-ray picture of the pelvis, which confirmed the diagnosis of fracture of the left pubic bone. In the drawing traced from the plate the line of fracture is seen to run from the symphysis pubis to the upper margin of the obturator foramen. There is a displacement of the upper fragment upward by about one-fourth of an inch at the symphysis.

Stoneleigh Court.

MEDICAL RECORD.

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EXAMINATIONS AND PRIZES.

For some considerable time the question of the value of examinations and the giving of prizes for those who pass such at the head of their class has been a subject for discussion. There are many who hold that the examination as a test of knowledge is to a large extent valueless and the awarding of prizes is likewise vanity and vexation of spirit. An address dealing with the matter was delivered by Dr. S. Squire Sprigge, editor of the *Lancet*, at the opening of the medical session at St. George's Hospital, London, on October 1. As for examinations Sprigge expressed the view of most who have studied the point when he said that no system of professional training can be conceived without examinations although there were many who were skeptical with respect to their utility. In short the examination system is so welded into our methods of early education that it would be difficult to provide an efficient substitute. As a matter of fact, the crux of the problem is with regard to what is meant by education. If by education is meant that part of the training which ends with the final examination and the granting of the diploma, it is easy to prove that success in examinations does not necessarily augur success in life, and it also shows that the examination system and the giving of prizes is wrong. But if one regards the final examination as only a stage in the progress of education then the prize and examination system must be considered from another standpoint. As Sprigge puts the situation: "Those who look upon education as a short race, starting in the case of the medical man with his school curriculum and ending with registration, and consider the professional life that follows as a long but completely separate race, another item on the race card, will hold on the soundest of sporting grounds that the man who wins the sprint need not win the staying contest. And in support of this self-evident proposition we have quoted to us the instances of the various failures in after life of men who vastly flattered their friends and tutors at the outset of their careers." This, however, does not prove that examinations and prize giving are useless, for it would be but a narrow-minded way of passing judgment. Examinations, then, and prizes are useful in so far as they are evidence that the individual has been so trained that he is in the position to reap the benefits which should accrue to him and to the public of the later tuition which will proceed throughout his life. Thus "examinations are a means to this end and no more; prizes are an incentive to the end and no more."

Still, there should be limits to examinations and to the number of subjects which are nowadays introduced into the medical student's curriculum. It is practically impossible to crowd into the four, five, or six years of a medical course the multiplicity of subjects with which the student is at present plied. It goes without saying that with some of the subjects he can have but a bowing acquaintance and the temptation to cram without assimilating the matter is great in order to make a good showing at the examinations. There is little doubt that examinations are overdone and the material given the student is too varied and heavy for his digestion. In fact, it is not so much the examination system that is in fault, but it is the abuse of the system against which the protests should be directed. In the opinion of Sprigge the prize system is to be deprecated to this extent that students are too greatly considered in this respect and that it would be a wiser policy to provide lectureships, readerships, fellowships, and professional chairs for the teachers rather than scholarships and exhibitions for the students. The speaker pointed out that while prizes are required for both scholars and teachers the needs of the instructed always appear in Great Britain to appeal much more powerfully to donors than the needs of the instructors, a position which seems not to obtain in the progressive educational centers of the United States. It really comes to this: How can we expect students to be properly taught unless their instructors have acquired the knowledge to impart to them, and how can instructors acquire this knowledge unless means of attaining it is freely afforded.

The most pregnant part of the address lay in the final phrases, in the postscript so to speak, and was a plea for honest work. That is to say that the student resolves "that, come what may, he will understand what he sees, what he hears, and what he reads before he proceeds to the next stage in his education." It is obvious that, with the large number of subjects before him, he cannot expect, perhaps, to learn more than the rudiments of any one subject, but he should learn these rudiments thoroughly. The temptation is great to scamp the most difficult parts, yet it should be borne in mind that even if a student who pursues the course is fortunate enough to pass his examination he is then ill prepared for the practice of his profession and must spend valuable time in laying the foundation which he should have laid before he passed, otherwise he will not only not be a success but a source of danger more or less to the community.

There is one point on which Sprigge did not touch when discussing the question of students and prizes and that is the reason why so many brilliant prize winners are comparative failures in the battle of life. The brilliant man who learns with facility frequently forgets as easily. His facility is fatal; he learns so quickly that his mind does not retain the matter sufficiently long to be of practical use to

him. On the other hand, the plodder learns slowly and with difficulty, but the very difficulty impresses the subject so firmly in his mind that he retains it and thoroughly assimilates it. There appears to be, at the present time, unanimity of opinion as to medical examinations and subjects being overdone in all civilized countries and Dr. Sprigge did well to call attention to the matter in his able address.

HYPERSOMNIA OR PATHOLOGICAL SLEEP.

Disturbances of sleep form one of the most striking groups of clinical phenomena. Not alone in diseases of the central nervous system of organic and functional origin do these aberrations of sleep prevail, but also in conditions of disturbed metabolism and in infectious processes. The study of the physiology of sleep has for a long time engaged the attention of physiologists and psychologists, and many theories have been propounded in explanation of its origin. Basing his speculations upon the theory of the toxic origin of sleep, which theory has had many adherents, A. Salmon contributes to the *Revue de Médecine*, September 10, 1910, an interesting paper on the physiological mechanism underlying the production of hypersomnia. This condition is to be distinguished from somnolence, or the tendency to fall asleep, which frequently has a pathogenesis distinct from hypersomnia, although they may coexist. According to the toxic theory, sleep is an expression of the intoxication of the nerve centers by the effete products of metabolism. Salmon holds that these substances do not affect the nerve cells directly. During sleep the latter are engaged in the task of elaborating and storing up the nutritive reserve material residing in the chromatophilic substance. The toxic products of metabolism are neutralized by the internal secretions of certain glands, whose hormones at the same time have a stimulating action upon the reparative powers of the nerve cells. This hypothesis is apparently in accord with the clinical observation of the intimate relation existing between disorders of sleep and alterations in the hypophysis, thyroid, choroid plexus, and other ductless glands. Hypersomnia is one of the most characteristic symptoms of affections of the hypophysis. Insomnia has been described as one of the common manifestations of insufficiency of the hypophysis, responding effectively to the administration of pituitary extract. The indirect effect of toxic substances producing sleep is explained as follows: An increased production of toxic substances causes at first a hyperfunction of the hypophysis or of other ductless glands, with a resulting increase in the normal sleep.

Hypersomnia is described as one of the most characteristic signs of mild forms of thyroid insufficiency, and may occur independently of the usual manifestations of cachexia strumipriva. Myxedematous subjects are generally apathetic and frequently have veritable attacks of narcolepsy. Occasionally the somnolence of myxedema is followed by insomnia, which fact may be attributed to the functional exhaustion of the hypophysis resulting from its hyperactivity, and to a secondary intoxication of the nerve centers. Frequently hypersomnia is associated with a function disturbance of the genital glands. The menopause is generally accompanied by a tendency to increased sleep and to obesity. Hypersomnia is a frequent symptom in the slow intoxications of gastric, intestinal, hepatic, and renal origin. Obesity and diabetes are often associated with a hypersomnia of toxic origin. This is also observed in certain intoxications of infectious disease. This is strikingly seen in influenza, in which the increased tendency to sleep is followed during convalescence by hyposomnia and insomnia. In cerebral syphilis hypersomnia is frequently observed. The hypersomnia of tumors of the brain represents one of the most interesting chapters of neuropathology. It has been described as one of the most characteristic signs of tumors of the frontal lobes, likewise of tumors of the base of the brain, hypophysis, third ventricle, and infundibulum. It is significant that those tumors residing near the floor of the third ventricle present the same symptoms observed in lesions of the hypophysis, namely, hypersomnia, obesity, mental troubles, etc. One of the principal symptoms of mountain sickness is an irresistible desire to sleep. This is to be attributed to passive cerebral hyperemia, which also explains the hypersomnia of those who work in compressed air. The sleep crises occurring in insolation are relieved by epistaxis. Passive congestion of the brain also explains the deep sleep following the epileptic seizure. Increase of sleep is frequently noted as one of the manifestations of adenoid vegetations of the nasopharynx. This may be explained by the observation of Civalleri of the presence in the posterior part of the pharynx of a gland having the same properties as the hypophysis cerebri. Adenoid vegetations have ever been regarded as aberrant hypophyses. Hypersomnia is one of the frequent manifestations of sphenoidal sinusitis, which is probably to be attributed to the contiguity of the sphenoidal sinus to the hypophysis, and to the fact that suppuration in either of these may be communicated to the other.

Salmon concludes that sleep plays a useful rôle in the intoxications affecting the nerve centers, and even in its morbid states represents a defensive reaction of the organism against these intoxications. The danger of toxic hypersomnia resides not in the sleep but in the intoxication; the effort should be not to combat the sleep, but to seek to control the causes that tend to prolong it. The treatment would therefore consist, for example, in the administration of thyroid, pituitary, or ovarian extracts, the regulation of diet in the intoxications of gastric, intestinal, hepatic, and renal origin, and the surgical treatment of nasal affections.

ANAPHYLAXIS AND IDIOSYNCRASY.

As was to be foreseen,, what has commonly been known as idiosyncrasy is coming more and more under the domain of anaphylaxis. This is notably evident in drug idiosyncrasies, which made up a large percentage of such phenomena. Drug idiosyncrasies undoubtedly depend chiefly on some defect of the blood in forming neutralizing

antibodies. It should not be difficult to discriminate between anaphlaxis proper, and the peculiar psychic phenomena induced by certain odors, sights, etc. There are also food idiosynerasies which belong to neither group, as seen in cases where sugar behaves as an active cathartic, acting almost as soon as tasted and swallowed. Not even drug idiosyncrasies necessarily depend on anaphylaxis. When atropine irritates the conjunctiva outright or glycerin similarly irritates the skin, the supersensitiveness must be local in character.

Klausner (*Münchener medizinische wochenschrift*, Sept. 20, 1910) has for some time been occupied in studying the relationship between medicinal rashes and anaphylaxis. He first tested on animals the serum of men supersensitive to tuberculin and iodoform, and found that even the supersensitiveness could be conveyed to the animals. Two patients developed marked supersensitiveness to iodoform which was shown to extend to potassic iodide. The serum of these men after supersensitiveness had developed was inoculated into six guinea pigs, while controls received only normal sera. The so-called anaphylactic serum acted fatally, causing death very rapidly, as if by shock. The animals all received minute doses of iodine after the preparatory injection of anaphylactic serum. A question of interest is the following: Had patients who developed iodine idiosyncrasy at a given time ever previously taken iodine, especially with exhibition of idiosyncrasy? This could be shown in one case, but doubtless cannot be held to apply universally.

The author's article is very brief and sketchy, as if written chiefly in the interest of priority. There can be no doubt that the subject opens up many probabilities. Anaphylaxis which is transferable to animals will of course come to be distinguished from drug-rashes not thus transferable. The problem naturally has considerable bearing on serotherapy, as through its solution it may be possible to overcome some of the difficulties in the management of cases in which supersensitiveness to remedies is known to exist or may be presumed to exist.

A Skin Reaction in Cancer.

While waiting for the discovery of a specific cure for cancer, which may be nearer than one dares hope, the general consensus of medical teaching, with few exceptions, is that the only salvation for the bearer of a malignant growth is in the earliest possible operation. This, of course, depends upon early recognition, but cancer is notoriously insidious in its beginnings, and by the time the symptoms are sufficiently pronounced to warrant operation, especially in the case of internal growths, it is usually too late, and any operative interference is then as likely to scatter the seeds of disease as it is to bring permanent relief. Any method therefore that promises to facilitate the diagnosis of a malignant growth in its earliest stages is to be welcomed. Writing in the *American Journal of the Medical Sciences* some time ago, Elsberg, Neuhof, and Gint of the Mt. Sinai Hospital, of this city, described a skin reaction which they obtained in several cases of carcinoma from the subcutaneous injection of human red blood-cells. The reaction depends upon the hemolytic action of the serum of the subject of malignant disease. This action has been observed *in vitro*, but it is often so feeble that it is difficult to determine its presence, and Elsberg accordingly conceived the idea of bringing the red cells into immediate contact with the serum of the cancerous patient *in vivo*. Carrying out this idea, the authors of the paper instituted a series of experiments on cancerous and normal individuals, injecting under the skin a suspension of crushed erythrocytes in saline solution. When a reaction occurred it began to show itself in about five hours after the injection and gradually increased in intensity during the next two or three hours. It appeared in an irregularly oval, slightly varied, reddish area, measuring from 2 to 5 cm. in length and 1 to 3 cm. in width, not infrequently surrounded by a whitish areola. It persisted for a variable period of time, usually from six to twelve hours after the injection. Six hundred and eighty-four injections were given to 432 individuals with quite uniform results. In 89.9 per cent. of the cases in which a reaction occurred there was a positive diagnosis of cancer, and in 94.3 per cent. of the cases in which no reaction occurred it was possible to exclude malignant disease.

News of the Week.

Death Rate in Cities.—The city of St. Paul, Minn., is credited with being the healthiest city in the United States so far as the figures of the Census Bureau for 1909 have been computed. Five cities of 100,000 population or over, San Francisco, Louisville, Minneapolis, Omaha and Memphis, are not included in the list since the census returns of 1910 have not been announced. In St. Paul the death rate for 1909 was 11.4 per 1,000 of population, while that in New Orleans was 20.2, the highest for the year. Other cities having a low death rate for the year are Columbus, O., 13.4; Cleveland, O., 12.8; Detroit, Mich., 14; Indianapolis, Ind., 14.3; Kansas City, Mo., 14.4; Rochester, New York, 14.4; and Chicago, 14.6. The death rate of New York City was 16 per 1,000 of population, and of Philadelphia, 16.4.

Free Dental Clinic.—Philadelphia is making provision for the care of the teeth of its school children by establishing a free dental clinic for those too poor to receive private treatment.

Henry Phipps Institute.—Dr. Charles M. Montgomery and Dr. Isaac Brown have been added to the teaching and clinical staff of the Henry Phipps Institute for the Study and Treatment of Tuberculosis; Dr. J. B. Carnett has been elected consulting surgeon, Dr. T. B. Holloway, consulting ophthalmologist, and Dr. D. J. McCarthy, consulting neurologist. Dr. Samuel G. Dixon, State Commissioner of Health, and Dr. Joseph Neff, Director of Public Health and Charities, have been appointed ex-officio members of the Advisory Council of the Institute.

Changes at University of Pennsylvania.—After seventeen years of service, Provost Charles Custis Harrison of the University of Pennsylvania has tendered his resignation, and the matter has been

referred to a special committee for consideration. Mr. Harrison has for thirty-five years been a trustee of the University.

Dr. J. William White has resigned from the John Rhea Barton Chair of Surgery after thirty years service in the University in various capacities. Dr. White has largely interested himself in the development of athletics in the University, and had much to do with the establishment of Franklin Field.

Epidemic of Twins.—Two hundred twin babies were born in Chicago during the first nine months of 1910 as against 140 during the entire year 1909.

Fire Near Hospital.—A fire in the rear of the Eastern District Hospital in Williamsburg, N. Y., recently, caused some alarm among the forty patients of the institution, but the coolness of the nurses and attendants prevented any serious consequences.

Births Increase.—For the month of August, 1910, according to the report of the State Department of Health, there were 11,207 births in New York City and 6,050 deaths. The native population of the city thus increased 5,157 in that time. Manhattan Borough is credited with 5,794 births and 3,054 deaths, while Brooklyn Borough had 3,661 births and 1,955 deaths. For the entire State the total number of births was 18,049 and of deaths 11,998, making a net gain in the native population of the State of 6,051. During the month there were 103 suicides, 41 homicides, and 734 deaths by accidents.

The New York Homeopathic Medical College opened on October 4 with a reception in the college building. Addresses were made by Mr. Melbert B. Cary, President of the Board of Trustees, Dr. John E. Wilson, and Dr. Royal S. Copeland, Dean of the College. The college begins the year with an increased enrollment, the incoming class being the largest in its history.

Public Drinking Cups Barred.—On October 1 the regulation of the Massachusetts State Board of Health forbidding the use of public drinking cups went into effect in Boston. Under the new rules no such cup can be used in any public park, street, or way; in any building or premises used as a public hotel, theater, public hall, or public school; in any railroad car or station, steam or ferry boat. In many places the sanitary bubbling fountains have been installed.

Radium Reduced.—The price of radium is now quoted as only $2,100,000 per ounce, instead of $3,000,000. The total amount of radium in the world is said not to exceed a quarter of a pound. In Paris and London radium banks have been established, the substance being loaned to scientists and physicians. In some cases the charge has been as high as $200 for 100 milligrams for a single day.

Drought and Typhoid Fever.—A number of cases of typhoid fever occurring in Westchester County, N. Y., have been ascribed to the drought which has prevailed in New York City and its vicinity, a drought which is the longest in the recollection of the oldest inhabitant. During July, August, and September only 3.79 inches of rain fell, the normal fall for these months being about thirteen inches. In the smaller towns, without adequate provision for the storage of water, this has caused great inconvenience, and has been a source of danger since many persons have been driven to use ponds and brooks hitherto avoided as polluted.

Cholera Situation.—The death from cholera of a steerage passenger from Naples while under observation at Quarantine, New York, and the development of the same disease in a fireman on a vessel from the same port have increased the vigilance of the health authorities, and the Public Health and Marine-Hospital Service is working in conjunction with the State officials. A five days' quarantine for all immigrants from cholera infected ports may be enforced. Many new cases have been reported in Rome and Naples, although in Russia the situation is improving.

The "Index-Lancet."—With the October issue the *Index-Lancet* of Kansas City, Mo., closes its thirty-two years of existence, and passing into new hands will appear under another title after consolidation with the *Medical Herald* of St. Joseph. First issued in 1880 as the *Index*, under the editorship of Dr. F. Dickman of Fort Scott, Kan., the journal, later known as the *Index-Lancet*, has had a successful career guided by able hands. In the new phase of existence, Dr. Charles Wood Fassett of St. Joseph will assume the rôle of Editor-in-Chief, assisted by Dr. S. Grover Burnett of Kansas City. Dr. John Punton, the retiring editor, and Dr. O. L. McKillip will also be members of the editorial staff.

Straus Milk Depot.—Several thousand persons attended a mass meeting at Cooper Union, New York, on the evening of October 8, and passed resolutions commending the work done by Mr. Nathan Straus in the maintenance of the milk depots for the distribution of pasteurized milk. At the same time public officials were urged to use their powers to carry on and develop the work if Mr. Straus persisted in his intention to withdraw his name. Among the speakers were Dr. Abraham Jacobi and Dr. W. A. Evans, Commissioner of Health of Chicago.

Dr. Louis Wickham of Paris will deliver an address (in English) on the subject of "Radium-therapy," at the New York Academy of Medicine, 17 West Forty-third street, on Thursday evening, November 3, at half-past eight.

Removal Notice.—Dr. Ross McPherson announces the removal of his office to 20 West Fiftieth street, New York.

Dr. Charles J. Bartlett has resigned the office of Medical Examiner of New Haven, Conn., and Dr. M. McR. Scarborough of the Yale University Medical School has been appointed in his place.

The Associated Physicians of Long Island will hold a meeting in the New Opera House at Oyster Bay on Saturday, October 15. Mr. Theodore Roosevelt will address the meeting at the opening session at three o'clock.

New York and New England Association Railway Surgeons.—The twentieth annual session of the New York and New England Association of Railway Surgeons will be held at the Hotel Astor, Broadway and 44th street, New York City, on November 3 and 4, 1910, under the presidency of Dr. L. M. Bingham of Burlington, Vt. Dr. John B. Deaver of Philadelphia will deliver the Address on Surgery on November 3, at 12 o'clock. A cordial invitation is extended to railway officials, railway surgeons, and to the medical profession to attend this session of the association. The secretary is Dr. George Chaffee, 338 47th street, Brooklyn, N. Y.

The Des Moines (Iowa) Pathological Society at a meeting held on September 23 elected the following officers: *President,* Dr. J. T. Priestley; *Vice-President,* Dr. F. A. Ely; *Secretary and Treasurer,* Dr. L. T. Piter.

The Society of Insurance Medical Officers was organized recently, at Chicago, with the following officers: *President,* Dr. Allison Maxwell; *Vice-Presidents,* Dr. Calvin H. English, Fort Wayne, and Dr. Stephen S. Werth, Chicago; *Secretary,* Dr. Edgar R. Hawley, Chicago; *Executive Committee,* Dr. William F. Milroy, Omaha; Dr. C. W. McCloud, St. Paul; Dr. Joseph Johnson, Chatanooga; Dr. Russell M. Young, Des Moines; Dr. M. M. Lairy, Lafayette. The purpose of the society is: "To establish an organized center of thought and action for the advancement of medical knowledge appertaining to life insurance by personal intercourse of its members, presentation of papers, discussions, and such other methods as may from time to time be found desirable."

The Indiana State Medical Association, at its annual convention at Fort Wayne on September 29, elected the following officers for the ensuing year: *President,* Dr. F. C. Heath, Indianapolis; *First Vice-President,* J. N. Hurty, Indianapolis; *Second Vice-President,* Dr. A. S. Dickey, Tipton; *Third Vice-President,* Dr. J. P. Salb, Jasper; *Secretary,* Dr. C. N. Combs, Terre Haute; *Treasurer,* Dr. David Stevenson, Richmond.

The Beaufort County (North Carolina) Medical Society was formally reorganized on September 30, when the following officers were elected: *President,* Dr. D. T. Tayloe; *Vice-President,* Dr. H. H. Hunter; *Secretary,* Dr. H. W. Carter.

The Michigan State Medical Society, at the closing meeting of the annual convention at Bay City, on September 29, elected the following officers: *President,* Dr. C. B. Burr, Flint; *Vice-Presidents,* Dr. C. T. Southworth, Monroe; Dr. Henry Kremers, Holland; Dr. A. B. Simonson, Calumet; Dr. A. L. Spalding, Hudson. It was decided to hold the 1911 meeting in Detroit. The Committee on the Relation of the Michigan State Medical Society to the University of Michigan reported that the University Board of Regents had agreed at its June meeting to suspend free treatment, medical and surgical, at the University hospitals in the cases of those persons who are able to pay.

The American Roentgen Ray Society at its annual meeting in Detroit elected the following officers for the ensuing year: *President,* Dr. Percy Brown, Boston; *Vice-Presidents,* Dr. Walter C. Hill, Cleveland; Dr. Willis Manges, Philadelphia; Dr. A. C. Skinner, Kansas City; *Secretary,* Dr. F. H. Baetjer, Baltimore; *Treasurer,* Dr. Charles F. Bowen, Columbus. Dr. Brown, who is well known in *x*-ray work in this city and New England, is the youngest member ever elected to the highest office in the gift of this society.

The International Pure Milk League, recently organized by a number of women in New York, was incorporated in the County of New York on October 7. The objects of the league are "to foster and encourage the production, distribution, and consumption of pure milk and pure food generally; to foster and promote the common interests of producers, dealers, and consumers of milk, and all other articles of food; to foster and promote methods of cleanliness in the handling of milk and all other articles of food from the producer to the consumer throughout the civilized world; to foster and promote local and foreign organizations of similar purpose with or without the league as a central or parent body."

Obituary Notes.—Dr. Jacob Hinson Miller, formerly of Boston, Mass., a graduate of the Hahnemann Medical College of Philadelphia in 1886, a member of the American Institute of Homeopathy, and the Boston Homeopathic, Massachusetts Homeopathic, and West Jersey Homeopathic Medical Societies, died suddenly at Saratoga, N. Y., on October 5, aged 45 years. Dr. Miller was formerly attending ophthalmic surgeon to many of the homepathic hospitals and dispensaries of Boston.

Dr. George Little of Tamaqua, Pa., a graduate of the medical department of the University of Pennsylvania in the class of 1884, city health officer, county out-door physician, and deputy coroner, died at his home, on October 3, aged 49 years.

Dr. Carey Kennedy Fleming of Denver, Col., a graduate of the Chicago Medical College in 1886 and of the New York Post-Graduate School and Hospital in 1889, professor of abdominal surgery and gynecology in the Denver and Gross College of Medicine, gynecologist to the State and County Hospital, the Mercy Hospital, and St. Joseph's Hospital, a member of the Colorado State and Denver County Medical Societies, and the Denver Academy of Medicine, died suddenly of apoplexy at his home on September 23, aged 47 years.

Dr. Clarence F. Tillman, formerly of Goldfield, Nev., a graduate of the College of Physicians and Surgeons of San Francisco in 1902, died at St. Luke's Hospital in San Francisco on September 25 of appendicitis, aged 32 years.

Dr. Benjamin F. Redshaw of Curran, Ill., and Dr. H. C. Ganaway of Decatur, Ill., were instantly killed on October 4, when two trolley cars collided head-on at Rickerson Curve, Ill. Dr. Redshaw was a graduate of the Northwestern University Medical School, Chicago, in 1899. Dr. Ganaway was a graduate of the Meharry Medical College of Nashville, Tenn., in 1902.

Dr. John Somers Buist, a retired physician of Charleston, S. C., a graduate of the Medical College of the State of South Carolina in 1861, a surgeon in the Confederate Army during the Civil War, and formerly professor of surgery in the medical college and a member of the South Carolina Medical Association, died at his home after a long illness on September 29, aged 71 years.

Dr. Jean P. Rottot of Montreal, Canada, a graduate of the University of the Victorial College in 1847, for many years dean of Laval, died at his home on September 28, aged 85 years.

Dr. Peter E. Richmond of Mt. Pleasant, Mich., a graduate of the Medical Department of McGill University, Montreal, in 1873, and a member of the American Medical Association, died suddenly on September 28.

Dr. Abijah I. Beach of Renton, Wash., a graduate of the Medical Department of Western Reserve University in 1856, died at his home after a long illness on September 24, aged 74 years.

Dr. Watson W. Gailey of Ashland, Ill., a graduate of the Philadelphia College of Medicine and Surgery in 1863, died on September 27, after a long illness, aged 68 years.

Dr. Whitfield S. Coursen of Oak Ridge, N. J., a graduate of the College of Physicians and Surgeons, New York, in 1848, died at his home on October 1, aged 86 years.

Correspondence.

THE RELATION OF QUININE TO ECTOPIC PREGNANCY.

To the Editor of the Medical Record:

Sir: I do not think that an apology for this letter is necessary, for the custom of self medication with quinine, especially in malarial districts, is so prevalent that it should be discouraged as far as possible. Quinine is indicated in one disease—malaria—for its specific action on the malarial organisms. What other therapeutic properties it may possess as a tonic, antipyretic, etc., are surpassed by other remedies.

Quinine being a protoplasmic poison with a specific action on cells having ameboid movements, it may also arrest the movement of the ciliated epithelium, and so interfere with the physiological action of the ciliated cells in the Fallopian tubes, the function of which is supposed to be to create a current which carries the ovum from the ovary to the uterus. If this ciliary movement is arrested the impregnated ovum may implant itself at some other place than in the uterus ,and so give rise to an ectopic pregnancy. I know of two cases of ectopic gestation where no etiological factor could be found except that the patient was taking quinine at the time gestation ought to have taken place.

B. Lemchen, M.D.

McAlester, Okla.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

POSITION OF SCHOLARSHIPS IN MEDICAL SCHOOLS.—EHRLICH'S NEW REMEDY, "606."—MEDICAL LIBRARY ASSOCIATION. — NOTIFICATION OF BIRTHS.

London, September 23, 1910.

With the approach of the new session there is a renewal of the anxieties of teachers and other officials of the medical schools as to the prospect of new entries and the inducements they can offer to intending students to select the respective institutions for fulfilling the curriculum. Among the inducements prizes of various kinds are offered by most of the schools. The best are scholarships tenable for a part or the whole of the curriculum and of otherwise varying values. The regulations affecting these scholarships have often been subjected to criticism and discussion, with a view of removing some of their defects. It has happened more than once that a smart student, or one *au fait* at examination tests, has sat for and succeeded at more than one of these trials, and so been able to choose at which school he would carry out his education, consequently holding them up, so to say, while making up his mind. The confusion thus produced is perhaps of less importance than the exemplification of an undesirable competition between collegiate institutions devoted to the same work. Amalgamation of the scholarships has again and again been suggested as desirable. In some cases financial difficulties may be reckoned on, but as to many others there is a free hand for the authorities. A considerable step in this direction has, in fact, been taken by the formation of the Intercollegiate Scholarships' Board. This body has just been holding an examination, on the results of which no less than twenty-three entrance scholarships or prizes will be awarded in University, King's, St. George's, and Westminster colleges and hospitals. The Women's Medical School is also a partaker in this scheme, and the board is quite willing to extend its work to all other medical scholarships.

Up to this year the divergent dates at which the several examinations were held were not altered, though it must often have been pointed out that an arrangement to hold all on the same day would prevent a candidate sitting at more than one. Now that the Intercollegiate Board has gone so far, perhaps a more complete amalgamation may follow in due time. With the example of the medical societies before the several authorities they will not despair of overcoming difficulties if they are convinced that combination is desirable.

"What do you think of 606?" That is the question which is sure to be put in any chance conversation between doctors here. It is only natural that a preparation originated by Ehrlich and endorsed by numerous observers in Germany and France should occupy our attention, especially when it claims to neutralize the poison of so fell a disease as syphilis. The preparation is not yet on the market, but the professor has freely supplied it to almost any one connected with venereal hospitals or with a reputation as a syphilographer. Quite a number of his confrères report cases in which the medicament seems to have acted as an immediate antidote to the syphilitic poison, restoring patients to health in a few days, and that in all stages of the disease. It is said the remedy will not be available in the drug market until Ehrlich has collected 20,000 cases from professional observers. In the meantime, the public is being regaled with sensational statements in newspapers. The reporter seems as ubiquitous on the Continent as here. Both German and French lay papers have devoted articles to "606" with descriptions of its alleged marvelous influence in conditions we have been accustomed to consider should only be described in professional journals. Our own papers have followed suit, and now the *Times* has opened its columns to telegrams and articles on the new treatment. Some talk of this as an advance in journalism and pooh-pooh the notion that any disease should be excluded from public discussion. I think the majority of medical men—certainly nearly all I have spoken with on the subject—condemn this attitude, though the few who support it are remarkably enthusiastic in their plea for press liberty.

At the London Hospital the remedy is being tried and I hear favorable reports of difficult cases. At the Lock Hospital, too, I am told that it is getting a fair trial. Neither of these institutions report serious disadvantages, though severe pain and infiltration at the site of injection has often been referred to, and some observers have noticed rise of temperature and symptoms distinctly attributable to arsenic, such as vomiting, etc. No one need be surprised at this, considering that the remedy contains 4½ per cent. of that poison, and the dose recommended is from 0.3 to 0.6 gram. Still, the idea of so absolutely specific an antidote as this is represented to be, clearing the system rapidly of an organic poison, is so attractive that, having the testimony of such able observers as to its powers, we can only wait patiently the reports from our own hospitals, until the remedy becomes accessible to all practitioners.

The Medical Library Association has been formed with the object of bringing together those interested in medical literature and medical libraries.

It is proposed to maintain an exchange for the distribution of duplicate copies, to increase existing facilities for reference work and to encourage the study of the history of medicine. Professor Osler has presided at some recent meetings to promote these objects, when papers were read by the librarians of the Royal Colleges and the Royal Society of Medicine.

Much annoyance has been caused by some local authorities in their attempts to carry out the act for the notification of births. They provide post cards to the doctors and midwives, and look to the former to see that they are used. They have even tried in one case to fine a doctor who, however, was able to show that he had told the midwife that either she or the father must notify, so the magistrate dismissed the summons and gave the doctor 5 guineas costs. The act lays the duty of notfication on the father, if resident in the house, and on anyone in attendance on the mother at the time. The difficulty really arises because legislators, as usual, made no provision for payment to the notifier. Many doctors feel aggrieved that they should be required to fill up certificates and transmit them, without any recognition of the service. The lawyers who abound in parliament take care that their own profession shall not be asked to witness a document without payment. But the doctor is constantly exploited for the State, as well as by various persons, and they think a little passive resistance desirable. Certainly it seems more reasonable for the father to be held responsible. If the State thinks notification desirable there are ways of obtaining returns without oppressing the profession. But the act is left for local authorities to adopt, or not, as they please, so it is scarcely a national concern.

Progress of Medical Science.

Boston Medical and Surgical Journal.

September 29, 1910.

The Plastic Surgery of the Ovaries and Tubes. W. C. Seelye, Worcester, Mass.
Post-Operative Pneumonia Without Mortality in Two Thousand Consecutive Surgical Operations at the Free Hospital for Women. W. P. Graves, Boston.
An Analysis of Seventy-two Cases of Pneumothorax. J. B. Ayer, Boston.

Plastic Surgery of the Ovaries and Tubes.—W. C. Seelye emphasizes the plea for more abdominal operations in the pelvic organs in cases of severe dysmenorrhea, and the importance of a classification as an aid in determining the mode of procedure in a given case for operation on the ovaries and tubes.

Post-operative Pneumonia in Surgical Operations.—W. P. Graves in an analysis of two thousand consecutive surgical operations arrives at the following conclusions: (1) Post-operative lung complications occur somewhat more frequently and are more fatal in cases previously septic or desperately sick or in the aged and feeble. (2) Operative shock, method of administration, length of time of the anesthesia, age of the patient, unless extreme, physical type of the patient, bad behavior under ether, wound sepsis, pulmonary embolism, do not seem to bear any constant relationship to the causation of post-operative pneumonia. (3) Post-operative pneumonia and bronchitis occur with great constancy during the cold weather months, and are rare during the summer months. (4) Preexisting foci of infection in the lungs are almost invariably lighted up or aggravated by operations under ether anesthesia. (5) The following theory of causation is suggested by the writer. Most of the cases of post-operative lung complications are caused by the lighting up or the aggravation of preexisting focal infection. (6) Many post-operative pneumonias might be avoided by a more careful and more expert preoperative examination of the respiratory tract.

Pneumothorax.—J. B. Ayer states that tuberculous cases comprised 69 per cent. of all cases of pneumothorax at the Boston City Hospital in twenty-eight years. Most were young or middle-aged men, and most had a recent history of less than six months' illness. The left side was most often affected. Pain and dyspnea were the most common symptoms at onset. The treatment was for the most part that of the fluid present; the prognosis was anything but encouraging. Autopsy showed cavities in most of the cases. Pneumothorax occurs most frequently in the side of a rapidly advancing process, where adhesions are either absent or friable. It may follow a long-standing empyema, by establishing a pleuropulmonic fistula or other means as yet not understood. Operative treatment in these cases is frequently permanently successful. One case is reported as resulting from subphrenic-intrathoracic abscess, and one from echinococcus. In traumatic cases the fluid develops rapidly; the air does not, as a rule, last long, and is probably of no serious import. *X*-ray examination has rendered diagnoses more exact, has qualified prognosis, and has explained the effect of treatment.

New York Medical Journal.

October 1, 1910.

The Importance to Physicians of the New Employer's Liability Law. J. J. Moorhead, New York.
Twilight Talks by the Doctor. G. F. Butler, Chicago.
Bubonic Plague in Ground Squirrels. G. W. McCoy, San Francisco.
Scarlet Fever. J. Sobel, New York.
Aconite. J. Knoti, Dublin.
The Modern Brown Bread Pill. J. J. Buzzell, Brooklyn.

The Importance to Physicians of the New Employer's Liability Law.—Dr. John J. Moorhead describes the law enacted in New York State, and operative September 1, 1910, compensating employees injured while at work in certain trades, the nature and conditions of which involve extraordinary risks to the life and limb of workmen engaged therein. In case of loss of life the dependents receive a sum equal to twelve hundred times the daily earnings of the workman, in no event more than $3,000. Where the injury results in total or partial disability the workman receives a weekly payment equal to 50 per cent. of his average weekly earnings, not to exceed $10 a week, or extend more than eight years from the date of accident. Instead of the above the employee may elect to submit his case to a court and jury. Any workman entitled to receive weekly payments under this act is required, if requested by the employer, to be examined by a physician or surgeon provided and paid for by the employer, at intervals not oftener than once in six weeks. It is unfortunate that no official medical court of last resort is provided in case of dispute as to the extent or period of disability. The law is inadequate in that it does not provide for a physical examination preliminary to employment to discover latent defects, of which the subject may be ignorant, but which later may be ascribed to an occupation accident. Examples of such are hernia and defects of sight and hearing. To obviate the foregoing, employers or insurance companies will insist on a physical examination as a prerequisite to employment, with reexamination at yearly or other designated intervals. This may have an important economic effect in disqualifying certain workers for ailments not of themselves incapacitating, but which in the event of an accident might be ascribed thereto. This disqualification will fall with greatest frequency on workers past middle life, and at a time when wages are most necessary. Before granting a certificate of physical capacity the examination should embrace all that a life insurance medical certificate requires, and also special investigation of sight and hearing.

After receipt of injury the prognosis would depend upon the manner of receipt, technical nature, and extent of injury, the individual, the treatment, and the occupation. The compensation law would aid physicians in the care and treatment of the injured, by abolishing financial worry in the patient.

Twilight Talks by the Doctor.—Dr. George F. Butler discusses the interpretation of the baby's cry. The cry of discomfort is a pitiful wail, not as feeble as the cry of fretfulness, nor as strong as that of pain. The cry of hunger sounds much like the cry of discomfort, with an added tone of impatience. The cry of fretfulness is weak, plaintive, sometimes nasal in quality, and indicates general ill feeling without actual pain. The cry of pain is loud and vigorous, and in children over three months old is accompanied with tears. When a child cries out sharply and stops quickly, producing suppressed or choked cries, one should think of pleurisy as a possible cause of the symptoms.

Bubonic Plague in Ground Squirrels.—Dr. George W. McCoy states that the importance of ground squirrel plague is due chiefly to the fact that during the past two years the disease has been found among the squirrels in several places in California. It was noted that in several cases of plague occurring in Contra Costa County the victims were squirrel hunters, and it was suggested that squirrels might have been the source of infection. Experiments were conducted, and it was found that squirrels were quite susceptible to the infection. In Los Angeles the disease among the squirrels was detected through the fact that a typical case of plague developed in a boy who had been bitten by a sick squirrel. Prompt measures of squirrel extermination were inaugurated and carried out. Over 90,000 squirrels have been examined, and over 300 have been found infected. In infected localities the infection ran all the way from 1 in 1,000 to as high as 1 in 10. A purulent or caseous bubo is present in the majority of cases and is sometimes the only lesion. The plague bacillus isolated from infected squirrels is on the average somewhat less virulent than that isolated from rats and from men. There is a partial immunity among the squirrels in those localities where plague has prevailed for several years. Since plague was discovered among ground squirrels about a dozen persons have contracted the disease under circumstances that pointed conclusively to squirrels as the cause.

Scarlet Fever.—Jacob Sobel says that this disease ought to be on the wane, considering the activity of the Department of Health. But this is not the case. This is partly due to the fact that parents will not be convinced that very mild cases can be scarlet fever. These cases are the greatest carriers of contagion. Dogs and cats are also dangerous carriers of the disease. School inspection is a potent means of reducing contagion to a minimum. Too much stress has been laid upon the exfoliation; in some cases the main source of infection is some discharge from the nose, throat, and ear. Epidemics of scarlet fever have been traced to the milk supply. Incomplete isolation is a dangerous factor. Cases occurring in the colored race aid in the spread of the disease more through lack of recognition rather than because of failure to report. The author details various measures that would tend to check the spread of the disease.

Aconite.—John Knott concludes his elaborate study of this drug.

The Modern Brown Bread Pill.—J. John Buzzell states that the placebo has failed to receive its just share of credit for wonders worked, and describes its numerous indications.

Post-operative Complications in Acute Secondary Glaucoma.—D. Forest Harbridge gives the clinical notes of this and of two other unusual cases.

Journal of the American Medical Association.

October 1, 1910.

The Bookkeeping of Humanity. J. N. Hurty.
A Brief Report of the Nebraska Epidemic of Poliomyelitis. H. M. McClanahan.
The Rôle of Ophthalmology in Preventive Medicine. H. Woods.
Metabolism and Mouth-disease. H. R. Harrower.
The Present Status of Typhoid Inoculation. G. H. R. Gosman.
The Treatment of Syphilis with Ehrlich's "606." H. J. Nichols and J. A. Fordyce.
Creatinin and Creatin Metabolism in Children. J. P. Sedgwick.
Systemic Conditions in Relation to Oral Symptoms and Sepsis. V. A. Latham.
The Relation of Blood-Platelets to Hemorrhagic Disease. W. W. Duke.
Operative Treatment of Clubfoot. C. Ogilvy.
Partial Thyroidectomy in Dementia Præcox. R. Winslow.
Influence of Colloidal Protection on Milk. J. Alexander and J. G. M. Bullowa.
Is Acute Chorea an Infectious Disease? A. Gordon.
Unusually Quick Rash Following Injection of Diphtheria Antitoxin. L. Neuwelt.
Essential Hemospermia. A. Nelker.

The Bookkeeping of Humanity.—J. N. Hurty states that the importance of vital statistics to the family, to the state, and to medicine can hardly be overestimated. The physician, the representative of the science of medicine, is, except in instances, the only member of society who can supply information in regard to causes of deaths and the presence of infectious diseases. As it is of very great importance to the family that its births, deaths, and cases of infectious diseases be legally recorded, and as the family presumably pays for the physician's services, the physician, therefore, should not consider his services fully performed nor that he is entitled to his fee until the certificates which are of such great importance are duly made. And again, the physician should remember when reporting vital statistics that he is giving obedience to the statutes of his State, on which he depends for protection; that he is protecting the helpless; that he is doing a general good, and that he is serving the science of medicine.

Poliomyelitis.—H. M. McClanahan, from an analysis of nearly one thousand cases of this disease occurring in Nebraska during the summer of 1909, concludes that it is an infectious disease. The evidence that it is contagious is accumulating. The only safe procedure is to treat it as we would measles or scarlet fever, namely, isolate the patient. We should realize that it is a general disease, that it may involve any part of the nervous system, that the bulbar type is usually fatal, and that our treatment should be directed toward prompt and efficient elimination

Ophthalmology in Preventive Medicine.—H. Woods discusses three phases of this subject, namely, prevention of blindness from infectious diseases and accidents, prevention of eye deterioration by violation of ocular hygiene, and prevention of remote lesions through recognition of early ocular symptoms of systemic disease. In the last of these the rôle of ophthalmology in preventive medicine means cooperative medicine. It means that if we view the eye from the standpoint of its own function this function is often affected by conditions beyond the oculist's power to diagnose or cure; that if ametropia be present, the physician may work in vain to relieve remote symptoms till the oculist helps him; that if the oculist appreciates the meaning of persistent functional disorders, a rigid pupil, seemingly unimportant muscular paresis, he may save his patient from dreadful consequences by asking his brother internist to aid him; that the problem of saving sight is not one which concerns the oculist alone, but is one which demands honest introspection from the physician and effort to educate his patients in the views which medical progress has taught us.

Metabolism and Mouth Disease.—H. R. Harrower concludes that we have conclusive evidence that in the study of the urinary acidity we have something of more than ordinary importance. The relation of this syndrome of findings—acidemia evidenced by a hyperacid urine, intestinal toxemia by indicanuria, and decreased metabolic activity by the frequent low urea index and general re-

duction in the total solids—to mouth-disease, is quickly found. It is safe to say that a majority of patients suffering from pyorrhea are acidemics, and the most conclusive feature of this work is that therapeutic measures calculated to reduce the acidemia and eliminate the toxemia have a decidedly beneficial effect on the pyorrhea.

Antityphoid Inoculation.—G. H. R. Gosman states that this has been so successful in reducing not only the death rate but also the number of cases of typhoid fever, that the United States Army is now using it and advocating its use. Up to June 1, 8,510 people have been inoculated by U. S. Army medical officers, and there have been but few severe reactions to the inoculation. There has not been a single case of typhoid in any one whose vaccination was completed, while among the unprotected there have been over 200 cases in the same period of time. The vaccine used is taken from a typhoid culture which is grown on agar slants for twenty hours, and is then washed off into a small quantity of normal saline solution. It is then tested for purity, placed in sealed tubes, and the bacteria killed by heat at 60° C. for one hour, one-fourth of one per cent. of trikresol being added as a safeguard. The site of inoculation is the arm, at the insertion of the deltoid muscle, the dose to be given subcutaneously. No applicant should be vaccinated who is not perfectly healthy and free from fever at the time. Three doses are given, ten days apart; the first, of 500 million, and the second and third of 1,000 million each. There is usually some headache and malaise, and local reaction consisting of a red and tender area about the size of the palm of the hand, and sometimes tenderness in the axillary glands. During the following forty-eight hours no active exercise is to be permitted. In none of the cases injected have any anaphylactic symptoms been observed. The protection is given at once, and British statistics show that it lasts three years.

Ehrlich's 606 in Syphilis.—H. J. Nichols and J. A. Fordyce report their experience with this new remedy. (See MEDICAL RECORD, October 1, 1910, page 589.)

Creatinin and Creatin Metabolism in Children.—J. P. Sedgwick states that the study of the creatin and creatinin metabolism in children, although a promising one, has been little worked on. The opinion held until five years ago that infants do not excrete creatinin is undoubtedly incorrect. Creatinin is present in the liquor amnii, which may mean that its excretion begins before birth. Creatinin is always in the urine of the first week and in a concentration approximately that of adult urine. Creatin is also excreted during infancy. In later infancy creatinin is present in the urine uniformly, but in much more dilute condition than with adults, or during the first week. Analyses of urine in disease indicate that we may hope to get some clue to the processes of nitrogen metabolism by the study of creatin and creatinin.

Systemic and Oral Conditions.—V. A. Latham attributes the early decay of the teeth in children to the faulty systems of education and bringing up of the present day. The first seven years of life constitute a period of stress and the teeth show the effects as well as the other organs of the body. She gives a rather lengthy list of diseases in which the condition of the jaws and mouth should be thoroughly studied. The stomatologist often has to treat these patients and has opportunities to see them earlier than the general practitioner. Dr. Latham specially mentions Ludwig's angina as a result of dental suppuration, to which adults are sometimes subject as well as children, and which is likely also to be confused with a more recently discovered disorder, viz., Vincent's angina. Stomatitis following as a complication of a number of more or less grave infectious conditions is also mentioned, especially its connection with uremia. The uremic form of stomatitis is usually a serious condition. When the renal conditions are attended to, however, the buccal conditions readily improve. Dr. Latham speaks also of the importance of the polypathogenic part played by the mouth bacteria. The staphylococci and streptococci may start various forms of local or general suppuration from their point of action in the teeth and even general blood poisoning, besides causing the dental anemia or cachexia of Lejars.

The Relation of Blood Platelets to Hemorrhagic Disease.—W. W. Duke reports cases and experiments which he thinks furnish additional evidence that the blood platelets play a part in stopping hemorrhage and that one type of hemorrhagic disease may be attributed to an extreme reduction in the number of platelets. He describes his method of determining the duration of hemorrhage and also the coagulation time of the blood. The bleeding time was determined by making a slight cut in the lobe of the ear and blotting up the oozing blood at half-minute intervals. This gives a series of blots of gradually decreasing size, each representing one-half minute's outflow of blood, and the rate of decrease of the size of the blots shows the rate of decrease of the hemorrhage. The total duration of such a hemorrhage is called the bleeding time, which was found to vary normally from one to three minutes. It was slightly delayed in severe anemia and greatly delayed in cases in which the platelet count was excessively reduced and also in cases in which the fibrinogen content of the blood was excessively reduced and in experimental animals in which both platelets and fibrinogen were reduced. The method is apparently of no value in determining the tendency to bleed in jaundice and hemophilia and in the types of hemorrhagic purpura which have normal platelet count. The method of determining the coagulation time was by comparing hanging drops of the blood to be tested on two slides inverted over a glass of water kept at 40° C. and covered with a warm damp cloth. The normal coagulation time by this method is from five to seven minutes. Wright's method was used in making the platelet count. The normal count, according to Wright and Kinnicut, varies from 200,000 to 350,000. The cases reported belong to the type of hemorrhagic diseases which have a reduced platelet count. Each patient was transfused, causing a marked increase in the platelet count for a few days with a marked relief of hemorrhage. The conclusions as to the facts developed by the study are given as follows: "1. In the cases of hemorrhagic disease summarized, evidently differing in nature and etiology (acute and chronic idiopathic purpura hemorrhagica, chronic ulcerative colitis, aplastic anemia, nephritis), the constant features associated with the tendency to bleed were the reduced number of platelets, and the modification of the clot probably dependent on it, diminished retractility. 2. In the cases reported relief of the tendency to bleed followed not only the rises in the platelet count which occurred with the apparent recovery from the disease, but was associated with the rise brought about by transfusion. In the latter case, the tendency to bleed returned when the platelets disappeared. 3. Experiments in which the platelet count was reduced by benzol failed to show modifications of the coagulability of the blood, which, I think, can account for the hemorrhages of benzol poisoning. 4. The structure and the mode of formation of experimental thrombi make it seem probable, from an anatomic standpoint, that platelets play a rôle in stopping hemorrhage." None of the patients showed such a marked tendency to hemorrhage after transfusion as before, even after the platelet count had dropped to its previous level, and in each of the cases the platelets introduced by transfusion disappeared quickly. The uniform rapidity of rate of disappearance suggests that they are short-lived bodies. Their formation is also rapid. The evidence suggests strongly that platelets disintegrate or are used by the body

in enormous numbers and that their number is kept up by a correspondingly rapid rate of formation.

Operative Treatment of Congential Clubfoot.—C. Ogilvy states that corrective manipulation should begin at birth, and early operation should be done if necessary (seventh or eighth month). Operative procedures will depend on the degree of deformity, and are as follows: 1. Forcible manipulation under an anesthetic. 2. Subcutaneous division of contracted structures. 3. Phelps' open operation. 4. Other bone operations, especially: *a* Excision of a portion of the cuboid in selected cases. *b* Osteotomy of tibia for marked inward rotation. Long-continued and careful postoperative attention is essential. The best results are always obtained when the treatment is begun at birth.

Partial Thyroidectomy in Dementia Precox.—R. Winslow concludes that there seems to be some connection between the thyroid gland and the peculiar affection called catatonia. Partial thyroidectomy in the early stages of this disease exercises a favorable and sometimes a curative effect on the condition. In late stages of catatonia and in the other forms of dementia precox partial ablation of the thyroid is not followed by beneficial results. The operation is attended with the usual dangers of thyroidectomy and should be done with as much care as in exophthalmic goiter, especially in regard to free drainage.

Influence of Colloidal Protection on Milk.—J. Alexander and J. G. M. Bullowa state that increasing the colloidal protection of the casein in cow's milk by the addition of suitable protective colloids tends to improve the digestibility and absorption of both the casein and the fat, and to prevent the formation of indigestible curds and their consequences.

Is Acute Chorea an Infectious Disease?—A. Gordon reaches the conclusion that, similarly to acute poliomyelitis, acute chorea is probably associated with some infectious element. The onset of the disease and its pathologic anatomy render the two affections analogous. The fundamental difference lies in the fact that in one disease the motor cells are being destroyed, hence the paralysis, in the other disease the motor cells undergo irritation, hence the twitching. The destructive effect in the former and the irritating effect in the latter point to a difference in the virus in the two affections. As a final feature of interest in this connection may be mentioned the experiments of P. Guizetti. He injected cultures of staphylococci under the dura mater and in both carotids in dogs and obtained spasmodic movements partly resembling chorea. It is possible that a certain variety of staphylococcus is specific in chorea, but so far it has not yet been determined. Continuous work in this direction may eventually lead to the discovery of the etiological factor and, therefore, of a therapeutic serum.

Unusually Quick Rash Following Injection of Diphtheria Antitoxin.—L. Neuwelt describes a case in which an extensive urticarial rash appeared ten minutes after the injection.

Essential Hemospermia.—A. Nelken describes two cases of this condition, the presence of blood in the seminal discharge, and states that such bleeding is similar to the hemorrhage which occasionally occurs on too suddenly emptying the bladder after prolonged retention.

The Lancet.

September 24, 1910.

The Etiology and Treatment of Rheumatoid Arthritis. P. W. Latham.
Clinical Surgery in Japan. Y. Takaki.
On the Condition Called "Falling of the Womb," with Special Reference to the Operative Treatment of the More Severe Cases. J. B. Hellier.
A Case of Bilateral Papilledema and Ring Scotoma Due to Sphenoidal Sinusitis. C. G. R. Wood and G. F. C. Wallis.
The Immediate Microscopic Diagnosis of Tumors at the Time of Operation. E. H. Shaw.
Pneumonia: An Inquiry into Some of the Mechanical Conditions Which May Occur in the Chest in Adults Suffering from an Infection with the Pneumococcus of Fraenkel, Etc. W. E. McKechnie.
The Radical Cure of Hemorrhoids: Modified Whitehead's Operation. J. O'Conor.
Malignant Diphtheria with Multiple Lesions in an Infant. J. D. Ralleston.
A Visit to Professor Treufel's Clinic; the Use of "606." J. G. Garson.
The Wandering Womb and Fumigation: A Chapter in Primitive Gynecology. D. McKenzie.

The Etiology and Treatment of Rheumatoid Arthritis.—P. W. Latham puts forward the view that rheumatoid arthritis is due to spinal irritation or congestions or chronic myelitis chiefly affecting the ganglion cells of the anterior horns, but extending also, when the disease is associated with glassy skin, to the ganglion cells in the posterior horns. Regarding the effect of irritative lesions of the pelvic organs, the author refers to Ord's paper suggesting that there is evidence to show that there exists a relation of cause and effect between uterine disorders and arthritis. Ord referred to thirty-three cases of rheumatoid arthritis combined with decided symptoms of uterine disorder or irritation. In a considerable proportion of the cases of arthritic paroxysms coincided with the menstrual periods. In these cases the disorder is regarded as the product of reflex action through the nervous system. According to Latham, the reflex impulses travel along the vasomotor nerves, modify the blood-supply, and so the nutrition of the muscles and tissues to which these vasomotor nerves are distributed. Clinical experience has taught that injuries to the spinal cord, or even to the nerves of a limb, will set up arthritic changes which cannot readily be distinguished from those seen in the earlier stages of rheumatoid arthritis. Concussion of the spine from falling from a height or in skating may also induce arthritic troubles. As regards treatment, in the earlier stages of the malady at all events, it should be directed to the abatement of this spinal irritation, and this can be done most effectively (the exciting cause being removed) by cupping or blistering the spine. The latter is accomplished by means of cantharidal plasters, applied in a definite manner, on each side of the seventh cervical or twelfth dorsal vertebræ, depending upon whether the joints of the upper or lower extremities are most affected. The pain and swelling of the joints are generally much relieved in three or four days after the application of the blisters. As the patient improves, massage, warm baths, and radiant energy are used as auxiliaries in the treatment. Massage must not be employed if it causes pain in the joints.

Clinical Surgery in Japan.—Y. Takaki describes the results of 176 cases of internal piles treated solely by Whitehead's method, stating that this operation properly done is the most radical cure for internal hemorrhoids, and that it is no more serious than other methods. He also reports his results in the treatment of inoperable carcinoma by means of thymus extract, as recommended by Gwyer, stating that this relieves the pain, causes disintegration and reduction in size of the malignant growth, and retards its development.

"Falling of the Womb."—J. B. Hellier describes his operation for the radical cure of severe cases of procidentia, which is a multiple plastic operation, including vaginofixation of the anteverted uterus.

Bilateral Papilledema and Ring Scotoma Due to Sphenoidal Sinusitis.—C. G. R. Wood and G. F. C. Wallis in reporting this case of optic neuritis of nasal origin state that while optic neuritis is not infrequently observed in sinusitis, choked disc, especially of marked degree, is uncommon. The history of sudden blindness with frontal headache in a previously healthy person and the remittent character of the symptoms are very suggestive of accessory sinus affection.

Immediate Microscopic Diagnosis of Tumors.—E. H. Shaw describes his method of receiving a piece of tumor

at the time of operation, and after freezing, cutting, mounting, and staining it, examining it under the microscope, the whole process taking five minutes or less.

Pneumonia: Mechanical and Surgical Conditions, and Treatment.—W. E. McKechnie states that the shortening of the respiratory amplitude is one of the most striking features of pneumonia, and one deserving careful study. As a consequence of diminished amplitude of the respiratory excursions there is a corresponding diminution of the rate of flow of venous blood to the right auricle, for which an increased frequency of respiration will not entirely compensate. The shallow breathing favors an accumulation of carbon dioxide in the blood in two ways: by diminishing the pumping action of the chest the venous blood stream is slowed so that less blood passes through the lungs in a given time, and by preventing sufficient exit of carbon dioxide from the alveolar air. The venous blood then, as a negative colloid, when it becomes more highly charged with carbon dioxide, becomes more and more viscous and flows less readily, thus aggravating the condition of slow circulation arising from the deficient pumping action of the chest, and establishing a vicious circle. These effects can be noted before any extensive consolidation of the lung has taken place, and when occurring thus early seem to be due to the inhibitory nervous reflex initiated at the site of the visceral lesion in the lung, causing defective respiratory action. As the lung becomes consolidated or edematous it loses its powers of expansion and contraction, and thus the mechanical elasticity of its elastic fibers is rendered more or less inoperative. The chief danger in pneumonia of adults caused by Fraenkel's pneumococcus is that the blood may coagulate and form a white thrombus which attaches itself to the tricuspid valve and gradually grows into and blocks up the pulmonary artery. The management of pneumonia reduces itself to: (1) abstaining from any therapy for which there is no clear *rationale*, (2) putting the patient in the best condition, to live long enough to survive the attack, and (3) watching for complications, which are often important and amenable to surgical treatment. It is pitiful to see a patient drugged with poisonous doses of so-called heart stimulants when the circulation is stopping because a clot is blocking up the pulmonary artery. Owing to the fact that intestinal intoxication favors the accumulation of carbon dioxide in the blood, free purging is called for, and during the remainder of the illness no food of any kind should be given. The more empty the abdomen is the more readily can breathing be carried on. Sleep and rest are the chief factors that reduce the production of carbon dioxide to a minimum. It is here that morphine shows itself a most valuable drug. Besides, it counteracts the inhibitory reflex at work in the respiratory center, which shortens the amplitude of respiration. One must always regard pneumonia as a septicemia and be prepared to discover pus, especially in connection with the great serous cavities of the viscera, the pericardium, the pleura, and the peritoneum.

The Radical Cure of Hemorrhoids: Modified Whitehead's Operation.—J. O'Conor describes his method of modifying Whitehead's operation by omitting the forcible dilatation of the sphincter, enabling him to perform the operation in twenty minutes, with comparative ease and little hemorrhage.

A Visit to Professor Treufel's Clinic: The Use of "606."—J. G. Garson states that from the cases shown at the demonstration the new remedy must be regarded as an important and powerful factor in the treatment of syphilis.

The Wandering Womb and Fumigation.—D. McKenzie describes the strange belief of early folk-lore that the uterus is an animal leading a parasitic life within the body of its hostess, which may move about not only inside, but also outside of the latter. Symptoms of hysteria were attributed to this migration. The use of substances of pungent or unpleasant odor was resorted to in order to drive the uterus back to its usual abode. Thus originated the employment of antispasmodics in the treatment of hysteria.

British Medical Journal.

September 24, 1910.

Use and Abuse of Lime Salts in Health and Disease. Sir James Barr.
A Simple Curative Treatment of Cholera. L. Rogers.
Notes on Cholera. M. M. Basil.

Use and Abuse of Lime Salts in Health and Disease.—Sir J. Barr alludes to the researches of Ringer, who showed that for the continuous contractions of the ventricles the presence of minute quantities of a calcium salt are absolutely essential. Calcium increases the efficiency of the beat, but delays dilatation. Ringer also demonstrated in his investigations into the causation of dropsy that even minute traces of the chloride or other soluble salt of calcium greatly and persistently restricted the swelling of laminaria immersed in water. In the treatment of dropsy the chloride of sodium should be excluded, while the calcium salts are beneficial. The presence of calcium is necessary for the clotting of blood and milk. The setting of gelatin is also due to the same cause. The viscosity of the blood is the chief cause of the resistance to the flow in the capillaries, and the principal cause of this viscosity is the lime salts, especially the fixed lime. The latter or that which is linked on to the molecules of albumen increases the viscosity and coagulability of the blood, while the free calcium ions in association with the pituitary and suprarenal secretions increase the tone and contractions of the arteries and arterioles, heighten the blood pressure, and maintain the force and efficiency of the cardiac contractions. In this latter effect the ions of potassium and sodium play an important part. The suprarenal and probably infundibular (pituitary) secretions lead to the retention of lime salts in the blood and tissues, while the thyroid and ovaries increase calcium metabolism, diminish the free and fixed lime in the blood, and thus lessen the viscosity. The calcium salts have been used with great advantage in the treatment of exophthalmic goiter. In capillary hemorrhages whatever treatment the blood pressure may demand, the viscosity of the blood should be increased by the lime salts. In the treatment of thrombosis decalcifying agents are of great value; the lime salts should be eliminated as far as possible from the diet, hence milk, cheese, milk foods, animal jellies, and hard water should be interdicted. The lime salts are very apt to get deposited in any part of the body which is not properly functionating. In arteriosclerosis the lime salts are always deposited in the form of calcium soaps, and afterwards the fatty acid is replaced by phosphoric and carbonic acids. The best way to prevent and improve these degenerative conditions is to maintain a low systolic and a relatively high diastolic pressure. One can stimulate the secretion of the thyroid gland, which increases calcium metabolism and lowers the blood pressure. In this indirect manner the iodine preparations act. Wonderful results are produced by the free and long-continued use of decalcifying agents. Healthy exercise increases calcium metabolism and lowers blood pressure. In the spasmodic or true type of angina pectoris, in which the patient is pale, cold, and haggard, anxious, and suffering severe pain, with great oppression in the chest, there is an excess of lime in the heart muscle, and also, to a less extent, in the blood. In the second type, or false angina, in which the distress and danger are equally great, and in which there are dilatation of the heart, especially of the right

side, and increased intracardiac pressure, there is no increase of lime salts, but rather a deficiency. In Stokes-Adams' disease, for the maintenance of efficient cardiac contraction free calcium ions are essential, hence all agents which increase calcium metabolism do good, such as thyroid gland and iodine. A combination of calcium iodide, potassium chloride, and tincture of iodine is useful, also phosphoric acid with the glycerophosphates of potassium and calcium. In the acute stage of pneumonia the more scanty and the more sticky the expectoration, the more viscous the blood, the more lime salts and leucocytes it contains, *cæteris paribus*, the more favorable the prognosis. In asthma, in whose attacks there is an excess of free calcium ions in the blood, decalcifying agents should be prescribed and a milk diet rigidly excluded. In gout a decalcifying agent like phosphoric acid is useful. In epilepsy all calcium salts do good, but sodium salts, which increase excitability and conductivity of nerve, do harm. The iodide of calcium is efficient in this disease. In locomotor ataxa lime salts are in excess; the treatment that has produced the best results has been phosphoric acid and strychnine, Fraenkel's exercises, and the avoidance of a milk diet. In migraine, as a rule, the lime salts are in excess, and there is intestinal toxemia. In eczema there is a deficiency of lime. Wounds of all kinds heal best when there is a fair amount of lime in the tissues. In congenital hypertrophic stenosis of the pylorus of infancy the causal agent is the excessive amount of lime in cow's milk, setting up first spasm and then hypertrophy of the pyloric walls.

A Simple Curative Treatment of Cholera.—L. Rogers states that the loss of fluid from the blood averages one-third in the mild cases to two-thirds in the most severe and fatal cases. There is also a great loss of the salts, in proportion to the severity of the case. This change accounts for the comparative failure of injections of normal salines in cholera, and furnishes an additional reason for the use of hypertonic solutions in order to replace the chlorides as well as the fluids lost. The result of this treatment during the past two years has reduced the mortality from 59 to 32 per cent. The hypertonic solution approximates in its composition Ringer's fluid, and is injected intravenously. Daily manometer observations have enabled the danger of uremia to be foreseen (patients whose blood pressure remained continuously below 95 mm. dying of uremia), and by using all means to raise the blood pressure to the necessary height the proportion of deaths from uremia has been reduced to one-half. The destruction of toxins in the bowel has been effected by taking advantage of the oxidizing property of potassium permanganate, administered either in solution or in a pill. The mortality, which had been reduced to nearly one-half by the hypertonic saline injections, has now been reduced by the addition of the permanganate treatment to but little more than one-third of the old rate.

Notes on Cholera.—M. M. Basil describes points in this disease that appeared to him new and suggestive during his experience with severe epidemics in Teheran in 1892 and 1903.

Berliner klinische Wochenschrift.

September 19, 1910.

Wassermann Reaction in Wet-Nurse's Milk.—Thomson of Copenhagen has experimented extensively on the subject of the recognition of syphilitic wet-nurses by the presence of the Wassermann reaction in their milk. It might be thought that repeated blood tests would solve this problem, yet the milk test may also have a field as a corroborative resource. When a pregnant woman is expected to serve as a wet-nurse her milk should be examined just before confinement or during the first two days of suckling. A positive blood result gives the usual assurance that the woman has active syphilis. But if no positive result is obtained in this way it is possible that the woman may still have syphilis; and it is just here that a milk test may prove of value. A positive result with milk makes the diagnosis of syphilis highly probable, if this result is attained by using 0.05 c.cm. serum or less. If a positive reaction cannot be obtained by less than 0.1 c.cm. the assurance is not enhanced thereby. In fact, the degree of strength of reaction obtained by fractional amounts was not much in evidence, for in but 6 of 200 cases could it be shown that reaction depended absolutely on the amount of serum used in material presumably non-syphilitic. A positive result in any case with 0.2 c.cm. leaves no doubt as to the presence of syphilis. Negative results in milk tests undoubtedly have a higher value than in blood tests.

Insufflation Narcosis in Man.—Meltzer's method, so-called, is discussed by Unger of Berlin, as follows: Recently Meltzer of New York published his method of insufflation narcosis, which consists esentially in passing a slender tube below the glottis and therewith blowing into the lungs a mixture of compressed air and ether. The animals tested were thus enabled to absorb oxygen without breathing, even when double pneumothorax was present. The author and another were in the act of testing the method on animals when Elsberg was making the first attempt to use the method on man (published in No. 21 of the *Wochenschrift* of this year). The present authors have since tested the method on two human subjects. The results were not all that were expected, but there seems reason to believe that in severe cases of thoracic surgery in which the play of the lung is interfered with there is no mean future for this new resource. In the first case a patient was to be operated upon for a large sarcoma seated in the throat and descending into the thorax. The intervention for its removal was severe, necessitating the opening of the pleura. The patient was first etherized, and as soon as he slept the new method was tested. A flexible stomach sound was passed into the bronchial tube in the head-downward position and an ether flask attached to it. The oxygen was forced into the tube by the oxygen bomb. It is immaterial whether the oxygen passes through the ether or a special tube under a pressure of 12-15 mm. Hg. The operation itself and its immediate consequences were successful, but as the growth was a metastasis from the testicle the ultimate survival is naturally dubious. The results in the second case, however, were somewhat of an offset to those of the first. This case was also one of a tumor of the throat, threatening strangulation; but the mass was tuberculous in character. It was difficult to introduce the tube into the trachea, but the anesthesia afterwards ran smoothly enough. After the operation the patient went through a series of problematic experiences, no less difficult to portray than to explain. The chief symptom was a general subcutaneous edema, which subsided of itself and left the patient eventually in a state of recovery.

Coxa Vara Congenita.—Drehmann describes this condition in abbreviated monographic form; that is, he states apparently all that is to be said of it in two pages, gives ordinary diagrammatic sketches and radiograms, and appends the literature. Naturally, such an article is difficult to condense. The condition, known only for the past five years, is one of the numerous affections which sprang into existence as a result of radiography—that is, without the latter resource it would hardly have been recognized We can only say of it that it is a purely congenital trouble, the nature of which may vary. Naturally, it is not recognized as a rule until some months after birth. The author regards it as essentially a defective development of the femur—the mildest expression of the same,

which in higher degrees may express itself in various clinical forms.

Black Tongue in Nurslings.—Cohn refers to the incidence of this affection in nurslings. The total recorded material of this affection, for all subjects, was collected not long ago by Blegvad, whose article is well known to specialists. The condition is rare in early infancy, and Blegvad, with other case-collectors, mentions but few. In fact, the affection is one usually declared to attack the elderly. Cohn seeks to analyze all cases reported in childhood, without apparently discovering much consensus of data in such material. The author's personal case, while typical, occurred in an infant a little over a year old. About all that can be said of it is that some of the milk teeth became black and carious and broke off.

Münchener medizinische Wochenschrift.

September 20, 1910.

Pachymeningitis Interna Infectiosa Acuta and Meningismus.—Schottmuller discusses the relationship of this actual finding to the meningeal syndrome. The latter is, of course, called into play from various causes. It is a common accompaniment of delirium, coma, mania, sepsis, etc. Contractural or paretic symptoms may coexist, and may radiate over the musculature at large. Common symptoms of meningismus are stiffness of the neck and Kernig's sign. To differentiate between such a palpable condition as acute pachymeningitis and simple meningism may require some positive finding like the results of lumbar puncture. The author's diagnosis in his cited material was confirmed only by autopsy, but something may be inferred from the results of lumbar puncture before death. A most typical syndrome of meningism may be set up by infectious pachymeningitis; and the author seems inclined to associate the two in the clinic. That is, in so-called meningism there may be a slight proliferation of dura cells, resembling mononuclear leucocytes. With this is associated the formation of a false membrane, which stands in some definite relation with streptococci or other germs. In many cases this streptococcic pachymeningitis may be shown to be secondary to a primary focus, such as the endometrium. Lumbar puncture may not expose the actual pathogenic germ in a given case; in fact, the entire pathogenesis of these cases remains obscure.

Surgery of the Bileducts.—Hans Kehr gives a very brief résumé of his twenty years' experience in this field, during which he has operated on over 1,600 cases. It must be recalled that Kehr is only a country surgeon, so that 80 cases per annum of this kind of surgical work constitutes a record in more ways than one. His work is divided as follows: Of 307 conservative procedures of all kinds, including cystotomies and cysticotomies, he lost 2.2 per cent. from operative mortality. Of 384 attempts to extirpate the gall bladder he lost between 3 and 4 per cent., and in 389 choledochotomies and hepaticotomies, his death rate was about the same. Very different were the figures when the gall bladder was removed in connection with disease of the adjoining structures (stomach, intestine, pancreas, and liver itself). But while the mortality in benign affections, so-called, of the nearby organs did not rise much above 14 per cent., the death rate of operations for malignancy in actual or neighboring parts rose to 82 per cent. Thus, in other words, 1,600 miscellaneous operations on the gall-ducts had a total mortality of 16.5 per cent., while if all malignant cases were left out of count this mortality would be about 5.4 per cent. In his endeavor to show that his line of work is necessarily progressive, Kehr states that in his last 72 cases of uncomplicated surgery of the bileducts, etc., but one death took place. His operations are now done under rigid indications.

Dangers of Forcible Dilatation of the Sphincter Ani.—Melchior writes briefly on this subject, reaching the conclusion that forcible stretching of the sphincter in connection with fissure of the anus or otherwise is by no means a procedure devoid of ill results. Permanent incontinence of feces is the chief of the latter. Such a result may, however, be discounted by avoidance of excessive force and by dilation during deep narcosis.

Ascarides Intoxication.—It has been known for many years that round worms are in some manner able to poison individuals even by external contact, but the nature of this poisoning is a mystery. The parasites are known to contain an aromatic, pepper-like substance which may be extracted by alcohol. The author, Goldschmidt, was himself a sufferer from ascaridiasis of outward origin for nine years, and has had a number of cases under treatment. He finds that some people are immune to this affection, and that the extract of the worms does not always cause symptoms. On the other hand, there is such supersensitiveness in others that even handling the parasites causes ascaridiasis. The latter term has no necessary connection with parasitism; it does not appear that the author ever suffered from round worms as an intestinal parasite. But not a few zoologists have developed the affection from studies pursued on the worms. A peculiar conjunctivitis and lachrymation is one of the chief symptoms. The wives of two experimenters were always able to tell when their husbands had been at work on ascarides. In certain cases, including the author's, sneezing was the principal symptom. Cough, asthma, and a whole train of symptoms of irritability of the upper air passages were quite constant. Nausea and vomiting have also been noted. The entire range of symptoms points to exposure to a pungent, irritating substance. Of great clinical importance is the relation between external ascaris poisoning and that which is due to intestinal parasitism. In the latter affection the intestinal mucosa and nervous system appear to suffer chiefly. In extreme cases of round-worm parasitism the toxic principle may possess the power to kill without causing structural lesions.

Report of the Finding of the Bacillus of Hansen in the Menstrual Blood of a Leprous Woman.—A. Serra says that the bacillus of leprosy causes alterations in the genital organs both of males and females. In Sardinia he found the germ of leprosy in the genitals of 16 lepers examined, and menstrual disorders in 7 out of 20 females. He made a systematic examination of the menstrual blood and found negative results in several cases. But in one woman with a mixed leprosy and a marked pemphygoid eruption he found the bacillus of Hansen in the blood globules of the menstrual flow taken directly from the uterus.—*La Riforma Medica.*

Mental Troubles in Chorea.—André Pelissier believes chorea to be a toxi-infectious condition which acts on the brain as well as the motor system. When we see it following measles, scarlet fever, typhoid, and other infectious diseases it is difficult to avoid this conclusion. The author gives us an illustrative case in which the young patient having a syphilitic heredity, with tuberculosis and psychoses in her ancestry, was attacked by chorea. This later changed to mental confusion, followed by catatonia, and again the choreic movements occurred. The form of these mental states after chorea is protean. Hallucinations, confusional states, catatonia, and melancholy are all seen. In the case of this patient there was an hereditary predisposition to disease, and the acute infective process was easily engrafted on the unstable mental condition. Catatonia is a syndrome that follows epilepsy, hysterical convulsions, chorea, manic-depressive insanity, and dementia præcox. Chorea, mental confusion, catatonia, and chorea repeated were all manifestations of a single infectious cause.—*Le Progrès Médical.*

Book Reviews.

Manual of Tropical Medicine. By Aldo Castellani, M.D. (Florence); Privat-Docent (Naples); Director of the Clinic for Tropical Diseases, Ceylon; Physician, Seamen's Ward, General Hospital, Colombo; Professor of Tropical Medicine and Lecturer on Dermatology, Ceylon Medical College; Member of the Royal Society's Commission on Sleeping Sickness in Uganda, 1902-1903. And Albert J. Chalmers, M.D. (Vict. and Liv.); F.R.C.S. (Eng.); D.P.H. (Cam.); Registrar and Lecturer on Pathology and Animal Parasitology, Ceylon Medical College; Pathologist, the General Hospital, Colombo; Holt Fellow, University College, Liverpool, 1890; Medical Officer, Gold Coast Colony, 1897-1901. New York: William Wood & Company, 1910.

This is the most recent addition to the rapidly growing literature of tropical medicine. It is based on what the authors found it necessary to acquire and to use during their work in the tropics. In order to keep the book as small as possible, all reference to practical laboratory methods is omitted, as the practitioner working in the tropics is supposed to possess works which contain such details. In spite of this, the book is of a goodly size, and is unusually complete. The first part has chapters on the history of tropical medicine, tropical climatology, effect of tropical climate on man, and incidence of disease in the tropics. The second part is on the causation of disease in the tropics, and treats of the physical, the chemical, and the biological causes of disease; the last of these takes up by far the largest space, as it is by far the most important. The whole of this part is extremely well done, and the sections on the protozoa will form a useful adjunct to any modern work on practice. The third part is entitled "The Diseases of the Tropics," and consists of three sections, dealing respectively with fevers, general diseases, and systemic diseases. The authors have devoted particular attention to the descriptions of treatment, going into details which their experience in the tropics has shown them to be necessary. The book is the most complete that has yet appeared on tropical diseases; it is appropriately dedicated to Sir Patrick Manson, "The founder of scientific tropical medicine"; and the work is eminently satisfactory, whether viewed as a scientific study or as a practical guide for the physician in the tropics.

The Evolution of Man. A Popular Scientific Study. By Ernst Haeckel. Vol. 1. Embryology or Ontogeny. Vol. 2. The Evolution of the Species or Phylogeny. Translated from the Fifth (enlarged) Edition by Joseph McCabe. New York: G. P. Putnam's Sons, 1910.

The English-speaking scientist is to be congratulated at having now within his reach the latest edition of this classical work on embryology and evolution. One need not go the whole way with the author to welcome his work, and, indeed, the work itself is less radical than the comments on it, by friends and foes alike, would lead one who knows not Haeckel to suppose. The present edition is conveniently divided into two volumes; the first on the development of the individual, the second on that of the race; the first volume being prefaced with an historical account of the development of the science of embryology, in which, of course, Haeckel, as is his wont, continually recurs to his doctrine of the law of recapitulation, that ontogeny is a recapitulation of phylogeny, or in other words, that in the various stages of development of the embryo one may study the progress of evolution from the single cell to man. The illustrations are striking, not only in their number, but in their excellence, and they serve to render more easy of comprehension a most abstruse, albeit fascinating subject which remains difficult despite the beautifully clear description of the author and the idiomatic English of the translator.

The Diseases of Infancy and Childhood. Designed for the Use of Students and Practitioners of Medicine. By Henry Koplik, M.D., Attending Physician to the Mount Sinai Hospital; Consulting Physician to the Hospital for Deformities, formerly Attending Physician to the Good Samaritan Dispensary, the St. John's Guild Hospitals, New York; ex-President of the American Pediatric Society; Member of the Association of American Physicians, and of the New York Academy of Medicine. Third Edition, Revised and Enlarged. Illustrated with 204 Engravings and 30 Plates in color and monochrome. Lea & Febiger: New York and Philadelphia, 1910.

The third edition of this favorite work on pediatrics shows the marks of a conscientious and judicious reviewer. Among the subjects more or less extensively reviewed are infant feeding, the central palsies, infantile paralysis, tetanus, pyelitis, and gastric disorders. Among the subjects treated of for the first time are dwarfism and idiocy in general; the latter condition is treated of in at least three different places, and not very fully anywhere. This section, or these parts of sections, might serve as a text to some Roosevelt of medical literature to declaim against the practice of making a show at completeness by adding to the number of titles without putting anything of value under the titles. Apart from this superficial glance at infantile psychiatry, the book is everything that could be desired by the student of pediatrics, for the descriptions are most satisfying in their completeness without tiring by their length, and they are clear. The illustrations are also to be commended.

Diseases of the Eye. A Handbook of Ophthalmic Practice for Students and Practitioners. By G. E. de Schweinitz, A. M., M. D., Professor of Ophthalmology in the University of Pennsylvania and Ophthalmic Surgeon to the University Hospital; Consulting Ophthalmic Surgeon to the Philadelphia Polyclinic; Ophthalmic Surgeon to the Philadelphia Hospital; Ophthalmologist to the Orthopedic Hospital and Infirmary for Nervous Diseases. With 351 illustrations and 7 chromolithographic plates. Sixth edition. Thoroughly revised. Philadelphia and London: W. B. Saunders Company, 1910.

The first edition of this standard work appeared eighteen years ago, and the fact of its continued existence and growth affords ample proof of its accuracy and the practical value of its teachings. For the present edition parts of several important chapters have been rewritten, and a number of subjects have been introduced and are treated of here for the first time. Among the latter are the use of the astigmatic lens, obstetric injuries of the cornea, posterior scleritis, cyanosis of the retina, atoxyl amblyopia, ocular complication of accessory sinus disease, intermittent exophthalmos, Herbert's operation, Smith's cataract operation, Lagrange's operation, and a number of others. There are not many general works on the eye that are more satisfactory, taken all in all, than this tried and proved treatise of de Schweinitz.

Lehrbuch der Ohrenheilkunde. Von Dr. Victor Urbantschitsch, O.O. Professor der Ohrenheilkunde an der Wiener Universität und Vorstand der K.K. Universitätsklinik für Ohrenkranke. Fünfte, vollständig neuarbeitete Auflage. Mit 156 Abbildungen im Texte. Berlin, Wien: Urban & Schwarzenberg, 1910.

It would appear superfluous to allude to the merits of this work, the eminence of whose author has for a long time placed it among the standard books in its field. This edition represents a complete revision and enlargement of the last edition. The references to the literature are particularly voluminous, the text covers fully every phase of otology, including the education of deaf-mutes, the forensic aspects of diseases of the ear, their relation to life-insurance, and to service in the army, and the index is complete. The work includes all the recent contributions to this important specialty.

Genesis. A Manual of for the Instruction of Children in Matters Sexual. For the use of Parents, Teachers Physicians and Ministers. By B. S. Talmey, M.D., Former Pathologist to the Mothers' and Babies' Hospital, and Gynecologist to the Yorkville Hospital, New York. With nineteen cuts, forty-seven drawings in the text. New York: The Practitioners' Publishing Co.

This is the most recent volume on sexual matters. It consists of two parts: the first, containing nine chapters, is devoted to the task of proving the necessity of instructing the young in sex matters. "It is naturally more or less of a repetition of what all the other authors have said on the subject." The second part is headed "Special Lessons"; the first, is for infancy and early childhood; the second, for children from 4 to 7 years of age; the third, for children from 7 to 10; the fourth, for children from 10 to 13; the fifth, for children from 13 to 16; and the sixth, for children from 16 to 18 years of age. Thus the children are all provided for. As a sample of the first part, or General Lessons, we quote from the chapter on Moral Confusion:—"The girl who blushes the most readily and hangs her head in shame at the slightest indiscreet word usually offers the least resistance when one gets her behind the door." In the lesson for infancy we find:—"Just as the eyes are sensitive and the sight easily damaged, so the organs of sex are sensitive and if not let alone, great harm may result. For that reason they must only be touched with a pair of tongs." Even infants, if they can understand anything at all about the matter, might wonder why either their eyes or their organs of sex are to be touched with a pair of tongs.

Society Reports

THE AMERICAN DERMATOLOGICAL ASSOCIATION.

Thirty-fourth Annual Meeting, Held at the Arlington Hotel, Washington, D. C., May 3, 4, and 5, 1910.

THE PRESIDENT, DR. WILLIAM ALLEN PUSEY OF CHICAGO, IN THE CHAIR.

President's Address—The Therapeutic Use of Refrigeration, Particularly with Solid Carbon Dioxide.—Dr. PUSEY stated that the principle underlying the therapeutic use of solid carbon dioxide, as of liquid air, was the production of a relatively deep, sharply defined inflammatory reaction in living tissue by sudden intense freezing. The advantage of the method was that the reaction could be regulated so that one could accurately produce all degrees of effect upon tissues, from an evanescent inflammatory reaction to a reaction so intense that it resulted in complete destruction of the involved tissues. The therapeutic indications for the use of refrigeration were found in the following conditions: First, those in which the production of a stimulating reaction was beneficial. Here only conditions covering relatively small areas would come into consideration because of the impracticability of using the applications over very large surfaces. Second, those in which it was desired to destroy certain tissues in the skin by the production of an interstitial sclerosis. Third, those in which it was desired to produce immediate destruction of masses of diseased tissue in the skin.

Dr. Pusey said that as a stimulant of chronic inflammatory lesions, solid carbon dioxide offered prospects of some usefulness in circumscribed limited patches of chronic eczema, lichen planus and similar inflammatory dermatoses. Lupus erythematosus was one of the diseases in which liquid air had been used with great benefit before the introduction of solid carbon dioxide, and most of those who had used solid carbon dioxide in this affection were strongly impressed with the value of the method. In the early work of White and others with liquid air, efforts were made to treat boils and carbuncles and other infections, and solid carbon dioxide had been suggested in chancroids, condylomata, lupus vulgaris, and other infectious lesions of the skin. There seemed to be nothing of value above other well-known agents to be expected from the use of carbon dioxide in acute infections of the skin, like chancroids and condylomata, and the speaker said he did not believe it was an addition of any importance in such diseases. Zeisler, Sutton, and Jackson and Hubbard had reported good results from short, superficial freezing in chloasma. Good results had also been reported in the removal of tattoo marks and powder stains; others had found the method a failure. Improvement or removal of keloids or hypertrophic scars had been reported by Hoffman, Schaleck, and others. Sutton in a personal communication reported excellent results in a case of xanthoma planum The method had also been recommended for the removal of warts. Nearly all of the workers who had used carbon dioxide in nevus reported favorably upon it in comparison with all other methods of treating these lesions, and the method furnished an almost painless and a convenient means of removing moles.

Extramammary Paget's Disease, with Report of a Case Occurring on the Forearm, Associated with a Nevo-Carcinoma.—Dr. M. B. HARTZELL of Philadelphia read this paper, which he illustrated with microphotographs and which included the report of a case with its clinical and histological features. He compared this with other cases which resembled it more or less and discussed the relationship of the dermatitis to Paget's disease and carcinoma. He said it seemed to him that the cases which he had ventured to call extramammary Paget's disease afforded special opportunity for determining the real nature of this extremely interesting malady—for deciding whether the disease was one *sui generis*, as maintained by Unna and others, or whether it was carcinoma from the beginning, as was asserted by a number of recent writers. The careful study of these cases ought also to enable us to determine whether the cutaneous disease was a primary one, followed only after a considerable interval by carcinoma, as had long been believed, or whether, as Jacobaeus, Hirschel, and others asserted, the skin symptoms were only a secondary manifestation of a deeper lying carcinoma which had already existed for some time. The correct decision of this question was of the utmost practical importance, for upon it depended the plan of treatment to be adopted. If the former view was the correct one, then there was a reasonable prospect that early and prolonged treatment by the *x*-ray or by radium might effect a radical cure; but if the latter, then every day's delay in thoroughly removing by surgical measures the entire disease was valuable time lost and impaired by so much the patient's chances of recovery.

Dr. SAMUEL SHERWELL of Brooklyn said he was present when Paget first demonstrated this disease at the International Congress of Dermatology in London, in 1881, and the following year he himself had a case which was typical in character and which he reported to the New York Dermatological Society. The speaker said he had always looked upon these lesions as carcinomatous from the beginning.

Dr. A. RAVOGLI of Cincinnati said he was decidedly of the opinion of Dr. Sherwell that these lesions were carcinomatous from the beginning and that the initial onset was a pre-cancerous condition.

Dr. J. A. FORDYCE of New York showed a photograph of a case of Paget's disease of the nipple with secondary lymphangitis and areas of ulceration close to the original patch. The latter was probably the result of the breaking down of the cancerous lymphangitis. He believed that cases of extramammary Paget's disease, at least those which clinically resembled Paget's disease of the nipple, were more common than was usually supposed.

Dr. J. NEVINS HYDE of Chicago said that many surgeons held the view that in every case of Paget's disease of the nipple the mammary gland was already involved, and they looked askance at any method of treatment short of complete ablation of the breast. If the cases so well collated by Dr. Hartzell showed that we might have a primary dermatitis of a carcinomatous character, developing later into Paget's disease, we certainly were in possession of a fact of value from a therapeutic point of view.

Syringocystoma.—Dr. OLIVER S. ORMSBY of Chicago read this paper, in which he recorded the findings revealed in the study of a case in which the clinical diagnosis of syringocystoma was made. He said that in the mass of literature on this subject there appeared to be pretty distinct groups of cases which presented a sufficient number of common details, both clinical and pathological, to explain why all had been classed together by most writers. In group one, to which the cases of multiple benign epitheliomata belonged, the disease appeared to be hereditary. The lesions began early in life, and often several members of one family were affected. Here the lesions predominated on the face and head and were variously described as nodules of different sizes, whitish, yellowish-red, translucent, etc., in some instances going on to softening and to evolution—true epitheliomata. Brooke, Fordyce, Hartzell, and others had traced the origin of these epithelial growths to the rete and the sheaths of the

hair follicles. To identify the second group, various terms had been used, according to the conception of the writer as to the point of origin of the affection. Among these terms were eruptive hydradenoma, adenoid epithelioma of the sweat glands, syringocystoma, lymphangioma, etc. In the majority of these cases the lesions occurred most often on the trunk. Heredity played no part in this affection. The lesions varied in color, size, and shape, but they were nodules and perhaps much softer in consistency than those described in the first group. In the latter the sweat glands, ducts, the lymph and blood vessels had been thought to be the points of origin of the growths. Dr. Ormsby then gave in detail the history of a case in which the clinical diagnosis of syringocystoma was based upon a due consideration of all the points, both clinical and histological. Clinically it was more extensive than other recorded cases, and spontaneous disappearance of lesions occurred which had not been recorded previously. It was entirely unlike any case of multiple benign cystic epithelioma. Histologically the sections showed the most marked pathological process at all times in the region of the sweat ducts. Some sections apparently demonstrated the fact that the cells were the proliferation product of the cells of these ducts. A connection between the hair follicle or the epidermis and the cell masses could not be demonstrated. Whether the sweat glands themselves added to the growth was not proven, although it seemed probable. Finally, from the fact that the lesions developed over so great an area, practically symmetrical, and showed such marked effects on the involvement of the sweat apparatus, the problem of local irritation from some error of metabolism or otherwise must be ruled out, but so far that work in this respect had been neglected.

Dr. S. Pollitzer of New York referred to the case reported by Török under the name of syringocystadenoma and that reported by Kaposi under the name of lymphangioma tuberosum multiplex, which contrasted enormously with the case described in Dr. Ormsby's paper, or with the case of Perry, which was published under the name of adenoma of the sweat glands. The speaker said he could not convince himself that all these cases belonged to the same category.

Dr. M. B. Hartzell of Philadelphia said there was no longer any doubt that a large proportion of these cases, which had been reported under various names, were examples of epithelial neoplasms having their origin in the basal layer of the epidermis or the columnar cells of the hair follicles.

Dr. Martin F. Engman of St. Louis said that the question of cell growth was a subject that had received comparatively little attention in connection with diseases of the skin, but in other fields of science and medicine many significant facts had been brought forward.

Dr. Ormsby then closed the discussion.

Further Observations on the Technique of an Efficient Procedure for the Removal and Cure of Superficial Malignant Growths.—By Dr. Samuel Sherwell of Brooklyn. His method of dealing with superficial malignant growths consisted, first, in curettage, which should be thorough, deep, and efficient. Immediately following this there should be an equally thorough application of an escharotic, preferably, in the writer's opinion, a 60 per cent. solution of the acid nitrate of mercury, which should be allowed to remain, with various reapplications at the time of operation, for varying lengths of time, according to the delicacy or density of the tissues involved. About from five to twenty minutes would be about the limits. The final step in the operation was the, at least, superficial neutralization of the caustic agent by some alkaline medium, and of these sodium bicarbonate seemed to be the best. A few grains of this, powdered on and pressed into the wound, immediately formed a plain scab or crust which should be allowed to remain *in situ*, untouched and dry, until it fell or rather was pushed off by and with the process of healthy repair beneath, leaving a healthy scar, and usually a relatively insignificant or not very noticeable one. Dr. Sherwell said his experience with this method, which had never changed, had been coincident and identical, or almost so, with that of his dermatological life and practice, a period of nearly forty years. During that time he had operated on many hundreds of these cases of malignant growths in this manner. Recurrences or relapses had been comparatively few; he could not give the exact figures, but it was probably less than 10 per cent., and usually a second operation would diminish even that. The author claimed for his special technique rapidity of results, decided freedom from recurrences, relative absence of cosmetic deformity, and, when the procedure was thoroughly carried out, little or no pain, either during or after the operation, and no necessity for repeated dressings when the indications were properly cared for. In connection with his paper, Dr. Sherwell exhibited a number of photographs showing the lesions before and after treatment.

Dr. J. A. Fordyce of New York said he could personally testify to the efficiency of the acid nitrate of mercury, as advised by Dr. Sherwell, in the treatment of superficial epitheliomata. The speaker said he had used it in a number of cases with excellent results.

Dr. Henry W. Stelwagon of Philadelphia said that for the past four or five years he had preferably treated superficial epitheliomata by thorough curettage, followed by the application of some caustic, and among the latter he thought the acid nitrate of mercury solution was one of the best, as the wound, if small, required no subsequent dressing; a crust was formed under which healing went on, leaving a practically healthy scar at the end of three or four weeks.

Dr. Edward B. Bronson of New York said it was especially in cases where the orbit was involved that the most remarkable results had been obtained by Dr. Sherwell.

Dr. Sherwell, in closing, said he had resorted to this method for thirty-five years and his faith in the remedy had become stronger as time went on. Curiously enough, the most unfavorable cases, in his experience, had been those in which the lesion was situated about the center of the cheek; whether that was due to the peculiar circulation of these parts, or to the adhesions of the skin to the deeper tissues, he did not know; in fact, it was difficult to frame a reason.

Cancer in Tar Workers.—Dr. Jay Frank Schamberg of Philadelphia in this paper stated that cancer of the skin exhibiting special characteristics had been encountered in chimney-sweeps and in tar and paraffin workers. He reported in detail a case of multiple cancer of the skin in a tar worker who developed several scores of epitheliomatous lesions in various stages of development upon the hands and forearms, and a large epithelioma upon the scrotum. That something resident in coal tar, crude paraffin, and soot was capable, after the lapse of years, of stimulating the growth of epithelial cells and of leading to cancer in certain subjects seemed indisputable. Ludwig and others had suspected carbolic acid which he likewise found in tobacco residue, but there did not seem to be much support for such an assumption. Inasmuch as radium had proven to be capable of stimulating epithelial proliferation and cancer could be produced by the *x*-rays, the thought occurred to Dr. Schamberg to determine whether coal tar emitted any rays. To test this he placed a copper cent, a flat key, and a small brass numeral upon a photographic plate in a pasteboard negative box lined with black paper. Upon the under surface of the lid he attached a piece of cardboard smeared with coal tar so that the tar faced downward. This box

was inclosed in a black japanned tin cash box and the latter was shut in a dark closet for twenty-four hours. When the plate was developed a distinct shadowgraph of the three objects was seen upon the negative. This work was done so recently that there had not been time to carry out further investigations. If coal tar was proven to be radioactive it would seem that this radioactivity might be responsible for the cancer in tar workers. Volkmann and other writers long ago noted that uncleanliness, *i. e.* negligence in removing tar or paraffin from the skin, was a factor in the production of the cancer. Tar might be lodged in the orifices of the skin or in the furrows of the scrotum and exert for years an influence upon the adjacent epithelial cells. Furthermore, only certain kinds of coal seemed to be provocation of the cutaneous changes. In Germany the so-called brown or cannel coal from which paraffin was made was responsible. Chimney-sweep cancer appeared to result almost exclusively from the burning of "pit coal" used for fuel in England. It was possible that certain coal might contain radioactive substances and that in other coal such substances might be absent.

Dr. Samuel Sherwell of Brooklyn said that while he had long ago accepted the theory that more or less continuous irritation was an important etiological factor in the production of cancer, it was rather remarkable that the cancer so often occurred in parts that were not exposed to any such irritation. Cancer of the nose, for example, almost always occurred above or below the point where the eye-glasses were fixed.

Dr. Martin F. Engman of St. Louis said the question of cancer in relation to radioactivity was particularly interesting to dermatologists on account of the fact that cancer occurred on the exposed portions of the body more frequently than elsewhere.

Dr. A. Ravogli of Cincinnati said he had seen cases where acnelike pustules were produced from the application of tar, and it was possible, he thought, that the epitheliomata described by Dr. Schamberg might develop on the basis of acne pustules observed in tar eruptions.

Dr. William A. Pusey of Chicago said that even if it were positively demonstrated that tar had a moderate degree of radioactivity, he would not be inclined to attach much importance to it in this connection. Radioactivity was simply one form of irritation that stimulated the processes that culminated in epithelioma. In estimating the factors that contributed to the production of epithelioma there was no reason to attach more importance to radioactivity than to other forms of irritation.

Dr. Schamberg then closed the discussion.

Nodular Tuberculosis of the Hypoderm.—By Dr Grover W. Wende of Buffalo. This was the clinical report of a case in which deep-seated nodules constituted the only type of lesion. They were limited to the face and disappeared without apparent alteration of the skin, but produced upon disappearance anchylosis of the temporomaxillary articulation and deafness of the right ear. The duration of the eruption was six years. By microscopic study, tuberculin tests, and guinea-pig inoculations the case was proven to be one of nodular tuberculosis of the hypoderm. It was a form of tuberculosis of the skin which showed no analogy with the generally recognized forms of cutaneous tuberculosis due to the invasion of the integument by the tubercle bacilli, like that of lupus vulgaris, tuberculosis verrucosa, tuberculosis disseminata, and tuberculosis ulcerosa.

Dr. Howard Fox of New York mentioned a similar case that he had shown at a recent meeting of the New York Dermatological Society in which a probable diagnosis of Darier's type of sarcoid was made.

Dr. A. Ravogli of Cincinnati said he would not be surprised to learn that the case reported by Dr. Wende began in the form of an erythema induratum from the skin, or from a tubercular ulcer from the mucous membrane of the mouth, from which the tubercular process found its way to the joint.

Dr. J. A. Fordyce of New York said the case so well reported by Dr. Wende was an illustration of the value of careful clinical observation combined with histological investigation. With the aid of the latter we were broadening our clinical ideas in regard to tuberculosis of the skin.

Dr. William T. Corlett of Cleveland said that observation taught us that many clinical forms of superficial tuberculosis of the skin existed.

Dr. Wende in closing said he believed that in the case he had reported the disease primarily occurred locally in the skin. The case illustrated the importance of biopsy for microscopical examination, as there was no suspicion of the real condition before it was made.

Report of a Case of Sporotrichosis in Man.—Dr. James Nevins Hyde and Dr. D. J. Davis of Chicago presented a paper on sporotrichosis occurring in a patient who lived in North Dakota and who had been in contact with horses that were supposed to have suffered from glanders. It was discovered that these horses were probably the victims of mycotic lymphangitis (pseudofarcy), and the authors reported that the Bureau of Animal Industry in Washington recognized the identity between the organism obtained from animals in North Dakota similarly affected and those presenting similar symptoms two years ago which had been studied in Butler, Pa. Further, the Pennsylvania organism had been recognized as identical with the Chicago organism by Drs. Frothingham and Page of Harvard University, and, finally, the two authors recognized the identity between the organism obtained from the human patient in North Dakota and specimens of the Butler organism sent to Chicago. The paper concluded with a demonstration of the essential differences between the sporotrichum Schenckii and the saccharomyces farciminosus of Tokishige.

Mycosis Fungoides, with Report of a Case.—By Dr. Lucius C. Pardee and Dr. Robert F. Zeit of Chicago. In summing up the various features presented in this report, the authors said there could scarcely be any doubt that the case was clinically one of mycosis fungoides. All the classical features of this disease, as described by numerous observers, were present. The premycotic or prefungoid stage was marked and extended over a known period of at least two years. The lesions at that time were typical of the well-known erythematous form and were accompanied by the usual intense pruritus. These were followed in the course of time by the formation of fungoid tumor masses on various portions of the body which microscopically had the aspect ordinarily described as that of small round-celled sarcomata and which underwent the usual course of development, with occasional retrogressions. The blood findings were those of progressive anemia until toward the end of life, when the characteristics of a lymphatic leukemia were rapidly added and dissolution followed. The autopsy developed the findings of lymphatic leukemia plus the gross aspect of mycosis fungoides.

Dr. William T. Corlett of Cleveland mentioned a similar case that was at present under his observation.

Dr. Samuel Sherwell of Brooklyn said he had observed in a number of cases of sarcomatosis and mycosis fungoides that arsenic exerted a markedly beneficial influence on the disease, although other men, apparently, had not been so fortunate.

Dr. J. A. Fordyce of New York said that from most of the text-books it was difficult to get any conception of where mycosis fungoides belonged, whether to the infectious granuloma or to the sarcomatous or leukemic

group of skin diseases. The paper of Drs. Pardee and Zeit showed that it belonged to the latter.

Dr. WILLIAM S. GOTTHEIL of New York said that in a case of mycosis fungoides seen at the Lebanon Hospital the autopsy showed all the organs studded with nodules, which were apparently purely sarcomatous.

Dr. LOUIS A. DUHRING of Philadelphia said the case under discussion illustrated the possible relation of skin lesions to general medicine. The lymphatic manifestations, which were often absent in the typical commoner cases of mycosis fungoides, were very prominent in this case, which rendered it of much interest to the general practitioner and pathologist as well as to the dermatologist. As to the value of arsenic in this affection, the speaker's experience was similar to that of Dr. Sherwell. Under the caption of mycosis fungoides we had several forms of disease which could not well be classified under the same head and which showed that so-called mycosis fungoides was not in all cases precisely the same disease pathologically.

Fibroma Molluscum, or Universal Neurofibromatosis.—Dr. A. RAVOGLI of Cincinnati detailed a case of this kind which was reported on account of its relative rarety. The affection seemed to be a congenital one. The mollusca ranged in size from that of a pinhead to a hazel nut and were scattered over the entire body. The lesions showed no relation to the lines of the skin, nor to the underlying nervous ramifications. The tumors had their origin in a deep subcutaneous nodule. After reaching their full development they underwent degeneration, gradually disappearing and leaving a pigmented spot. It was apparently a disease of the nervous system involving the terminal filaments of the cutaneous nerves.

Dr. WILLIAM S. GOTTHEIL of New York said that while neurofibromatosis was a well-sounding name, the question was whether it was appropriate. In the cases that he had seen and examined in the small tumors they found something which they could not demonstrate as anything but pure fibroma, without any connection with the nerve sheaths. In the larger growths there was myxedematous degeneration. In none of his cases did they find any distinct connection with the sheaths of the nerves and there were no nerve fibers in the tumors.

Dr. LOUIS A. DUHRING of Philadelphia said that in this disease, as in mycosis fungoides, we had several varieties and aberrant types. In the so-called Recklinghausen's disease the pigmentation was marked, and it was in this degree of pigmentation that they chiefly differed from the other types so familiar to observers. The majority of these cases might be classed under the head of simple fibroma molluscum and thus differentiated from neurofibromatosis. In the average case of the former there were no subjective symptoms and in the course of the disease there might in time be retrogressions or other changes.

Dr. RAVOGLI in closing said that most of the writers on this subject did not make much distinction between fibroma molluscum and neurofibromatosis. In his own case the lesions had their origin from a deep, subcutaneous nodule, developing into peculiar growths which were composed of connective tissue fibers, and for that reason he called them fibromata. He had made careful and repeated search for the nerve fibers without finding them.

Exposure to the Sun as an Etiological Factor in Alopecia.—Dr. GEORGE F. HARDING of Boston said that his deductions from the observation of 312 cases of alopecia in young people between the ages of twelve and twenty years would indicate that exposure to the sun was harmful rather than beneficial to the hair and scalp. These patients were seen in private practice during the past four years, and all of them had been for a year or more going in the open without head covering. The exposure in the majority of the cases occurred in the summer. Over 200 spent their summers at the seashore and in these the symptoms were the most pronounced. A large proportion (293) were blondes; this might have been merely a coincidence. On the other hand, it might be accounted for under the old theory that persons and animals with dark hair and skin were less sensitive to the sun's rays than blondes. The fact that light hair was, as a rule, much finer and delicate than dark might also be taken into consideration. The symptoms in these cases were quite constant, but varied in degree with the amount of exposure which had been undergone and somewhat with the individual. The hair was dry, lusterless, and faded; there was an evident lack of sebaceous secretion, with itching. The alopecia, as a rule, showed itself in those cases of but one season's exposure about a month or six weeks after the return to the city and responded quite readily to treatment. In those who had had several seasons of exposure without intervening treatment the fall had been continuous and baldness was often marked. Those cases did not respond well to treatment and the prognosis was decidedly unfavorable for a good growth of hair.

Dr. H. W. STELWAGON of Philadelphia said he thought that moderate exposure both to the sun and air were really of great advantage to the scalp and hair. Slight exposures to the *x*-rays would occasionally start a regrowth of hair. There was no doubt that the nervous system was a factor in the loss of hair.

Dr. ANDREW P. BIDDLE of Detroit said that for many years one of his confrères had proven to his own satisfaction that loss of hair was due to a poison produced by improper breathing.

Vaccine Therapy as Applied to Cutaneous Diseases.—Dr. T. CASPAR GILCHRIST of Baltimore opened the discussion with a paper on this subject in which he confined himself to the results of his own experience with the use of vaccines in the treatment of cutaneous diseases at the Johns Hopkins Dispensary and in private practice during the last three and one-half years. Over 300 cases had been treated. As far as vaccine therapy was concerned in the treatment of cutaneous affections, Dr. Gilchrist said his experience might be summarized as follows: He had found it to be a distinctly valuable adjunct to our therapeutics. The staphylococcus albus vaccine was of undoubted value in the treatment of all pustular affections of the skin, but especially, in his experience, in the treatment of relapsing furunculosis, staphylococcic dermatitis, sycosis-non-parasitica, in certain forms of eczema, in pustular rosacea, and in acne when the disease was largely secondarily infected with the staphylococcus albus. He had also found the vaccines to be of value in the treatment of erythema multiforme, especially of the relapsing bullous type, and in rosacea where the flushings were decreased by the vaccine therapy. It was also helpful in dermatitis herpetiformis and pityriasis rosea, so much so that he would recommend vaccine therapy to be tried when the disease did not yield to the usual method of treatment. *Bacillus acne* vaccine he had found to be of great value, especially in the treatment of those chronic nodular relapsing types of acne vulgaris, and it had proved to be in his hands in a great many cases a curative agent.

Bacteriotherapy in Certain Diseases of the Skin.—Dr. MARTIN F. ENGMAN of St. Louis discussed this phase of the subject and presented the following conclusions: 1. The dose of all forms of vaccines should be at first small. Doses of bacterial suspensions were, of course, approximate. 2. Small continuous doses were best. 3. Increasing the dose was frequently risky. 4. Stock suspensions they had found very reliable and could be used in most instances. 5. Autogenous vaccines were indicated when stock suspensions failed. 6. Clinical indications

alone had guided them in their latest and best results. 7. The opsonic index had proved to be unreliable and impracticable and was not necessary. 8. The failure to obtain results in vaccine therapy might be due to faulty technique. 9. Vaccine therapy would fail in a certain percentage of cases. 10. Vaccine therapy was indicated in diseases of the skin due to a specific microorganism. 11. In vaccine therapy we had at last a reliable beneficial agent in combating the deeper and more virulent staphylococcic infections of the skin.

Vaccine Therapy in the Treatment of Diseases of the Skin at the Massachusetts General Hospital.—By Drs. Harvey P. Towle and George P. Lingenfelter of Boston. The authors stated that before any new method in medicine or surgery could attain an assured position it must have passed successfully through an evolutionary period of longer or shorter duration. But a small percentage survived the ordeal and almost none could pass through unchanged, and this, it seemed, would be the case with the theory of vaccine therapy. It would undoubtedly survive, but it had already undergone very considerable modifications. The great mass of data resulting from the indiscriminate experiments during the first stage of enthusiasm was now sifted and it began to be realized that the method had decided limitations and was by no means suitable for every case. This was the first step toward a fuller understanding. The cases to be treated by vaccines were now selected with greater care and the authors felt justified in assuming that while vaccine therapy was undoubtedly a step in the right direction, the results obtained, considered as a whole and from all points of view, were not sufficiently superior to recommend the complete abandonment of the older well-tried methods. The results seemed to show rather that we should avail ourselves of this new therapeutic agent as a powerful adjuvant to other methods rather than as a specific. It might be that in the future our knowledge of the exact meaning of the vaccine action would be sufficiently enlarged to enable us to advance still further along the line in vaccine therapy.

Dr. James Nevins Hyde of Chicago said that in connection with their work with the vaccines he could at least say that so far as he knew no harm had been done in any instance, which was something. The results they had obtained were in some instances brilliant, especially with the autogenous vaccines; at other times they were disappointing. In severe cases of sycosis their results had been very good indeed; in sycosis vulgaris, which tended toward the lupoid type, we had at times to deal with a very obstinate disease, and in those cases he knew of no remedial measure that had produced better results than the autogenous vaccines.

Dr. L. Duncan Bulkley of New York said that while he could not deny the favorable reports that he had heard and the few that he had seen following this comparatively new method of treatment, he still held that there was a more important underlying factor than the mere skin manifestation, and that when the skin was in proper condition these various microorganisms would not be able to make any headway. Only temporary benefit could be expected as the result of this vaccine treatment, and in all recurrent lesions we must look for the disturbance in metabolism which lay at the bottom of the trouble.

Dr. Samuel Sherwell of Brooklyn said he would follow with the keenest attention the future history and development of vaccine therapy and he would be pleased to see dermatology progress in this as in other directions.

Dr. J. A. Fordyce of New York said he was a believer in the future of vaccine and serum therapy, and he thought that the failures that had been reported were traceable to an imperfect knowledge of the technique. The collaboration of the clinician and the laboratory worker would doubtless result in improvements in this method of treatment. In sycosis, the speaker said, autogenous and stock vaccines had been used with indifferent results, and local treatment with epilation was usually employed in conjunction. In chronic furunculosis the vaccines had given him good results.

Dr. M. B. Hartzell of Philadelphia said the evidence which was obtained by injecting these various bacillary mixtures in diseases like erythema multiforme and pityriasis rosea, which would have gotten well without any treatment, was of no value. To prove the worth of these remedies they must not be used in cases that were self-limited. The speaker said he did not wish to be understood as denying the possible value of the vaccine treatment; he believed that the principle underlying the method had a great deal in it, but we still had much to learn as to the technique, and so far as his own observation and experience went the results thus far had been extremely unsatisfactory.

Dr. James M. Winfield of Brooklyn said he had used the vaccine treatment in general furunculosis with marked improvement in every instance. He had had no results whatever from the treatment in sycosis, and since listening to Dr. Engman's paper he had come to the conclusion that the cause of the failure lay in the technique. In the future he would follow the plan of pulling out the hair, thus irritating the nodule and causing a flow of lymph, and see if the results were not better.

Dr. Gilchrist in closing said his paper simply gave the results of a large amount of experimental work in connection with vaccine therapy. The treatment was tried in skin eruptions of which the cause was known; it was tried in cases in which we thought we knew the cause, and, lastly, it was tried in cases in which we were entirely ignorant of the cause. In the treatment of all these conditions two definite objects were sought: First, to raise the resisting power of the individual by regulating the bodily functions by diet, fresh air, etc., and, second, to find a specific treatment for the disease. Both of these phases of treatment were equally valuable.

Dr. Engman in closing said that in discussing such subjects as this we must remember that we were dealing with the great laws of immunity, of which, at the present date, there was much to be learned. When Wright brought forth his opsonic theory he made a great discovery, and out of that had come the vaccine theory which opened many unexplained fields. The only way we could arrive at any conclusions regarding it was to experiment with vaccines and bacterial suspensions in a large number of cases. Theoretically the treatment should only be used in the cases from which the vaccines were grown. We should not employ too large doses and we should endeavor to perfect our technique.

Pellagra in Ohio.—By Dr. William T. Corlett and Dr. Oscar T. Schultz of Cleveland. The authors stated that following the awakening that pellagra existed in this country many pseudo cases were brought to the attention of experts in cutaneous medicine. The paper then gave a brief history of one of these cases seen in Ohio where the patient was supposed to have contracted the disease from "corn smut." In the opinion of one of the writers this case was nothing more than an obstinate form of eczema. An investigation of supposed epidemics of some unknown disease of the skin in two of the State hospitals for the insane in Ohio revealed nothing unusual. All doubt as to the presence of pellagra in this country was removed, however, on visiting the hospital for the insane at Peoria, Ill. The authors then gave in detail the history of the first case of this disease recognized in Ohio, with photographs of the skin lesions, post-mortem findings, and histology. It was thought, in conclusion, that the disease, while not wholly confined to certain regions

of this country, yet its limitation was fairly well defined and that from the testimony of those who had seen most of the affection in this country it was not entirely new.

Dr. James W. Babcock, superintendent of the State Hospital for the Insane at Columbia, S. C., and president of the National Pellagra Congress, said he understood that there was considerable skepticism in regard to the existence of pellagra in this country, and it was only those who had served in public institutions, particularly in the Southern States, and who had been face to face with this condition for years, who could comprehend the importance of having more light shed on this mysterious malady. A year ago a conservative estimate of the number of pellagrins in the United States placed the number at 1,500; recently the figures had been gone over, and it now appeared that the disease had been recognized in twenty-seven or twenty-eight States. Cases had been reported in two hospitals in Illinois and subsequently in a third, and it had been shown beyond the shadow of a doubt that the disease existed in some of the western States, including California, so that we now had come to the conclusion that it had a very widespread distribution. Dr. Babcock said that from personal investigation and inuiry he was satisfied that pellagra had existed in South Carolina for nineteen years at least, and there were traditions of cases that went back as far as 1870. In reply to a question as to the mortality of the disease the speaker said that in one insane asylum for white people in the South where they had observed the disease since 1896 they had twenty-seven cases, with eighteen deaths. The mortality, according to different observers in the South, varied anywhere from 40 to 70 per cent.

Dr. James Nevins Hyde of Chicago showed an original copy of a volume entitled "Historia Natural y Medica," by Dr. Gaspar Casal, which was published in Madrid in 1762, and which, so far as was known, was the first contribution to the subject of pellagra. Dr. Samuel Sherwell of Brooklyn was properly credited with having made the first contribution on this subject to the American Dermatological Association. This was in 1882.

Dr. Howard Fox of New York referred to his work in experimental serum therapy in pellagra and regretted that he was not yet prepared to present a paper on that subject.

Dr. S. Sherwell of Brooklyn said the case referred to by Dr. Hyde was published in the *Journal for Cutaneous and Venereal Diseases,* in February, 1883. The patient was an Italian sailor, with both subjective and objective symptoms, forming together a classical picture of the disease. Two years later a similar case presented itself at his clinic, almost or quite identical to the first. Both cases ended fatally.

Dr. H. W. Stelwagon of Philadelphia said that several European observers who had studied this disease had made the observation that pellagra had occurred in persons who had never eaten corn. Among this number was Kaposi, and, he believed, Besnier also.

Dr. Sherwell thought that the fungus or parasite to which pellagra had been attributed might occur in all cereals analogous to corn, such as rye, etc.

Dr. M. B. Hartzell of Philadelphia reported a case of apparently typical pellagra occurring in a subject who had never been outside the State of Pennsylvania, and who, so far as could be ascertained, had never eaten Indian corn.

Dr. Louis A. Duhring of Philadelphia believed that the causative factor of pellagra was distinctly internal, and probably of a toxic nature.

Dr. William A. Pusey of Chicago, speaking of the exclusion of corn from the diet, said that when it came to the statement that a patient in this country had never eaten Indian corn, the reliability of such a statement could be seriously questioned. The statement was analogous to the contention of Jonathan Hutchinson in regard to the relation between leprosy and eating fish; Hutchinson was always prepared to prove that any one had eaten fish. Dr. Pusey said that while we had made an important advance in recognizing the presence of pellagra in this country, he was inclined to believe that the diagnosis was now being overworked. Pellagra was not a condition in which we could make as satisfactory a diagnosis as we could in tuberculosis or syphilis; the diagnosis rested on a triad of symptoms—psychical, gastrointestinal, and cutaneous. It was essentially a picture of autointoxication, such as we met with in gastrointestinal disturbances, and he believed that many of the cases of so-called pellagra might well be questioned as to the accuracy of the diagnosis.

Prurigo, and the Papule with the Urticarial Basis.—By Dr. O. H. Holder of New York. This paper embraced an anatomical study of the pale papule of prurigo.

Some Problems in Metabolism Occurring in Patients with Certain Diseases of the Skin.—Dr. L. Duncan Bulkley of New York said that faulty metabolism was recognized as a cause of many diseases; it might affect all the body tissues, and it was natural to expect that the skin participated. While definite and specific statements could not yet be made as to the exact and particular metabolic derangements belonging to various diseases of the skin, there were abundant clinical evidences that the cellular derangements which constituted the bottom fact in skin lesions had an intimate connection with and dependence upon metabolic errors. The urine, coming directly from the arterial blood, furnished a most suitable indication of the condition of the blood as it had been prepared through metabolism; consequently, repeated, careful volumetric analyses of its constituents furnished the most certain method of determining the performances of anabolism and catabolism in the tissues.

Dr. Louis A. Duhring of Philadelphia said that this subject of metabolism in relation to diseases of the skin had interested him for many years, and he had long since ceased to study and treat diseases of the skin—as he did years ago—from the standpoint of the lesions alone. If we wished to permanently cure many of the skin lesions, we must study the patient and conditions within the body. He had long been dissatisfied with the usual local treatment in a large number of chronic inflammatory diseases of the skin.

Dr. King Smith of Toronto said that Dr. Sims Wood of London, England, in an address before the students of the Toronto University, had laid great stress upon the close relationship between the men who worked in the laboratory and the clinicians.

Dr. M. B. Hartzell of Philadelphia asked Dr. Bulkley if he controlled the results he obtained by comparing them with the urinary findings in those who had no skin eruptions? The speaker said he was convinced that such a comparison would show just as wide variations in one as in the other.

Dr. S. Pollitzer of New York said that while quantitative analyses of the urine might be very useful, they did not constitute studies in metabolism. In fact, they were utterly worthless for that purpose unless at the same time the diet of the patient was controlled and the intake and output compared.

Dr. Bulkley, in closing, reiterated his belief that faulty metabolism was an important factor in connection with diseases of the skin.

Secondary Eczema.—Dr. John A. Fordyce of New York, in his paper on this subject, stated that in observing a large number of cases of dermatitis in hospital and dispensary practice, he had been struck with the frequency

with which forms of skin infection which were usually diagnosed as eczema had been secondary to some antecedent lesion or disease of the skin, such as scabies, wounds, or traumatisms which had become infected, abscesses, furuncles, intertrigos, sinuses left after operations on bones, etc.; in other words, the percentage of eczemas in which some antecedent pathological condition could not be determined seemed to be in the minority. From an extensive experience with cases of eczematoid dermatitis in which a history of antecedent pus infection was obtained, the conviction had come to him that irritation of the skin produced by discharges from abscesses, sinuses, ulcers, and other pus secreting surfaces was the true basis of these phenomena. This irritation might be followed by eruptions of most diverse forms, such as a dry scaling dermatitis or large moist areas, or a combination of dry scaling lesions and moist and crusted ones. Sometimes the picture was that of an acute vesicular eczema, and could not be distinguished from the usual forms of eczema which had been attributed to some internal disturbance. In all or most of these forms the affection was distinctly autoinoculable, and in many a condition of chronic eczema or dermatitis persisted for months or years. There might or might not be relapses; in many cases recovery was permanent. On the other hand, with a lowered resistance to pus infection, recurrences took place as furuncles and abscesses, with a subsequent eczema. One of the most prominent features in many patients with eczema was the increased susceptibility which their skin presented either from the beginning or which developed as the process progressed. It was this heightened susceptibility which led to relapses, as was often seen in workers in chemical laboratories in whom the vapor of formaldehyde provoked forms of dermatitis of the nature of eczema. The same condition was seen in individuals who had once developed dermatitis from poison ivy or other local irritant: after one attack many of these people were increasingly susceptible to the specific irritant, and it was quite possible in these cases to attribute the frequent recurrences to a state of anaphylaxis. Individuals who showed such an increased susceptibility to irritants might perhaps be sensitized to the chemical products of pus organisms, just as patients with tuberculosis might be sensitized to tuberculin. Assuming, therefore, that we might have a state of hypersusceptibility to irritants which might be present either from birth or acquired from some change in the biological properties of the blood serum due to various affections, we could readily understand how irritants of the most varied kind might evoke a dermatitis. These serological changes might also explain the simultaneous or successive occurrence of skin and mucous membrane affections in patients who had become sensitized with an irritant, in the one case acting on the neurovascular apparatus of the skin and in the other on the mucosa.

Dr. Martin F. Engman of St. Louis said that Dr. Fordyce, in his paper, had opened up a field which showed the way to a great deal of valuable work.

Dr. M. B. Hartzell said he was quite convinced that in a certain number of cases there was a local sensitizing of the skin. We found certain eruptions in certain localities again and again in certain individuals who at first showed no such sensitiveness to such irritating agents.

A Fatal Case of Bullous Dermatitis.—Dr. S. Pollitzer reported this case, which he summarized as follows: The patient was a middle-aged man, of good habits, in good health, except for a chronic diffuse nephritis which apparently gave no trouble. He was attacked with a dermatitis that had the character of a fine, scaling pruritic erythrodermia, and that rapidly spread over the entire integument. Its development was in some places preceded or accompanied by a severe edema, which subsequently subsided, but a moderate edema of the entire surface persisted for two weeks. Ten days after the appearance of the scaling red areas crops of large bullæ appeared in various parts of the body, but mainly on the extremities and the buttocks. The development of fresh blisters, in general smaller than at first, continued in greater or less number throughout the course of the illness, and the skin became diffusely pigmented. Temperatures following a septic curve up to about 104° developed, the patient became delirious and fell into a typhoidal state which terminated after a fortnight in coma and death, the whole course of the illness lasting about forty days. The blood showed at first an extraordinary eosinophilia, which later assumed moderate proportions. Blood cultures, cultures from the blister serum and inoculations from the latter were negative, as was also the examination of the illuminated dark field. The post-mortem examination threw no light on the case. As to the diagnosis of this remarkable case, it might be said that we were certainly not dealing with a pemphigus, as modern usage limited that term to a disease which was primarily bullous. The acute form of pemphigus, which alone could come under consideration in this connection, might be excluded by the absence of any infected wound, and, above all, by the preliminary diffuse scaling.

Dr. J. A. Fordyce of New York spoke of a case similar to the one reported by Dr. Pollitzer, excepting that there was no history of any antecedent eruption. The case also ended fatally. The etiological factor in these cases, the speaker said, was still unknown. It was perhaps some obscure proteid or a chemical product.

Dr. Duhring said it seemed to him that whatever the cutaneous lesion might be at the outset, the condition often or generally developed into what might properly be termed pemphigus, and he could see no objection to classifying it as a case of pemphigus malignus.

Dr. James Nevins Hyde of Chicago said the case reported by Dr. Pollitzer was a commentary upon our occasional impotence and lack of knowledge. Here we had an interesting and fatal case reported under a title which referred to a condition of the skin merely, and yet the symptoms showed that we were obviously confronted with some toxic process which profoundly influenced the entire economy and of which the skin lesions were simply the superficial evidence of the deeper trouble.

Dr. Pollitzer, in closing, said that in pemphigus malignus or acutus, to which Dr. Duhring had referred, there was usually a history of preceding injury, followed either immediately or in the course of a few days by an acute septic condition, with the formation of bullous lesions on the skin. There was no history or evidence of such a condition in this case.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held May 26, 1910.

Dr. S. M. Brickner in the Chair.

A Case of Complete Absence of the Vagina and Uterus in an Otherwise Normal Woman.—Dr. Meyer Frankel presented a patient, twenty-five years old, who had been married two years. She had a sister who had not menstruated although she was now sixteen years of age. The patient had always enjoyed perfect health, but had never menstruated. When nineteen years old she consulted a physician because of the fact that she had never been unwell. An operation was performed and she was told that she might marry. Her chief complaint was severe pain on intercourse. An examination revealed a complete absence of vagina and uterus. The clitoris was present and the woman had a desire for intercourse. During her two years of married life, the husband had at-

tempted intercourse and, during his orgasm, the semen was injected into the bladder; this caused the sphincter of this organ to become overdistended, and lowered its tonicity to such an extent that the patient could not retain her urine. After keeping the husband apart from her for six months, the tonicity of the sphincter was regained and she could now retain her water. Dr. Frankel asked if there had been reported any cases of artificial vagina made by intestinal transplantation, such as had been reported by Dr. J. F. Baldwin of Columbus, Ohio. No member present was familiar with any such instances.

Chorioepithelioma.—Dr. Louis J. Ladinski presented this specimen. The patient was a woman, forty-six years old, married twenty-eight years. She had had ten children, the last seven years ago. She had never aborted. Menstruation had begun at the age of fifteen years; it had been regular, lasting for from seven to ten days. About a year ago her abdomen began to increase in size and she had irregular spotting and bleeding. She had been curetted, after which the bleeding stopped and did not recur until about three months ago. She began at that time to have pains in the right iliac region, marked weakness, anemia, and slight cough. At the time of admission to the hospital she also had slight edema of the lower extremities. There were subcrepitant râles over the right apex of the lungs posteriorly. The uterus was enlarged to about the side of a two months gravid uterus. The anterior and lateral walls were normal in consistency, but there was a boggy mass in the left lateral wall about the size of a hen's egg. The cervix was eroded and lacerated. A diagnosis of uterine myoma was made. At operation a soft tumor was found at the left of the uterus, intimately adherent to the left side of that organ and extending to the broad ligament subperitoneally. The ovary laid posteriorly and the Fallopian tube was stretched across its upper and anterior surface. A supravaginal hysterectomy was performed. On the second day following the operation she expectorated a large amount of bloody sputum in which was found a large number of Lenhard cells. There was an infiltration of both lower lobes, not miliary in character. The mediastinum was involved as well. The pathologist reported this to be a case of chorioepithelioma, and the curettings showed the presence of a chronic endometritis.

Carcinoma of the Ovary.—Dr. Louis J. Ladinski presented this specimen, a solid carcinoma of the ovary.

Complete Absence of Vagina; Pregnancy; Rupture of Uterus.—Dr. Louis J. Ladinski presented this patient who was twenty-three years old. This was a case in which there was a complete absence of the vagina. The cervix extended down to the introitus vaginam. The dilated os serves for the entrance of the vagina, and the cervical canal for a substitute vagina.

Carcinoma of the Cervix on the Border Line of Operability.—Dr. Herman J. Boldt presented this specimen. The patient was sixty-five years old, and had had three children, the last twenty-eight years ago. The broad ligaments were involved slightly beyond their attachments to the cervix. A radical operation was performed. While Dr. Boldt had operated upon a number of patients with cancer on the border line of operability and, as a rule, with recovery from operation, yet he did not believe this to be good surgery to attempt the radical operation; the patient's interest was better served if a palliative operation was performed. This was almost devoid of danger, and the lives of such patients were usually prolonged from one to three years.

Cancer of the Cervix; Extirpation by the Abdominal Route.—Dr. Herman J. Boldt presented this specimen. The patient was forty-two years old. The statement was made that the broad ligament infiltration was inflammatory and was not caused by the malignant disease. It had frequently been stated that such a differentiation could not be made. In this case, however, he thought it was fair to assume that there was a probability of its being the result of inflammation. He called attention to the necessity of invariably making a positive diagnosis in all suspicious cases. Dr. Boldt also furnished the following specimens:

Myofibromata Complicated with Carcinoma of the Corpus Uteri.—Because of its being a corporal carcinoma, and because of the unusual obesity of the woman, a vaginal hysterectomy was performed.

Complicated Hystero-Salpingectomies.—Dr. Boldt believed there was no class of abdominal operation that was more difficult to do, from a technical point of view, than these old pyosalpinx cases. As a rule, however, there was no class of patients that one might get a more satisfactory symptomatic cure than in such conditions. The prognosis was very good, and this he ascribed to the tolerance of the peritoneum in such cases.

Myofibroma Removed by Extensive Myomectomy.—The patient was thirty-two years old. The tumor encroached so extensively on the uterus that the larger part of the anterior uterine wall had to be removed with the tumor. It would be interesting to watch this patient in the event of a subsequent pregnancy. It was likely that in the case of conception, an abortion or a premature delivery would take place.

Myomatous Uterus with Adnexa Removed by the Abdominal Route.—The sole object in presenting this specimen, Dr. Boldt said, was to object to the removal of the ovaries from a patient thirty-five years old; a functionating ovary should always be retained whenever feasible. In this instance an exception was made to his customary rule of retaining the ovaries in fibromyomatous tumors because of the constant pain complained of in the region of the ovaries.

Submucous Myofibroma and Tubal Pregnancy.—This patient was forty-one years old, married nineteen years, and she had had three children, the last nine years ago. The feature of interest in this case was the diagnosis; this should have been easy if one had thought of the two conditions as occurring together instead of attributing the symptoms to the myoma alone.

Report of a Case of Hysterectomy and Extirpation of Thrombosed Veins in Sepsis Following Abortion.—Dr. Gustav Seligman presented this specimen. The patient was admitted to the hospital April 14 in a septic condition which followed an incomplete abortion. On April 23 he found a distinct doughy mass corresponding to the right broad ligament and he made a diagnosis of thrombosis of the uterine plexus of that side. His diagnosis was confirmed by operation, the thrombosis extending to and beyond the internal iliac vein and into the common iliac. The infected province was extirpated.

Eclampsia and Its Treatment with Continuous Sugar Instillations.—Dr. Sidney D. Jacobson said that the path of medical progress was literally strewn with disproved theories and abandoned dogmas; the scientific facts of yesterday were the exploded theories of to-day. The etiology of eclampsia had not as yet been determined. Dr. Jacobson was convinced, however, that the cause of puerperal eclampsia in a pregnant woman, or one recently delivered, was nephritis. Furthermore, that the cause of eclampsia was insufficiency of the kidneys due to a nephritis, whereby an accumulation of the salts normally found in the blood occurred. This retention in the blood of these salts raised the molecular concentration and specific gravity of the blood, until convulsions occurred. The all important thing was to reduce the high concentration and specific gravity of the blood whether convulsions had occurred or not. For this purpose the usual salt solution was contraindicated because the patient was dying from too much salt in her blood. Dr. Jacobson found

that a solution of sugar, 0.5 of 1 per cent. at 115° F. per rectum, continuously, by the drop (Murphy) method had the desired effect. The specific gravity of the patient's blood was reduced perhaps from 1,060 to 1,052; she perspired freely; her urine increased greatly in quantity; the sensorium, if clouded, became clear and she started on her way to recovery. The convulsions ceased. Of several cases treated by this method, all the mothers and babies recovered. Besides giving the sugar instillations, other adjuvants to treatment were not neglected. He believed that the keynote of success in the treatment of puerperal eclampsia was to dilute the patient's blood, reduce its excessive molecular concentration and high specific gravity, by washing the retained salts out of the system and, therefore, continuous rectal administration of hot sugar water was the most important curative method of treatment.

The Surgical Treatment of Vaginal Delivery.—Dr. Edward P. Davis of Philadelphia read this paper. He called attention to the fact that when antisepsis and asepsis were adopted obstetric surgery was the last branch to develop under these new conditions. Success in abdominal surgery had led to the revival of cesarean section and antisepsis had made symphyseotomy possible with better results than had previously been attained. Vaginal cesarean section had been added to the list of operations and suprasymphyseal section was now under consideration. The success of these operations depended not only upon antisepsis and asepsis but upon the application of surgical principles to the management of parturition. The two foes which the surgeon dreaded were hemorrhage and septic infection and no operation was complete which did not leave the patient's tissues as thoroughly repaired as her vital condition would permit. In the various forms of cesarean section upon uninfected patients the operator usually closed all wounds and usually obtained primary union. Upon infected patients the Porro operation and the suprasymphyseal uterine fistula carried out the surgical principle of drainage. Vaginal delivery by forceps, version and extraction or craniotomy had not been carried out under surgical principles as had the major operations. The main object of his paper, Dr. Davis said, was to record some of his experiences in the surgical treatment of vaginal delivery and to elicit discussion on this point. It was obvious that they were not discussing normal labor. Nature's mechanism against hemorrhage and infection in normal labor, was so perfect that nothing but a positive indication should lead to interference. A hemorrhage often followed uterine relaxation, and this was caused by exhaustion; the patient should not be allowed to become exhausted. A correct diagnosis of the comparative size of mother and child and the mechanism of labor present would prevent the fatal delay in impossible labor. In the patients who became exhausted early in the second stage of labor, dilatation of the cervix and vagina by bags was successful in many cases, while in some it caused suffering, converted a favorable to an unfavorable mechanism and predisposed to exhaustion. Manual dilatation under ether preceding delivery was often more efficient and less distressing and exhausting to the patient. The necessity for the immediate removal of the placenta might not always be present and the patient might be allowed to come partly from the influence of ether, when, under tonic doses of strychnine and ergot given hypodermically, the uterus would contract sufficiently to detach the placenta. Should partial separation of the placenta occur with hemorrhage, the placenta should be immediately separated and delivered by the gloved hand. Dr. Davis said that, in his experience, it was safer, under antiseptic precautions, to take measures to prevent relaxation of the uterus than to omit these precautions and some time later to treat postpartum hemorrhage. Where relaxation might reasonably be expected, and hemorrhage feared, the emptying of the uterus should be followed by irrigation with salt solution, or with one per cent. lysol, and thorough tamponing of the cavity with 10 per cent. iodoform gauze. Where more than one assistant was present the two lips of the cervix might be grasped separately by tenaculum forceps, drawn down to the vulva and the packing done under direct vision. Or, the left hand of the operator might be introduced within the vagina at the cervix, the fundus being brought downward and forward by the hand of the anesthetizer placed upon the abdomen. The gauze was then introduced with dressing forceps. He called attention to the danger of tamponing the lower section of the uterus only. Hemorrhage from the body of the womb was usually promptly controlled by this method. In cases of extreme exhaustion the gauze might be wrung out of adrenalin, 1:100 and then introduced. The risk of septic infection or of perforation of the uterus was less with this method than that of treating postpartum hemorrhage an indefinite time after labor by hot douching, the introduction of vinegar, and the attempt to tampon the uterus when the patient was not under an anesthetic. For some time they had made it a rule to immediately suture, when the vital condition of the patient permitted it, lacerations of the cervix extending nearly or to the vaginal junction. They had done this in several hundred cases and a few years ago they had obtained 80 per cent. of complete primary union of the cervix after immediate suture, 10 per cent. of partial union and 10 per cent. of failures. In none of these cases did infection occur. The preliminary uterine packing with gauze was employed in these cases whenever laceration was extensive. They did not attempt a complete restoration to the condition of the unimpregnated cervix, nor did they believe that such restoration was of practical value to the woman liable to repeated parturition. The cervix should be closed to within half an inch, or in favorable cases a quarter of an inch of the external os. In cases of severe laceration through the cervix and into the fascia of the posterior segment of the pelvic floor, the closure of the upper extremity of such laceration was of special importance. The stitches might embrace some of the tissue forming the sacral ligaments, and by restoring the parts, tended to draw the cervix backward and thus prevent retroversion. Tears in the sulci and fascia of the levator ani muscle were of primary importance and next came the sphincter and its surrounding fascia. When these had received attention the perineum might be closed in such a way as to carry the posterior vaginal wall upward and backward, thus preventing rectocele and prolapse. Lacerations of the anterior segment should not be neglected. Difficult vaginal deliveries should, if possible, be conducted in hospitals. Primiparous patients should, as a rule, be confined in hospitals.

The number of women who sought hospital care was constantly increasing and no general hospital with facilities for surgical work should hesitate to receive confinement cases. In private houses the operator must transport sufficient appliances to establish and maintain antisepsis and aseptic technique. The anesthetizer was considered a most important assistant and in addition to the nurse who had charge of the patient there should be one who gave her time to preparation of dressings and supplies and the care of instruments, etc. This nurse was provided with sterile gloves and a sterile gown. While the external parts were prepared with soap, sterile water and bichloride, they limited vaginal douching to a single irrigation with lysol, one per cent. After delivery the uterus and vagina were thoroughly but gently irrigated with one per cent. lysol and in addition to the uterine tamponing the vagina was moderately tamponed with bichloride gauze. The gauze was removed forty-eight hours after delivery, and the genital tract irrigated with one per cent.

lysol. No other douches were given during the puerperal period. Dilute bichloride solution or lysol was poured over the stitches as often as necessary. To maintain a tonic condition of the uterine muscle, strychnia and ergot were given through the first week or ten days of the puerperal period. In private patients he had had two failures in closure of the pelvic floor, in both of these the stitches in the sphincter and its fascia were torn out during the first week, because the patient strained during movement of the bowels. Other than these there had been no complications in these cases. Dr. Davis urged that in all cases of vaginal delivery in which lacerations occurred and in which hemorrhage and sepsis threatened be treated upon surgical principles.

Dr. Edwin B. Cragin believed that what was recommended by Dr. Davis was the work of an expert and not of the general practitioner. While the immediate repair of a lacerated cervix might be the proper thing to do in hospitals where they had proper facilities, it was not a good procedure for the general practitioner. He taught his student that, unless there was hemorrhage present, it was wiser not to attempt an immediate repair of a lacterated cervix; the woman's condition was made far safer if the practitioner kept his hands away from the vagina.

Dr. Robert L. Dickinson did not believe that the general practitioner should tampon the uterus with impunity. Except in cases of hemorrhage the lacerated cervix should not be immediately repaired. The best time to repair a lacerated cervix was four, five or eight days after labor when the anatomy of the parts could be made out more readily. A uterine tampon should not be left in longer than eight or twelve hours.

Dr. J. Clifton Edgar did not believe that students should be taught that it was necessary to repair a lacerated cervix immediately. Gauze should never be left in the uterus longer than twenty-four hours.

Dr. Herman J. Boldt said it was a great omission on the part of any physician to allow a woman whom he had confined to go without a subsequent examination to determine whether she had a laceration and, if so, how extensive it was. A lacerated cervix should be repaired one or two weeks after labor.

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Mentally Deficient Children. By G. E. Shuttleworth, B.A., M.D., etc., and W. A. Potts, B.A., M.D., etc. 12mo; cloth; 236 pages; $2.00 net. P. Blakiston's Son & Co., Philadelphia, Pa.

Vaccine Therapy and Opsonic Treatment. By R. W. Allen, M.D., B.S. (Lond.) 8vo; cloth; 277 pages; $2.00 net. P. Blakiston's Son & Co., Philadelphia, Pa.

Hay Fever and Paroxysmal Sneezing. By Eugene S. Yonge, M.D. (Edin.). 8vo; cloth; 150 pages; illustrated. Wm. Green & Son, Edinburgh.

Gedanken zu einer Universalpathologie. Von Dr. med. vet. et phil Friedrich Freytag. 12mo; paper; 34 pages. O. Häring, Berlin, Germany.

Differential-diagnostische Tabellen der inneren Krankheiten. Von J. Cemach. 8vo; paper; M. 3. J. F. Lehmanns, München, Germany.

Annual Report of the Medical Officer of Health and of the General Medical Superintendent of the City Hospitals, City and County of Bristol. 8vo; paper; 210 pages; illustrated.

Physical Examination and Diagnostic Anatomy. By Chas. B. Slade, M.D. 12mo; cloth; 146 pages; illustrated; $1.25 net. W. B. Saunders Company, Philadelphia, Pa.

Dawn of the Fourth Era in Surgery. By Robert T. Morris, M.D. 12mo; cloth; 145 pages; $1.25 net. W. B. Saunders Company, Philadelphia, Pa.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of October 8, 1910.

	Cases	Deaths
Tuberculosis Pulmonalis	511	155
Diphtheria	202	20
Measles	53	3
Scarlet Fever	77	4
Smallpox	—	—
Varicella	35	—
Typhoid Fever	143	17
Whooping Cough	33	5
Cerebrospinal Meningitis	4	7
Malarial Fever	—	—
Totals	1,058	211

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, during the week ended October 7, 1910.

CHOLERA.

PLACE.	DATE.	CASES.	DEATHS.
Arabia: Matrah	Sept. 29	..	Present
Austria-Hungary: Gonoyo	Sept. 3-6	1	1
Mohacs	Aug. 25-26	1	1
Nagybajcs	Sept.	1	1
Pozsony	Aug. 24-30	1	*1
*From the steamer Rogensburg.			
Vienna	Sept. 4-10	3	1
Vorosmarton	Aug. 19-30	1	1
India: Bombay	Aug. 24-30	..	2
Calcutta	Aug. 7-13	..	13
Madras	Aug. 20-26	..	16
Rangoon	Aug. 14-20	..	1
Italy: Apulia, department—			
Province of Bari—			
Andria	Sept. 4-10	4	..
Barletta	Sept. 4-10	34	16
Canosa	Sept. 4-10	3	..
Molfetta	Sept. 4-10	9	6
Trani	Sept. 4-10	2	4
Province of Foggia—			
Cerignola	Sept. 4-10	6	5
Margherita di Savoia	Sept. 4-10	5	9
Ortanova	Sept. 4-10	3	2
San Ferdinando	Sept. 4-10	4	3
Trinitapoli	Sept. 4-10	22	14
Sardinia	Oct. 3	4	1
Java: Batavia	Aug. 14-20	16	7
Korea: Chinampo	Aug. 26-27	2	†1
†From steam ship Suma Maru.			
Manchuria: Dalny	Aug. 21-27	2	1
Russia, general	Aug. 21-27	12,510	6,376
City of St. Petersburg	Aug. 21-27	435	178
City of Cronstadt	Aug. 21-27	31	27
The following are governments:			
St. Petersburg	Aug. 21-27	68	37
Vologda	Aug. 21-27	42	23
Pskov	Aug. 21-27	1	..
Novgorod	Aug. 21-27	38	17
Minsk	Aug. 21-27	63	31
Mohiev	Aug. 21-27	22	8
Vitebsk	Aug. 21-27	20	2
Smolensk	Aug. 21-27	10	5
Podolia	Aug. 21-27	89	46
Volyma	Aug. 21-27	1	1
Kief	Aug. 21-27	846	335
Tchernigа	Aug. 21-27	93	34
Poltava	Aug. 21-27	163	69
Kharkov	Aug. 21-27	50	23
Orel	Aug. 21-27	44	19
Koursk	Aug. 21-27	284	147

YELLOW FEVER

Brazil: Manaos	Aug. 21-27	2	2
Para	Sept. 4-10	8	4
Mexico: Campeche	Oct. 1	3	..
Venezuela: Caracas	Sept. 17	..	Present

PLAGUE.

Chile, general	Jan. 1-May 31	104	35
Iquique	Aug. 21-27	1	1
China: Chang Chow Fu, district	June 4	..	*
Hongkong	Aug. 7-13	1	1
India: Bombay	Aug. 24-30	..	25
Calcutta	Aug. 7-13	..	4
Kurrachee	Aug. 21-27	14	14
Rangoon	Aug. 14-20	..	19
Japan: Yokohama	Aug. 31	1	†1
Mauritius	July 1-29	8	8
Russia: Moscow	Aug. 28-Sept. 3	1	..
Odessa	Aug. 28-Sept. 10	30	8
Siam: Bangkok	July 19-Aug. 13	4	3
*Epidemic.			
†On steamship Manchuria from Hongkong.			

SMALLPOX.

Argentina: Rosario	July 1-31	2	2
Belgium: Antwerp	Sept. 4-10	1	..
Ghent	Sept. 4-10	..	1
Brazil: Manaos	Aug. 21-Sept. 3	..	Present
Para	Sept. 4-10	3	..
Canada: Halifax	Sept. 18-24	1	..
Chile: Valparaiso	Aug. 28-Sept. 3	30	..
China: Shanghai	Aug. 15-21	2	..

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Original Articles.

POST-PROSTATIC CYSTOTOMY.*

BY EUGENE FULLER, M.D.,

NEW YORK.

IN the operation known as perineal cystotomy, a procedure long and universally employed, the incision through the perineum lays open the posterior or deep portion of the membranous urethra, after which the prostatic urethra or vesical neck is incised on its floor sufficiently to allow digital or instrumental access to the bladder cavity, and it is along this tract that the usual urinary drainage tube is passed and maintained as a surgical feature in the after treatment of that operation. Previous to 1880, when Garson and Peterson revived the operation of suprapubic cystotomy by demonstrating its operative practicability and great advantages, the old operation just described of perineal cystotomy or the modification of it employed in the operation known as lateral perineal lithotomy was the only route used for the accomplishment of intravesical surgical procedure or for the establishment of vesical drainage.

The operation which I now formally introduce to the profession and at the same time assign a place of surgical usefulness and value is in the nature of a perineal cystotomy in that it is through the perineal structures that the surface dissection is made. It differs, however, radically in all other respects from the ordinary perineal cystotomy in that no portion of the deep urethra or vesical neck is disturbed or entered. The deep path of the perineal dissection in the operation I am introducing lies behind the prostate, extending between that structure and the rectum and enters the bladder through a longitudinal incision in the floor of that cavity. This vesical incision bifurcates the V-shaped space formed by the approximation of the ampullæ of Henle, the term applied to designate the clubbed ends of the vasa defferentia. The incision described intravesically extends from the middle portion of the vesical floor forward midway between the ureteral orifices and divides the posterior limit of the trigonum. I have named this procedure Post-Prostatic Cystotomy. For the development and the trial of this operation of post-prostatic cystotomy I am indebted wholly to my operation of seminal vesiculotomy. In fact, I consider this cystotomy operation an extension, as it were, of my operative work in connection with the seminal vesicles. Through much experience with seminal vesiculotomy I found occasionally, owing to diseased or faulty conditions of the vesical floor lying over or about the seminal vesicles, that more or less urine leakage occurred along the tract of the incision in the after treatment of that operation. In no such instances, however, did this urine leakage serve to complicate or interfere with the final result of those operations. In all these cases also the urine leakage spontaneously ceased with the healing of the seminal vesiculotomy incision and in none of them were there any resulting vesical disturbances attributable to the accidental leakage. Finally during the performance of a seminal vesiculotomy in which a post-prostatic vesical sacculus or pouch existed, the wall of which was very attentuated, I accidentally incised this sacculus, thus making a free incision into the floor of the bladder. After completing the seminal vesiculotomy a 30 French soft rubber catheter was passed along the tract of that incision and through the opening in the bladder floor and maintained there for vesical drainage for eight days. The presence of the vesical drainage tube caused the patient very little discomfort and no vesical tenesmus, such as one would commonly expect in connection with a tube worn for that length of time in the after treatment of an ordinary perineal cystotomy. After the removal of the tube the vesical and the perineal wound soon healed and there was no resulting bladder disturbance. This experience naturally made me wonder whether the deliberate rather than the accidental performance of such a cystotomy might not be advisable in certain bladder conditions. In fact, I felt that a cystotomy associated with so little disturbance to the patient had much to recommend it and might well be found to be the operation of choice in some cases. On giving thought to the subject it is easy to appreciate that a post-prostatic cystotomy gives the most perfect and dependent vesical drainage while a patient lies on his back in bed, the customary position assumed after operation, and in this particular has a special advantage over the suprapubic operation and a considerable one over the ordinary perineal cystotomy. In common with the suprapubic operation, it avoids a surgical disturbance of the deep urethra or of the neck of the bladder. In taking up the study of the field of usefulness open to this operation of post-prostatic cystotomy it is first well to recall the diseased vesical conditions wherein neither ordinary perineal nor suprapubic cystotomy have seemed satisfactory forms of procedure. In June, 1906, before the American Urological Association (*American Journal of Urology*, December, 1906) I read a paper entitled "Operative Cure for a Hitherto Unrelieved Class of Cystites," in which I made the following statement: "In the early performance of seminal vesiculotomy the operation was undertaken for the relief of the usual symptoms, chiefly of a sexual nature, which accompany chronic inflammatory involvement of the seminal vesicles. In the study of the results in these cases I found incidentally that in a number of them symptoms of cystitis, which had coexisted with those of a sexual nature, spontaneously disappeared after convalescence from the operation. This fact led me to make a careful

*The president's address to the American Urological Association, June 6, 1910, St. Louis meeting.

cystoscopic study of the bladder in a series of cases of seminal vesiculitis. I found as a result that in those of them where the bladder was involved the lesion was confined to the base of the organ; in fact, to that part of the structure lying over the seminal vesicles. In some of them where the inflammation about the seminal vesicles had been extensive I found likewise that the inflammation invading the base of the bladder had been extensive and had extended further than the underlying portions of the seminal vesicles. In all these cases the other portions of the bladder were normal or nearly so in appearance.

"From these cystoscopic studies it seemed reasonable to infer that the lesions of the vesical bases accounting for the cystites were really peripheral ones, the center foci for which were the infected seminal vesicles, the germs in the bladders having penetrated the intervening tissues from the cavities of the seminal vesicles. In other words, I classed the bladder inflammations as localized pericystites. In mild cases the cystoscope showed the vesical mucous membrane of the area involved red, infiltrated, and edematous, while in the severe types granulation tissue had in large measure taken the place of the mucous surface. Here and there on these granulations would be pus flocculi, films of inflammatory exudate, and spots of hemorrhage. In some of the advanced cases the least instrumental contact with the surface granulations was sufficient to provoke a fairly free hemorrhage. On one of them a triple-phosphate crustation had formed.

"As a result of these investigations I felt confident that a cure of this form of pericystitis would follow spontaneously after the operative elimination of the chronic infection in connection with the seminal vesicles. Acting on this conviction, I have cured through seminal vesiculotomy a number of these cases, all, in fact, on which I have so far operated."

In that paper the clinical details of four operative cases were given. Since that time my clinical experience with cases of this description has been large. In numerous of them which I have cured through seminal vesiculotomy multiple perineal and suprapubic cystotomies previously undertaken at the hands of other surgeons in the hope of relieving existing vesical distress had only served the purpose apparently of aggravating such conditions. In some of these cases post-prostatic abscesses had formed leaving sinuses connecting old cavities with the vesical floor. It was in these cases that more or less abundant urine leakage naturally occurred after seminal vesiculotomy into the tract of that operation. It is in connection with such cases and also in connection with those of a similar character wherein the cystoscope shows the secondary or resulting lesion at the vesical base to be extreme, the intravesical granulations, for instance, being dense, extensive and perhaps coated with phosphatic crustations, that the idea has occurred to me that dissection into and drainage of the extravesical primary focus of infection, associated with the operation of seminal vesiculotomy, might not be radical enough.

In some operative instances of this character, although marked relief as regards bladder symptoms quickly followed the seminal vesiculotomy, still it was months with some of them before all pus, bacteria, and the last bladder evidences finally subsided, while others of them disappeared from observation with some of these evidences still persisting. Consequently it has seemed to me desirable in these cases to treat the bladder itself more radically, to cut through its exposed floor, and to drain it post-prostatically, making, in other words, the cystotomy a feature of the seminal vesiculotomy. I have already put this idea successfully to practical use, as will be seen in the clinical recital which will follow.

There is another class of cystites which have been largely abandoned as far as ordinary or suprapubic cystotomy are concerned and these are the tubercular cases. Such cases, it seems to me, should always be handled most conservatively and in the great majority of instances treated hygienically and therapeutically rather than surgically. Still, in some of those cases where the element of vesical tenesmus is intense, and especially in those of them where phosphatic calculous crustations have formed on the ulcerated vesical surfaces, the surgeon may be impelled to attempt some relief through operation. In such instances suprapubic has been found preferable to perineal cystotomy since it avoids the neck of the bladder, the cutting through of which invites the ingrafting of the tubercular process on this part and a consequent exacerbation of tenesmus.

The disadvantage, however, of suprapubic cystotomy in these cases lies largely in the danger of a secondary tubercular infection and invasion of the space of Retzius associated with persisting suprapubic fistula. The suprapubic opening affords, as has been mentioned, very defective vesical drainage, and it is this feature which makes it very difficult in the after treatment of these cases to eliminate or keep in abeyance elements of mixed infection, which serve to stimulate the tubercular process and to aid it in extending itself both intravesically and also extravesically into the space of Retzius.

Post-prostatic cystotomy has the advantages of both the preceding operations without their disadvantages. It avoids the vesical neck and affords even better vesical drainage than the ordinary perineal cystotomy. It seems to me that this operation will be found of great benefit in these distressing conditions. The clinical experience to be detailed goes to substantiate this opinion. Suprapubic cystotomy in connection with thickened, contracted and non-distensible bladders is often a troublesome procedure, and after operation in such cases it may be very difficult to establish suprapubic vesical drainage. In some such cases as these, and especially in those of them where a fairly prolonged drainage of the bladder seems essential, it may be that the operation of post-prostatic cystotomy will be found especially applicable. As has already been stated, this operation, post-prostatic cystotomy, is an extension or development of my operation, seminal vesiculotomy. In other words, any surgeon who has familiarized himself with the latter operation will have no difficulty in the performance of the cystotomy.

In the dissection associated with seminal vesiculotomy the floor of the bladder is exposed, and that part being once exposed the matter of making the longitudinal incision through its floor is a simple and easy detail. In my last year's communication before this association entitled "Relief of Urinary and Genital Conditions Through Surgery of the Seminal Vesicles," a reprint of which appears in the 1909 transactions of the American Urological Association and also in the MEDICAL RECORD of New York, October 30, 1909, the operation of seminal vesiculotomy is carefully described and any one desirous of acquainting him-

self with post-prostatic cystotomy is advised to read that article in connection with this one.

Aside from my first experience with this operation, reference to which has already been made, the case being the one in which I accidentally cut through a vesical sacculus during the performance of a seminal vesiculotomy, I have successfully employed the procedure on two occasions. The clinical histories of these two successful cases are as follows:

Case A.—Man twenty-seven. His first gonorrhea, a very acute one, nine months ago. In the third or fourth week of the gonorrhea there was a history of threatened urinary retention and great tenesmus associated with severe perineal and rectal pain, together with fever. The threatened retention was suddenly relieved after five or six days associated with the prompt appearance of much pus in the urine and of a profuse flow of pus from the urethra. The tenesmus, the perineal and rectal pain and the fever all also quickly subsided with the relief of the threatened retention. The patient, however, had never recovered. A relapsing urethral discharge had persisted. Bacteria and pus had always remained in the urine. As the result of indiscretions or of exposure to cold, urinary urgency would become manifest, together with some tenesmus, which was more or less painful. At such times he was also subject to chills, followed by a febrile reaction. Seminal losses, which were somewhat frequent, were painful and were apt, he thought, to be followed by an exacerbation of the vesical tenesmus. Rectal examination showed a marked inflammatory involvement of the seminal vesicles and of the surrounding fibrous structures. In fact, the periseminal vesicular inflammation included most of the fibrous tissue area in the post-prostatic space. The floor of the bladder above the region of the seminal vesicles was edematous and granular, bleeding readily if touched by the end of the cystoscope.

It was evident in this case that first of all an acute gonorrheal seminal vesiculitis had occurred, followed by a periseminal vesicular abscess, which had pointed and discharged through the floor of the bladder. Post-prostatic cystotomy was performed, combined also with opening and drainage of the seminal vesicles. Two soft rubber catheters of 30 French caliber were introduced into the bladder side by side through the perineal incision and maintained there nine days for continuous drainage. Two tubes were used instead of one in order to facilitate vesical irrigation. On the ninth day some slight vesical intolerance of the tubes developed and they were removed. Ten days after their removal the perineal wound had thoroughly closed. A perfect operative result was promptly obtained in this case.

Case B.—Man twenty-eight years old. When first observed by me there was very frequent urination, associated with considerable vesical tenesmus. The urine was loaded with pus somewhat offensive as regards odor and slightly bloody. These symptoms had been gradually developing for over a year. Several years previously there had apparently been a gonorrheal infection, since which time the patient thought he had never been completely well. Rectal examination showed marked inflammation of the prostate and seminal vesicles. There was not much tenderness, however, to the touch, and the inflammation did not seem to the feel acute or recent. To use the cystoscope it was found necessary to put the patient profoundly under choloroform in order to allay the vesical tenesmus and adrenalin had also to be introduced into the bladder to check hemorrhage. It was then possible to get a view with the instrument. The whole interior of the bladder, but especially the base, was found to be the seat of lesions such as an extensive tuberculous process could present. There were areas of ulceration and others of proliferating granulations. The cystoscopic examination was quite disturbing and was followed by a considerable increase in the hematuria. The vesical tenesmus gradually increased after this until it became so pronounced as to be associated with complete incontinence. There was also continuous temperature. Tuberculin reactions were positive. The incontinence and the painful tenesmus rendered the patient's condition very distressing. Still, aside from prescribing creosote in large doses, I hesitated to do anything in the way of local surgical treatment, since the chance of affording even slight relief thereby seemed extremely small, while, on the other hand, the chance of increasing by such a course the patient's mental, if not his physical, discomfort appeared to be most probable.

After a time, however, a new symptom, that of rectal tenesmus, developed, and with it there was an increase in the range of temperature. Rectal examination then showed a soft boggy tumefaction which encroached in a marked degree on the rectal cavity from the post-prostatic area. It seemed evident that urinary extravasation had taken place into this space, the bladder floor having been perforated by the ulcerative tubercular process. If the case were now treated for a longer time expectantly, it seemed evident that a rectal perforation would soon follow. The resulting rectovesical fistula would certainly represent the acme of distress. Such an event should, if possible, be avoided, and for that purpose post-prostatic cystotomy was performed. In this instance, however, the seminal vesicles were not opened or disturbed, a free longitudinal incision only being made through the floor of the bladder. Two bladder drainage tubes were then introduced.

The operation in its immediate result was most gratifying both to me and to the patient. Rectal and vesical tenesmus ceased and the temperature fell so as not longer to be a factor. The tubes were retained in place ten days. The rectal feel then showed that all evidences of urinary extravasation had disappeared. The perineal wound soon closed to a narrow sinus. Most of the urine then came naturally. Blood disappeared from the urine. Incontinence to a large degree also disappeared and the patient might go from half to three-quarters of an hour without being called upon to urinate. At the end of six weeks fever in a marked degree returned and the patient began to fail from a general extension of his tuberculosis. Still, even then the local bladder discomfort was not nearly as marked as before the cystotomy. In this instance the post-prostatic cystotomy accomplished more than I had anticipated it would and certainly was well worth while. In another instance where the tuberculous process was not so virulent and rapid as in the present instance, much more should be expected from the operation.

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MANIC DEPRESSIVE INSANITY AND DEMENTIA PRÆCOX.*

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Insanity is a disorder of the mental personality of an individual of far greater importance than any other ailment that can befall him. It changes his relationship with the entire external world in the most comprehensive manner. It deprives him of the power of self-control, robs him of his responsibility before the law and makes him at once a helpless wreck—wholly dependent upon others for all his wants, a menace to his own safety and a danger to others.

Mental derangement is responsible for one-third of the suicides, while sexual crimes, arson and assaults are also often committed by persons suffering from disordered minds. Many families are ruined by their afflicted members, either by the senseless squandering of their means or because long illness or inability to work exhausts their resources.

The great majority of insane persons live on for years and often become an increasing burden as the disease progresses. For these reasons and others which might be mentioned it is one of the physician's most important duties to make himself, to some extent, at least, familiar with the nature and phenomena of insanity. The object of this paper, however, is not to go deeply into the general etiology or symptomatology of mental diseases but rather to point out, in a limited way, some of the phases of the newer psychiatry as they are viewed by alienists at the present time.

For many years prior to a comparatively recent period writers on insanity classified the great majority of insane persons in one or another of four groups—the patients who exhibited mental or motor excitement, who were talkative and boisterous, now breaking suddenly into loud laughter, singing or shouting, now falling on their knees in prayer and, perhaps, a moment later springing to their feet with flashing eye and profane or abusive speech—the patients who, in a word, were *maniacal* were at once classed as cases of mania. If on the other hand they were emotional, depressed, and apprehensive, controlled by delusions of fear, or of having committed some unpardonable sin for which they must suffer through all eternity and, perhaps, with suicidal tendencies, again, in a word, if they were profoundly *melancholy*, they were with equal promptness classed as cases of melancholia.

The third group was made up of the patients who exhibited diminished mental activity, the feebleminded or *demented* patients, to them the name dementia was given. This term was used in an arbitrary way to signify general mental failure of a non-congenital type, unattended as a rule by active excitement.

A fourth form of insanity was denominated paranoia; this term was regularly used to indicate a chronic delusional and incurable form of mental derangement of long duration in which the delusions were usually persecutory in character, systematized around some dominant idea and gradually undergoing a process of evolution until a transformation of the individual's personality occurred and he imagined himself of exalted rank far above the station in life where he properly belonged.

*Read at the meeting of the Broome County Medical Society, held at Binghamton, N. Y., July 5, 1910.

These four forms and their subdivisions together with general paresis, epilepsy, and imbecility, were practically all that we formerly thought necessary in the way of classification for the study of our cases.

During the past twelve or fifteen years, however, our ideas in regard to all of these forms of insanity have undergone radical changes. The manias and melancholias which were once such clear and diametrically opposite pictures in our minds, we now find on closer study and more accurate analysis are but syndromes or symptom complexes of one fundamental disorder to which we give the name manic-depressive insanity—a mental disorder which at times appears as maniacal excitement, at other times as mental depression, and again as a mixed condition exhibiting symptoms of both mania and melancholia, with a tendency toward recovery without intellectual enfeeblement, and a tendency toward recurrence.

The conception of the manic-depressive psychosis or, manic-depressive insanity, is due to Kraepelin of Munich, and it undoubtedly constitutes one of the most important of the recent advances in psychiatry. Although the grouping together of such opposed and apparently different pathological states as melancholic depression and maniacal excitement may appear at first glance unreasonable, the soundness of this arrangement can scarcely be contested on closer observation and deeper insight into the nature of these syndromes. The conception of manic-depressive insanity, now generally accepted in this country as well as in Europe, is based upon two well-established facts; first, the existence of fundamental symptoms common to all manic-depressive states and, second, the alternation, more or less regular of excitement and of depression in the same individual. The fundamental symptoms referred to may be divided into two groups: the first group comprises all of the morbid phenomena dependent upon psychic paralysis, namely: (a) "Enfeeblement of the attention" which is easily distracted by all external impressions; (b) "Sluggishness of the association of ideas" shown by inability to calculate small sums or make a short narrative of well-known events, etc.; (c) "Insufficiency of perception" shown by illusions, and hypochondriacal ideas; (d) "Pathological indifference" shown by absence of emotion when painful circumstances are mentioned.

The symptoms of the second group are dependent, not upon the psychic inhibition but upon exaltation of the mental automatism. The principal symptoms of this group are: (a) Flight of ideas, or the rapid succession of representations which appear in the field of consciousness in great disorder; (b) "Morbid euphoria, diminished moral sense, irritability, and impulsive actions." These patients after recovery often say they never felt so well in their lives. On the other hand they are liable to violent outbursts of anger and to conspicuous moral lapses; (c) "Motor excitement"; (d) "Delusions, psychosensory disorders, fixed ideas and obsessions." All of these morbid phenomena are more or less constant symptoms in manic-depressive psychoses.

The close relationship existing between states of depression and maniacal states in these cases becomes still more evident, when, instead of considering a single attack we study all of the attacks that occur in the same individual. It is not common for a patient to have only one attack of mania or of

melancholia during his lifetime, so the idea of isolated, non-recurring attacks of mania or melancholia is almost eliminated. In some cases, it is true, we see several attacks of mania follow one another without intervening depression, but on the other hand we meet with other cases showing every gradation of transition between the two conditions so that the two groups apparently widely separated seem to be in reality identical. No matter how pronounced the melancholia or mania may be, close analysis will almost invariably disclose that the attack is really one of double form, the maniacal symptoms having been preceded by a prodromal period of depression, or an attack of drepression is followed by a state of excitement which cannot be attributed to any other cause than the fundamental cause of the melancholia. We are, therefore, constrained to believe that notwithstanding the apparent diversity of symptoms, mania and melancholia and their various combinations, as a rule, are not to be considered different morbid entities but as Kraepelin has so clearly expressed it, they are but "different manifestations of one and the same fundamental pathological process, equivalents, so to speak, like the many forms assumed by epileptic paroxysms."

The symptoms of a typical case of manic-depressive insanity are about as follows: If the attack is maniacal there is usually a short period of depression lasting for a day or two during which the patient sleeps poorly, takes less nourishment than usual, and then begins to show marked motor activity. He is busy all the time, working at many things but finishing none. Along with the motor restlessness there is mental restlessness or "flight of ideas." The patient jumps from one thought to another. He talks rapidly and goes into infinite detail as to his plans; asks many questions without waiting for answers; showing feeble attention, sluggish association of ideas, and insufficiency of perception; he builds air-castles; he is exalted, cheerful, and happy; his memory is usually good, and he has a fair mental grasp of things about him, but *judgment* is greatly impaired. If the attack is very severe the motor restlessness is extreme; the patient throws himself about violently, jumps out of bed, runs about the ward unless restrained from doing so, and often makes assaults on anyone who opposes him. Frequently while talking he hears a remark made by someone else, or the blowing of a whistle, or the ringing of a bell, and at once includes these incidents in his remarks, showing the symptom known as "distractability." These patients are happy as a rule, but if opposed are apt to become resistive and violent, striking, biting, kicking, and expectorating at those who offend them, showing "irritability" and "impulsive actions." They may laugh one minute and weep or curse the next, without any apparently deep emotional cause, and this rapid change of the emotional state is quite characteristic. When delusions occur with these patients they are usually not "*fixed*," on the contrary they change rapidly. It is difficult to gain and hold their attention on account of their excited mental and motor condition.

In the depressed form the onset is not usually as sudden as in the maniacal form, there is usually retardation of both thought and action. These patients talk but little; they move slowly and are easily fatigued. They answer questions in a slow and hesitating manner, and when asked why they do not answer more promptly they say that they cannot think of anything to say, and if they do think they find it difficult to formulate the answer in words. Emotionally they are much depressed and apprehensive, as is readily seen in their facial expression. Nothing seems right to them. Every thing has gone wrong. Delusions and hallucinations are prominent symptoms. The delusions are mostly self centered and are frequently referable to some imaginary physical infirmity. Attention is difficult to get and hold on account of the patient's preoccupation and depression. Memory, mental grasp, and orientation are usually fairly good and there is usually some insight as to their condition. The tendency in these manic-depressive cases is *toward recovery* and many of them enjoy long periods during which mental disturbance is entirely absent. These cases are to be carefully differentiated from the involution melancholias that occur at the menopause and from the senile melancholias that often attend the final breakdown of all the vital processes.

To Kraepelin we are also indebted for another term now generally used in psychiatry. It is "dementia præcox." As long ago as 1874 Kalhbaum, and later Hecker, described an adolescent insanity under the name of hebephrenia. In 1894, Kraepelin revamped Kalhbaum's and Hecker's descriptions and made a new group, including catatonia, which had previously been considered an independent affection, and gave to it the name of "dementia præcox." French and American alienists have adopted this term and to-day it occupies a prominent place in the literature of psychiatry. Dr. Adolf Meyer, until recently director of the Pathological Institute, New York City, believes that the creation of dementia præcox as a definite insanity group is the greatest advance in psychiatry in modern times.

Now, since this term is held in such high esteem it behooves us to understand what it means. The time at our disposal is too short for anything approaching a complete description, so I must content myself with a brief outline. Kraepelin observed that there were certain features common to many of the so-called terminal dements which exist from the very beginning of all cases that ultimately deteriorate. Briefly stated, these signs are the appearance of "negativism" or senseless resistance to all external influences; "stereotypy" or movements of monotonous and meaningless character, *e.g.* walking in a small circle or square, combing the hair without a comb, washing the hands without water, etc., "mannerisms" and what the German call "Willenstörung" or impaired volition, and "mutism" or refusal to speak. All of these are significant symptoms. Memory and orientation are usually good, but delusions and hallucinations are commonly present in these cases and judgment is always defective, but the existence of negativism, stereotypy, mannerisms, mutism, and inhibition of the will are the features on which an early diagnosis of dementia præcox is to be made. Dementia præcox now includes what was formerly known as hysterical insanity—the chronic manias and melancholias and nearly all of the paranoias that were once so common.

Three forms of dementia præcox are usually recognized: they are "simple dementia præcox without delirium"; "dementia præcox of the catatonic form," and "dementia præcox of the delusional form." In simple dementia præcox without delirium there is mental deterioration without delusions but with

more or less marked change in disposition. The change develops gradually and for a long time may be unnoticed. An individual previously intelligent, active, and industrious becomes indifferent and indolent. His mental field becomes more and more contracted and his stock of ideas grows steadily smaller. In the catatonic form of dementia præcox the normal will is paralyzed and automatic acts supervene. Two phases are met with, viz.: catatonic excitement and catatonic stupor. In the former state the excitement is emotionless, unaccompanied by delusions as a rule, and influenced by external impressions. Such patients yield to sudden unreasoning impulses, as the breaking of furniture, throwing objects violently across the room, calling loudly for food when a tray with the food called for is immediately before them. Such patients will walk to and fro over a limited space for hours at a time. Delusions and hallucinations are rare. In the stuporous phase of catatonia there is profound disorder of consciousness, but as a rule the patient, although apparently dead to his surroundings, notes with surprising keenness, what takes place about him. His lack of response or reaction is due entirely to a disorder of his will power. Negativism, stereotypy and pathological suggestibility are prominent features of the symptom complex, and echolalia and echopraxia are also frequently present. These stuporous patients will often lie in bed for months or even years, soiling themselves and requiring the constant care and attention of a nurse.

In dementia præcox of the delusional form the delusions are often accompanied by hallucinations and follow one another rapidly without any connection or goal idea, or any attempt on the part of the patient to explain them. In other cases the delusions are more or less systematized about some dominant idea, and to this type the term "paranoid dementia" is often applied. Further subdivision into varieties and "allied states" is also made, but the scope of this paper does not admit of their discussion here. In all of these cases the mental powers steadily deteriorate until they end in more or less complete dementia.

In conclusion permit me to make brief reference to the term "paranoia" which has been current in medical literature for more than a century, and, until less than a score of years ago was generally accepted as meaning a chronic, delusional, and incurable form of mental disorder. As recently as 1890 Krafft-Ebing of Vienna, in his text-book on insanity (page 368), wrote "The term (meaning paranoia) is applied to a chronic mental disorder occurring exclusively in tainted individuals. Its development and course are always chronic; its development is slow through months or years of incubation until its height is reached. It then remains years or decades stationary, but never ends in dementia." "Recovery I have never seen in the observation of more than a thousand cases." The influence of such an eminent alienist as Krafft-Ebing was far-reaching and in a comparatively short time his views were almost universally adopted. The term paranoia was, therefore, considered synonymous with incurability so that when the diagnosis was made there was practically no hope of recovery. During the past twelve or fifteen years, however, the opinion has steadily gained ground that Krafft-Ebing's conception of paranoia was not correct. Alienists in Europe and America began to note with surprise that some of their presumably incurable paranoiacs got well. The systematized delusions of persecution faded away; insight as to the nature of their relation with the rest of the world reappeared, and the paranoiacs resumed their places in their families and business affairs. It then began to be realized that persecutory delusional ideas, even when fairly systematized, did not always mean paranoia in the Krafft-Ebing sense, but that they were symptoms of other mental disorders which merely bear a resemblance to Krafft-Ebing's paranoia. To express this conception, Wernicke of Germany has given us the comprehensive term "paranoid states." Mendel of Berlin, and Morselli of Turin, go still further and describe a "rudimentary paranoia" in which the pathological symptoms all disappear in a few weeks and complete recovery results. Mendel also describes a typical paranoia with acute simple and acute hallucinatory forms which sometimes ends in recovery in a few weeks or months.

In our State hospitals in this country, it is true, we do not see many of the rudimentary cases of Mendel and Morselli for the reason probably that they are treated outside of institutions and often run their course to recovery without need of asylum or hospital care, but we frequently meet with Wernicke's paranoid states associated with manic depressive insanity, or melancholia or dementia præcox. In some of the manic depressive cases and melancholias, the paranoid symptoms all disappear with the general upbuilding of the patient's health and the cases end in complete recovery. Care must, therefore, always be exercised lest we lay too much stress on the existence of systematized persecutory delusions and give an unfavorable prognosis in cases which may ultimately make good recoveries.

POSTSCARLATINAL ANURIA FOR FIVE DAYS IN A BOY OF THREE AND A HALF YEARS; RECOVERY.*

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THERE are two reasons for reporting this case: it is rare, and it was exceptionally well observed. There are a few cases on record. One case of 8 and one of 25 days anuria, with recovery, after scarlet fever, have been reported and seem to be authentic. Both were cared for by painstaking parents and servants, and watched by physicians. However, in the first case, two warm tub-baths were administered daily, by these "careful parents" (in the 8-day case) and though they were careful and though they watched with fond parental anxiety for the passage of urine, knowing full well what it would mean, they saw none pass—either in the bath or elsewhere.

I desire to give the present case its full value and therefore state frankly that the patient was the grandson of our distinguished colleague Dr. S. J. Meltzer, the son of Dr. John Auer, both known experimenters and expert observers, working in the Rockefeller Institute. Furthermore the mother, Mrs. Auer, is a medical graduate and skilled ophthalmologist. When I have added that the patient was the only son and the only grandson, I think I have sufficiently emphasized the fact that he was closely observed and that he positively passed no urine without its being noted. A trained nurse was

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also in attendance and one or both parents, night and day.

The case is rare; it is authentic. The history may be divided into three periods.

First Period of 12 days. Memorandum: Boy 3½ years old; scarlet fever, usual eruption; severe angina with pseudo-membrane on tonsils and fauces: Diphtheria antitoxin 5000 units: No *Bacilli diphtheriæ* found subsequently: the antitoxin was injected partly intramuscularly in the scapular region. Half an hour after the injection, boy is said to have had a moderate chill and become moderately cyanotic, in partial collapse. From this he rallied without serious trouble. For 3 or 4 days, beginning almost immediately after administration, he had a striking urticarial rash. It appeared in great areas over his body, appearing and disappearing. Temperature touched 102°, then 105.5° once, and 105° F. four times during this period. Pulse was 120 to 160. Urine passed was recorded daily, quality fair, quantity, 525, 525, 570, 875, 300, 50 c.c. Trace of albumin, no casts. A soft blowing murmur was noted at the apex.

The second period consists of 5 days, during which time I saw the child daily. On my first visit the urine passed up to noon was 50 c.c. Temperature was 104° F. The questions before the consultation were:

Why was the temperature so high on the tenth day?

What was the significance of the heart murmur?

What about the diminishing urine?

The abdomen was distended; the throat very red and swollen; the tongue bright red "varnished." Neither the pneumonia nor the condition of ears could explain the temperature or the rapid respiration. The throat was deep red, swollen. Urine, alkaline, contained a trace of albumin, no casts, sp. gr. 1015-1020, few blood cells, few leucocytes, enormous number of renal cells (exam. by Dr. Auer). It was thought that the throat and intestinal tract were responsible for most of the febrile reaction. A full dose of castor oil was advised. It must be remembered that the urine for half a day was still 50 c.c. The temperature fell after the castor oil to 100° and the second day touched normal. A few drops of urine were passed; slight edema of the face and feet.

Second day. No urine passed; none in the bladder.

Third day. No urine. I had had experience with suppression for 50 hours and 72 hours and had words of encouragement. In my desire to be of comfort, I confidently assured the parents and friends that the kidneys would resume their functions again, and that when they did, the first urine passed would probably be beef-tea in consistence and bloody for some days, gradually becoming more and more copious. Such is usual with scarlatinal nephritis.

Fourth day. No urine. The boy was becoming very edematous, waterlogged. He could not be lifted, so heavy was he. He flattened out on the bed immovable, eyes almost closed, hands, feet, legs swollen, skin shining, ascites. Yet he had no symptom of uremia; no nervous signs; no twitching; not dopey; no insomnia; vision clear; no headache; no vomiting; breath of normal odor; no clammy perspiration; skin natural. There was no delirium; pulse tension not increased; tranquil, not somnolent, slept naturally; temperature not above 100° F. He just thickened and flattened over the

Fifth day. No urine, general anasarca, ascites, heavily watersoaked. At this time no one could offer further prognostications. The favorable features were the absence of all nervous signs. Yet it was hoped that in some way the kidneys would resume their functions. It was argued that, the patient being a child, "there is nothing a child cannot do."

We exhausted all resources—traditional, and new. Nothing medical appeared to have the slightest effect upon the renal functions. The general impression was of some inhibition upon the action of the kidneys whereby they simply lay inactive in the bottom of the abdomen. The mental atmosphere of the household may well be imagined.

To summarize this second period: For five full days, the boy passed into absorbent cotton only a few drops of urine,—not enough to measure. He had no symptoms of uremia, became waterlogged.

Third Period. After noon of the fifth completed day or beginning of the sixth, the patient had passed 40 c.c. urine. The amounts were in drams, one, one-half, two, one, etc., passed in spurts. The next day he passed 300 c.c., beginning (at one time) with one ounce. The next days 600 c.c., 1000 c.c., 1750 c.c., 2100 c.c., etc. The first urine passed was rich in albumin, reddish, contained a large number of granular casts. It was not of the usual beef-tea-like fluid.

At this moment, the boy is entirely well, no albumin, no heart murmur, ear drum healthy. In short, he is perfectly healthy and shows no trace of his illness.

Points suggested for discussion: (1) Was there purely a toxic inhibition of the kidney functions? (2) Was there a possible swelling of the kidney within its capsule, prohibiting function, and was this in any way analogous to the urticarial swelling of the skin? Angiomatous? (3) Would anyone nowadays, in a similar case, suggest splitting the capsule surgically? In the present case our patient recovered, but would one again wait five days?

Summary.—(1) It is an authentic case of anuria of five days' duration.

(2) The case is rare, but not unique.

(3) The probable cause is toxic inhibition.

(4) Inflammation of the kidneys, as evidenced by the urine, was not severe. Recovery was prompt and complete.

(5) There were no uremic symptoms.

(6) Whether there was any relation between the excessive urticaria of the skin and the antitoxin (diphtheritic) is merely conjectural.

(7) The kidneys seemed to lie in the bottom of the abdominal cavity inactive, while the body became waterlogged.

REMARKS ON THE HISTORY OF FORENSIC MEDICINE FROM THE RENAISSANCE TO THE XIX CENTURY.

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Historians generally consider the promulgation of the criminal constitution of Charles V, otherwise termed the Caroline Constitution, as a decisive foundation of the development of legal medicine in Europe. This constitution was voted at the Diet of Ratisbonne in 1532 as a law of the Empire. Without doubt it would be an exaggeration to attribute to the Caroline Constitution a revolution or an imbed.

pulsive initiation in forsenic medicine, because, as I shall point out, relative to visits and expert work by physicians and surgeons, as well as the necessary information to be obtained from them on those questions of their art which could be used for evidence, this code simply was in conformity with the old practices observed before its promulgation in various jurisdictions, although it generalized them. It is well known that in 1507 John of Schwatzemberg, chancellor of the bishop of Bamberg, had drawn up an ordinance for this prince (which later on served as a basis for the Caroline Constitution), in which the work to be done by physicians in medicolegal practice was regulated. It should also be noted that in the articles relating to rape, abortion, infanticide, and poisoning, or dementia of the accused, absolutely nothing is said of verification or medical reports from physicians, although such reports seem indispensable in the majority of cases, but it is an undoubted fact that many years before the German judges had recourse to them.

The following are the only articles of the Caroline Constitution in which recourse to physicians or midwives is rigorously specified. I would draw particular attention to the last two, as they show a tendency to the performance of autopsies.

Art. 35.—If a girl is suspected of having been delivered of a child in secret and to have killed this child, one should in the first place ascertain if she had been seen in a very apparent condition of pregnancy, and if this pregnancy having diminished, whether or not she became pale and weak. If these kinds of signs and indications are met with and the woman is such that she may be suspected, it is proper to proceed still further and have her secretly examined in private by reliable and experienced matrons. If this examination confirms the suspicion, and she, nevertheless, will not declare the crime, she may be put to torture.

Art. 36.—When the child is killed only a short time before, the mother will not have lost her milk, so that the milk may be drawn from the breast, and if it is good and perfect, this would be a strong and evident presumption to cause her to pass through the torture. Nevertheless, since some physicians teach that occasionally from natural causes milk may occur in a girl who has never been pregnant, and if such a fact is invoked, a more ample verification must then be made by the midwives.

Art. 147.—If a person who has been struck and wounded dies at the end of a certain length of time in such a manner that it makes it doubtful whether or not the blows or wounds have been the cause of death, experienced surgeons should be consulted, who will know whether the death occurred before the blows and wounds were received, and if this is not the case they can indicate how long the person has survived after receiving them.

Art. 149.—Finally, so that as little needless work as possible may be done in the above-mentioned cases before inhumation has taken place, in the examination and appreciation of the lesions and because of the wounds, the judge, accompanied by one or several surgeons, who have already taken oath, should proceed diligently with the inspection of the corpse before burial has taken place and to take note of, and very exactly describe, all wounds, cuts, marks, or contusions which may be found, so that each one will have its own indications.

It cannot be denied that the Caroline Constitution had a very considerable influence on the development of forensic medicine. In the first place, this code regulated the legislation in all the countries of the Empire, that is to say, the larger portion of civilized Europe. Then, again, the promulgation was made during a remarkable phase in the history of the medical sciences; when the Renaissance was at its full development, at a time when anatomy, the only true foundation of modern medicine was being founded by the efforts of Ingrassius, Eustachius, Fallopius, Varolius, Arantius, and, above all, Vesalius, who, in 1543, gave to the world the first description of the human body made after nature. It should also be recalled that in Germany the great importance of experts was understood at a very early date. Consequently, the office was only confided to men having recognized morality and superior knowledge, and these alone were specially appointed experts to the courts of justice. The decisions of the experts, particularly when the case was one of a capital offence, were submitted to discussion at the universities; the Faculty would make the commentaries on all resources that the medical knowledge of the time could furnish and they published them, periodically, so to speak, having in mind a branch of instruction which had been recognized as necessary. In point of fact, the professorship of forensic medicine was created early in the seventeenth century in all the German Universities, while it was only in the year III of the Republic that legal medicine was taught in France.

In 1603 Henry IV ordered his first physician, Jean de la Rivière, to appoint a commission "in all the good cities of the Jurisdiction of the Kingdom, composed of two persons belonging to the art of medicine and surgery, possessed of the best reputation, probity and experience, to make visits and reports in justice." An exception was made for the sworn experts attached to the Chatelet; these were appointed by the king himself. Very much later, in August, 1670, the criminal ordinance of St. Germain en Laye, an appendix to the Code Louis, confirmed and regulated the already existing condition of affairs, and I will here give the articles of this ordinance which concern forensic medicine.

Title 5.—*On Reports of Physicians and Surgeons.*

Art. I.—Wounded people may be examined by physicians and surgeons, who will state their true condition; this will also be done in cases where death results and the report will be admitted at the trial.

Art. II.—The judges may order a second visit to be made by the official physicians and surgeons, who shall take oath, and after their visit they shall write out and sign the report on the spot, which will at once be transmitted to the court, and added to the documents of the prosecution.

Art. III.—We command that in all reports ordered to be made by justice that at least one of the surgeons appointed by our first physician shall be present at the place where it is made, otherwise the report will be considered *nil*.

In Title VI, Art. 23, it is stated that if any woman, before or after having been condemned to death, appears to be or declares herself pregnant, the judges shall order her to be visited by matrons appointed for the purpose, and who shall make their reports in the form prescribed for experts. If she is found pregnant, execution will be deferred until after delivery. In 1602 a regulation was issued describing the form to be given to the reports. For autopsies it ordered a delay of twenty-four hours in winter and twelve hours in summer. The report should indicate the number, direction, and depth of

the wounds, likewise their breadth, precise location, and their lethality; the expert was also instructed to state with what instrument or arms the wounds had been inflicted and whether or not the victim would remain a cripple from the effect of the wounds, or, on the other hand, how long it would take for a cure to be complete.

From a small but interesting work entitled "Doctrine des Rapports" by Nicholas de Blégny, Surgeon to Monsieur, I will quote some supplementary information relating to the organization of the medico-judiciary personnel of the seventeenth century:

"Sworn surgeons have been appointed in order to prevent the abuse which might accrue if all surgeons were allowed to make reports in Justice; because the incapacity of some and infidelity of others would be powerful obstacles to truth. . . . There are two sworn experts in every city possessing courts bishopric . . . and one in all other towns or places. They bear the title of ordinary councillor physicians to the King, or sworn surgeons. They take oath before the officers of the court; they conjointly or separately occupy themselves with reports to the exclusion of all other masters. The judges cannot receive any other report unless signed by them. They are charged with the inspection of all the surgeons of the cities in which they reside and of the cities or places belonging to their district. They may examine the candidates for the mastership in surgery and the midwives and give them their diplomas."

The reports made out by the experts were of three kinds: (1) Accusation reports, delivered upon a simple request of the parties to the litigation by any surgeon who had been sworn; (2) provisional reports, made upon the demand of the judge by the sworn surgeons of the jurisdiction in which the trial took place; (3) mixed reports which were delivered on the simple requisition of the parties to litigation by sworn surgeons alone.

Besides the above reports, experts were also obliged to make out two other types of juridical papers, namely, the "essoin" and "estimates." There were three types of essoins: (1) The ecclesiastical essoin which was an exemption of conventuel and monastic vows; (2) the political essoin, which related to the health of soldiers and those in the service of the royal houses; (3) the juridical essoin, which was required in order to postpone a trial when one of the parties could not appear on account of illness. The report of estimation was the valuation of the cost of operations and dressings when this cost was contested by the patient.

I have now reviewed the principal medicolegal ordinances promulgated in Europe during the Renaissance and the XVII century and will now examine what scientific occurrence took place relative to forensic medicine during this period. In the first place, the first work dealing with the subject appeared in 1575. The father of modern surgery, Ambroise Paré, is the author, and from this fact he should also be called the father of legal medicine. His writings on the subject are represented by a few pages which precede the twenty-seventh book of his surgical works. They represent the first steps in medicolegal science. Paré says that the young surgeon should be instructed in the art of making out a report when he shall be called upon by the courts, either for the death of the injured, resulting impotency, or the loss of some part. He points out that he should be particularly careful and alert in his prognosis because the ultimate outcome of certain wounds and injuries is very uncertain. He also says that the foremost and principal quality for the surgeon is that he shall have a pure soul, fearing God and never reporting a small wound as a large one nor *vice versa*, because the jurisconsults will be guided in their decision by the report.

From this time on works on forensic medicine were published in large number. In 1597, Baptista Condronchi, a physician of Imola, published a work entitled "Methodus testificandi, in quibusdam casidus medicis ablatis." He here studies the principal legal questions brought up in cases of disease and wounds, sudden death, poisoning, puberty, virginity, pregnancy, and labor. The work ends with a few examples of reports bearing on facts which occurred in his practice and which are most modestly signed: "I, Condronchi, the most humble of physicians and philosophers of Imola." In 1602, Fortinatus Fidelis, a physician of Saint-Phillip of Agirone, published a book entitled: "De relationibus medicorum in quibusdam ea omnia, quæ in forensibus, ac publicis causis, Medica, referre solent plenissme traduntur."

The most important and complete work of the epoch is without doubt the "Quæstiones medico-legales," published in a fragmentary way from 1621 to 1658 by the Italian physician, Paul Zacchias, physician of the States of the Church. The author received great and enthusiastic praise from both physicians and theologians of his time and the authority of this work was maintained for nearly two centuries. In this book, which bristles with erudition, is to be found a quantity of medical questions studied from the viewpoint of the Canon law, and in reality belongs more to the confessional than to the courts of justice. Conjugal duty, miracles, fastings, and other religious rites, stigmates of sorcerers, monachal claustration, in the medical aspect, find considerable space. However, all these things would naturally be treated by a physician of Innocent IV, at a time when the Canon law held a prominent place.

In France we have the treatises of Gendry of Angers, of de Blégny of Lyons, in 1684, and particularly "L'Art des Rapports," published by Devaux in 1708. The latter remained the vade-mecum of the sworn surgeon for an entire century. In 1598, Séverin Pineau, a student of Ambroise Paré, published a book entitled: "De virginatis notis," which contained the results of his researches relative to the existence of the hymen, a very much discussed question of the time. In 1611, Vincent Tagereau attacked the peculiar custom of the congress in his "Discours sur l'impuissance."

And, lastly, forensic medicine became enriched at the end of the XVIII century by a capital discovery, because in 1663 Bartholini studied hydrostatic pulmonary docimasia, which had already been foreseen by Galen, and Johan Schreyer, a physician of Silesia, applied the method for the first time in juridical matter in a case of infanticide.

Without entering into detail, I would like to indicate the character of these early works on legal medicine. If one simply goes over the index of the treatises by Fidelis and Zacchias, one will at once perceive the ensemble of the problems which presented themselves to these early medicolegal specialists in the application of medicine to Canon law, Civil law, and Criminal law. The following are the subjects which are more particularly studied from the medicolegal standpoint: The classification of

ages, sterility in the female, impotency in man, the signs of virginity, pregnancy, and labor, the duration of gestation, irregular parturitions, and the birth of monsters, hermaphrodites, obsessions, sorcery, demoniacal possession, philters, the simulation of disease or infirmities, contusions, and wounds, accidental death or death by violence, miracles, resurrections, etc. Among these questions there are some which have still remained and will continue to remain, in the decision of which the courts will always resort to medical science for information. Others have disappeared with the fall of the Canon law and the change in customs. Then again, others which owed their existence to the imperfect knowledge of the time, the love of the marvelous and superstitions, little by little fell by the wayside as the scientific mind became developed.

The Renaissance and the XVII century consequently mark the commencement of the scientific period of forensic medicine. Like all the other branches of medicine this one received a remarkable impulse, and although the latest born, it very soon occupied a very large place in the history of medicine.

As has been pointed out, Germany, from the Caroline Constitution, was the first to outline a criminal procedure and to form an excellent organization of forensic medicine. A special and competent personnel, the teaching of the subject in the universities, combined with regular and extensive observation, were all conditions which assured a remarkable development of legal medicine in this country. Beginning with Zacchias, one will find a very large number of periodical publications and general treatises in which the most interesting cases have been collected and commented upon. Among the principal works I would mention that of Welsch, which appeared in 1660, in which he considers the fatality of wounds and advises the performance of autopsies. The book is entitled, "Rationale vulnerum lethalium judicium." In 1689, Bohn treated the same subject much more deeply in a work which possesses considerable authority, entitled, "De renunciatiome velnerum."

In the XVIII century we find the "Pandectæ medicolegales," by Michel Bernhardt Valentin. It is a collection of medicolegal questions asked by the German courts during the XVII century and discussed in the universities. This example was followed by Zittmann in 1706; Alberti, in 1725; Loew, in 1725. Richter, in 1731, gave a collection of decisions rendered by the universities and the civil and ecclesiastical courts. The general treatises which hold a prominent place in medicolegal literature should also be mentioned. Teichmeyer's treatise, published at Jena in 1722, entitled: "Institutiones medicinæ legalis vel forensis in quibus praciturae materiæ civiles, criminales et consistoriales traduntur" is of great importance. Then come those of Goelicke, in 1723; Eschenbach, in 1746; F. Hoffmann, in 1746, and the classical treatise by Hebenstreit, in 1753, entitled, "Anthropologia forensis sistens medici circa rempublicam causasque dicendas officium." And lastly, the works of Daniel and Plouquet on pulmonary docimasia; of Heister, in 1727, on precocious and tardy births. The great men of medicine, van Swieten, Haller, and J. P. Franck are also associated with legal medicine of the time.

France was far from being so richly endowed in works on forensic medicine, but there were, however, some very important cases which occupied the attention of physicians and resulted in important researches. Thus, Lecat, in 1750, put forward his singular theory of spontaneous combustion, a theory which was so greatly credited in popular imagination, and which was even accepted for a certain time by scientists. Then, Lorry discussed the questions of survival.

In 1765, tardy birth was the object of very bitter discussion among Bertin, Lebas, Bouvard, Petit, and Antoine Louis. The latter in his "Lettres contre la légitimité des naissances prétendues tardives," raises his voice against the guilty indulgence of the courts who declared legitimate births occurring after twelve or even thirteen months, basing their opinion on a very old belief accepted not only by the people, but by the majority of physicians. It was also Louis, who, by his memoire read at the Academy of Surgery in 1764, contributed to rehabilitate the memory of Calas. In 1775 he was ordered to make an expert examination which saved the life of two accused persons. The circumstances are briefly as follows: On June 14, 1775, an inhabitant of Montbrison, by name, Jean Chassagneux, fell and fractured his head. This fall was accidental, but public rumor made it appear that a crime had been committed by the son and daughter-in-law of the victim. The first physician consulted concluded that the accused were guilty, but Louis was called in on the case and demonstrated beyond a doubt that the facts collected were insufficient, and that the examinations made would not allow one to pronounce judgment against the accused. Upon this report, Parliament dropped the procedure.

Louis also demonstrated juridical errors in the cases of Montdailly Syrven, and Baronnet in very important reports to the courts in which he unceasingly protested against the insufficiency of the medicolegal organization in France, also the incompetency of the experts selected by the magistrates.

We should also mention Lafosse, known by his critical examination of the Calas case, which resulted in a friendship between himself and Voltaire, and Chaussier, who, in 1783, in a memoire which has remained celebrated, shows the great importance of legal medicine and draws the attention of the courts to the inconveniences resulting from the system employed at that time. Forensic medicine was, in point of fact, arrested in its development by numerous causes which can be classified under two heads, namely, the imperfection of criminal law, and the bad organization of medicine at the time.

The principle of the necessity of a confession in order to pronounce a sentence in capital cases had been introduced a long time since with the ecclesiastic law, but it was only tutelary in appearance. In point of fact, this confession was, above all, obtained by odious means, namely, the preparatory, ordinary, and extraordinary question. And still more, the trial was conducted behind closed doors, and in many cases the accused had no lawyer for his defense. The magistrates were possessed of full power, which, if necessary, could be given to extraordinary commissions. Finally, under the empire of the criminal ordinance of 1670, the most pitiless repression was exercised to such an extent that the sentence of death was rendered in one hundred and fifteen cases in that year, this often being accompanied by torture. On the other hand, on account of the defective organization of the medical corps, forensic medicine was in the hands

of illiterate and insufficiently educated surgeons. The judges, not appreciating the importance of this science, were of the opinion that a little practical knowledge of anatomy and surgery was sufficient to make an expert. Occasionally they even made an appointment outside of the medical corps and thus, in the Calas case, the expert selected was the executioner. I would also add that the old Faculty of Medicine of Paris was far more occupied in maintaining its rights than in contributing to the progress of science, and consequently offered no course of instruction in legal medicine.

But toward the end of the XVIII century a series of occurrences of a political and social order changed the legislation and resulted in the introduction of a great many things favoring the development of forensic medicine. The abolition by Louis XVI of the preparative question, in 1773, and of torture, on May 13, 1778, was the premonitory sign of a change which would take place in criminal legislation in France, and it is well known that the Revolution precipitated the event.

In 1797 Fodéré published the first treatise on forensic medicine which had appeared in France. This book, which was at the same time both philosophical and practical, was the foundation of modern legal medicine in France, just as the work by Zacchias had been in Germany the starting point of the development of this science.

With the advent of Fodéré, forensic medicine became definitively engaged in a scientific direction, and at the same time completed and extended its domain, passing by successive phases until at the present time it comprises all the branches of the science of medicine. Thus, in the first place it was only based on anatomical knowledge, but later on chemistry entered for a large share, particularly in toxicology. The important branch of mental disease was developed by the magnificent work of Pinel, Esquirol and their successors. Later on, forensic medicine came into possession of new arms; we refer to the microscope and spectroscope, which developed the almost certain detection and the nature of spots and stains, and finally thanatology made its appearance. In 1821 Orfila contributed very greatly to the progress of toxicology by his experiments and judicious criticism, while Devergie (1798-1876), by the precision of his researches, made a great step toward certainty in the practice of forensic medicine. From 1818 to 1879 the great Tardieu was the means of causing a large number of medicolegal studies throughout the world. These have been continued and developed in Germany by Casper, Machska, Eulenberg, Liman and Kraft-Ebing, by Hoffmann of Vienna; in England by Thompson, Guy, Taylor and Christison, while prominent in the modern Italian school I would particularly recall the names of Cresshio, Tamassia, Morselli, Tamburini, Ziino and the regretted Lombroso.

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THE HOSPITAL TREATMENT OF NERVOUS DISEASES.

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In the chairman's address before the section on nervous and mental diseases at St. Louis in June (*Journal of the Am. Med. Assn.*, June 11, 1910), a plan was given for the institutional treatment of nervous and mental diseases. If I read the article right, however, the specifications there outlined were intended to provide for cases of essentially psychiatric character, and little mention and little provision was made for diseases more plainly belonging to the nervous system. It seems to me worth while, therefore, to take this opportunity to appeal for hospital care for a class of cases which, more than any other in need of proper therapeutic management, are neglected more than any other. Every large American city has one or more dispensaries exclusively devoted to nervous diseases. These dispensaries have a bulky attendance, they are more or less equipped with apparatus for diagnosis, some of them are supplied with the simpler apparatus for treatment, and all of them are in charge of neurologists. But, once the diagnosis is made in these outdoor clinics, the proper disposal of the sick man is a matter of difficulty. The patients are too permanently or too indefinitely ill to be welcome in the wards of a general hospital; and even when some few of them gain entrance by some means or other, they get little benefit, as there are no general hospitals equipped either in personnel or appliances to properly treat nervous diseases. The dispensary physician, therefore, is limited in his therapeutic efforts to such advice as he can give in brief and frequently interrupted interviews, to such luck as may follow his choice of pharmacological remedies and the recommendation of such physical treatment as may be obtained in hydrotherapeutic establishments, electrical establishments, etc., over which he has neither supervision nor control. He cannot enforce any of his recommendations and fails utterly to obtain a close knowledge of his patient. He cannot place him in a hospital ward, as few, if any, of the dispensaries for nervous diseases in this country have hospital wards available in which patients who are acutely ill or who require observation for diagnosis can be under the continuous observation of neurologists. But the fact daily becomes plainer that until such provision for the treatment of this large class of patients is made, neurological therapeutics must remain far below the standard of its possibilities and prognosis in nervous diseases must continue to be very much more gloomy than it ought to be.

The object of hospital treatment for nervous diseases, as for others, is curative, ameliorative, and diagnostic. The curative treatment when operative consists of all neurological operations. This means not only that the neurologist is a preoperative adviser, but that this neurological care is not interrupted. The surgical results that may be obtained in a neurological hospital are exemplified in the highest degree in the Hospital for Paralyzed and Epileptic in London. There, with no surgical service, Sir Victor Horsley, operating on the cases submitted to him for operation by the hospital physician, has won his fame as the first and greatest surgeon of the nervous system. The operator in a neurological hospital has fewer chances of error, as the cases given him have had the benefit of more than one opinion, and one or more neurologists are present at the operation, to advise at every vital stage. The patient, also, after the operation, remains under neurological supervision so that he obtains the best after-treatment in the way of apparatus, mechanotherapy, massage, electricity, etc., upon which the success of so many neurological operations depend.

The nonoperative curative purposes of hospital

treatment embrace the reception of all the severer forms of syphilis of the central nervous system where superintended treatment is vital, and such acute diseases as meningitis and other infections and chorea, exophthalmic goiter, and certain epilepsies. Nutritional diseases such as gout, rheumatism, and especially diabetes, should be treated in hospitals for nervous diseases or at least in hospitals where dietetics and special equipments for physical treatments are highly developed. The latter disease is, in the majority of cases, of neurotic origin, and is accompanied by a vast variety of nervous and mental symptoms, its nutritional characteristics being only a small part of the total picture. In the early stages of diabetes, the determination of the patient's tolerance for carbohydrates is imperative. For this the patient must be under strict surveillance and the quality and quantity of food accurately known. This can only be accomplished in a specially equipped hospital. It is probably due to the fact that hospitals are not arranged as to their dietaries to satisfy both the needs and cravings of diabetics that so many of this class of sufferers get their education in foreign cures and from foreign physicians.

The whole class of neuroses and psychoses which are dependent upon fatigue, exhaustion, malnutrition, toxemia, and unhygienic home surroundings are generally benefited and may be promptly cured by special hospital treatment. Treated in the dispensary, such cases drag on for months and years. Patients of this kind are made worse rather than better in general hospitals where the staff is too busy with pressing tragedy to learn their needs or provide for them. Hospital treatment is necessary for many cases in which cure is impossible but in which, under proper circumstances, amelioration can be effected. This applies to the whole class of degenerative organic diseases in which, in addition to the incurable lesions, there are other circumstances which impair the patient's general health and which can be improved.

But perhaps the most important argument for the existence of a neurological hospital is for the purpose of diagnosis. Possibly 50 per cent. of the cases which present themselves at an out-patient department for nervous diseases can be correctly diagnosticated in a single interview. The others require not only repeated examinations but the sounding of personality and the exploiting of weird symptomatic trends which only come with prolonged personal contact. For such, the provision in America is most inadequate.

The need of observation for diagnosis has so long been recognized in every other branch of medicine that it is extraordinary that up to the present time no opportunities for continuous observation and for reflection have been given those who occupy themselves with the most complex diseases of all. It is only by continuous personal observation and by the reports of properly trained assistants and attendants that the physician can estimate as to the severity of pain, the character of convulsions, the reason of insomnia, the degree of disability, the condition of the digestive apparatus and the general make-up of the patient. It is psychoanalysis reduced to a practical basis. For whatever may be the value of the Freud method of psychoanalysis, it compares in no way in general usefulness with a week or two of personal observation of the patient.

With the ideas just set forth, a few of us in December, 1909, caused to be opened in New York City a hospital for nervous diseases. We had secured the backing of a strong board of trustees who had become sufficiently interested by our arguments to give the institution a trial. The hospital was equipped with every appliance for the treatment of nervous diseases likely to be efficacious, was supplied with competent nurses, with several salaried assistants, and with a little army of masseurs, mechanogymnasts, electrotherapeutists, etc.

The dispensary operated in connection with the hospital is open six days a week and suitable patients are received in the wards, which contain thirty-five beds. Ward rates are $15 a week, to include massage, electricity, Zander treatments, and all the patients may require. These rates are lowered in suitable cases, and about half the cases are treated free of all charge. By paying slightly more, patients may be in semi-private wards and many cases requiring isolation are placed in semi-private wards at ward rates or free. There are also private rooms which help in maintenance. In these latter only are physician's fees charged.

Great benefit has accrued to all connected with the institution in a professional capacity. The assistants, both those beginning their neurological career, and those finally perfecting themselves for practising neurology, have the advantage of a large clinical experience and of close observation of patients, especially with regard to the effects of treatment. Nurses have become familiar with the special demands of nervous people, and on leaving have gone forth better equipped not only as special nurses but as general nurses. It is also confidently believed that a center of neurological activity such as this hospital is striving to be will have no little influence in the education of men who, after completing their course in it, either as assistants or students, will go out all over the country as competent practitioners of neurology and with the enthusiasm to start similar institutions elsewhere. But the feature which this paper desires specially to emphasize is that of therapeutics. All the chief medical officers in the institute had been for many years in charge of large metropolitan clinics, had held professorships, had been consulting neurologists in various hospitals and all had been unable, prior to the opening of this institution, to get satisfactory results from the various services and had become very pessimistic as to neurological therapeutics among the poorer classes.

We hoped in the establishment of this hospital to raise therapeutic standards, but none of us believed that we could get the results which have come from the routine established and from the regular and superintended use of the various therapeutic appliances.

The class of cases which have had the greatest success has been that in which nervous symptoms were due largely to nutritional disorders. Some patients have been men, but more frequently they are women suffering from fatigue, insomnia, dyspeptic disturbances, marked changes in the blood, and a ruffled mental state. Such cases benefit little, if at all, by dispensary treatment. Among the wealthy classes, the patient is sent to out commercial sanatoria or to some of the health resorts of Europe. As far as I know, the Neurological Institute is the only institution in the country equipped to care for the semi-invalid, free or at less than remunerative rates. We have found, however, that such patients, after they have undergone a two or three weeks' treatment of rest, hydrotherapy, en-

forced regularity as to the bowels, a carefully selected diet, with sometimes medical remedies, and the daily counsel of physicians, improve very rapidly. Over and over again, we have found that two or three weeks of this treatment would enable the patient to resume work much stronger and much more able to stand the strain; and the knowledge gained in the Institute as to the conduct of life and the relative value of things furnished him an important asset to draw on in future times of need. Such patients are entirely unsuitable for the treatment given in general hospitals. Without minute supervision, they either drag out a miserable existence keeping at work, or are finally forced to give up work. This class of cases furnishes the most potent argument for the establishment of neurological hospitals in every large city.

A neurological hospital is also an ideal place for the treatment of cerebral arteriosclerosis. The fluctuations of this disease are so rapid, the power of recovery and re-establishment is so great that, oftentimes, a patient even when on the verge of apoplexy who is made to rest and follow a strict routine, often puts off the evil day and gains a marked improvement in all functional symptoms. In this disease we have used the high-frequency currents with success.

In chorea, also, we have found that under the quiet and routine of hospital care the spasmodic movements cease and the child returns to normal much more quickly than when treated in the dispensary.

We have also had very good success in cases of delirium, whether of toxic or of exhaustive character. Such patients as we have treated have been too delirious and delirious for too long a time to permit them to be retained in general hospitals. Had they not come to us they would have been committed to asylums.

In many of the limited cases of mental diseases, therefore, a neurological hospital may prevent the patient undergoing the stigma which is ever inseparable from commitment.

Our experience has convinced us, however, that no cases of mental disease which require restraint should be treated in a neurological hospital. This applies particularly to cases of pronounced melancholia, mania, and to such persons as are controlled by active delusions. The reason for this is that the actively insane have a bad effect on the patients, and proper care of them requires an equipment and personnel of a different character.

The chronic degenerative diseases of the nervous system of which a great many have been admitted to our wards have left us with perhaps no improvement as far as the organic lesions are concerned, but even in them some benefit has accrued. In tabes, with high degree of hypotonia and ataxia, the systematic movements as devised by Fraenkel are the only means by which the patient can regain the power of walking. As many of these patients are practically bedridden, it is impossible for them to go to any class for instruction, and as manifestly impossible for them to pay for an instructor to come to them. A number of such bedridden patients have been greatly benefited by the systematic application of the Fraenkel movements given in their beds in the hospital, and one patient in particular, who had been confined to his bed for a year, was able to walk out of the hospital after three months' stay.

Even in the organic cases in which no material benefit of any kind has accrued it has seemed that the patients were better satisfied, were more philosophical from their stay in the neurological wards. They saw that some one, at least, had an interest in them and understood them.

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CONSTIPATION AND TOXEMIA.

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The symptom constipation with the sequel toxemia is being written with more and more frequency on the history card of each succeeding generation of patients as they come before the physician in his general practice. Cure resulting from his treatment is the exception. Still, its continuance is usually the progenitor of many avoidable consequences which first distress and then shorten life. We do not, of course, know all that we should properly know about the many etiologies and the many poisonous metabolic products that we incriminate in these morbid states known as constipation and toxemia; but happily the day is now about past when these conditions are treated experimentally, and one method is tried after the other until that suited to the individual is discovered. The light of modern advancement directs our earliest efforts to its elimination, or, at least, to its tolerance, by precluding absorption of toxins, by rendering the pabulum an unfavorable media, for the cultivation of certain harmful bacteria.

Thus the systemic pathogenesis of these conditions leads us first to a consideration and study of the pabulum as a factor of its etiology and of its continuance as it passes from the teeth to the anus, and of its evolution from food to feces. We now know the pabulum to have been sterile at birth, and we also know that soon afterward it became infected with the *Bacillus lactis*, which thereafter took up its permanent abode in the small intestine, and that later became infected with the *Bacillus coli*, which elected to reside thereafter in the colon, or large intestine. We know that these, together with the *Bacillus bifidus*, constitute the normal intestinal flora, are indigenous, and exist in large numbers, physiologically respecting the boundary line of their own domain; but pathologically contending among themselves and with others that are foreign; the harmful ones growing and multiplying at the expense of the beneficent ones and at the expense of their host, whose vital tissues they then invade, producing quantities of indol and of other deadly poisons and toxemia, taxing the full capacity of his phagocytes, and the full ability of his liver and kidneys. The *Bacillus acidi lactici* does not produce indol, takes only an antagonistic part in the process of putrefaction, and multiplies and propagates at the expense of the carbohydrates; has a wholesome destructive action on milk. This desirable bacillus, which is so harmless to the human economy, finds its chief vehicle of introduction for good, and takes up its abode in the small intestine, where it prevents abnormal putrefaction of such proteids which, through faulty digestion, have escaped the action of the digestive juices, and found their way into the intestine.

Metchnikoff of Paris has elaborated and popularized, and has urged that the coming of senility may be postponed by the prevention of putrefaction in the intestine, and that this may be accomplished by the constant use of milk, soured by and containing

live lactic acid bacilli. He contends that other injurious bacterial changes in the alimentary canal can be avoided by encouraging the growth of the beneficent lactic acid bacilli therein, which will preclude the development of the injurious bacilli of putrefaction. Whether this is bacteriolytic (an anerobic and aerobic warfare) or chemic (through the development of the lactic acid in the media) is still a matter of speculation; but the fact still remains that the periodic numerical reinforcement to the ranks of the lactic bacilli by the drinking of soured milk has a salutary and beneficent influence on the economy, as is evidenced by the odorless, free, nonirritant stools, the disappearance of indican from the urine, and the cessation of the physical symptoms of toxemia. The idea of employing the results of bacterial activity to counteract putridity in the intestine is by no means new, and as presumptive evidence of the inherent probability of this proposition Metchnikoff cites the unusually long life of the Bulgarian who makes sour milk and its many modifications a large part of his daily dietary.

Metchnikoff proposed the cultivation of this bacillus in milk which has been sterilized to produce sour milk containing a pure strain of active lactic acid bacilli, and which will at the same time be free from any of the injurious bacilli of putrefaction. It is believed that this as a constant article of food will prevent the growth in the alimentary canal of the bacteria which cause putrefaction, and abnormal fermentation; that consequently there will be no toxic substances to be absorbed. Indican, which denotes an abnormal transmutation of proteids brought about by the colon bacillus in the intestinal tract, can be inhibited by the *Bacillus acidi lactici;* thus indican will be absent from the circulation, and the tissues and the organs of the body will be relieved from the destructive irritation caused by the absorption of those toxic products of bacterial growth, and as a result of this, and the changes incident to it, old age and death may be postponed.

Gaillord encourages the proliferation of the amylolytic microbes, which are useful, at the expense of the proteolytic organisms, which are harmful. As soon as the digestion has been regulated in this way defecation occurs with regularity, and without any other treatment. He cites many patients treated in this manner, with extraordinarily favorable results.

The primary and natural therapeutic remedy, therefore, points to the immediate restriction of the proteids as the offending factor; and this probably accounts for the success of this method of treatment of the constipation. The pathogenesis of the intestinal bacteria may thus, then, be divided into that due to its action within the body, and that due to its action within the intestines, the former of which is frequently that of primary constipation and toxemia, cerebral, hepatic, and renal congestion, and the latter secondary visceral ptosis, and cardiovascular disease, from the long-continued high pressure which it causes.

It has been said that any life known may be enjoyed by the subject according to his diet: The short life of him who digs his grave with his knife and fork, or the long life of the vegetarian, who has been in daily evidence since the day of St. Anthony, who reached the ripe old age of 105 years on the simple diet of bread and water, or of the Spartan who dined but once per day, or of the hardy little Jap, who, on a diet of rice, whipped the big, meat-eating Russian; or of Fletcher, who saved his life by learning how to chew his food. The principal contentions of the present day, really, are the false conceptions arising from the teachings of the nutritive values of food, the inbred provident tendencies to store up for future bodily emergencies and the modern educated palate, which, if it had a conscience, would go mad with remorse over the physical crimes of its instigation; thus, in this connection, it may be well to state that it is not what we eat, but what we need, digest, and assimilate that has a true food value. The undigested proteid in the intestine presents the ideal media for the propagation of the harmful bacillus at the expense of the lactic acid bacillus, and the formation of toxins and toxemia.

The average individual eats too much, frequently he is trying to combine the pastimes of the epicure with the habits of the recluse. One fact should be kept continually in mind, and that is that the overplus of proteid indigestion—that which is beyond the ability of the stomach to digest—is that which furnishes the culture media in the intestine for the bacteria of putrefaction, and that which is beyond the actual need of the nutrition of the body, even though stored up as pathological undermetabolized fat, is deposited as a contributory revenue for future gout and innumerable other distempers and pains.

Kohnstamm believes that there is some substance among the proteid products which fails of digestion to peptone, and has a direct inhibiting effect upon the peristalsis; or, it may possibly act indirectly by checking the secretion of the intestinal walls, thus rendering the contents of the intestine dry and less susceptible to the peristaltic action. He does not admit that man is truly omniverous, and thus incompetent to digest those large quantities of meat, eggs, and other protei'ds that the modern palate usually craves. Mangelsdorf calls attention to the fact that the condition of the stomach usually parallels that of the intestines; atony of the one usually means atony of the other, and the determination of the outlines of the stomach is usually thus an index of the condition of the intestinal musculature. Admitting the above, I would like the privilege of adding another link on either end by saying that the condition of the mouth is frequently an index to that of the stomach, and that the condition of the anus is frequently an index to the condition of the colon; and now another link in the middle, by saying that the condition of the whole alimentary canal is an index to the condition of the liver, and that this important gateway is seriously overtaxed by the gastronomical crimes of the modern palate; that the two pints of bile which are daily poured into the intestine are frequently incompetent to metabolize its putrefying contents so that its portal return is free from the bacteria which provoke the kidney beyond its ability to excrete. This spells toxemia and constipation, and if I were asked to elect the least important fatcor in the etiology of these pathologies I would not elect the mouth, for I believe that the septic stumps therein contained must often be an important etiological factor in the infection of an otherwise sterile pabulum.

Now, considering the birthright of every intestine to a normal pabulum, the regular reception of which seems to be intended for the normal excitation of the intestinal muscularis in its lifework of peristalsis, we may now ask: What are the conditions which render possible, therein, the develop-

ment of constipation, the microbe of infection, and the resulting toxemia? What are the conditions which may inhibit these pathologies? This naturally brings us to a consideration of the putrefaction-resisting values of the proteids which are pathologically considered to be the putrefiable toxin-forming factors of the toxemia which usually accompanies the constipation. Not only is the proteid of the food the one of least bacterial resistance, but it often, also, is the vehicle or medium through which the injurious bacteria are carried and propagated directly through the intestines into the circulation, and then, on the other hand, not only have the hydrocarbons and the fats the highest bacterial resistance, at least in so far as it concerns the injurious bacteria, an equal or even a higher caloric value, but they form, also, the most desirable and most easily eliminated pabulum, and they should, therefore, receive the first consideration in the dietetic treatment of those otherwise irremediable atonic conditions of obstipating constipation for which we usually resort to mechanical measures, and which at times menace life through their disposition to infection of the retained pabulum and the consequent toxemia which follows. That it is not the constipation *per se* and alone that is the whole factor in the accompanying toxemia is evident, for Bouchard cites a case of forty-day retention of dry nontoxic feces without serious sequel, and similar cases of weekly retention are not at all rare, and it is further proven by the relief that comes from the administration of the cathartic many times before the bowels move or even show a disposition to move, nor does this relief come alone from the action of the cathartic on the liver, for the frequent and prompt relief comes before the defecation, as well through the injection of a copious enema of water; but this, in my experience, cannot be said to follow the peristalsis that is mechanically set up by the dry wool tamponade of the rectum, since many times the symptoms of the intoxication continue even after the defecation. Therefore, I consider the assumption safe that the preevacuation relief is the result of the reversal of the tide of osmosis toward rather than away from the intestine. In other words, the physical law of osmosis tends to equalize the liquids on either side of the membrane which is separating them, and in the present instance, before the equalization takes place, so that the tide can reverse, the bowels move, and the relief is, for the time being, at least, complete.

The symptomatology of constipation in different individuals seems to bear a surprisingly small relation to the pabulum quantity *per se;* but a marked relation to its quality *per se*. One hour's retention of an infected pabulum will produce a greater symptomatological sequence of injury than will a day's retention of the uninfected pabulum. That this is a fact is evident in every practitioner's experience, and it is probably this fact which makes the obesophobic patient, which assures the success and raises the par value of the stock of the many laxative mineral-water concerns which thrive throughout the land. One of these advertises: "A movement of the bowels is an asset in the ledger of health." Few notice that they have left out the words "normal movement," and few are aware that this "asset," from the continual hurry of the partly digested proteid pabulum into the domain of the colon bacilli, this sweeping out of the lactic bacillary defenses before it, are the first factors in the establishment of a chronic toxemia which does many times as much harm as the simple constipation. It is in just these cases, in particular, that we get such excellent results in the reestablishment of the lactic bacillary element of the normal intestinal flora through the continued administration of the sour milk. It is the toxemia, and not the constipation *per se* that does the harm, and if the theory of Kohnstamm is right, then the toxemia may well be the etiology of the constipation, and the relief of the one means the relief of the other, and this is best accomplished and maintained by the continued reinforcement of the lactic bacilli which preclude the spread of the colon bacilli, and this can be further inhibited by the cellular hydrocarbon dietary which favors the proliferation of the lactic bacilli.

That the suggestions for treatment are far from complete, and still crude, the writer is well aware; but that it is one of the few avenues to real prophylaxis, a therapeutic measure that does not rob Peter to pay Paul, one that will preclude much of the painful, serious and life-shortening pathology resulting therefrom is evident.

105 West One Hundred and Thirty-sixth Street.

ABSCESS IN THE FRONTAL LOBE OF THE BRAIN AFTER CHRONIC FRONTAL SINUSITIS; ERYSIPELAS IN CONJUNCTION WITH ACUTE MASTOIDITIS.

By ALFRED WIENER, M.D.,

NEW YORK.

In the two cases reported below some observations were made which I believe may be of sufficient interest to warrant their report.

W. H., 28 years of age, entered my service in the hospital, complaining of a persistent headache over the right frontal region. He is single, a painter by occupation, indulges moderately in alcohol and tobacco, and gives a negative history in regard to syphilis and tuberculosis. Never suffered from rheumatism or gout. With the exception of measles, does not remember ever having been ill. About four years ago suffered from what was evidently an empyema of the frontal sinus on the right side, which necessitated, according to the patient's description, an external operation. A year later a second operation was performed. Since that time, in spite of the fact that he has suffered from recurrent attacks of excruciating headache, radiating from the region of the right frontal sinus over the entire head, he has repeatedly refused to have anything done. At no time has there been any vertigo or vomiting. There has been a periodic discharge of pus from a fistula which exists at the lower and inner portion of a depression located in the region of the right frontal sinus. Whenever this take place he is free from headache for a short time. The patient is a robust and healthy looking individual. An examination of the nose reveals practically nothing. An attempt to probe the frontonasal duct is unsuccessful.

There is no tumefaction existing either over the inferior or middle turbinated bones, nor the slightest evidence of any polypoid degeneration within the right nostril. It is free from all secretion. Externally one notices a deep depression with a rectangular scar, so placed that it prevents the patient from closing his lids, the upper lid being drawn up in a notched-like fashion just about the junction of the middle with the inner third of the brow.

Here is present a fistulous opening, covered by a scab, which when removed allows a drop of pus to escape. Upon probing this fistula one comes directly down upon bare bone. The patient of late has become rather forgetful, and at times very irritable. His vision is perfect, and the fundus in both eyes shows nothing abnormal. Heart, lungs, and kidneys are negative. A blood examination shows a leucocytosis with a differential count of 72. There is a slight rise of temperature in the evening amounting to 100°. There is distinct tenderness to percussion and pressure over the entire frontal region on the right side, especially so over the upper and inner portion of the brow.

Judging from the symptoms present, and what the patient had experienced since he had undergone two operations, both having been performed by competent men, I felt quite confident that I would have to seek for the cause of these headaches within the cranial cavity. The presence of tenderness in the frontonasal region, the periodic discharges of pus attended by relief for a short time from these headaches, the persistence of the headaches in spite of the fact that the frontal sinus had been undoubtedly thoroughly eradicated, the noticeable forgetfulness and irritability of the patient made me suspicious of the fact that these symptoms were due to a brain abscess. An operation was advised, but refused. Two weeks later the patient was found in a semistuporous state, passing from one convulsion into another. They were not of the Jacksonian type, but general. This I was able to observe personally, witnessing three attacks.

There was no doubt now about the character of the lesion. This patient was suffering from a brain abscess, probably within the frontal lobe. The convulsions were undoubtedly brought about by the collateral edema.

Under chloroform anasthesia the entire region of the frontal sinus was exposed. It was found to have been completely eradicated. On the upper and inner portion of the posterior wall there was noticed a small, black spot, about the size of a shoe button. In probing this gently my probe found its way into a cavity about three and a half inches in depth. On withdrawing it about a half teaspoonful of pus escaped under pressure. The incision in the scalp was extended up over the frontal bone, the scalp elevated and retracted, then, with rongeur and chisels, an area was laid bare about the size of the palm of one's hand. In a region about the size of a twenty-five cent piece the dura was found discolored and partially covered with granulations. These were scraped away. Instead of making a flap in the dura a crucial incision was made, the object being not to disturb the adhesions which existed between the dura and pia. The crucial incision brought me directly into the abscess cavity. The pus was allowed to flow out freely and carefully sponged until the entire cavity appeared to be clean. One could now gain some idea of the size of this abscess. I should say that it measured about the size of a small child's fist. It contained about four ounces of pus, in a semifluid state. The sponging was done with flexible applicators wrapped with absorbent cotton. When we had completely cleansed the cavity it was wiped with 98 per cent. alcohol. Before this was done I had convinced myself that the abscess was encapsulated. Instead of putting in a drainage tube, the entire cavity was packed gently and not too firmly with one-half inch selvaged edge 5 per cent. iodoform gauze. A loose dressing of gauze was placed over this, and a bandage applied.

The patient was placed in bed with the upper portion raised. His head was flexed with a slightly downward bend toward the right side. This position we hoped would favor drainage. It certainly did act so in a most admirable manner, as the dressings when removed constantly demonstrated.

On the following day the patient felt perfectly comfortable, and the outside dressings were changed. On the third day the internal packing was removed and scarcely any secretion was found in the cavity. It was allowed to fill up with granulation tissue, which it did most readily, and after seven weeks the cavity was closed. It is over one year since the patient was discharged as cured. Since that time he has had no more excruciating headaches, nor has he been conscious of any pain within this area. I have purposely waited one year before reporting this case, as I wished to assure myself that there would be no recurrence of the original trouble. He is actively engaged at his former occupation as a painter, and appears perfectly well.

Miss E. C., 45 years of age, was admitted to the hospital on the 24th of November, 1909. She was suffering from excruciating pain in her left ear. In addition, there was some tumefaction in front of and below the lobule of the same ear, with extreme sensitiveness to pressure. The patient told us that she had had several seizures of this nature, and that they always culminated in attacks of erysipelas. In none of the previous attacks, however, was the pain in the ear so excruciating.

On examination the patient showed herself to be of a robust constitution. The temperature per rectum was 102°, with a pulse rate of 96, and respirations 28. Lungs, heart, and kidneys were normal. The tumefaction in front of the ear occupied an area representing the region of the parotid gland. The skin over this area showed not the slightest evidence of an erysipelas or even an erythema. It was extremely sensitive to the touch, but did not pit on pressure. Not the slightest pain, tenderness, or edema was present over the mastoid process. The external auditory meatus was normal, but the tympanic membrane was reddened and bulging. Its landmarks were no longer distinctly recognizable. Hearing was reduced to conversation at about ten feet. While the external picture did make us suspicious of an infectious parotitis, there was no doubt about the condition existing within the middle ear, viz., an acute otitis media.

A paracentesis was advised, accepted, and performed under anesthesia. A serosanguilent fluid escaped, but no pus. On the second day the temperature arose to 103°. In spite of the free discharge, the pain was still very severe. On the third day the temperature arose to 105°, and at the same time all the evidence of a florid erysipelas made itself apparent. It occupied an area represented by the parotid region in front of the ear, about a hand's breadth below and behind the ear, directly over the mastoid process. There was now a free discharge of pus from the ear, and the pain in this region began to subside. The erysipelas spread over the face, neck, and chest, and into the scalp, with some tenderness, very superficial in character, over the mastoid bone. The temperature began to drop, and on the sixth day had reached 100°. The patient expressed herself as decidedly better.

On the evening of the sixth day she complained of feeling chilly, and the temperature arose to 104°. Toward morning there was marked tenderness and edema over the mastoid bone, with a very noticeable decrease in the amount of discharge from the middle ear. A blood count showed leucocytosis and a differential of 84. In spite of the fact that we were dealing with a rather treacherous condition, an acute mastoiditis in the presence of an erysipelas, we decided to open the mastoid in order to avoid, if possible, the more serious complications. We believed this to be the only rational procedure under the circumstances. The mastoid was opened and sufficient was found to warrant the procedure. On the following day the temperature dropped to subnormal, 97.3°, and in the evening arose to 104.2°. This rise during the first twenty-four hours did not occasion any alarm, as the patient did not appear to be disturbed thereby. Her general condition was good, and she felt most comfortable. Within forty-eight hours the temperature dropped to 99°, and ranged between 99° and 100° for two weeks thereafter. After six weeks the wound had closed and the patient had entirely recovered.

Remarks.—The case is of interest on account of the presence of a mastoiditis during an attack of erysipelas. An operation is urgently demanded. In spite of the fact that such an operation was done within the erysipelatous area, not the slightest disturbance in the way of any serious complication occurred. We are all of us aware of what a treacherous complication erysipelas is in the presence of a wound; how one serious complication after another will attend such an infection. I must confess, therefore, that I was rather surprised at what I believe to have been rather an unusual outcome in this case. The result goes to show that the idea of an erysipelas exerting a curative effect upon some wounds, as acknowledged by some authors, is not altogether wrong. Let us bear this fact in mind.

THE LODGE PRACTICE EVIL OF THE LOWER EAST SIDE.

By MORRIS JOSEPH CLURMAN, A.B., M.D.,

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Human progress in all endeavors has always had obstacles to be encountered and overcome. And it is a healthy fact that the medical world has not been exempt in this respect. But in the medical sphere, as well as in other spheres, optimism alone, without any other substantial aid, is not sufficient to root out and ameliorate existing evils. Aside from the great and knotty problems followers of Hippocrates have in common all over the world—including medical, social and, of late years, even political questions—there exist various local influences and tendencies in every medical community.

The vast city of New York with its labyrinth of manifold activities is not a fortunate exception to this state of affairs. Among the local medical community, especially of the lower East Side, there has sprung up of late years an evil so virile, so powerful, and so destructive toward medical ideals, that in time only a mythical Perseus will have to spring forth to destroy this Gorgon Medusa, if concerted action on the part of the East Side medical profession is not taken to check it now.

This alarming evil is nothing more nor less than the existing state of East Side lodge practice with its concomitant train of manifold degradations to the local medical fraternity. At the present time there are in existence downtown somewhere between 1,500 and 2,000 lodges, societies and benevolent associations founded mainly by the poorer class of workingmen for a double purpose; namely, social intercourse and mutual aid or benevolence. An iron-bound practice or custom has arisen for each society to elect some physician to take care of the health of the society members—for a consideration. What this consideration amounts to, we shall see later.

Stated thus baldly such a condition of affairs would seem to be reasonable, practical, and eminently satisfactory. But let us investigate more closely and see what the results of such an arrangement have been. Twenty years ago, when lodge-practice was in its infancy, societies would send humble delegates to some physician and ask him to accept the office of lodge doctor for a fair and reasonable consideration. In most cases the physician thus approached would think twice before entering into such an agreement, since, very naturally, routine family practice with its direct returns for every call seemed more remunerative than cheap contract practice. However, young and ambitious medical tyros naturally sought some means of getting patients to come to them, and this seemed an easy way to help make both ends meet and also to obtain what seemed to be a legitimate and ethical way of advertising one's self.

'Tis true that for some years all physicians who undertook such lodge practice found in it a wonderful stepping-stone towards obtaining a medical reputation. The lodge doctor found that he came in contact at the sick bed with a large class of patients who would not have patronized him in any other way. In time, however, the lodge physician, after establishing a reputation as a busy practitioner—and, perhaps, as a good one—became more or less independent. He discovered that it now paid him to disentangle himself from the onerous duties of a lodge doctor and once more resume straightforward family practice. What with the advertisement he had received, the numerous families who had employed him in the capacity of lodge doctor and the normal growth of his regular practice, he now found that financial affairs went smilingly with him even after giving up these societies. Very naturally such shining examples of medical success and pseudoprominence came to be regarded with envy by others of the East Side profession, and more especially those of the younger element.

Hand-in-hand with the increasing number of physicians on the East Side, a keen competition now arose among them to be elected as lodge physician in as many societies as possible. Many sought these positions, and it seemed that another Eldorado had been discovered, or a new gold mine had been unearthed.

But now the quilt had been reversed. It was the doctors who sought after the societies and not *vice versa* as formerly. The societies found that, inasmuch as physicians were so anxious to be their lodge doctors, they could well afford to discriminate and choose from the numerous candidates.

At first the chief qualifications for a physician who wished to be a lodge doctor were his medical skill and knowledge. But as laymen, especially those of the lower strata of working men, are not the best judges of the professional merits of a physician, it was not long before the physician with

the best business instincts "crawled and intruded" into the occupancy of these positions. The physician who knew how to ingratiate himself into the good will of some of the individual leaders or more active members of these societies was almost invariably elected. At first he simply had to be "a good fellow" with them to become the holder of the coveted positions. In time even that wasn't enough. He had to hold out more inducements. And these inducements naturally varied with the caliber of the men with whom he was dealing. Sometimes the judicious distribution of a few "shekels" among the most influential of the society leaders brought the physician the necessary votes to elect him. Sometimes it was the unwritten promise of a bounteous "blow-out" to the members if he were elected. Or again the physician would pledge himself to make free calls to all the members regardless of their place of residence, whether it happened to be far uptown or in remote sections of Brooklyn. In this manner it often happened that a worthy medical candidate would be defeated by his more Philistinic colleague. It is easy to see what a deplorable state of affairs such an unequal competition naturally and inevitably has brought about.

At the present day it is no longer a question of the physician's merit and professional ability as to whether or not he will be chosen as society doctor. Indeed it has come to be a matter of an adroit art to obtain societies; and the physician most skilfull in this art is rewarded with the bone of contention. To be proficient in this art, however, means to overstep the borderland of medical ethics and very often it means straying far beyond this borderland.

What a degrading spectacle it is to see three or four medical men at one of these society elections. Each candidate comes fully prepared with printed ballots bearing his name which he distributes among the lodge members. While the vote is going on and the ballots are being counted these physicians sit like culprits and await the result of the election. It is difficult to say who should feel more chagrined after the count is over; the lucky (?) winner or the defeated candidates. The latter have been weighed in the balance, judged, and found wanting by these poor misguided workingmen. What a farcical application of the law of "the survival of the fittest." It is not hard to see or understand why the natural respect due to the professional man from the East Side laymen has gradually become undermined and well-nigh extinct. How can the proper respect be fostered by medical men who descend to the practice of selling their art as hucksters dispose of their cheap wares?

Let us cite an actual instance showing how far this lack of respect has gone. A certain East Side lodge doctor gets a hurry call about 8 A. M. to one of his lodge families. After some delay he hastens to the house and climbs up five flights of stairs to the family in question. When he arrives he is greeted by the housewife with a severe scolding because of his tardiness. In some alarm he inquires if he has come too late. He learns that he has come too late—that is, too late to allow the youngest child to attend school. It seems that it was the opening day of school and the mother had called the physician to make out a vaccination certificate for her little daughter so that she could be in time for school with the proper credentials. Small wonder that the physician's services are held so lightly when it is proffered at such cheap and degrading terms.

To-day there is scarcely an East Side workingman who is not a member of some association which has a physician to take charge of its members. Let us see what are the average rates of remuneration for the lodge doctor. With very few exceptions the market price "per head" is as follows: One dollar a year for each unmarried member and three dollars a year for every married member including his family. And let us not forget that the East Side workingman when married does not believe in race suicide. For these terms he is supposed to make as many professional visits in time of sickness as he is called upon to do. Very often he may be called upon forty or even fifty times during the year by one family. Time and again he is called for the most trivial of complaints, since his presence is so easily obtained. What a shame and degradation that our noble profession should become so cheapened. *"O tempora, O mores!"*

Let us consider what little chance a young graduate now has on the East Side. If he happens to be a well-trained man from a good medical school, a hospital man and perhaps with a good preliminary medical education it is all the worse for him. He will not be given the chance to practise medicine legitimately. A fair competition would be conducive to his ethical progress, but when he discovers that commercialism has become the prime factor, it is not long before his lofty ideals are dragged and sullied in the dust. Especially is this true of the able but needy young practitioner. He soon discovers that the only way he can build up a practice is by getting lodges. Instead of devoting his spare time to perfecting himself in his medical knowledge, he is compelled to devise ways and means for obtaining societies. The iron heel of necessity compels him to become proficient in the invidious art of winning out at society elections. His medical mind becomes warped and instead of progressing ethically he gradually retrogrades into a proselyte of commercialism and a mere huckster of medical advice.

Still another element which harms both the lodge doctor and his lodge patients must be considered. What is the quality of medical advice and attention that the lodge doctor can give to his lodge patients? Let us say that he has reached the stage where he looks after eight or ten lodges. On a routine day he may see thirty or more lodge patients. Can he conscientiously examine each patient and make the proper diagnosis? That would be well nigh impossible, for after all it is only a question of human nature over again. He unconsciously—or consciously, perhaps—begins to discriminate against his lodge patients. He gives them a very superficial and cursory examination and prescribes for them with a snap diagnosis as foundation for his therapeutic advice; or, worse yet, he prescribes without any diagnosis and with merely an eye towards symptomatic relief.

As a natural result the lodge doctor becomes careless and slipshod in his medical ways. His diagnostic ability not only remains at a dead standstill but from "disuse-atrophy" retrogrades so far that his advice is of no more value than that of the corner druggist.

We are in too enlightened an age not to be able to remedy or at least make lighter most evils and the evil of lodge practice is one that can be solved and eradicated. To do this vigorous and strenuous action must be taken by the East Side physicians. In the main it is only by a return to their medical

ideals and "by grappling these ideals to their souls with hooks of steel" that they can solve this problem and straighten out the course of this medical boomerang.

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THE KING'S EVIL.

By HORACE GREELEY, M.D.,

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Once upon a time, as all orthodox fairy tales begin, it was a frequent occurrence for a terrestrial potentate to take with him to heaven governmental authority, as is evidenced by well-known instances in Grecian mythology, such as that of Saturn and his three sons, Jupiter, Neptune, and Pluto, several of whom, tradition states, were once rulers of well-defined districts of ancient Greece and even now astronomy preserves to most of the family a celestial inheritance.

Later on in this, which some might call the mythological age, the gods became more jealous of their prerogatives and, instead of permitting a pollution of their casts by admixture with mortals, frequently contributed to the parentage of the more illustrious men. Nearly all the heroes of Homer and the kings of Hellas boasted of blood of heavenly hue derived from peculiar connections of some one of their ancestresses, which, if with other than the gods, would have been as carefully concealed. But a la Mazeppa's Count Palatine, "A King, had reconciled him to the thing," they felt honored by even an ichorous taint.

As men grew less credulous, or perhaps less romantic, these claims gave way to that of selection by divine interposition, and, in Christian times at least, all early rulers were considered to have been chosen by a decree of the omnipotent and, upon assuming the crown, were anointed as a special sacrament as a sign of holy authority and general infallibility. Whenever even ordinary decency and a pretension to piety were possessed by the wearer of the purple, popular enthusiasm and craving for the extraordinary frequently credited the monarch with miraculous ability to cure disease; and, while all manner of ailments were originally supposed to yield to kingly interposition, it was in England that the belief finally crystallized into specialism, and tuberculous disease (producing swelling and ulceration) of the glands of the neck became known as the King's Evil, upon which the reigning majesty's touch was thought to exercise particular and peculiar curative power.

Edward, surnamed the Confessor, is regarded as the father of the procedure and after him most of his successors, down to and including Queen Anne, exercised the privilege and were credited with effecting good results.

William of Malmesbury, writing in A. D. 1100, 40 years after the Confessor's death, records: "A young married woman, but childless, was afflicted with swellings about her neck, and fell into bad health. Being commanded in her sleep to inquire for the bathroom of the king, she entered the palace, when the pious king, dipping his hands into the water, and stroking her neck, soon restored her to a happy state of health." And the same authority states that this prince was equally successful in many other instances. The person touched was usually given a small sum of money, to relieve his urgent necessities, but no particular coin, as later came to be the practice in the reign of Henry VII who bestowed upon each sufferer a gold "angel" (a coin which had upon one side a representation of an angel stamping upon a dragon) as an amulet, which was considered to continue the good influence of the magic touch with the patient indefinitely.

Although all of Edward's successors are not known to have practised the procedure, still it never was forgotten and varying with the character of the monarch it was given prominence or fell into disuse.

Henry VII, a great lover of ceremonial and religious parade, made the most of this inheritance and established a routine to be observed during the procedure, the chief part of which was the recital by an attending prelate of a prayer, modified from an old exorcism used to drive out devils.

Elizabeth, although a daughter of religious reformation, is said to have touched a great many for the cure of the disease, but first required one of her physicians to examine the case and to certify that the sufferer was actually afflicted with the Evil, and that he was either too poor to secure regular medical attendance or else was so seriously ill that the usual ministrations could offer no hope of betterment. It is recorded that a militant and irreconcilable papist, confined in prison for his opinions, developed a severe case of the malady, and was touched by the Queen for its cure, which was thereby effected so thoroughly and speedily as to completely win over the non-conformer who avowed that one possessed of such powers was most certainly an instrument of God, and that hereafter he would take his spirtual food from her hand. Elizabeth, however, would never claim infallibility in this particular, although flattered by, and glad to see, belief in it by others; and once during a royal progress was so besieged by would-be patients that she exclaimed in her usual hysterical hypochrondriacal way: "Why do these poor folk come to me? God only can cure them."

That canny Scot, James Stuart, whose anxious expectancy was eventually awarded with Elizabeth's crown, failed not to exploit every jot and tittle of his inheritance and did not neglect to show the new cunning his hand had gained. He was perhaps particularly pleased to parade this power before his old enemies in Scotland, later known as the Covenanters, who pretended to be greatly outraged by any assumption of spiritual authority by the King. It is recorded that in 1618 the Turkish Ambassador presented his young son to James and asked that the royal hand be applied, which the king graciously did, omitting the prayers usually offered during the ceremony. At the end of seven days the accomplished courtier returned to thank his majesty for the complete cure which, he most diplomatically claimed had been effected. The only change made by James in the ceremony, as inherited from Elizabeth, was to give a smaller piece of gold than before to each applicant.

Charles the First enjoyed great popular credit for the efficacy of his touch and appointed particular days whereon all the afflicted might repair to his healing hand; but to guard against those who abused the royal favor by frequent return to secure another gold piece, he required every applicant to present a certificate from his parish curate that he had not previously been touched. Later, while he was a prisoner of the Parliament's in Holmby House, so many people flocked to be touched that the Round Head government issued a proclamation decrying the practice as

most superstitious and abominable. After the King's execution it was claimed that the contact of various articles stained with his blood continued the cure in England.

Cavalier historians declare that whenever Cromwell attempted to exercise this holy regal power, instead of improving, the case always grew worse and rapidly failed, so seared was it by the regicide's noxious touch.

At the Restoration, Charles the Second, returning with that aureole lent by the romance of adversity and exile, found awaiting him a people reacting from overindulgence in puritanism, wildly enthusiastic in support of the divine right of a king and consequently most eager for a revival of his most holy office.

And it is he that carried the practice to its greatest extent. Registers were kept of all those touched and each individual before gaining access to the King was examined by a physician and given a ticket, and certain days and places were appointed for general rendezvous. Evelyn in his diary thus describes the ceremony under an entry of July 6, 1660: "His majestie began first to touch for ye evil, according to costome, thus: his majestie sitting under his state in ye banquetting house, the chirurgeons cause the sick to be brought or led up to the throne, where they kneeling, ye king strokes their faces or cheeks with both hands at once, at which instant a chaplaine in his formalities says 'He put his hands upon them and he healed them. This is said to every one in particular. When they have been all touched they come up again in the same order, and the other chaplaine kneeling, and having angel gold strung on white ribbon on his arm, delivers them one by one to his majestie, who puts them about the necks of the touched as they passe, whilst the first chaplaine repeats, 'That is ye true light who came into ye world.' Then followes an epistle (as at first a gospel) with the liturgy, prayers for the sick, with some alteration; lastly, ye blessing; and then the lo. chamberlaine and comptroller of the household bring a basin, ewer and towel, for his majestie to wash."

Charles frequently treated as many as 600 at a sitting (in 20 years of his reign there were recorded in the register some 100,000 cases) but notwithstanding his activity, a greater proportion of the population died from the disease, according to the mortality lists than under any other sovereign. Were the king's services required by persons of quality his majesty was always willing to attend them in their lodgings and apart from the common people.

Of course, many of those that flocked to the court to be cured came only out of curiosity, or for the gold piece to be obtained, but of those actually ailing it is to be presumed that some either got better from natural causes, or imagined that they had been benefited and so long as popular belief upheld the practice any caviling individual was sure to be drowned with lèse majesté clamor.

Queen Anne was the last of the English rulers to touch to cure, and one celebrated instance of her failure to heal was the case of Dr. Samuel Johnson whose throat she stroked when he was 4½ years of age, but who throughout his life suffered from the malady.

The English kings were imitated by their near rivals of France, who would not be outshone in Divine favor, and it was even claimed that the practice had originated with King Clovis some six centuries before Edward the Confessor's time; but it appears that Louis IX, St. Louis, in the 13th century, was the first French monarch to acquire the magic touch of healing, and almost every one of his successors up to the Revolution exercised it.

Francis I, although generally a very gay Lothario, was credited with very many cures and even after his foolhardiness had landed him a prisoner in Spain his poet said of him:

"The king applies his hand, diseases fly,
And though a captive, still the powers on high
Regard his touch, thus striking proof is given
That they who bound him are the foes of Heaven."

Of Louis XIII it was said that when he deputized to Cardinal Richelieu every other power, he only retained this because if he parted with his hand he could no longer pull candy.

A CASE OF TETANUS SUCCESSFULLY TREATED WITH MAGNESIUM SULPHATE.

By CHARLES D. FOX, M.D.,

PHILADELPHIA, PA.

As the general recognition of the value of any comparatively new method of treatment depends largely upon reports of cases, whether successful ones or not, the following case is reported as an addendum to a paper on tetanus which appeared in the Medical Record of August 13, 1910.

While playing near a stable, at Ambler, Pa., a boy of twelve years ran a splinter into the right great toe. The splinter was removed at once by the patient, but two days later, August 10, 1910, the wound became septic. After a period of incubation lasting eleven days stiffness of the jaw became apparent, and the following day the back was involved. Tetanic convulsions developed August 20. The boy was sent to the Hahnemann Hospital of Philadelphia, August 21, and the wound was completely excised and cauterized by Dr. W. Nelson Hammond. At this time trismus was almost absolute, decided opisthotonos was present, his temperature varied from 99 3/5° to 101 3/5°, and he was delirious. Besides these conditions he complained of considerable pain throughout his muscles, vomiting was frequent, he perspired profusely, and during the first night in the hospital five convulsions occurred with moderate embarrassment of respiration.

The first day in the hsopital he was given a subcutaneous injection of 3,000 units of antitetanic serum, and, at the same time, 1,200 units was injected into the spinal canal. Subsequently 3,000 units of the serum was injected every six hours, at first subcutaneously, and later by the intravenous method. Further treatment consisted in the administration of a saturated solution of sodium bromide, commencing with 5 drops every four hours, combined with chloral hydrate. At first it was attempted to give these drugs by mouth, but by reason of the frequent vomiting it was necessary to inject them into the rectum. The size of the dose of each of these two drugs was rapidly increased in an attempt to control the convulsions and general rigidity, so that on the third day the patient was receiving every four hours 7 grains of chloral and 40 drops of the solution of sodium bromide. In addition to these measures every evening for five days ⅛ grain of morphine was given by mouth.

August 22, 1910, the rigidity had become general, and was so marked that the abdominal wall felt boardlike. The patellar reflexes were greatly increased, and bilateral Kernig's sign had developed, but at no time did he present either the Babinski sign or ankle clonus. The convulsions were frequent and mild. Parenthetically, there seem to be two general types of tetanus: one in which the disease occasions well-developed tonic convulsions with little general rigidity in the intervals, while in the other variety the convulsions are rudimentary, but the rigidity is constant and extreme. It was to the latter class that this patient belonged.

As the patient continued to grow worse, and as the serum and hypnotic drugs were failing to control the development of the disease, 2 c.c. of a 25 per cent. solution of magnesium sulphate was injected into the spinal canal August 23, after removal of an equal quantity of cerebrospinal fluid. The effect of this injection upon the pulse and respiration was practically nil. Instead of occasioning an alarming drop in the respiratory rate, such as has occurred in other cases, the respirations increased from 26 to 32, while the pulse remained about the same—120 per minute. Not any immediate effects of this injection were noticeable, but four hours after the injection the upper and lower extremities were found to have become almost completely relaxed. There was little change, however, in the amount of rigidity of the abdomen and back. Instead of continuing to become worse the patient remained about the same as during the first twenty-four hours after the injection, so that further administration of magnesium sulphate was considered unnecessary.

About the seventh day after admission gradual improvement set in, and the serum was discontinued. At the same time the doses of chloral and bromide were progressively decreased so that four days later these, too, were discontinued. At present, September 14, the patient is entirely well, and will be discharged from the hospital in several days.

During the first week in the hospital the patient received 60,000 units of antitetanic serum. Of this 24,000 units were given by the intravenous method, 12,000 were injected into the spinal canal, and the remainder subcutaneously. Even though intravenous injection of the serum may not possess any therapeutic superiority over the subcutaneous method of administration of this agent yet it has a decided advantage in being much less painful, and in being less apt to be followed by a disagreeable local reaction.

As it is difficult to administer an amount of food sufficient to compensate for the excessive waste occasioned by the disease, and as trismus interferes greatly with the ingestion of food, ice cream was found to be a valuable nutriment in this case; particularly as the patient could not tolerate milk.

Even though the period of incubation was eleven days this case may be classified as a severe one, and until the beneficial effects of the injection of magnesium sulphate became apparent the outcome was considered dubious.

2126 Pine Street.

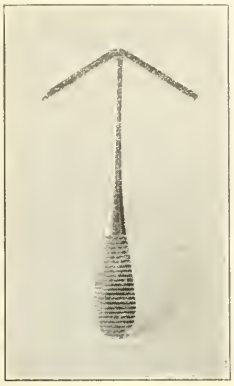
Meningeal Reactions in Scarlet Fever.—G. Paisseau and L. Milhit, on the basis of numerous lumbar punctures, come to the conclusion that irritative conditions of the meninges are almost always found in infections occurring in young people. The pressure of the cerebrospinal fluid was slightly increased, and a lymphocytosis was frequently present. In no instance were microorganisms found in the fluid.—*Bulletin de la Société de Pédiatrie de Paris.*

GUIDE FOR THE LATERAL SINUS LINE.

By EMIL AMBERG, M.D.,

DETROIT, MICH.

In the *Journal of the American Medical Association* of May 19, 1906, I published a simple method of finding an easily accessible portion of the lateral sinus. I called attention to the fact that an easily accessible portion of the lateral sinus may be found when we open that part of the mastoid process which is located in the direction of the line which divides into two halves the angle formed by the temporal line and the anterior border of the mastoid



process (an angle of about 115° in adults). Since that time I had occasion to verify the usefulness of this method, at least for adults, not only in my own cases. In order to facilitate the finding of the easily accessible portion of the lateral sinus I had constructed the simple guide depicted in the accompanying figure. One shank should be held over the anterior border of the mastoid process, the other over the temporal line. The handle of the guide gives the direction of the lateral sinus line. Even if the angle formed by the anterior border of the mastoid process and the temporal line should be somewhat different, the instrument is of service by allowing the same margin of deviation to both shanks. The length of the whole instrument is about 8.25 cm.

270 Woodward Avenue.

The Paratyphus Bacillus and Its Clinical Evolution.—E. Job and V. Raymond show that there are two distinct forms of symptoms as a result of the paratyphus bacillus, the acute gastrointestinal and the cholera type. The first form is characterized by vomiting, diarrhea, and choleraic symptoms. It is the result of gastrointestinal intoxication. Contagion may play a part in its causation. In the second form it acts like the bacillus of Eberth. It is most important to make a bacteriological diagnosis in these cases. When we have intoxication from meats, if the symptoms begin very rapidly, it is because the germs had begun to act in the body of the animal before it was killed. The germ is very abundant in the meat and acts at once on the organism. When it arises from water the incubation and evolution are very like that of typhoid. The number of germs is small, and the toxins or endotoxins are not present until the germs have multiplied. The author gives a case illustrating each of these forms of disease from the paratyphus germ.—*Le Progrès Médical.*

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New York, October 22, 1910.

THE DIAGNOSIS OF POLIOMYELITIS IN THE PREPARALYTIC STAGES.

AT a symposium on poliomyelitis held in one of the medical societies of New York City a few years ago, one of the speakers emphasized the importance, in treating this disease, of promoting active elimination through all the channels of the body during the period of invasion. When questioned as to how one may recognize the presence of poliomyelitis before paralysis manifests itself, the speaker admitted naturally that this was impossible, but advocated the eliminative treatment in all cases of suspicious acute illness in children, particularly when poliomyelitis is prevalent. The recent experimental studies on this disease have brought to light evidence upon which a diagnosis might be made some time before the onset of paralysis. The importance of making an accurate early diagnosis is manifest when one realizes the impossibility of checking the process after paralysis has set in, for by this time the virus has already spent its force. In the Monthly Bulletin of the Massachusetts State Board of Health for June, 1910, W. P. Lucas, discussing the diagnosis of infantile paralysis in the prodromal and early acute stage, states that the results of the New York investigation of the prodromal symptoms agree completely with those of animal experimentation. The most noteworthy signs are change of disposition, restlessness, and irritability, or apathy, appearing several days before any other symptoms. The paralysis may even be preceded for several days by delirium and convulsions, or epileptiform attacks. In the exceedingly irritative cases the diagnosis of cerebrospinal meningitis is frequently made. In the prodromal stage not an uncommon finding is pain, most often in the back along the spine or in the joints of the extremities which may show swelling and tenderness. Headache, general or frontal, is frequently present, and this is often accompanied by rigidity of the neck. Suspicion should at once be aroused, if with any of these nervous symptoms there is associated coryza, bronchitis, or sore throat. The temperature is not typical and is of little use as a guide.

In addition to these clinical manifestations, experimental and clinical study has revealed certain diagnostic points that may be obtained from the examination of the spinal fluid and blood in the prodromal and acute stages of the disease. Using virus obtained from Flexner, the author was able to produce paralysis in three monkeys and to transfer paralysis through two subsequent series of inoculations. The study of the blood brought out at least two very interesting facts. The normal differential count was, multinuclears, 60 per cent.; large and small uninuclears, 25 per cent.; lymphocytes, 12 per cent.; eosinophiles, 3 per cent. In the acute stage there was a moderate and constant lymphocytosis, the count being multinuclears, 40 per cent.; large uninuclears, 15 per cent.; lymphocytes, 40 per cent.; eosinophiles, 5 per cent. Parallel with this lymphocytosis there was a marked and constant leucopenia. This drop in the white count continued throughout the acute stage. The leucocyte count did not change during the incubation period, but did change occasionally during the irritative or prodromal stage when there was a marked or moderate drop in the white count.

The spinal fluid showed even more marked and characteristic findings during the incubation period, prodromal, and acute stages, disappearing about the time that the acute symptoms begin to subside, being at their height either in the prodromal stage or on the first or second day of the acute stage. During the incubation period there is a marked increase in the amount of fluid obtained from lumbar puncture, and in its cellular content, there being 100 to 300 cells per cubic millimeter. These cells are mainly of the large uninuclear type, with some multinuclear cells and lymphocytes. In the prodromal stage there is even a more marked increase of the cells, often reaching 1,000 per cubic millimeter. In this stage, also, multinuclears are still present, in some cases as high as 60 per cent., though the large uninuclears and lymphocytes are very evident. In the early acute stage the increase in cells is very marked, these being now mostly of the lymphocytic or very early form of cells, and sometimes very hard to place, as they are apparently undifferentiated cells. As the cells decrease in number the multinuclears begin to return, and at the end of a week or ten days there are very few cells present, mostly large uninuclears with a few multinuclears. In the prodromal and acute stages there was at times a fibrin clot which would disappear fairly early during the acute stage.

These experimental findings were closely paralleled by those observed in four cases of acute poliomyelitis in children. The important points revealed by blood examination in the acute stage were the marked leucopenia and lymphocytosis, while the examination of the spinal fluid, which was increased in amount in all the stages, showed an increase in the numbers of cells, the relative proportions of the different kinds varying in the different stages.

The importance of these investigations cannot be overestimated. The ability to make an early diagnosis will render possible the prompt institution of measures designed to stay the progress of the infection, although such measures may have but slight effect in limiting the resulting paralysis. Early diagnosis will be of still greater value when the antitoxic serum for poliomyelitis will have been discovered.

PURIFICATION OF WATER BY OZONIZATION.

Certainly one of the chief aims of sanitary science is to procure a pure water supply. When this object is achieved, or when a water supply can be obtained which is free from harmful germs, a great victory will have been won. As yet we do not seem to be near realization of this ideal state of affairs. It must be remembered that water is largely responsible for epidemics of typhoid fever and of cholera, to mention the two most serious waterborne diseases, and typhoid fever is by no means extinct in the United States. Sand filtration, and especially slow sand filtration, has done much to check the spread of typhoid fever, but, after all, filtration, of every kind, has its limits; it is filtration and not sterilization.

Recently, a method of purifying water has come to the front, which, perhaps, up to the present time, has not been used on a sufficiently large scale, nor for a long enough period of time to justify any very decided assertions as to its merits. The ozonization of water by means of electricity as a sterilizing agent, is the method to which reference is made. The principle of purifying water by ozone has, of course, been known for a considerable period of time, and it has even been used on a small scale for some years. Its adoption for purifying the public water supply of a fair sized community dates back about seven years. Paderborn, in Germany, in 1902, was the first town of any size to install a system for purifying water by ozonization, and electricity was the agent utilized to manufacture the ozone. The principle of preparing the ozone by electricity is the same everywhere, but the particular method followed in Paderborn and other German towns in which the system is in vogue is as follows: Air enclosed in parallel plates is forced by means of a blowing apparatus through a discharge chamber, where it is subjected to currents of electricity at a high voltage. The velocity of the passage of air through this chamber is regulated in such a manner that when the air leaves the chamber it is impregnated with enough ozone to sterilize water. The water which is to undergo the sterilizing treatment by ozone is first passed through a special sand filter to remove all solid matter in suspension. The water is then pumped into towers and as it passes down through the towers the ozone is forced into them from below and brought into close contact with the water, destroying the bacteria contained therein. The water thus treated and freed from bacteria passes out from the towers and is fit for consumption. Wiesbaden has had an ozone plant for some years which is said to have given satisfaction.

The results of treating water by ozone have been tested experimentally at Koch's Institute and at the Imperial Health Bureau in Berlin. Water was taken from the Spree and largely infected with cholera germs. The water was passed through the ozone plant and an examination showed that the disease-bearing bacteria had been destroyed. Similar results are said to have been obtained with water infected with dysentery and typhoid germs to the number of 600,000 bacteria per cubic centimeter, both at Koch's Institute and at the Imperial Health Bureau, Berlin.

At the suburb of St. Maur, Paris, where from the River Marne is drawn a goodly portion of the Paris water supply, an ozonization plant has been working for some little time. The Marne is highly polluted by sewage, and a preliminary clarification of the water through beds of sand and gravel is necessary before the ozonizing process is commenced. So well satisfied are the Parisian engineers with the result of the ozonization method of purifying water, that it is stated that an ozone purification plant is to be installed at Paris to treat 24,000,000 gallons a day.

The system has been investigated by numerous high authorities, most of whom appear to be convinced of its remarkable sterilizing properties, but a good deal of scepticism still exists as to its applicability on a large scale, and it has also been considered that the cost of the system would greatly exceed that of the filtration methods. However, it really does appear that purification of water by means of ozone can be conducted in a satisfactory manner on a very large scale and that its cost is not prohibitive. The ozonization of water is, however, essentially a sterilizing process and not a filtration process, and that public water supplies, unless the water be peculiarly clear, must undergo some kind of filtration before they are subjected to ozonization.

Some of the advantages of ozonization are obvious. The method sterilizes effectively and frees water from offensive odors and tastes and from objectionable colors. That it does this is sufficient to recommend its use in all large cities. It is an open question, as Rideal said recently in reference to the ineffectiveness of filter systems in preventing typhoid fever, whether it was not advisable that these methods should be supplemented by a process of sterilization. There is no doubt that filtration has been tried and has been found wanting in many respects. Ozonization of water by electricity may not be the best method but it would seem that it is at least one which in the future will have to be considered.

The New Hospital of the Rockefeller Institute.

The opening of this hospital on October 19, 1910, marks a new era in the annals of scientific medicine in New York City. Situated near the Laboratory buildings and open on all sides to light and air, this hospital, with a separate building for contagious cases, represents the most modern ideas in hospital construction and is fitted with all necessary administrative and sanitary appliances. Although the main building is eight stories in height, only four floors are used for patients; in spite of the complete equipment there are only seventy beds. The reason for this limitation is that the hospital is primarily for the purpose of advancing the knowledge of clinical medicine, especially in the nature, diagnosis, and treatment of disease; and that this object can be best attained by the intensive study of a few patients rather than of a great many. The purpose is to concentrate the energies of the institution upon three or

four medical problems at a time, and to admit at any time only such cases as are the subject of study. This purpose will also be furthered by the fact that the medical staff, which is relatively large, will be paid, and each member will devote all his time to the service of the hospital. One entire floor of the building is devoted to clinical laboratories—chemical, biological, physiological, and photographic. The wards are large, but each contains only seven beds. One side of each ward consists of glass, sliding into concealed pockets, so that all the beds may be wheeled out at once and the patients be kept out of doors at any time. An open loggia or roof at each end of the building is large enough to receive all the beds at once when they are wheeled out. There are really eleven roof spaces, so that the greater proportion of the area provided for patients is out of doors.

The Babinsky Sign in Diphtheria.

The investigation of the occurrence of the Babinsky sign in the course of diphtheria may serve to shed some light upon the nervous manifestations of this disease. Kiroff was the first to call attention to the occurrence of this phenomenon in diphtheria, although its presence had already been noted in typhoid fever and scarlatina. Basing his observations on the study of 877 cases of diphtheria in which the plantar reflex was investigated, J. D. Rolleston, reporting his results in the *Review of Neurology and Psychiatry*, July, 1910, states that the Babinsky sign was found in 19.6 per cent. of all cases. The extensor response is not confined to infancy, but is found, though with diminishing frequency, with advancing age, especially after the eighth year. Essentially a phenomenon of the acute stage, it is not pathognomonic of diphtheria, occurring in other infectious diseases, especially typhoid fever, lobar pneumonia, and scarlet fever, but its greater frequency in diphtheria than in non-diphtheritic angina imparts to the sign a certain value in diagnosis. It is more frequent in the severe than in the mild forms of diphtheria; this is shown by the fact that in the cases in which the Babinsky reflex occurs, the throat symptoms are severer, and there is a higher mortality and greater frequency of paralysis and albuminuria. To its presence, therefore, a definite diagnostic value is attributed. Rolleston believes that the sign is evidence of the occurrence of a transitory perturbation of the pyramidal system by the circulating toxins of a nature similar to the mild degree of meningeal reaction frequently occurring in acute infections.

News of the Week.

Health of the Canal Zone.—The report of the Department of Sanitation of the Isthmian Canal Commission for the month of August, 1910, gives the death rate for the month among employees as 13.04. In 1907, the death rate for the same period was 27.59; in 1908, 11.39; and in 1909, 10.28. The annual average per thousand of deaths in the cities of Panama, Colon, and the Canal Zone, including both employees and civil population, was 19.85 for August, 1910; 16.20 for August, 1909; 26.65 for August, 1908; 33.75 for August, 1907; and 64.12 for August, 1906. For diseases the annual average per thousand of employees for the month was: White, 5.28; colored, 8.11. For 1909, the figures were: White, 6.19; colored, 6.10. No cases of yellow fever, smallpox, or plague were brought to or originated on the Isthmus during the month.

Lectures on Sanitation.—A course of lectures on sanitary science will be given this year by Columbia University in the Horace Mann Auditorium, at Broadway and 120th street, New York, on Monday afternoons at five o'clock. Dr. Hermann M. Biggs of the Department of Health delivered the first lecture on October 10, on The Development of Public Health Work, and on October 17 Dr. C. E.-A. Winslow spoke on Water Pollution and Water Purification. The other lectures of the course will be as follows: October 24, Clean Streets as a Factor in Public Health (lecturer to be announced); October 31, Collection and Disposal of Municipal Waste, Dr. George A. Soper; November 7, Communicable Diseases, Diphtheria, Typhoid Fever, Scarlet Fever, etc.—Their Transmission, Dr. W. H. Park; November 14, Communicable Diseases—Their Prevention, Dr. Park; November 21, Some Examples of the Control of Infectious Diseases, Dr. Simon Flexner; November 28, The City Milk Supply and its Control, Dr. Ernst Lederle; December 5, Flies and Other Insects as Carriers of Disease (lecturer to be announced); December 12, Housing and Health, Lawrence Veiller; December 19, Tuberculosis: The General Problem; the Organized Campaign Against the Disease, Dr. Livingston Farrand; January 9, Tuberculosis as a Social Problem; Methods of Treatment, Dr. James Alexander Miller; January 10, What the Teacher Should Know of the Tuberculosis Problem, Dr. S. Adolphus Knopf; What the Teacher Could Do Toward the Solution of the Tuberculosis Problem, Dr. Knopf. The lectures are free and open to the public.

City Death Rate.—For the week ending October 8, there were 1,333 deaths in the City of New York, four less than in the corresponding period of the previous year. This gives a death rate for the week of 14.48 per 1,000 of population in 1910, and 15.28 in 1909. Pulmonary tuberculosis caused 155 deaths, an increase of 11, and pneumonia 108, an increase of 2. Among children under five years of age there were 468 deaths, of which 364 were among infants under one year of age. Seventeen deaths were caused by typhoid fever, which is seven less than last year.

Rockefeller Institute Hospital.—The new hospital attached to the Rockefeller Institute was opened for inspection on October 17 and 18, and for the reception of patients on Wednesday, October 19. The hospital contains seventy beds and will be used for the treatment of selected cases only. For the present, cases of infantile paralysis, pneumonia, heart disease, and disorders of metabolism will be received for study. The staff consists of Dr. Rufus I. Cole, Director; Dr. Christian A. Herter, Physician to the Hospital; Dr. C. C. Robinson, Resident Physician, and four internes. The service will be entirely free.

Crowded Tuberculosis Wards.—The overcrowded condition of the wards used for the treatment of cases of tuberculosis in the Metropolitan Hospital on Blackwell's Island, N. Y., was brought to the attention of the State Board of Charities on October 12. As a result the commissioners decided that the city ought at once to provide for increased accommodations on Blackwell's Island and to complete the Sea View Hospital on Staten Island. It was pointed out that the new building soon to be opened will only temporarily relieve the congestion, if at all.

New Research Laboratory.—In a report of

the work done in the research laboratory of the Department of Health, New York, Dr. Hermann M. Biggs, chief medical officer, urges the establishment of a new research laboratory to be devoted to the study of specific therapy and preventive medicine. The cost of such a laboratory, including salaries, equipment, and supplies, is estimated as about $45,600 annually.

Syracuse University.—A number of changes have been made in the corps of instructors in the College of Medicine of Syracuse University. The course in Anatomy will be conducted by Prof. Henry W. Stiles, until recently of Tulane University, New Orleans, assisted by Dr. Robert H. Haskell, formerly of the University of Michigan. A course in applied anatomy will be given during the second year. Prof. H. Burton Doust will have charge of the course in Materia Medica.

Diphtheria at Hamilton College.—An epidemic of diphtheria has been reported at Hamilton College, Clinton, N. Y. Thirteen cases have been isolated, and a number of men are under observation.

Yellow Fever in Venezuela.—A dispatch from Venezuela to the State Department contains the information that yellow fever has appeared at Puerto Cabello.

Charitable Bequests.—St. Luke's Hospital, Chicago, receives a bequest of $25,000 outright, under the will of the late Mrs. John Mason Loomis of that city. The Children's Memorial Hospital receives $10,000 also. An additional $25,000 will go to St. Luke's Hospital in 1925, provided a brother of the testator has not been found by that time.

Aldermen and Straus Depots.—The New York aldermen on October 11 passed a resolution urging Mr. Nathan Straus "to continue his splendid efforts in behalf of the poor and needy in the supply of pure milk." There was but one dissenting vote.

Open-Air Schools.—Montclair, N. J., inaugurated its first open-air school on October 10, the class meeting in a large tent on spacious grounds. Twenty-one pupils were in attendance. The sides of the tent are open, and the children will be provided with special warm clothing and sitting-out bags for the winter weather.

A special class for tuberculous children will also be opened shortly on the grounds of the Consumptives' Home, in Brooklyn, N. Y. The class will be an annex to the public school nearby.

Ambulance Mishaps.—An ambulance of the Kings County Hospital, Brooklyn, while answering a call on October 9, was struck by a trolley car of the Nostrand Avenue line and wrecked. Both the driver and the surgeon were thrown out and seriously injured.

An ambulance from the Lying-In Hospital, while taking a patient to the hospital on October 12, ran down and injured a man who attempted to cross in front of it. During the attendant commotion the driver of the ambulance collapsed, and the patient in it gave birth to a child before the hospital could be reached. At last reports all concerned were on the road to recovery.

Dr. Bulkley's Lectures.—The governors of the New York Skin and Cancer Hospital announce that Dr. L. Duncan Bulkley will give a twelfth series of clinical lectures on diseases of the skin in the Out-Patient Hall of the hospital on Wednesday afternoons, from November 2 to December 21, 1910, at 4.15 o'clock. The course will be free to the medical profession.

Dr. T. D. Crothers of Hartford, Conn., will deliver a series of lectures on Alcohol and Drug Addiction, at the American Medical College of St. Louis, on December 8, 9, and 10, 1910. The lectures will be open to the public as well as to members of the medical profession.

The Tenth International Congress of Pharmacy met in Brussels on September 1 to 6, 1910. Twenty foreign countries were represented by official delegates, the United States, Argentina, Chile, Venezuela, Guatemala, San Salvador, and Haiti, being included. At the opening session the work of the congress was outlined, two subjects being presented as of the greatest international interest: (1) the further unification of the pharmocopeias, with especial reference to the adoption of uniform methods of assay of important drugs; and (2) the control of the sale of specialties (proprietary medicines) from the standpoint of public health as well as that of the material interests of the pharmacists. For the succeeding days the congress divided into a scientific and a professional section, at each of which various subjects were taken up for discussion. At the concluding session the entire congress again met and voted upon a number of resolutions which had already been adopted by the separate sections. The first resolution presented by the scientific section related to the unification of the methods for the assay of crude drugs and of galenical preparations and for the determination of physical constants. The Belgian government was requested to call an international conference for the unifying of the methods of analysis of the heroic medicaments. In the matter of alkaloidal assays the resolution recommended the adoption of gravimetric methods. The second resolution related to the international unification of the reagents used in pharmacopeial work, pointing out that such a unification would aid in securing uniform analytical results. The third set of resolutions related to the control of antiseptics, with special reference to securing commercial honesty and safeguarding the public, the opinion being expressed that such preparations should not be placed upon the market until they had been officially examined, both chemically and bacteriologically, and had received the approval of the departments of public health; that their efficiency should be determined and the claims made by the manufacturers investigated; that the amount of their active ingredients and their bactericidal strength should be stated, and that the sale of those claiming to possess therapeutic properties and of those containing poisons, the sale of which is legally restricted, should be limited to pharmacists. The fourth resolution related to the introduction into schools of pharmacy of courses on the analysis of certain physiological and pathological secretions, especially of the feces. The fifth resolution related to the preparation of galenicals by pharmacists, who were urged to make these preparations themselves. The professional section presented resolutions dealing with the control of the sale of medical specialties, which it thought should be confined to pharmacists, with the formation of an international pharmaceutical federation having for its purpose the protection of pharmacy as a profession and as an applied science, with the representation of practical pharmacy on pharmacopeial commissions, and with the limitation of the number of pharmacopeias. It was also resolved to make the question of patents and trade marks one of the subjects for discussion at the next congress.

New Jersey State Pediatric Society.—The second general meeting under the auspices of this society will be held in the Hotel Marlboro, Asbury Park, N. J., on Thursday evening, October 27, at 8.30 o'clock. Dr. Linnaeus Edford LaFetra, of New York City, will deliver an address on "Cardiac Affections in Childhood."

The Pathological Society of Philadelphia.—At the annual meeting, held October 13, Dr. David Riesman delivered the president's address, in which he reviewed the work of the Society for the year. An election of officers was held and resulted as follows: *President,* Dr. David Riesman, reelected; *Vice-Presidents,* Dr. A. O. J. Kelly, Dr. A. J. Smith, Dr. J. Sailer, and Dr. H. A. Hare; *Secretary,* Dr. H. E. Goodman; *Treasurer,* Dr. C. Y. White; *Recorder,* Dr. F. H. Klaer; *Curator,* Dr. Howard T. Karsner.

The Norfolk (Virginia) Medical Society at its meeting on October 4 elected the following officers: *President,* Dr. Israel Brown; *Vice-President,* Dr. N. G. Wilson; *Secretary-Treasurer,* Dr. Harvey Baker.

The Lexington County (South Carolina) Medical Society held its annual meeting on October 3 when the following officers were elected for the ensuing year: *President,* Dr. R. E. Mathias of Irmo; *Vice-President,* Dr. Frank G. Roberts of Lexington; *Secretary-Treasurer,* Dr. J. J. Wingard of Lexington.

The Kentucky State Medical Association at its annual convention at Lexington, recently, elected officers for the ensuing year as follows: *President,* Dr. J. C. Carpenter of Stanford; *Vice-Presidents,* Dr. J. W. Pryor of Lexington; Dr. B. E. Giannini of Coalmont; and Dr. G. E. Hancock of Henderson; *Secretary,* Dr. A. T. McCormick of Bowling Green; *Treasurer,* Dr. W. B. McClure of Lexington; *Delegate to the Meeting of the American Medical Association,* Dr. Curran Pope of Louisville. The next annual meeting will be held at Paducah in October, 1911.

The New Mexico State Medical Association opened its annual meeting at Albuquerque on September 29. Officers for the ensuing year were elected as follows: *President,* Dr. Francis T. B. Fest of Las Vegas; *Vice-Presidents,* Dr. R. L. Bradley of Roswell, and Dr. Leroy S. Peters of Silver City; *Secretary,* Dr. George S. McLandress of Albuquerque. Dr. McLandress was also elected editor of the medical journal.

Professor Miguel Bombarda, who was recently assassinated at Lisbon, was best known to foreigners by his work as General Secretary of the Fifteenth International Congress, which met at Lisbon on April, 1906. His genius for organization made the Congress one of the most successful ever held, and at its close his efforts were fittingly recognized by the late King Carlos who bestowed upon him the lilac ribbon, the gold chain, and the crimson cross of the Order of Santiago. Whether or not any political significance attaches to his death has not become known. By some the assassin is said to be merely a madman, a former patient at the Rillafolles Hospital, with a fancied grievance against Professor Bombarda, the chief physician in charge of the asylum.

Obituary Notes.—Dr. John V. Shoemaker of Philadelphia, professor of materia medica, pharmacology, and therapeutics, and clinical professor of diseases of the skin in the Medico-Chirurgical College of Philadelphia, died at his home of nephritis, on October 11, aged 58 years. Dr. Shoemaker was graduated from Dickinson College in the class of 1872, and from the Jefferson Medical College in the class of 1874. Immediately after graduation he became a demonstrator of anatomy in the latter institution, and shortly afterward lecturer on anatomy and diseases of the skin in the Philadelphia School of Anatomy. He aided in forming the Jefferson Quiz Association, and was quizmaster in materia medica and therapeutics. In 1883 he was made lecturer on diseases of the skin in the Jefferson Medical College, and in 1886 was elected professor of dermatology in the Medico-Chirurgical, a few years later becoming also professor of materia medica, pharmacology, therapeutics, and clinical medicine. He was the founder and for many years the editor of the *Medical Bulletin* and a liberal contributor to current medical literature, and was the author of several well known textbooks. Dr. Shoemaker was a member of the American Medical Association and of the Pennsylvania State and Philadelphia County Medical Societies.

Dr. De Forest Willard of Philadelphia, Pa., a graduate of the Department of Medicine of the University of Pennsylvania in the class of 1867, died at his home, on October 15, of double pneumonia. Because of failing health Dr. Willard had resigned the chair of orthopedic surgery in the University of Pennsylvania only a short time ago. He had held many offices of honor in medical circles and was an ex-president of the American Surgical Association, the American Orthopedic Association, the Philadelphia Academy of Surgery, and the Philadelphia County Medical Society, and an ex-chairman of the Section on Surgery of the American Medical Association. He was also a Fellow of the College of Physicians of Philadelphia, surgeon to the Presbyterian Hospital, consulting surgeon to the Germantown, Jewish, and Phœnixville Hospitals, and consulting surgeon to the Widener Memorial School for Crippled Children.

Dr. Joshua R. Morton of Allentown, Pa., a graduate of the Medical Department of the University of Pennsylvania in the class of 1871, died at his home on October 9, aged 61 years. Dr. Morton practised his profession for some time in Petersburg, Va., but later entered into business. He was for many years a member of the Allentown school board, and for the past year its president.

Dr. Frank Blair Olhausen of Harrisonburg, Va., a graduate of the University College of Medicine of Richmond, in 1898, and a member of the Virginia State and Rockingham County Medical Societies, died at his home of cirrhosis of the liver on October 8, aged 34 years.

Dr. Herbert O. Smith of Shakopee, Minn., a graduate of the Hahnemann Medical College and Hospital of Chicago in the class of 1881, and a member of the Minnesota State and Scott County Medical Societies, died suddenly of apoplexy at his home on October 4, aged 52 years.

Dr. William H. Woodbury of Chicago, Ill., a graduate of the Hahnemann Medical College and Hospital of Chicago in the class of 1866, died at his home on October 6, aged 85 years.

Dr. William H. Riley of New Orleans, La., a graduate of the Medical Department of Tulane University of Louisiana in the class of 1861, a regimental surgeon in the Confederate Army during the Civil War, died at his home on September 30, aged 72 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

CONFERENCE ON HOSPITALS—EHRLICH'S REMEDY—THE PIONEER OF VENTILATION—HEALTH CARAVAN CRUSADE—RONALD ROSS'S NEW BOOK—ISOLATION OF TYPHOID—METALLIC RADIUM—SIR CHARLES CAMERON.

LONDON, September 30, 1910.

YESTERDAY the first conference of the British Hospitals' Association was opened at Glasgow University, Mr. Hedderwick of the Royal Infirmary presiding. Several papers were read and discussed, and then on adjournment the hospitals and infirmaries of Glasgow were visited.

The position of hospitals in relation to the profession and education, as well as to the Poor Law and charities, was the subject of a paper by Mr. C. S. Loch. He pointed out some of the changes that had occurred in the last forty years and which he thought implied a necessity for reorganization in reference to these relations so as to bring about better remuneration for medical men, better division of labor among institutions for the sick, and better association in charity. In discussion Mr. Cunningham deprecated too much State aid, while Professor Jones held that it was desirable that the community should make the greatest and most economical use of the highest medical skill.

The abuse of hospitals was the subject of a paper by Mr. Scott Finnie, of the Aberdeen Royal Infirmary. He admitted that many persons improperly availed themselves of free treatment. The natural result was the danger of alienating the sympathy hitherto enjoyed by hospitals, injury to the profession, delay in admitting deserving cases, and demoralization of the community. He suggested a reorganization of medical relief on some plan which would conserve the interests of the really poor and deserving and help those who could not wholly provide for themselves. To this end a special conference might be held. Colonel Roxburgh admitted abuse, and said paying hospitals would be welcome in Glasgow, but they could not have paying departments in their present institutions. Mr. Blakie of the Edinburgh Infirmary feared that to start paying hospitals would dry up at the source a good deal of the financial help on which they relied at present.

There is still some excitement about Prof. Ehrlich's new remedy, 606, the brief name for the chemical formula signifying dioxydiamido-arsenobenzol. Many are anxious to try it, but as many or more regard it as rather risky and are watching the reports. Thus, although there is something of a boom, here and there, it is nothing to be compared with that which followed the announcement of tuberculin.

I have a case under observation which has been injected, and although he had to keep his bed longer than has been generally advised, on account of the intense pain and febrile reaction, he is now cheerful enough, and ready to undergo a second time of torture if only he can attain a cure. He is a medical man himself and watching his case attentively. He was infected some years ago from a midwifery case attended while he had a scratch on his finger.

Dr. D. F. Harris, lecturer on physiology at the University of Birmingham, gave a lecture at the Midland Institute on the 15th, on the "Pioneer in Hygiene of Ventilation"—the Rev. Stephen Hales, M.A., D.D., F.R.S., who was as much perhaps a pioneer in other branches of knowledge, especially in the experimental method of studying physiology. He is much remembered as the designer of ventilators, though that is only a result of his scientific investigations which demonstrated the necessity of a constant change of air in the neighborhood of all living things—both animal and vegetable. His numerous researches extended beyond physiology, and he was in fact a pioneer in sanitation generally as well as in ventilation. Still it is in the last-named branch that he conferred so great benefit on his fellows, not only of his own age, but for all time. Dr. Fraser did not seem to think much of him as a pastor; at least he said we did not know much of his capabilities as such, but it was certain he had a great solicitude for men's bodies. He introduced a water supply into his parish and contrived to ventilate his church. He wrote a pamphlet on the abuse of alcohol—probably the first of the kind—published in 1734, entitled "A Friendly Admonition to the Drinkers of Gin, Etc." This Dr. Fraser admitted would "entitle him to rank as a pioneer in the advocacy of measures of practical hygiene." May we not add of practical morality, too?

The Health Caravan Crusade is going strong and to-morrow another caravan is to be dedicated to the work in East Anglia. It is equipped entirely by women and a qualified woman doctor will deliver the lectures. The first caravan has for six weeks been touring the western counties. In a score of towns and villages lectures with cinematograph pictures for illustration have been given from the van and printed sheets of advice how to preserve health and fight consumption have been freely distributed. The hygienists and doctors supporting the movement are convinced that much of the advice has fallen on fruitful soil. A third van is to be started in three of the London parks by permission of the County Council, and I am told that a new invention will enable the pictures to be seen by daylight. The Caravan movement is unique in not appealing to the public for funds, but is carried on by the Women's Imperial Health Association.

The new work by Major Ronald Ross is a cyclopedia treatise on malaria, dealing with its origin, manifestations, distribution, and prevention in the most authoritative and complete manner. It contains also contributions from Professor L. O. Howard and reports of special work in all malarial countries. Major Ross speaks of himself as a compiler because he has gathered first-hand information from many observers, but the focusing of all these deserves a more important title, especially as his own original work as an investigator is of so great scientific value. Malaria he considers has profoundly modified the history of the world by rendering to a great extent "the tropics unsuitable for the full development of civilization." The date of the discovery of the parasites he puts at 1869. It is a hopeful point that the drainage and filling up of pools in which larvæ are present have often rendered more extensive schemes unnecessary.

It is interesting to notice that the isolation of radium has been achieved by Madame Curie, whose work in reference to it is so well known. It was in collaboration with M. Debierne that the result was attained, as stated to the Paris Academy of Sciences on the 5th inst. The metal is possessed of great energy, oxidizes rapidly in the air, and burns paper

put in contact with it. It also decomposes water and seems to have a sort of magnetic attraction toward iron.

A case of typhoid occurring in one of the prisons illustrates the difficulty of tracing cases to their origin. The man had been at work in the prison for several months but no other inmate had had the disease for months before his admission. The water supply cannot account for our isolated case and the drainage is reported to be efficient. We do not admit an origin *de novo,* so it looks as if some contaminated article of food had gained entrance to the dietary, but then other prisoners would surely have been affected. Even a typhoid carrier would hardly have had access to a single person's food out of a number under similar conditions.

To-day Dublin is honoring itself and Sir Charles Cameron by conferring on him the freedom of the city for which he has done so much. Its reputation in public health matters was low enough when Sir Charles began his labors half a century ago and he has steadily raised it to its present level.

Progress of Medical Science.

Boston Medical and Surgical Journal.

October 6, 1910.

Immunity with Special Reference to Vaccine Therapy. T. Leary.
Types of Graves' Disease. J. G. Mumford.
Hysteria—With Autopsy. W. R. Woodbury and C. Reed.

Immunity and Vaccine Therapy.—T. Leary states that by artificial stimuli we have not succeeded in adding to the varieties of response which are exhibited against natural stimuli. The types of immunizing responses to stimuli are relatively few. A person who is infected with a pathogenic organism is producing sufficient amboceptor for his needs; what his blood lacks is complement, and as yet there is no means of artificially supplying this need. For these reasons the so-called bacteriolytic sera are failures, with the exception of Flexner's antimeningococcic serum, which is in a class by itself. In applying the principles of vaccine therapy it is noted that the ideal immunizing response can be produced without the toxic negative phase. Physiological doses of vaccines should be followed by an immediate production of antibodies without toxic action. Certain tissues exhibit a special immunity against infection. Most important among these are the muscles. The author recommends the injection of vaccines into muscle or into the intermuscular connective tissue. *Staphylococcus aureus* vaccine, in addition to provoking the ordinary specific immunizing response, seems to possess the power of stimulating an increase in general resistance. In general infections vaccines are harmless. This was indicated in a case in which, through error, 10 c.c. of *Staphylococcus pyogenes aureus* vaccine containing 10,000,000,000 organisms were injected at one time as an initial dose, which is forty times the standard initial dose. No harm resulted. In a second case the same dose produced a temporary collapse with prompt response to heat and stimulation. One objection raised against vaccines has been that persons undergoing infection are in an anaphylactic state, and therefore hypersusceptible to intoxication. This is a purely theoretical danger, as is evidenced by the infrequency of serious results following the use of diphtheria antitoxin. The evidence seems to predominate that pneumococcus vaccine is a distinct addition to our armamentarium. Vaccine treatment in surgical conditions does not do away with the necessity for intelligent surgery. With infections along some mucous surfaces vaccine therapy is less successful than elsewhere. Gonococcus vaccine has little influence on urethral infections, but a freshly prepared gonococcus vaccine made from first cultures from fresh cases gave prompt results in gonorrheal rheumatism. In colon bacillus infection of the kidneys, vaccines relieve intoxication and eliminate fever, but local infection persists. Staphylococcus vaccine is now accepted as the standard method of treatment of local conditions due to this organism. Erysipelas responds in most cases promptly to an autogenous vaccine. In a large percentage of cases of rheumatism treated there was prompt relief of pain and other symptoms after the empirical use of autogenous throat cultures containing a mixture of pneumococcus and streptococcus. The treatment of the associated infection in tuberculosis with autogenous vaccines in which the streptococcus and pneumococcus usually predominate is accompanied by diminution of temperature and relief of cough and night sweats, followed by increase of weight. Toxic symptoms arising from a relatively slight infection with *Bacillus coli* can be relieved usually within a few hours. The exhaustion caused by this organism in the late stages of typhoid fever is relieved together with the disappearance of a septic temperature by the use of an autogenous vaccine. The use of tuberculin is associated with dangers which make extreme caution necessary in its exhibition.

Types of Graves' Disease.—J. G. Mumford reports two dissimilar cases of this condition, one typical and the other atypical. The former was that of the gradual onset of dyspnea, dyspepsia, pain, and nausea after eating and a state of continual apprehension. After the persistence of these symptoms for two years there developed mild tremor of the fingers. A year later the characteristic symptoms of enlarged thyroid, exophthalmos, and tachycardia developed. During the next fifteen months vigorous medical treatment was employed, chiefly with the administration of neutral hydrobromate of quinine in five grain capsules three times a day. This produced great relief during the early months; later the shock of grief caused the reappearance of all the former symptoms in an aggravated form. The case now presented all the symptoms of acute hyperthyroidism, and a radical operation was performed, the patient being brought to operation practically without her knowledge, in order to ensure a calm state of mind. The operation was successful and the most striking result was the calm, tranquil, and happy attitude of the patient. The second case was that of a young woman who became suddenly sleepless, fretful, and irritable, and a week later had a marked tumor of the thyroid, with no other evidence of hyperthyroidism. Operation was at once performed, and the whole of the left lobe removed. The patient was well for one year, at the end of which there returned intense nervousness, and many of the classical symptoms of Graves' disease with massive enlargement of the remaining lobes of the gland. After two months of futile medical treatment, a second operation was performed under great difficulties on account of the vascular cicatricial tissue from the former operation, and the pyramidal lobe and half of the right lobe were removed. In spite of every reasonable operative precaution to avoid increasing the hyperthyroidism, this developed immediately after the patient was put to bed, with intense and prolonged nausea and vomiting, excessive irritability and apprehension, and at the end of twelve hours, with rise of pulse to 140, embarrassed, intermittent, and irregular heart action, and the supervention of cardiac dilatation. This was a picture of extreme and grave thyroid poisoning. The patient died thirty-six hours after the operation.

Hysteria—With Autopsy.—W. B. Woodbury and C. Reed report the case of a colored girl in whom hysteria manifested itself chiefly by increased and frequent micturition. The patient died from pneumothorax, which was revealed at autopsy together with evidences of acute pleurisy with effusion, chronic tuberculous pleurisy, chronic

abscess of the lung with rupture into the pleural cavity, tuberculous pneumonia and bronchitis, atelectasis, and organizing pneumonia.

New York Medical Journal.

October 8, 1910.

Medical Photography. N. T. Beers.
Radiograms of the Digestive Tract by Inflation with Air. L. G. Cole and M. Einhorn.
A Case of Intranasal Sarcoma. R. B. Scarlett.
An Irregularly Pearl-shaped Bone Formation in the Mastoid Process. E. Amberg.
The Doctor's Duty in Tuberculosis. J. Girdwood.
Inversion of the Puerperal Uterus. R. E. Davison.
Observations Upon the Baldy Operation for Retroversion of the Uterus. E. A. Schumann.
A Brief History of Epidemics Among the Alaska Indians, with Special Reference to Tuberculosis. S. A. Savitz.
Alcohol and Its Relation to Legal Medicine. M. Keschner.
A Plea for a More Vigorous Campaign Against the Malarial Fevers G. E. Henson.

Medical Photography.—N. T. Beers states that it is difficult to conceive of any branch of science in which photography is of more real service than medicine, and it is rather surprising to note how few of our profession take serious advantage of this most valuable means of record. Radiographers, microscopists, and dermatologists long since found it an indispensable adjunct in their work, and many of our foremost workers in these lines have, of necessity, become expert photographers. In years past our medical journals contained but few illustrations and these usually were woodcuts from photographs or line engravings from crude drawings in pen and ink. At their very best they excited but little interest mainly through their lack of truthful reproduction. But to-day, with the various processes of photography reduced to simple rules of thumb, the medical writer has no valid excuse for not illustrating such articles in which pictures would serve to elucidate the text. With the publisher, good photographs are always acceptable, and many a poorly written article is saved by the photographs which accompany it. The author encourages the physician to make his own photographs, and describes the various procedures necessary, from the purchase of the camera to the finishing of the picture.

Radiograms of Digestive Tract.—L. G. Cole and M. Einhorn state that the disadvantages of the bismuth method were the possibility of toxic symptoms from the large amount of bismuth administered, and that frequently a shadow was obtained that prevented one from recognizing some thickening which produces a shadow by itself. To obviate the latter difficulty they found that inflation by air enabled one to recognize tumors in earlier stages than by the other methods. This was accomplished by inserting a tube in the stomach or colon and injecting air with a Politzer bulb. They describe the technique of this method and state that while it is not able to replace the old and well established bismuth method, it will find a place in conjunction with it, or when the other cannot be applied.

Intranasal Sarcoma.—R. B. Scarlett reports a case of this condition, and states that it is usually a single tumor, of rapid growth, soft, dark red in color, and showing a great tendency to bleed on the slightest touch, sometimes resulting in severe hemorrhage, and that it also manifests a tendency to recur on removal.

Pearl-shaped Bone Formation in the Mastoid Process.—E. Amberg describes a case of the finding of a peculiar and unique pearlike bone formation, about twice the size of the head of the hammer, in the diploetic mastoid process.

The Doctor's Duty in Tuberculosis.—J. Girdwood states that in this disease the physician's responsibility is threefold: to the patient, to society, and to the State. In the first instance, early diagnosis is necessary, and endeavor should be made to convince the patient that he should enter a sanatorium for treatment. In the second instance, the physician's responsibility may be summed up in one word, *prevention*. In the third instance, the physician must fulfill the requirements of the law by registration of all cases and by instituting certain measures of protection.

Inversion of Puerperal Uterus.—R. E. Davison states that Hirst's operation for this condition is the best operation to-day and can be executed easily, rapidly, and successfully. It consists in slitting the cervix in the median line posteriorly, the incision being carried higher on the internal than on the external surface, the ring muscle being almost if not completely severed without opening the peritoneal cavity. With comparatively light pressure with one finger tip on the lower uterine segment just above the upper angle of the wound he easily reinverted the uterus.

Retroversion of the Uterus.—E. A. Schumann states that Baldy has formulatd two general rules of the highest importance in approaching the question of the form of operation in such cases. The first is that retrodisplacements of the uterus are mostly coincident with other lesions, and where such is the case, the symptoms almost universally come from the associated disease. The treatment of retrodisplacement is a misnomer. It should be the treatment of the conditions in connection with which retrodisplacements of the uterus occur as an accident. There are certain operative factors that must obtain if an ideal result is to be secured. These, in part, are as follows: 1. The operation must bring the uterus forward and maintain it in this position. 2. It must offer facilities for dealing with adhesions and other intraabdominal complications. 3. It must attain the desired result with a minimum amount of multilation. 4. The uterus must remain a pelvic organ and not be dragged high up into the abdomen. 5. Such motility and power of equal and general expansion must be maintained that subsequent gestation is not impeded. 6. The generally prolapsed and enlarged ovaries should be elevated, together with the uterus.

Epidemics Among Alaska Indians.—S. A. Savitz states that measles was the first of the infectious diseases which unmercifully attacked the Indians in Alaska. About 33 per cent. of those who were attacked succumbed. Pneumonia was the most frequent complication, which was probably largely due to the practice of bathing in cold water upon the appearance of the eruption. In 1872 smallpox broke out and proved very fatal. This disease is traced to the Spaniards, who conveyed it to America in the sixteenth century. During this epidemic the vast majority succumbed before the eruptive stage. In 1876 there broke out an epidemic of influenza which invaded all the coast cities with great rapidity. This disease existed among them long before civilization made its entrance. The Indian race has been dying out steadily and rapidly and the few that are left are wasting away before the ravages of tuberculosis. There is evidence that this disease existed among the Indians before the advent of the white man; they used the bark of hemlock to control pulmonary hemorrhage for a long time. The power of resistance, not only to tuberculosis, but also to other diseases, decreased in proportion to their adoption of civilized customs.

Alcohol and Legal Medicine.—M. Keschner describes the noxious effects of alcohol upon the organism, the various degrees of drunkenness, the symptoms and treatment of delirium tremens, alcoholic convulsions, and alcoholic insanity, and discusses the relation of alcohol to legal medicine under the headings of crime, contracts, torts, wills, and insurance.

Campaign Against Malaria.—G. E. Henson states that in the Southern States during the past decade there has been little decrease in the morbidity from this disease, and contrasts the results obtained by an intelligent and active

campaign against its ravages in other countries. In Italy, in the course of five years there had been a reduction in the mortality of 65 per cent. The prophylactic measures and methods to stamp out the infection, may be classed as follows: First, the education of the public that the mosquito is the etiological factor in malaria, also as to its habits, and how to protect against it. Second, the destruction of the mosquito in its larval and adult stages. Third, the prevention of the development of the plasmodium in man. Fourth, the entire eradication of the parasite from an individual, in so far as possible. The prophylactic value of quinine is commented upon; in Italy this drug is sold by the government at a minimum price, and given away free to those who cannot afford to pay for it.

Journal of the American Medical Association.

October 8, 1910.

Bacteriology of Acute Respiratory Infections in Children as Determined by Cultures from Bronchial Secretion. L. E. Holt.
The Negro as a Health Problem. H. M. Folkes.
Hemiplegia Following Acute Infections. W. A. Jones and A. S. Hamilton.
Tuberculosis in Market Milk of Chicago. F. O. Tonney.
Pathology and Treatment of Alveolar Abscess. S. L. McCurdy.
Improved Method of General Anesthesia in Head Surgery by Means of Glass Nasal Tubes. J. E. Lumbard.
Report of a Case of Middle Meningeal Hemorrhage Accompanied by Actual Hemiplegia: Operation, Recovery. L. L. Smith.
The Etiology of Actinomycosis. F. T. Lord.
Complement Fixation with an Antigenic Crystal Obtained from Luetic Liver. C. F. Craig.
The Pathology and Prognosis of Internal Ear Complications Resulting from Inflammatory Middle Ear Diseases. J. Holinger.
Discussion of the Symptoms and Diagnosis of Infection of the Labyrinth Resulting from Suppurative Otitis Media. J. R. Fletcher.
The Present Status of Vertigo Considered from a Diagnostic Viewpoint. G. E. Davis.
Foibles in Specialism. C. F. Wahrer.
A Case of Colloid Carcinoma of the Skin. A. Bamberger.
The Pathology of Joint Tuberculosis: Tuberculous Sinuses. L. W. Ely.

Bacteriology of Acute Respiratory Infections in Children.—L. Emmett Holt presents this study, which is reported in the MEDICAL RECORD, Vol. 77, page 783.

The Negro as a Health Problem.—H. M. Folkes asserts that the colored race, before the abolition of slavery, showed a higher standard of health among the children than has ever been maintained since their emancipation. At present, the conditions are much less favorable, and the exemption from infectious diseases observed in the children of intelligent white people is seldom seen in the negro. Those diseases to which the negroes are more immune than whites occur in greater frequency among the mixed bloods, in proportions according to the dilution. Negroes of all shades are especially susceptible to tuberculosis and measles, but, in an experience of nearly twenty years, he cannot recall a case of scarlet fever, diphtheria, mumps, or tonsillitis among black negroes. He recognizes a great improvement both among whites and negroes during the last ten years, but one of the gravest problems confronting the whites of the South is to prevent tuberculosis and venereal disease among the colored population.

Hemiplegia Following Acute Infections.—W. A. Jones and A. S. Hamilton report several cases of paralysis of central origin following diphtheria, pneumonia, and conditions causing encephalitis of rather obscure nature. Central paralysis from diphtheria has been little recognized in the textbooks, though the deleterious effects on the peripheral nerves have been long recognized. In the two cases here reported, there was undoubtedly a central lesion in each, though in one it is possible that there was also a peripheral lesion. Whether the cause in these cases of hemiplegia following diphtheria was acute encephalitis or thrombosis and hemorrhage, it is difficult to determine, though the symptoms in both cases suggest encephalitis rather than one of the acutely acting vascular conditions. Paralysis of either central or peripheral origin in pneumonia is rare, and though there is no apparent reason why a central paralysis in pneumonia might not be due to true encephalitis, the authors have not found any case reported in the literature except in connection with meningitis. The last two cases reported seem to justify the diagnosis of encephalitis, though post-mortems were not made.

Tuberculosis in Milk.—F. O. Tonney gives an account of the work done by the Chicago Department of Health in the examination of market milk for tuberculosis germs. Guinea pigs were used for the tests. After inoculation they were kept in clean cages and were observed for three months. Of 112 specimens of milk, 8.9 per cent. proved tuberculous. Comparing this with observations made in other cities and combining their figures with these, he finds the incidence of tubercle bacilli in the milk supplies to be about 8.3 per cent. The milk-produced diseases of children are, he thinks, first in order, the diarrheal diseases responsible for about one-third of the deaths among children under two years in our large cities; second, is typhoid fever; third, is tuberculosis; fourth, is scarlet fever; fifth, is diphtheria; and sixth, a group of miscellaneous disorders not particularly important in this country, such as cholera and foot-and-mouth disease. He thinks that these may be largely eradicated by strict observation of sanitary rules in the production and handling of milk.

Alveolar Abscess.—S. L. McCurdy believes that dentists should realize the seriousness of the most frequent operation they perform, namely, that of devitalizing and extracting pulp, since infection and serious bone destruction arise from this source. The symptoms, especially if complicated with syphilis, may be very uncomfortable. Destruction of the bony floor of the antrum does not necessarily mean perforation of the membranous floor or infection. An alveolar fistula leading into a cavity containing a considerable portion of the tooth requires extraction of this tooth before recovery can be obtained. Persistent headaches and general reduction of health are frequently caused by very insidious alveolar abscess. He thinks it desirable, in case of necrosis of the mandible calling for removal of bone, to establish drainage through the chin and approximate the gingival margins with sutures so as to shut off the pus cavity from the mouth. Nasooral fistula, which sometimes occurs, especially in syphilitics, can be cured after due constitutional treatment by a membranous flap from the roof of the mouth. Tincture of iodin is recommended in all suppurative conditions of the mouth as a disinfectant.

Anesthesia in Head Surgery.—J. E. Lumbard recommends the use of glass tubes connected with rubber tubes to the mechanism supplying the anesthetic vapor in head surgery. These are to be inserted into the nostrils as in the methods of Pynchon and Blakely, which they are intended to supersede. He introduces anesthesia in the usual way, and then introduces the glass tips into the nose. For convenience they may be held in position by adhesive plaster. He claims for the tubes a safer and easier introduction than is possible with the rubber tubes heretofore employed, and their successful use is not interfered with by a deformed septum or exostosis. They do not cause nasal hemorrhage and cannot become obstructed with blood or mucus. They remain in position much better than rubber tubes and they are easier to clean and sterilize.

Middle Meningeal Hemorrhage with Hemiplegia.—L. L. Smith reports a case of fissure fracture of the skull, without depression of bone or signs of compression, causing a supradural hemorrhage from the middle meningeal artery and total right hemiplegia. The left facial nerve was apparently somewhat involved by the extension of the clot. The removal and cleansing out of the clot relieved the hemiplegia, though the muscles were still slightly weaker for about five days. The patient was at work a week after his discharge from the hospital. The rarity of an extradural hemorrhage from the middle meningeal artery causing hemiplegia makes this case of some interest.

Actinomycosis.—F. T. Lord reports finding the pres-

ence of actinomycetes in the contents of carious teeth and the tonsillar crypts of patients without actinomycosis.

Complement Fixation with an Antigenic Crystal from Luetic Liver.—C. F. Craig reports the discovery of a crystal formed in a strongly antigenic extract of luetic liver which apparently possessed similar antigenic properties.

Internal Ear Complications of Middle Ear Diseases.—J. Holinger gives a general survey of the pathology and prognosis of inflammations of the internal ear. He discusses the subject under the following classification: I. Serous labyrinthitis. II. Labyrinthitis in connection with acute otitis media, including scarlet fever, diphtheria, and otitis, leading to formation of sequestrum. III. Chronic labyrinthitis in consequence of cholesteatoma. A. Circumscribed labyrinthitis. B. General labyrinthitis, caries, necrosis. IV. Tuberculous labyrinthitis.

Labyrinthitis.—J. R. Fletcher states that it is important to distinguish between the suppurative and the serous and hyperemic forms. In the former, the cochlear symptoms are negative and hearing is completely lost, but in the serous and hyperemic forms some hearing remains and spontaneous recovery occurs. In latent labyrinthitis the history is of most importance, as the patients must have had previous attacks of vertigo and nystagmus, either total deafness exists or only a remnant of hearing is found. There are no characteristic spontaneous symptoms. Perilabyrinthitis, or inflammation of the cellular bone tissue around the labyrinth is most frequently associated with acute suppurative otitis media or with acute exacerbations of chronic disease. The mastoid is always, and probably first, involved, and some systemic diseases, especially diabetes, predispose to it. When the process is acute it is hyperemic, as is shown by rapid recovery of hearing following mastoid operation. In the serous type recovery is slow, depending largely on the drainage of perilabyrinthine spaces. If suppurative, sequestration is apt to follow. The early symptoms are those of mastoditis with gradual onset, of diffuse endolabyrinthitis, recurrent deafness, pain on pressure over the upper part of the mastoid process, frequent facial paralysis, and the Weber test in the diseased ear. The negative symptoms are absence of the fistula symptom or vertigo attacks and infrequence of intracranial complications. The importance of diagnosis relates mainly to the question of operation.

Vertigo.—G. E. Davis states that the internal ears are the special sense organs of equilibrium. By them we recognize (orientation) and maintain our relations to space (equilibration). The visual sense organs and the kinesthetic sense organs (the muscles, etc.), are accessory sense organs of equilibrium and are coordinated with the internal ears through the mediation of the cerebellum. The special sense organs, the two internal ears, one on each side, are normally symmetrical in structure and function, and anything, whether physiological, experimental, or pathological, which innervates, stimulates, or irritates one of these twin organs more than the other, or accomplishes the same thing through enervation, depression, or destruction of one in excess of the other, in that measure tends to or creates proportionally disturbance of their joint function, equilibration. If this disturbance is sufficiently marked or intense there result nystagmus and vertigo.

Foibles in Specialism.—C. F. Wahrer comments upon the absurd advice often given by specialists to poor patients, upon unnecessary details given in reports of cases, the danger of too close application to specialism, and upon the fact that the modern textbook is too padded for practical purposes.

Colloid Carcinoma of the Skin.—A. Bamberger reports this case because of its rare occurrence, and because it emphasizes the importance of laboratory work in cases of obscure diagnosis.

Joint Tuberculosis and Tuberculous Sinuses.—L. W. Ely states that in numerous articles in the past he called attention to the importance of avoiding secondary infection of the walls of tuberculous sinuses and abscesses by the germs of suppuration, and pointed out the danger the patient incurs if this secondary infection take place. In this he followed the teachings of others and his own experience, gathered in treating many cases of joint tuberculosis. On the other hand, the custom of opening, scraping, and packing tuberculous abscesses is still widespread, and those who practise it do so either from ignorance or because their experience teaches them that it is correct. A very suggestive case of tarsal tuberculosis recently furnished him with additional evidence of the truth of these contentions.

The Lancet.

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Malignant Disease of the Nasal Passages: Its Diagnosis, Pathology, and Treatment. W. Stuart-Low.
The Essential Cause of Gastric and Duodenal Ulcer. C. M. Moullin.
The Physique of the Phthisical. H. de C. Woodcock.
A Symptom-Complex in Ruptured Abdominal Hydatid. J. E. Barling and D. A. Welsh.
Clinical Surgery in Japan. Y. Takaki.
Henoch's Purpura with Enteric Intussusception, Etc. H. B. Robinson.
The Relief of Symptoms of Prostatic Obstruction by Electrical Treatment. J. S. Bolton.
A Reminder of the Battle of Omdurman. J. B. Christopherson.
The Etiology and Diagnosis of German Measles. C. Beards.
Stovaine: Its Use in Treatment of Shock, Etc., in Injuries of the Lower Extremities. G. Thom.
The Ownership of Medical Prescriptions. H. W. Gadd.

Malignant Disease of the Nasal Passages: Its Diagnosis, Pathology, and Treatment.—W. Stuart-Low states that malignant disease of the nose may begin outside the nose (extrinsic origin); in its early stages the disease may appear in unusual and obscure forms; and if operated upon in time is often readily amenable to cure. The extrinsic forms are most apt to be confounded with cysts of the antrum (mucocele) and dental cysts. Sarcoma is the form of growth most frequently met with in the interior of the nose. Nasal polypi may become sarcomatous. Carcinomata consisting of squamous cells originate usually in the ethmoid region. Those inheriting thin mucous membranes are most liable to cancer. Carcinoma is more common in the antrum than in the frontal sinus. The author states in conclusion that there are some practical lessons to be learned from a study of this subject: 1. Pain is not to be relied upon as an indication of malignant disease in the nose. 2. Increasing and persistent stuffiness, especially if unilateral, is an important point as regards diagnosis. 3. Recurring and increasingly severe hemorrhage, especially if unilateral, is always a suspicious symptom. 4. A combination of hemorrhage and increasing stuffiness is often a serious indication of new growth existing. 5. The making of an early diagnosis is of great importance. 6. It is imperative to make a thorough and systematic examination in all obscure cases of nasal disease, and to remove early a piece of any obstruction in the nasal passages for a pathological report. 7. It is of great importance when there is malignant disease to operate as soon as possible after a diagnosis has been made to secure a successful removal. 8. It is advisable to adopt the canine-fossa route in operating for the extirpation of intranasal tumors. 9. Innocent and malignant polypi are likely to coexist.

The Essential Cause of Gastric and Duodenal Ulcer.—C. M. Moullin states that the starting point of what is commonly known as gastric or duodenal ulcer is the digestive destruction of more or less of the wall in one particular spot. Tissues that produce gastric juice or are normally bathed in it are not affected as long as they are healthy and uninjured, owing to an immunity acquired in the course of development. This immunity is not shared by the submucous and muscular coats. Direct local causes of gastric ulcer are direct violence, the wearing of ill-fitting

stays by women of the domestic class, and swallowing corrosive poison. One of the best known local causes is embolism, the evidence of whose presence is seen in the flame-shaped patches of hemorrhagic exudation. Embolism is the immediate cause of the gastric and duodenal ulcers that occasionally develop after injuries and operations, especially those involving bones, and that occur in the course of acute infectious disorders and in septic infection and intoxication. The presence of septic poisons circulating in the blood, possibly excreted in part by the gastric mucous membrane, cannot but have a strongly predisposing effect. The superficial erosions, as distinguished from genuine ulcers, are probably all caused this way. Arterial degeneration has been described as occurring in recent acute cases, and in chronic cases is so common as to be the rule. Thrombosis can act as a cause. The gastric and duodenal ulcers occasionally found after injuries to the brain and spinal cord, and those caused by subphrenic section of the vagi, and by injuries of the splanchnics and of the cœliac plexus, are also the result of local vascular lesions. The same is true of ulcers occurring in heart disease other than endocarditis, and those that are occasionally found in Bright's disease, advanced jaundice, hepatic cirrhosis. In the vast majority of cases these local agencies do little more than determine the site. The essential factor is the morbid condition of the mucous membrane, consisting in an extreme degree of congestion and edema, which precedes ulceration and often leads to it. Hematemesis is caused as frequently by minute lesions in the intensely congested mucous membrane as by the giving way of an artery on the floor of an ulcer. The pain of ulcer owes its origin far more to the general morbid condition of the mucous membrane than to the presence of a gastric ulcer. The immediate source of the pain is the spasmodic cramp of the muscles around the antrum and the pylorus, which is started by the extreme sensitiveness of the mucous membrane, intensified by inflammation spreading from the erosions and abrasions that are so often present. The exquisitely hypersensitive and hyperemic condition of the mucous membrane is the cause of pylorospasm with the consequences it entails: retention of hydrochloric acid (so-called hyperchlorhydria) and impaired motility, excessive secretion, hemorrhages, erosions, and in many instances ulcers are all due to it. The most important and most frequent cause that gives rise to this condition of the mucous membrane is general septic poisoning. A local septic poisoning is caused by the persistent swallowing of septic toxins manufactured in the mouth and throat, chiefly in the presence of carious teeth. While gastric ulcer is exceedingly common in this class of cases, duodenal ulcer is very rare, which is explained by the fact that the action of septic poisoning which is swallowed is local only, while if the septic poisoning acts through the medium of the circulation it affects both stomach and duodenum. In young women the effect of this chronic septic poisoning is intensified by the habit of swallowing quantities of vinegar. Certain substances known as gastrotoxins when injected into the peritoneal cavity cause patches of necrosis in the mucous membrane of the stomach. Other indirect causes are unsuitable foods, irregular meals, overeating after periods of fasting, exposure to colds, cholelithiasis, chronic appendicitis, chronic gastric or duodenal ulcer (which though itself a consequence, is no less able to act as a cause), pylorospasm, and movable kidney. The actual starting point of an acute gastric ulcer is nearly always one of the enormously enlarged and inflamed lymphoid follicles.

The Physique of the Phthisical.—H. de C. Woodcock states that the phthisical soft palate is of a pearly bluish-white tint and is covered with a somewhat mucoid moisture. It differs from the chlorotic palate. It is to be ranked with the temperature and pulse as an important sign. Another important sign is the fatigue reaction, which consists in a rapid rise of temperature caused by fatigue, which, if occurring in the morning, is followed by a slow descent lasting until, and merging in, the usual evening rise. Hyperextension of the fingers on the metacarpals or of the terminal on the penultimate phalanx is a sign commonly found in the cases of people in advanced or rapidly advancing phthisis. Philip's glands, which are enlarged deep glands just above the clavicle, are always found in phthisical children; they are frequently met with in normal children. Marked acne is hardly ever found among advanced phthisicals. Dilatation of the stomach is of common occurrence among tuberculous patients. Among the Jews the tendency is to tuberculous morbidity, not to mortality. Rapid increase in weight increases any present liability to hemoptysis.

Symptom-Complex in Ruptured Abdominal Hydatid.—J. E. Barling and D. A. Welsh refer to six cases of hydatid disease complicated by rupture or leakage of the cyst into the peritoneal cavity. In five of the cases the cysts were in the liver, in the remaining one in the spleen. They presented the following symptom-complex: (1) eosinophilia, (2) peritonitis with effusion, and (3) urticaria.

Clinical Surgery in Japan.—Y. Takaki concludes his contribution on this subject in discussing his experience during the past four years in the treatment of acute appendicitis, calling attention especially to the danger signs in the early stage.

Henoch's Purpura with Enteric Intussusception.—H. B. Robinson reports a case of this condition in which hemorrhage into the bowel wall caused paralysis of that segment, and hence intussusception. The beginning of the marked blood staining was in the region of the apex of the intussusception.

Electric Treatment of Prostatic Obstruction.—J. S. Bolton describes his method of relieving the symptoms of prostatic obstruction by the passing of an electrode into the rectum and administering high-frequency currents. This treatment may make the patient comfortable, may remove the necessity for catheter interference, and restore his hope for the future.

A Reminder of the Battle of Omdurman.—J. B. Christopherson gives an account of the removal of half a shrapnel bullet which had remained embedded in the leg of an Arab for eleven years after the battle.

German Measles.—C. Beards and W. L. Goldie discuss the etiology and diagnosis of this disease. The principal conditions from which it has to be diagnosed are prodromal rashes, other exanthems, influenza and diphtheria with eruption, specific rashes, drug and toxic rashes, and skin diseases.

Use of Stovaine in Shock.—G. Thom states that in combating the shock attendant upon injuries of the lower extremities with stovaine immediate improvement after injection is noticeable—pain and restlessness disappear, the pulse improves rapidly, the color returns, and the patient's distress diminishes. The injection is made as for spinal analgesia.

The Ownership of Medical Prescriptions.—H. W. Gadd discusses the legal aspects of this question, stating that the most feasible solution of the problem would appear to be the treatment of the question as one of etiquette between physician and pharmacist.

British Medical Journal.

October 1, 1910.

Ancient Humorism and Modern Humorism. C. Richet
Absence of the Fallopian Tubes and Menstruation. W. G. Spencer and A. Doran.
The Quickening Spirit. L. Williams.

Ancient Humorism and Modern Humorism.—Charles Richet states that the physiological concepts of to-day

might very well be expressed by a very old word, now perhaps a trifle out of date, "humorism." It is by the chemical evolution of the substances contained in the plasmatic liquids that life is constituted. According to the ancients, life depended upon the humors: blood, yellow bile, black bile, and phlegm. With the Italian anatomists of the Renaissance humorism was replaced by mechanism, and with the coming of Lavoisier, chemistry became the handmaid of medicine and physiology. Lavoisier demonstrated that life is a chemical phenomenon. The succeeding era was the one in which the micrographers appeared to draw physiology towards histology, histogenesis, and cellular morphology. But physiologists had not allowed themselves to be misled by the mirage of the microscope; they pinned their faith on chemical and physical experimentation, not on morphology; but medicine was not as wise as physiology, for it believed that microscopic anatomy was going to clear up everything. Despite the genius of Virchow the history of cellular pathology had ended in failure. The experimental methods of Pasteur, Koch, and Ehrlich have opened up those marvelous discoveries by means of which every branch of medicine has been regenerated—etiology, pathogeny, hygiene, therapeutics. It was even necessary, in the study of bacteria, to come back to biologicochemical analysis, which is the essence of humorism. With the discovery by Roux of toxins in the blood, and with the discovery later that the blood contains substances capable of producing immunity, there was begun the universal study of the chemical functions of the blood, which is humorism in the strictest sense of the word. One of the first laws of modern humorism is that the quantities of substances which come into play in physiological reactions are often in such minute proportions that they may be called imponderable. The study of anaphylaxis has shown that the injection of certain albuminoid substances may produce this condition, which is the opposite of protection, or the greater sensitizing of the organism toward the toxic substances, even when these are administered in a dose of a thousand-millionth part of a gram. The second law of humorism is that the activity of a liquid results from the conflict of two substances which, isolated, are inactive. Thus anaphylaxis is due to the combined action of two substances which are powerless when apart, antigen and toxogenin. Similarly emulsin and amygdalin are separately harmless, but together they produce the poison, hydrocyanic acid. In the cells the toxins and ferments do not exist as such, but as protoxins and proferments, substances possessing hardly any toxic or fermentative action, but which are so unstable as to be transformed into real toxins and real ferments under very slight chemical influences, weaker than the ordinary laboratory reagents. If this instability of chemical substances be given its real name, it is irritability. Thus, the writer maintains, the irritability which rules the functions of the nervous system is in itself a humoral phenomenon.

Absence of Fallopian Tubes.—W. G. Spencer and A. Doran report a case of this condition, with absence of menstruation, in which there had been recurring monthly attacks of peritonitis, and in which relief followed an operation joining the ovarian pouches with the uterine cavity.

The Quickening Spirit.—L. Williams discerns in the trend of present-day medical thought a movement which is destined to occupy a great deal of time and interest in the immediate future, namely, a movement to recognize the influence that mind exercises over matter. He agrees with Osler, that "the profession is now riding on the top of a cardiovascular wave," and believes that the physical ills that beset emotional patients are due primarily to circulatory causes. One can no longer neglect the aid of the mind as a therapeutic agent.

Berliner klinische Wochenschrift.

September 26, 1910.

Strychnine Poisoning and Intratracheal Insufflation.—Shaklee and Meltzer have sought to improve on the old curare treatment of strychnine poisoning by using Meltzer's recently devised method of intratracheal insufflation. The animals were etherized and made fast to the table. The etherization was then continued through the tracheal tube. In order to cause elimination of some of the ether, the jugular vein was then opened, and pure air forced into the trachea. In the jugular vein opening strychnine was injected. Tetanoid spasms developed promptly, and then the curare was injected. The heart beat of the animal was the only sign of life. Artificial respiration was instituted to conserve life. At this stage a very little more strychnine would have killed, while artificial respiration and the injection of curare would prove antidotal to a certain degree. A dose of strychnine (0.4 mg. per kilo) could not be antidoted and was therefore lethal. Cases of strychnine poisoning on a border line could be offset by combined insufflation of air and injection of curare. This combination could be shown, by varying the experiments, to antidote part of the strychnine syndrome, and this might or might not prove life-saving.

Pathology of Acute Articular Rheumatism.—Mosler and Valentin discuss the large number of cases which pass annually through the Rudolf Virchow Hospital. The statistics in course of accumulation show much that is of interest, but not much that leads to fixed principles. In a series of 135 patients there were 3 deaths, not necessarily dependent on the natural tendency of the disease. No less than 118 patients were discharged cured; by cure here is meant not only complete subsidence of symptoms, but a few cases in which physical defects were well compensated and no treatment required. There were 19 cases discharged improved; all of these requiring continuous outpatient treatment, from active persistence of certain symptoms. Two cases were set down as discharged uncured, because they disappeared from medical observation while still presenting active lesions.

Examination of the Stomach with Bismuth Capsules.—An excellent article of Max Cohn contains much information which, however, is poorly arranged for abstraction. The relation of a single case may serve to convey the author's views and method: A girl, aged 24, delicate, admitted for anemia, was given black tea early in the morning. Several hours later she received a "sinking capsule," accompanied by one-half pound of roast veal and later a "floating capsule." She was then radiographed. The sinking capsule lay at the lowest point of the stomach, in the food mass. Two hours later both the bismuth capsules were seen at the lower pole of the stomach; later they dissolved in the duodenum. This neat result is however not so readily explained. The digestive mixture in the stomach may vary with the case. The part played by mobility also varies. Authors generally concede that a stratification of stomach-contents may occur, and that this depends largely on the diet. Thus in flesh feeding we see no stratification, while in leguminous feeding the gastric juice and digesting substance form layers. In achylia gastrica we should expect particular findings. Progress along these lines will be impeded by the interdependence of a large number of factors.

Münchener medizinische Wochenschrift.

September 27, 1910.

Infantile Paralysis in Russia.—Jogichess, of a children's hospital in St. Petersburg, states that this affection which has recently begun to flourish in middle and western Europe, appeared almost simultaneously in St. Petersburg, he having during the fall and winter of 1909-10 some 29 patients under his treatment. His service at the Prince

Oldenburg Hospital for Children dated back to 1900, and sporadic cases occurred during the subsequent years. In 1905 the accumulation of cases was sufficient to suggest epidemicity, some 18 cases having been admitted during and after July. The affection then sank to the sporadic type until the fall of 1909. It appears, therefore, that there is an accumulation of this disease at periodical intervals. Opinions differ as to whether cumulation implies epidemicity. Yet these affections of small incidence, like infantile paralysis and cerebrospinal meningitis, appear to follow the same general law as diseases of large incidence, such as measles and scarlatina. Every half a dozen years or so we see in both classes an accumulation of cases which may or may not be looked on as epidemic. This cumulative element naturally takes a disease quite out of the realm of pestiferous and is opposed with difficulty by hygiene. It complicates the nosology of disease; for example, influenza is of a pestlike and pandemic character, and yet there are influenza years which only exhibit normal cumulative incidence. Such topics are naturally freely covered by epidemiologists, even those of ancient date. The author concludes by stating that his cases come rather from the outlying country than from the metropolis.

How to Enhance the Strength of Local Anesthetics.—Gros writes briefly on a subject which has already received considerable attention. If chlorides of the various narcotics are combined with sodium carbonate in solution, the resulting alkaline solution acts more powerfully than the original acid chloride fluid. This may best be shown by an example. If we wish to use any of the synthetic anesthetics to anesthetize a nerve trunk, where a small area of tissue only is to be affected, a concentrated or acid chloride solution cannot be neutralized chemically by the alkaline fluids in the neighborhood. Now the injection of a bicarbonate solution of the anesthetic into the alkaline tissues gives the anesthetic basic substance a higher concentration than when an acid chloride solution is used; for chemical neutralization then becomes unnecessary, and the specific action is then more freely exercised.

Case of Intermittent Limp.—Fischer takes up this subject as left by Goldflam. His article is a simple case report with comments, which are peculiarly controversial in character, the author directly opposing both Goldflam and Erb. The author's case differs from most of those recorded in that it had already flatfoot with all its accompaniments and consequences; so that the disease may be regarded as a complex. The two affections have been held to be due to the same mechanism. In this case both angiosclerosis and flatfoot were markedly in evidence. The latter affection derived no benefit from the usual remedies. Patient was a very heavy smoker and this fact, according to Erb, would have sufficed to cause arteriosclerosis. The most remarkable feature of the case was that ischemia of the foot, due presumably to arterial disease, developed later into a hyperemia. This sudden reversal may, perhaps, have been due to free use of amyl nitrite as a vasodilator. The ischemic member was also subjected to more or less mechanotherapy—evidently very little, as the mere shaking of the foot or knocking it against the other. The amyl nitrite seems to have been the main resource. None of the remedies approved by Erb or Goldflam gave any relief. It is admitted by the author that his case is unique, and it further appears that we may not as yet have obtained any sure hold on the condition known as intermittent limp.

Deutsche medizinische Wochenschrift.

September 22, 1910.

Renal Dropsy.—Richter sums up our knowledge to date of this clinical condition in certain aphorisms as follows: Three factors are always involved, viz., (*a*) an anatomical element which must necessarily involve a functional element, through which the elimination of water and salts is interfered with; including (*b*) a special retention of water and (*c*) an injury to the vascular wall which enhances its permeability. These factors are commonly admitted to exist, but by no means are they equally represented in a given case. The primary cause must be injury to the kidney itself and the vessels. Retention of saline matter alone can lead to retention of water, not necessarily to dropsy. This water retention leads to dropsy, but is not dropsy in itself. The two remain, at least in adults, in sharp differentiation. In the nursling there is no abrupt distinction between preedema and edema itself. The vascular system of the nursling exhibits a greater lability. Senator has shown that almost all effusions in the nursling are free from cell content.

Nitrous Acid Poisoning.—Savels refers to the extreme infrequency of this kind of poisoning, especially of late years; so that we are in some danger of forgetting its characteristics. He has known of eight cases, and sums the matter up as follows: The symptoms are manifold, but may be comprised as follows: There is a high degree of dyspnea, cyanosis, pulmonary edema, and pneumonia, together with cardiac weakness and disorder of the sensorium, amounting to delirium. It has been assumed that the inhalation of nitrous vapor can affect the organism in three ways, viz., (1) by direct injury of the lung cell and bronchioles; (2) by reducing the alkalies of the blood, and (3) by certain affections of the central nervous system, which may be looked upon either as toxic in nature or as a direct result of toxic blood. The treatment is about as follows: The patient is bled and then infused with saline solution; he is then allowed to drink freely of alkaline water. Inhalation of dilute ammonia is practised, as is also inhalation of oxygen by Roberts' method. Hematinics may be required according to indications. This therapy is reinforced or superseded by the use of from 3 to 5 drops chloroform, dissolved in water, every ten minutes.

Permanent Preparations of Urine Sediments.—Skutetzky, a military surgeon of Prague affiliations, takes up a subject of generation-old interest. It is, of course, very easy to preserve an ultra-acid or ultra-alkaline sediment as it stands. Of much more value is the preservation of a sediment in which the reactions cut no particular figure. The author's method deals naturally with exceptional cases. A mixture of sediment is obtained in a watch glass cover, which from the first contains only matter free from gross chemical alterations. The chief subject involved is a preservative, which is made up of linen cloth and distilled water, in the proportion of 1 to 2. The gelatin of the former combines with the sediment, and from the dark background of the former the formed elements of the sediment stand out clearly. Hyalin casts, otherwise not noticeable, stand out brilliantly. The particular linen fabric employed is the so-called "lineol, No. 290," of Gunther and Wagner. The method not only serves to bring out latent sediment, but also preserves it.

Removal of the Frontal Bone for Septic Osteomyelitis.—C. J. Symonds reports a case in which the infection followed chronic suppuration of both frontal sinuses, and existed before operation. In a series of operations the frontal bone was removed, together with a part of the sphenoid, the roof of the right orbit and its inner wall, and the orbital ridge. On the left side part of the orbital ridge was left. The case was shown as an example of a rare complication, and as a recovery from a grave condition of infection. The other point of interest was the reconstruction of the greater part of the frontal bone and the consequent restoration of the forehead. On the left side the frontal sinus had been operated upon by the method of Watson Williams with no perceptible scar.—*Royal Society of Medicine.*

Book Reviews.

THE DISEASES OF CHILDREN. By JAMES FREDERIC GOODHART, M.D., LL.D. (Aberd.), F.R.C.P., Consulting Physician to the Evelina Hospital for Sick Children; Consulting Physician to Guy's Hospital; late Demonstrator of Morbid Anatomy and Lecturer on Pathology in its Medical School. Ninth Edition, edited by GEORGE FREDERIC STILL, M.A., M.D., F.R.C.P., Professor of Diseases of Children, King's College, London; Physician for Diseases of Children, King's College Hospital; Physician to Out-Patients, the Hospital for Sick Children, Great Ormond Street. Philadelphia: P. Blakiston's Son & Co., 1910.

THE publication of a ninth edition of this well known work is justified by its popularity, and has been rendered necessary by the numerous recent advances, in some cases revolutionary changes, in the science and art of pediatrics. Both of the authors have made a thorough overhauling of the book, have added a good deal of new material, and for the first time have inserted a few illustrations. They have succeeded in presenting a readable and at the same time complete textbook on diseases of children, valuable both to the student and to the practitioner. Considerable space has been devoted to treatment. The citation of illustrative cases is a happy didactic feature. The subject of infant feeding is covered thoroughly, but without the overelaborate complexity of the average treatise. Many readers will not agree with the statement that barley-water has a distinct laxative effect. Nor will American pediatrists concur in the doubt that intubation will ultimately take rank as a generally serviceable measure in diphtheria. Full credit is given to the efficacy of Flexner's serum in the treatment of epidemic cerebrospinal meningitis. Admirable features of this work are the omission of extended description of these features of disease that are not specially applicable to childhood, and the appendix containing numerous therapeutic formulæ.

DIE AMBULANTE BEHANDLUNG DER UNTERSCHENKELGESCHWÜRE. Dr. Jessner's dermatologische Vorträge für Praktiker. Heft 7. Vierte Auflage. Würzburg: (Curt Kabitzsch) A. Stuber's Verlag, 1910.

DR. JESSNER has made his name familiar in the medical literature of Germany by the authorship of numerous small monographs on dermatological and kindred subjects. The present booklet considers the etiology and the treatment of chronic leg ulcers, that so commonly accompany varicose veins. It forms a trustworthy little guide in this special subject, and should prove very useful to doctors in charge of minor surgery departments of dispensaries, that are usually overrun by patients suffering from chronic leg ulcers.

A TEXT-BOOK OF PATHOLOGY FOR PRACTITIONERS AND STUDENTS. By JOSEPH MCFARLAND, M.D., Professor of Pathology and Bacteriology in the Medico-Chirurgical College, Philadelphia; Pathologist to the Philadelphia General Hospital and to the Medico-Chirurgical Hospital, Philadelphia; Director of the Laboratories of the Henry Phipps Institute, Philadelphia; Fellow of the College of Physicians, etc. Second edition, thoroughly revised. With 437 illustrations, a number in colors. Philadelphia and London: W. B. Saunders Company, 1910.

THE second edition of this work on pathology appears about six years after the first. We find the new book but little larger than its predecessor. The chief additions are a short chapter on regenerative tissue changes, and a few illustrations. Other changes noticed are the addition of a short section on senescence; the section on the parasite theory of the origin of tumors has been rewritten; the classification of tumors has been revised; and part of the chapter on immunity has been altered. It will be noted that the changes are few, and the revision but slight. Perhaps this is explained by a sentence in the preface. "To a busy man the revision of a book of this size is a task more easily neglected than accomplished." It is a pity that the author has selected "the easier way," for the book is a good one, it contains a great deal of useful material, and it is well arranged. But it is handicapped by the size of the type; the larger of the two types used is too small, and the smaller is ruinous to the eyesight. Among the slips which should have been corrected are the following: Condyloma late, also condyloma lata (on the same page it also occurs correctly as condyloma latum), verrucæ digitata, verrucæ filiformis, nævi prominens, membrana granulosum, corda tendineæ, pemphigus exfoliativa, lupus tuberosa, lupus verrucosa, lupus nodosa, lupus hypertrophica, nævi vasculosi tuberosa, empetigo contagiosum. The occasional French expressions will also bear revision; the proper names are not above reproach; and the general style and syntax are, at times, open to criticism, even in this revised edition.

GYNECOLOGICAL DIAGNOSIS. By WALTER L. BURRAGE, A.M., M.D. (Harv.); Fellow of the American Gynecological Society; Member of the Obstetrical Society of Boston; Consulting Gynecologist to St. Elizabeth's Hospital; formerly Visiting Gynecologist to St. Elizabeth's and the Carney Hospitals; Electrotherapeutist and Surgeon to Out-Patients' Free Hospital for Women; Clinical Instructor in Gynecology Harvard University; and Instructor in Operative Gynecology in the Boston Polyclinic. With 207 text illustrations. New York and London: D. Appleton & Company, 1910.

THIS book is a valuable addition to the large number of special works on diagnosis that have appeared during the past few years. In gynecology, more than in any other branch of medicine, diagnosis presents many difficulties and pitfalls for the general practitioner. For the latter this work has been particularly designed. It is eminently practical, embodying simplicity of technique and concise statement of essentials. The rare diseases are kept in the background, and greater emphasis is placed upon the common affections usually met by the general practitioner. Differential diagnosis is thoroughly covered, particular attention is paid to the diagnosis of the diseases of the bladder and rectum, a chapter on diseases of the breast is included, as well as comprehensive chapters on the gynecological affections of infancy and childhood, and on the menopause. The illustrations are numerous, of a high order of artistic merit, and are alphabetically indexed at the beginning of the work. The author has succeeded in presenting a work of uncommon usefulness to the general practitioner.

HYGIENE AND MORALITY. A Manual for Nurses and Others, Giving an Outline of the Medical, Social, and Legal Aspects of the Venereal Diseases. By LAVINIA L. DOCK, R.N., Graduate of Bellevue Hospital Training School, Resident Member of the Nurses' Settlement, New York, Secretary of the International Council of Nurses. New York and London: G. P. Putnam's Sons. 1910.

THE purpose of this book, as the author declares, is to emphasize the social significance of the venereal diseases and the part that women should play in the war against this evil. The three sections deal respectively with the venereal diseases, prostitution, and the prevention of venereal disease. The chapters on syphilis and gonorrhea are clearly and scientifically written. In the second section are considered the control and regulation of prostitution and the white slave traffic. In discussing the prevention of venereal disease the writer states that enfranchisement of women is the first step. The book was written primarily for nurses, but with the hope that other women will find it useful. The published price is $1.25.

THE PRACTICE OF MIDWIFERY. Being the seventh edition of Dr. Galabin's Manual of Midwifery, greatly enlarged and extended. By ALFRED LEWIS GALABIN, M.A., M.D. Cantab., F.R.C.P. Lond.; late Fellow of Trinity College, Cambridge; Consulting Obstetric Physician to Guy's Hospital; late President of the Obstetrical Society of London; late Examiner in Obstetric Medicine to the Universities of Oxford, Cambridge, London, and New Zealand, and to the Royal College of Physicians and Surgeons; and GEORGE BLACKER, M.D., B.S. Lond., F.R.C.S. Eng., F.R.C.P. Lond.; Fellow of University College, London; Obstetric Physician to University College Hospital and the Great Northern Central Hospital; Teacher of Practical Midwifery, University College Hospital Medical School; Examiner in Obstetric Medicine to the Royal Colleges of Physicians and Surgeons. Illustrated with 503 engravings. New York: The Macmillan Company, 1910.

THE present edition of this well-known work represents a thorough revision of the last edition, which has also been largely rewritten. The authors have brought this work strictly up to date in revising the matter dealing with the development of the ovary and of the early ovum, the physiology of the fetus and of the puerperal state, the mechanism of labor, the lower uterine segment, the pathology of eclampsia, hydatidiform mole, accidental complications of pregnancy, narcosis in labor, vaginal and extraperitoneal cesarean section, and pubiotomy, and a new chapter has been added on injuries and diseases of the fetus. The authors have admirably presented a clear exposition of modern obstetrics, both as a science and as an art. The work is enriched by numerous illustrations of a high order of artistic merit, and remarkable for their clearness and simplicity. The typography is excellent.

Society Reports.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Twenty-third Annual Meeting, Held at Syracuse, N. Y., September 20, 21, and 22, 1910.

THE PRESIDENT, DR. AARON B. MILLER, SYRACUSE, IN THE CHAIR.

Present Status of the Colon Tube.—Dr. H. WELLINGTON YATES of Detroit, in connection with his paper showed skiagraphs first of all to prove that fluids injected into the rectum were carried to the cecum. Second, that no device was necessary for this end except a small male catheter. Third, that within ten minutes this fluid could be skiagraphed in the cecum. Some of these pictures were taken with the patient in a dorsal position, some in the ventral and some in Fowler's position. The mixture was always injected by a small rectal tube or large male catheter inserted five inches. If done slowly, no trouble was had in injecting one quart even in the smallest subjects. His observations and conclusions were: 1. Seldom if ever were soft rubber tubes admitted into the normal colon. 2. When an endeavor was made to force the tube upwards even by the gentlest manipulations, it was found to coil itself up in the rectum and there did positive harm because of pressure, irritation and the consequent inability to retain the enema. 3. In perhaps half the instances it was impossible to tell when the tube was coiling up on itself even when they suspected it. 4. Colon tubes as such were of no value because they did not reach the colon and they were mischievous in that proportion as they endeavored to force them high up. 5. Water or fluid injected four or five inches into the rectum was carried upward into the colon and might be found at the cecum in ten minutes. 6. There was good reason to believe that a reversed peristalsis was set up when fluids were injected into the rectum. 7. The introduction of a tube more than five inches for colonic irrigation or therapeutic enemata was useless and likely to defeat the object desired.

Dr. LEWIS S. MCMURTRY of Louisville stated that he presumed that the experience of every member was like his own; that they satisfied themselves several years ago that they were practising a deception upon themselves by the use of what was called high enemata. It had been discovered that what they formerly called high enemata were not high enemata; that if they introduced a soft rectal tube into the bowel and kept on passing and passing the tube until it reached to the sigmoid it then began to coil upon itself and it did not pass into the bowel, so that years ago he abandoned all efforts at what were known as high enemata, recognizing that they were a deception. It seemed this had an important bearing upon some important features of treatment of the colon especially ulcerative conditions. For instance, if they opened the cecum they could irrigate the colon from below or above but if they had no opening in the caput coli they would find that it was almost impossible with the patient in any position, even inverted or in Hanes' position, to get water up into the transverse and ascending colon, but if they had an opening there and they threw water in, the gas would pass out of the opening in the cecum and gave them a means of medicating the entire mucous surface of the colon, but without such an opening it was impossible to do it.

Dr. J. GARLAND SHERRILL of Louisville said it had been demonstrated by Dr. Hanes that fluids passed with difficulty into the colon and cecum because of the amount of gas that was found in this portion of the bowel, and if they had an opening in the cecum or appendix the gas would come out and fluid would go in. Dr. Hanes used coal oil in the treatment of amebic dysentery with gratifying results.

Dr. LOUIS FRANK of Louisville wished to speak of the therapeutic value of injections of fluids for medication in bowel lesions situated high up by the use of the inverted posture.

Dr. FRANCIS REDER of St. Louis, Missouri, said that Dr. Soper and he had done considerable work in the field of rectal inflation and the injection of water into the lower bowel endeavoring to get it as high up as possible and they found that if they took an ordinary colon tube and introduced it into the bowel it was impossible to get above the promontory of the sacrum. The ordinary soft tubes coiled on themselves and the fluids injected did not reach beyond what was called the shelf of the rectum.

Dr. Yates, in closing, stated that he had proved conclusively that water did not pass the colon with the patient in the horizontal position. The purpose of his paper was to show the possibility of not only medicating the rectum, but the sigmoid and colon with fluids.

Diagnosis of Chronic Surgical Lesions in the Upper Abdomen.—Dr. CHARLES N. SMITH of Toledo, Ohio, in this paper stated that the diagnosis of these lesions was made with accuracy by the anamnesis alone. The differentiation of cholelithiasis from ulcer demanded the recognition of the initial symptoms, which were frequently overlooked. The accepted symptomatology of cholelithiasis and ulcer was largely that of their terminal events. The most striking feature of ulcer was periodicity of painful attacks alternating with intervals of relief. As complications occurred the attacks were more severe, becoming nearly continuous. In cholelithiasis the stomach distress, compared with the pain of ulcer, was of much less intensity, occurred sooner after the taking of food, than was the pain of a full stomach and did not progressively increase and reach its height in from two to five hours after meals. Cancer of the stomach was generally a sequence of ulcer, symptoms of the latter gradually merging into those of the former. Vomiting might or might not be a dependable symptom in cancer. Anemia was a most important symptom. Chronic pancreatitis being largely a terminal event in cholelithiasis, the diagnosis of the former was facilitated by recognizing the initial symptoms of the latter. Valuable pancreatic symptoms were found in the feces. Chemical and microscopical examinations were necessary. Cammidge's reaction was of questionable value. In movable kidney during Dietl's crises, the swollen and tender kidney, especially when jaundice was present, might be mistaken for an inflamed and distended gall-bladder. Differentiation was to be made from appendicitis, rupture of the gall-bladder and renal colic. The appendix might mimic successfully many of these lesions.

Dr. ROBERT T. MORRIS of New York said one could not always make a diagnosis of the presence of gall stones, and one should not fall into the trap of speaking of cholelithiasis. One should not make that diagnosis. It was a dangerous thing. One should speak of cholecystitis, as the gallstones were merely incidental to cholecystitis.

Dr. JOSEPH PRICE of Philadelphia stated that if the internists made diagnoses in these cases early and referred them to surgeons for operation promptly, many more lives would be saved than is now the case.

Dr. ROLAND E. SKEEL of Cleveland, Ohio, said if one wished to secure as complete and certain a history as was necessary to make a diagnosis in the cases under discussion, unusually intelligent patients must be met with, but he did not see any possibility of the average patient giving such an accurate history of his case as would lead the surgeon to make a diagnosis from that alone.

Problems in Uterine Cancer.—Dr. WALTER B. CHASE of Brooklyn, New York, first discussed the frequency, suf-

fering, and mortality attending uterine cancer which were a sufficient argument why professional sentiment should be thoroughly awakened to the necessities of the situation. In the present state of knowledge, early extirpation of the uterus offered the best chance of cure. Where there was considerable involvement of the vaginal structures, the first indication was high amputation of the cervix and removal of the vaginal involvement. If the uterine stump did not heal hysterectomy should usually be undertaken, providing there was normal mobility of the uterine body. Vaginal hysterectomy subsequent to cervical amputation was difficult if not impracticable. Fixation of the uterus if not dependent upon other coexisting causes contraindicated hysterectomy. Under such conditions accurate differentiation should be made. If the parametria were involved radical measures were contraindicated. When subsequent to the removal of the cervic and the vaginal growth hysterectomy was expedient, the abdominal route should be chosen because vaginal hysterectomy was neither easy nor practicable and because there should be as little interference as possible with the remaining cicatrix. The value of hysterectomy for cancer of the body as a secondary operation, though not recognized by the average practitioner, had a value which could not be gainsaid in a certain class of cases. The writer objected to the palliative treatment of uterine cancer most in vogue which consisted of the application of potent escharotics, both on account of the inability to limit the area of their destructive influences and the violent pain attending their application. The thermocautery was the palliative measure *par excellence*. The electric cautery left nothing to be desired, and if one was under the necessity of using a Paquelin, which was practically as satisfactory, it was hazardous to attempt the operation with a single apparatus. A variety of straight and curved platinum knives and hone-shaped instruments were needful. For securing the best results tact was needful in protecting the vaginal walls from excessive heat and skill in removing all diseased structures compatible with the anatomical relations of the healthy and diseased structure. His results from the use of the thermocautery had been very satisfactory. The *modus operandi* of the thermocautery treatment seemed to be, *first*, its power to destroy or inhibit specific germs beyond the area of actual destruction of tissue; *second*, it closed the lymphatics, thereby limiting absorption; *third*, it promoted healing, diminishing hemorrhage and purulent discharges; *fourth*, when the destruction of malignant growth extended to normal structure, it facilitated the advent of healthy cicatrization; *fifth*, by following the use of the cautery, by daily gentle irrigation with one of the cresol compounds, of not more than one dram to a quart, always avoiding peroxide of hydrogen, and dressing with oxide of zinc gauze, the suffering was greatly lessened and sometimes almost wanting until the inevitable end; *sixth*, well-authenticated cures had followed this treatment in which no expectation of cure was suggested. Dr. Chase then spoke of the necessity of disseminating such information among women as would vouchsafe to them such an appreciation of the necessity of the situation regarding cancer as to lead them to seek assistance early. He also urged that public interest be awakened among philanthropic men and women, as had been done for those suffering from tuberculosis, so that facilities might be provided for the care of the numerous cases of uterine cancer in those without financial resources. He introduced a series of resolutions to that end and hoped that the society would consider these questions in a practical way and he invoked the mature judgment, cooperation, and influence of the members in the formation of a plan and the promulgation of measures by which the condition of women with cancer would be ameliorated.

Statistics of Cancer in the Female.—Dr. K. I. Sanes of Pittsburg read a paper based on some statistical data collected from the latest eight annual reports of the Bureau of Census and the latest reports of 219 hospitals. The figures showed that the proportion of deaths from cancer to the total number of deaths from all cases were in females 1 to 17.7; in males 1 to 33.4; the proportion of deaths from cancer in the past twenty-five years to the total number of deaths in the past thirty-five years were, in females, 1 to 9.8; in males, 1 to 18.5. Taking the relative frequency of cancer in both sexes it was found that according to the mortality statistics of the United States Bureau of Census 62 per cent. of those that died of cancer were females and 38 per cent. males; according to the hospital statistics 66.5 per cent. were females and 33.5 per cent males. They saw that cancer was an exceedingly common disease in the female and it was met with about twice as frequently in females as in males. Whether based on mortality figures or population figures there was clearly shown an increase in cancer from 1900 to 1908. In the eight years there was an increase in cancer mortality from 1 to 22.8 deaths to 1 in 16.6 deaths, or from 63 per 100,000 population to 74.3. The question was frequently raised whether the gradual increase in mortality was not due to changes in the methods of reporting deaths and to the greater accuracy in the diagnosis of cancer, especially in view of the slight variation for the five years between 1903 and 1907. Hospital statistics, if carefully and properly compiled, could be utilized to great advantage by the profession in many ways. The modern hospital organization and facilities, the gradual increase of the number of hospitals all over the country, the more general use of the hospitals by the sick, the greater readiness by the profession and patients to adopt surgical measures for surgical diseases—all this made the hospital the most valuable source of statistical medical information. But to get accurate information, not only must each hospital have a careful, conscientious statistician, but the visiting members of the hospital staff must see that their diagnoses were carefully reported in the hospital records.

Dr. William H. Humiston of Cleveland, Ohio, said he had had but five cases of what was generally spoken of as inoperable cancer of the uterus, and in these he resorted to the Wertheim operation, making a very wide dissection, and of this number four were still living.

Dr. Ralph Waldo of New York stated there had been a decided advance in operative work for the treatment of cancer of the uterus. He believed to-day that most any one who was competent to pass judgment would advise a radical operation on any woman forty-five or fifty years of age who had a persistent hemorrhage from the uterus unless there was a polypus or something of that kind which he could thoroughly demonstrate was the cause of hemorrhage. They would occasionally take out a uterus at that age which was not the seat of tumor, but they would take out many more uteri that were the seat of incipient carcinoma. Generally he preferred the vaginal route in operating on these cases.

Dr. Maurice I. Rosenthal of Fort Wayne, Ind., said the early symptoms of cancer of the uterus were hemorrhage and discharge, and when they got a case of cancer of the uterus in its early history it was a pure incident. The only saving clause they had was the fact that some carcinomata were less malignant than others, or some were more malignant than others, and when they were dealing with carcinoma of the fundus of the uterus they were ordinarily dealing with a carcinoma that was less malignant, and a destructive operation through the vagina in such a case was uncalled for. When they were dealing with carcinoma of the portio vaginalis they were dealing with that form of cancer which was not so malignant. In such cases ordinary hysterectomy done with cautery would give as good results as any other method. When they were dealing with carcinoma of the portio uteri

which began in the endometrium higher up, they were dealing with a serious malignant growth that practically no operation would do any good. He had done the Wertheim operation, and reported fifty-seven cases some years ago with good results.

Dr. J. H. Carstens of Detroit agreed with Dr. Rosenthal and Dr. Waldo that it was largely a question of early diagnosis. When a woman had cancer which was so far advanced that the lymphatics and other structures were involved it was better to let her alone and trust to the *vis medicatrix naturæ*.

Dr. Thomas B. Noble of Indianapolis looked upon cancer of the cervix or of the uterus as an analogue to carcinoma of the breast. It should be so considered and diagnosticated and decidedly so with regard to treatment.

Dr. Joseph Price of Philadelphia looked upon the vaginal operation as one of the simplest in surgery, but in operating for the removal of carcinoma of the uterus where the structures were involved and wide and deep dissection was necessary it was better to operate through the abdomen.

Dr. Francis Reder of St. Louis, Mo., stated the whole question resolved itself into early diagnosis, skilled operative measures, and education of patients.

Dr. Edward J. Ill of Newark, N. J., stated in operating for cancer of the uterus no surgeon could open up an extensive area of cellular tissue without spreading the cancer cells. The safest operation, where there was any extent of cervical carcinoma, was to start from above, separate all adhesions, separate all attachments to the uterus and to its surroundings, and then go from below and lift the mass right out and cut it off with a cautery, as had been suggested by Werder.

Treatment of Obstruction of Bowels Due to Malignant Neoplasm.—Dr. Maurice I. Rosenthal of Fort Wayne, Ind., in this paper reported advanced cases of carcinoma of the bowel treated by simple anastomosis without resection. He spoke of the advantages of this method in such cases. He described a method by which anastomosis was accomplished before the bowel was actually opened, making the bowel suture aseptic. He described the operation in detail, illustrating each step. No new or complicated instruments were required. He spoke of the advantages of the Murphy button in situations that were not sufficiently accessible for this operation. He reported cases of radical resection of the malignant bowel and spoke of the futility of resection unless it could be done radically. He gave the general results from operations for cancer of the bowel as shown by a review of 328 cases from the literature.

His conclusions were as follows: 1. Obstruction of the bowel due to carcinoma was not hopeless as to cure by radical operation. Incomplete excision of all cancerous tissue must necessarily result in recurrence of the growth. 2. Anastomosis without resection of the malignant growth should be the operation of election in obstruction due to cancer, where the radical operation, that was complete excision, was impossible. 3. Anastomosis without resection low in the pelvis, where the bowel was accessible with difficulty, could be successfully accomplished by the assistance of the Murphy button. 4. Anastomosis without resection probably bore the same relation to cancer of the bowel as did gastroenterostomy to cancer of the pylorus. 5. The clamp and suture method of bowel anastomosis as described was practical, rapid, and trustworthy, and applicable in a large variety of bowel cases requiring resection or anastomosis.

Diagnosis of Tubal Abortion and Rupture.—Dr. Charles E. Congdon of Buffalo, N. Y., stated the general indication for operative interference as promptly as possible could not be gainsaid. Schauta, for example, after a careful study of the literature, collected 123 operative cases, with a mortality of 5.7 per cent., and 121 cases treated palliatively, with a mortality of 86.89 per cent., although in another series of more carefully selected cases he found the mortality by palliative treatment to be only 65 per cent. To recapitulate the diagnostic features he would say that (1) there was sudden pain, nearly always, the exceptional cases being those with sudden collapse, as in two cases which he reported in July, 1909. (2) Uterine hemorrhage occurred within forty-eight hours after the initial pain. This symptom and sign was common to all cases of rupture or abortive tubal pregnancy. (3) Add collapse and the diagnosis was complete. If collapse was lacking or slightly marked it was on account of gradual internal hemorrhage when on examination the cul-de-sac would show a progressive bulging.

Results at Lebanon Hospital of Deferred Operations for Extrauterine Pregnancy.—Dr. Ralph Waldo of New York stated they had had many patients brought into the hospital in a very desperate condition, and out of the eighty-one cases that he reported there had been but three deaths. It was thought that two or three patients would die in the ambulance. They were freely stimulated and reached the hospital moribund. At no time after reaching the hospital would they have stood an anesthetic or the slightest operation. Autopsies proved the diagnosis of ruptured extrauterine pregnancy to be correct. The third patient who died was one of those unfortunate cases that were occasionally met with by all surgeons, where the patient was making an absolutely normal convalescence, when she suddenly died from pulmonary embolism. Seventy-eight other cases were operated on by the abdominal route, and recovered. After a severe hemorrhage another did not take place in less than from a week to ten days. In from two to seven days, depending upon the condition, the abdomen was opened from above. The clots and free blood were rapidly removed with the hand and dry gauze sponges, but the abdominal cavity was never irrigated. Formerly, where the patient had lost a large amount of blood, they put a quart or two of normal saline solution in the abdominal cavity, and left it there to be absorbed. More recently this saline had been given in rare instances in the cellular tissue by hypodermoclysis, or more frequently in the rectum. In one instance only in the above cases was the abdomen drained; in all others it was closed. The entire operation required from eight to twenty minutes. He preferred the abdominal route because the operation could be performed much quicker, and when the mass was high up and the vagina small, much better. It might be well for him to state that he performed many operations on the tubes and ovaries through the vagina. He was not prejudiced in favor of the abdominal route.

Dr. L. F. Smead of Toledo, Ohio, stated a woman, twenty-five years of age, was brought to him with a diagnosis of ectopic pregnancy. This was her second pregnancy. Her first pregnancy was cared for by a physician who brought the case to him so that they knew the exact condition. At the same time there were no abnormal symptoms. The history of the case was that for two or three days there was slight pain in the right side, and during the night preceding the day upon which he saw her there was a slight flow. There was no tenderness in the abdomen particularly, and on vaginal examination he found a slight mass over the right cornu of the uterus. The things he considered were these: First, he considered it possibly tubal with a slight rupture into the broad ligament; *second,* interstitial pregnancy in the cornu, and *third,* he considered the possibility of a simple development of the placenta in the right horn of the uterus. The uterus was fully as large as it should be at about three months. As the examination was quite satisfactory with her abdominal muscles quite relaxed, he

decided later that probably a threatened abortion was taking place with the placenta in the right cornu of the uterus, and he decided to treat the case in that light, as he was not anxious to open the abdomen in a normal pregnancy or overlook interstitial pregnancy in the cornu of the uterus. Two months have elapsed since he saw her. The symptoms had disappeared and apparently a normal pregnancy was progressing.

Dr. H. W. Longyear of Detroit stated this matter of deferred operation in extrauterine pregnancy in the presence of shock had been threshed out in this association several times, and if he remembers rightly the consensus of opinion had been decidedly in favor of immediate operation. It was his opinion that operation should be done in these cases even in the presence of extreme shock. He knew of no other class of cases in which they waited in the presence of hemorrhage for shock to cease. They operated primarily for the stoppage of hemorrhage, and to wait for shock to cease in some cases would be fatal.

Dr. J. H. Carstens of Detroit stated that Dr. Longyear had struck the keynote. If they had a hemorrhage from a leg that had been cut off they did not wait for shock to subside, but they stopped the hemorrhage. He believed in operating on these cases promptly.

Dr. William H. Humiston of Cleveland, Ohio, had had an unusual record in cases of ruptured tubal pregnancy, that is, he had yet to have his first fatal case, and he operated on them as soon as he could get them ready for operation and get his instruments there and assistants. He did not care what condition the patient was in, whether in shock or not.

Dr. Henry S. Lott of Winston, N. C., wanted to emphasize the character of the pain. Several times he had made a diagnosis of ectopic pregnancy in the early weeks by sitting by the side of the bed of the patient and watching her for several hours, and the pain was always recurrent, rhythmic, and explosive, whereas if the appendix was the seat of trouble the pain was continuous without intermissions, and very often without remissions.

Dr. J. Garland Sherrill of Louisville agreed with Drs. Carstens and Humiston. If they had a ruptured vessel internally they considered it one of the most dangerous forms of hemorrhage they had to deal with. If they had a case of gunshot wound of the abdomen they would not wait to open that abdomen. The same course therefore should be pursued in cases of ruptured extrauterine pregnancy.

Dr. E. Gustav Zinke of Cincinnati stated there were exceptional cases. Extrauterine pregnancy was not always the same in every case. Some of these patients recovered without operation. They found these symptoms when they operated for other conditions. Tubal pregnancy terminated in three different ways, namely, tubal abortion, and the ovum became absorbed and an operation was not necessary by any means in every case. Then they had a rupture between the layers of the broad ligaments, and they had a ruptured tube into the peritoneal cavity. In the case of rupture between the layers of the broad ligaments they had a well defined tumor form. In the case of rupture into the peritoneal cavity they had sudden shock and all the signs of internal hemorrhage, and that was a case in which prompt action was indicated, and it was for the operator to decide whether an operation should be performed at once or whether he had time to wait. In those cases in which the tube ruptured into the peritoneal cavity with severe hemorrhage with all the symptoms of shock, in which the picture was complete, they did not see the patients in the hospital, but usually at their homes or in places where opening of the abdomen was prohibited. It would mean death to operate at once, because the surgeon was not prepared and the patient was not prepared. Experience had taught us that by putting these patients in the recumbent position and keeping them there with an ice bag over the abdomen and lowering the head and preparing to operate, that often within half an hour or an hour improvement in the patient's condition took place. The pulse came up, began to get stronger, and with the apearance of a stronger pulse, on digital examination they felt the formation of a tumor through the vagina. In cases where that tumor did not appear the vaginal vault became more or less flattened. There was no resistance. They felt nothing apparently. In these cases hemorrhage goes on, and they were the ones that must be operated on at once, for if operation was not done they would die. But in the other instances where a tumor formed they could afford to wait longer, and encapsulation would take place and the patient could be operated on with absolute safety within a few days or even weeks.

Dr. Lewis S. McMurtry of Louisville stated the diagnosis was easy in these cases. He had known women who had had one attack of tubal pregnancy, and were operated on, to make the diagnosis themselves in the second instance and call the doctor and tell him the condition that existed. He had one instance of that kind in mind then, and there was no trouble with the diagnosis and the treatment. When a woman was bleeding to death inside there was only one indication and that was to operate as soon as possible.

Dr. Charles L. Bonifield of Cincinnati wanted to emphasize the point that in these cases by the time the operator got to the patient usually the hemorrhage had taken place and the surgeon did not operate to stop hemorrhage, but to relieve shock because in the majority of cases the hemorrhage had already stopped. The patients bled profusely and did so quickly until blood pressure was relieved, and then the bleeding was slow until it stopped entirely.

Dr. Walter B. Chase of Brooklyn stated every member of this association believed he was grounded in the principles of surgery, but they had different methods of reaching the same end. They could not make a universal rule which would apply to every case of tubal pregnancy. The man who attempted to do it would go wrong more than half of the time. Every case must be treated according to the findings, and according to whether the physician was prepared to treat it at the time.

Dr. Joseph Price of Philadelphia felt that cases of ruptured ectopic pregnancy and all perforative forms of disease belonged to the calamities, and they should be prepared to operate promptly. The surgeon should be the cleanest and most prepared man living.

Dr. Congdon, in closing the discussion on his part, stated it was not always his policy to cross swords with his friends, but when they made the assertion that the diagnosis of ectopic pregnancy was always easy and that any one can make it without any preparation he certainly must take exception to that statement. The members of this association meant that they could make a diagnosis but not the average general practitioner.

Dr. Waldo, in closing, said a mistake that was made much more frequently than any other was that the patient was suffering from incomplete abortion.

Tumors of the Bladder.—Dr. John F. Erdmann and Dr. Joseph F. McCarthy of New York read a joint paper on this subject. The authors reported ten cases in detail and drew the following conclusions: that tumors of the bladder were translatable by the symptomatic hematuria, etc., which did not always permit clinically of a striking difference between them inasmuch as a small papilloma might give rise to a fatal hematuria, as well as a malignant one. However, one might arrive in certain cases at a precise diagnosis based upon the clinical evolution, the physical signs, and the examination of the fragments ex-

pelled. That the benign tumors might recur under two forms, first under the malignant form, a long period of time intervening before the recurrence; and it was a question whether the tumor beginning as a benign one had not become transformed into a malignant one. The actual state of knowledge of the subject did not at this time permit of this conclusion. A recurrence might take place after a long period of time as a benign one as in two cases recorded by Dr. Erdmann with histological findings. Guyon stated that "the cases which I believe have permitted of this hypothesis of a transformation are very exceptional. I have already had an occasion to cite in studying the progress of neoplastic affections of the bladder many examples of vesical tumors of long duration even up to twenty-seven years, which did not undergo malignant transformation. Consequently one should be very reserved in discussing the question of transformation of vesical growths." As to the mortality the authors quoted Dr. Francis S. Watson as follows: "The sum and substance of the result of operative treatment up to the present time may be stated thus: If the operative deaths and rapid recurrences are combined under the head of operative failures, such failures are seen to have occurred in 28.6 per cent. of cases in benign tumors, exclusive of myoma and in 46 per cent. of cases of carcinoma." According to the same author, out of six hundred and fifty-three cases of all tumors operated upon two hundred and forty-three were benign and four hundred and ten malignant. The benign tumors recurred rapidly in 20.5 per cent., the carcinomatous in 26.8 per cent., and the sarcomatous in all except two of fifty-two cases.

Dr. James E. Sadlier of Poughkeepsie, N. Y., wished to report the case of a woman, 60 years of age. Cystoscopic examination of the bladder showed a tumor on the right side, somewhat posterior, but well above the right ureteral orifice, the tumor at its base being about the size of a silver dollar. It was protruding into the bladder and the surface had a sloughing appearance. The base was thick and indurated and with a forceps through a Kelly cystoscope he was enabled to remove a fragment or two, which the pathologist pronounced to be epithelioma undergoing carcinomatous change. In this case he tried the perineal operation as suggested by Dr. Charles Mayo and found it to be a comparatively easy operation.

Dr. Joseph F. McCarthy of New York stated that those who had anything to do with these growths knew they recurred with great frequency, and if there was any method of treating the smaller ones that did not involve a radical operative procedure, they should welcome it. Within the last few months Dr. Keyes and Dr. Beer of New York had treated these growths by fulguration or high frequency. He treated one case in which there were four growths by this method with gratifying results.

Dr. John W. Poucher of Poughkeepsie said he had no argument to offer in regard to operative procedure for the removal of papilloma of the bladder, but he wanted to suggest something he had tried very successfully in the treatment of urethral caruncle. He had treated urethral caruncle for the last five years with a strong solution of argyrol and had not failed in a single case.

Dr. John W. Keefe of Providence, R. I., wanted to say a word about the use of the cystoscope. He was not wedded to the use of the water cystoscope because he had failed to find tumors in the bladder on account of severe hemorrhage that occurred at the time the water cystoscope was used. With the air cystoscope these growths could be readily seen. With reference to the transperitoneal operation it should be performed more often than the operation just above the pubes in the prevesical space, especially if the patient was fat, as they had a deep wound in which to operate. By placing the patient in the Trendelenburg position they could readily have access to the bladder.

Dr. Louis Frank of Louisville said that tuberculosis of the bladder was exceedingly rare as a primary lesion. It was always secondary to tuberculosis in other portions of the genitourinary tract. So true was this that they could practically always exclude it as a cause of bladder disease. His experience with tumors of the bladder was confined to one or two cases. In these he was able to bring the growth up by the vulsellum forceps so as to remove them extravescially. The growth was excised, the base cauterized, and the bladder wall brought back and immediate closure effected, and catheter kept in. One case, which was operated on three years ago, had not had a recurrence. In the other case the tumor of the bladder was complicated or associated with hypernephroma.

Adenocarcinoma of the Kidney.—Dr. J. Garland Sherrill of Louisville reported a case of a somewhat rare tumor of that organ, with histological findings. He mentioned briefly the various forms of renal tumor, especially hypernephromata. In the earlier writings much confusion existed with reference to nomenclature and the descriptions of renal tumors, but recent writings had brought a clearer understanding. Traumatism was mentioned as a factor in the etiology. Although a history of trauma in a considerable percentage of cases was given there was no conclusive evidence that it was important in causing the growth. As important symptoms he mentioned hematuria, failing health, pain in the back and loins. The diagnosis of renal tumor was not always easy and differentiation before operation as to the character of the growth was usually not possible. While the mortality following nephrectomy for malignant disease was higher than for some other lesions demanding such treatment, it should be very low when done early with their present technique. From one-half to one per cent. of carcinomata primarily affected the kidney. According to Kelynack two or three per cent. was a fair proportion of malignant growth of the kidney to malignant disease of other parts. A number of cases were collected from the literature by the writer, two of which were congenital, and in one case a number of calculi were present. Males seemed to suffer almost twice as often as females. Heredity seemed to play no important part in the development of these growths. They had no positive knowledge of the causative factors in the production of these tumors, but it was probable that a large proportion were of congenital origin, due to cell rests. A number of cases of injury of the kidney subsequently followed by carcinoma had been reported. Although the position of the kidney rendered it especially free from traumatism, in a number of cases traumatism was reported as having caused the first hemorrhage which called attention to the affection. Calculus had been claimed by some to be an important causative factor in the production of renal carcinoma, but the question yet remained *sub judice*. The author then discussed the diagnosis, the symptoms, and prognosis of these tumors. The present mortality of nephrectomy for malignant disease was from 18 to 20 per cent., which should be reduced, in his opinion, by early diagnosis and prompt intervention. The only hope of recovery offered the patient suffering from malignant disease of the kidney lay in early and complete nephrectomy. Partial nephrectomy had been practised at least five times for malignant tumor, according to Morris, but in every case the surgeon thought he was dealing with benign tumors and the results were not encouraging. In advanced cases palliation was always to be offered to the patient. The author reported a case in which through an oblique left lumbar incision nephrectomy was performed, resulting in recovery. Upon incision through the kidney and growth after its removal the organ was found to be 6 inches in length by 2½ by 2 inches. At the lower pole an irregularly rounded nodular mass was observed. A number of branching vessels were seen on the surface of the tumor. On palpation

it was not so resistant as the other portion of the kidney, and a few whitish spots were seen. On section the kidney appeared slightly congested with a tumor 3 inches in diameter at the lower pole, apparently encapsulated with infiltration into the parenchyma and also into the fat about the pelvis. Inside the capsule was a grayish-white mass of material a little firmer than thick cheese. The remaining portion of the kidney showed some congestion, but the tissue appeared to be almost normal except where the growth was infiltrated through what might be termed the capsule.

Dr. John F. Erdmann of New York had operated on five cases of tumor of the kidney, four being hypernephromata, and one a large sarcoma.

Dr. Lewis S. McMurtry of Louisville stated with reference to the pathology it was very doubtful if the analogy between the relation of stones in the gall-bladder, stones in the kidney, and the development of malignant disease could be established here. There seemed to be in the kidney with the presence and irritation of stone, on account of the different character of the tissue, and the different function of the tissue a greater disposition to suppuration than to malignant disease, whereas in the gall-bladder they could not regard it as thoroughly established that the irritation of gall-stones was a distinct factor in the development of malignant changes.

The Breast of the Expectant Mother; Its Care Before and During the Period of Lactation.—Dr. Francis Reder of St. Louis said that to prepare a nipple properly the expectant mother was instructed to use soap and water freely. After drying the breast, gentle friction with a rough towel or flesh brush was made for about five minutes. Following this rubbing the nipple was massaged by rolling and kneading it between the fingers, gentle traction being made during these manipulations. The free use of olive oil during the process of massage, which was to be done twice daily, was advised. It was surprising how an almost hopeless appearing nipple would in a comparatively short time assume the characteristics of a normal one. The application of alcohol and astringent lotions was to be condemned. A nipple cared for with these agents would become hard and inelastic, presenting deep corrugations, which would impede the healing of any excoriation or fissure, should such a lesion occur. The pain accompanying such a lesion brought many hours of suffering to the mother. A nipple prepared by the method of a systematic massage would usually withstand the strain of the nursing period without mishap. Its care after the child had commenced to suckle resolved itself into one of simple cleanliness. Thorough ablutions after each nursing to free it from any accumulated secretions and the liberal dusting with boric acid, which was washed off when the child was put to the breast, were all that was necessary. This régime must be diligently adhered to. The care of the breast was as important as that of the nipple. Its anatomical structure gave evidence of how readily this organ was amenable to culture, if only instituted properly and at the right time. The breast of a healthy girl that did not show development conforming to the incentive given by puberty should after an elapse of three years be subjected to the stimulating influences of a systematic massage. This massage was to be continued until a normal equipoise had been attained. By developing the breast at this stage of womanhood many of the obstacles pertaining to a normal motherhood might be overcome. The massage in reality was an exercise most simple in character. By placing a breast in the palm of each hand and locking the fingers across the chest, the young woman was asked to walk about in a well-aired room, and with a full inspiration force the hands apart. This exercise was to be repeated for at least 15 minutes daily. It was most conveniently carried out upon rising and before retiring, and should be continued until satisfactory results showed themselves. The normal breast of the expectant mother should receive some attention as soon as the physiological changes manifest themselves. The breast during the pregnant state did not require the judicious management that the breast demanded after lactation had established itself; it was of the greatest import, especially if the breast gave evidence of great fullness and tension with tenderness, that the lactiferous ducts be maintained in as patulous and healthful a state as was possible. In short, the secretions in the tubes should not be allowed to become stagnant. It has been demonstrated that the staphylococcus albus and also the staphylococcus aureus found entrance into the milk ducts from the skin. That this so-called milk fever was the result of these microorganisms having gained entrance into the lactiferous ducts and having been stimulated into great activity by finding a proper medium in the milk for their propagation had been to him the only explanation.

Dr. Theresa Bannan of Syracuse had been looking for milk fever, which was referred to by the essayist, for 20 years in practice and had not found it. The question of the care of the nipple of the expectant mother was of far-reaching and tremendous importance. It solved 50 per cent. of the problems of pure milk. It meant not only the health of the mother, but the life not only of the first child, when most of the difficulties arose, but all of her subsequent children.

Dr. William G. Dice of Toledo stated it was the general practitioner who was at fault to a great extent. He thought most patients were willing to take proper care of their breasts if given proper instruction. He did not recall seeing in his practice more than two cases of abscess of the breast in 10 years.

Dr. A. J. Rongy of New York thought the term milk fever had been eliminated from obstetrical work. In a record of 6,000 cases in both hospital and maternity work they practically did not have what was known as mastitis. They never had cases of suppurative mastitis. It seemed to him the trouble with these engorged breasts, or with so-called milk fever, was in doing too much for the patient rather than doing too little.

Dr. J. H. Carstens of Detroit was opposed to the application of alcohol or tannic acid and other astringents to the breast. The nipple of the mother should be soft and pliable.

The President's Address: Gynecology.—The President, Dr. Aaron B. Miller of Syracuse, after speaking of the recent advances that had been made in obstetrics, gynecology and abdominal surgery, said the scope of work of the members had gradually increased since the knowledge of bacteriology had illumined the way to a more accurate diagnosis and given them a known pathology. He quoted the prophetic statement made by J. Marion Sims in 1882 to the effect that it would become possible to open the abdomen in gunshot and stab wounds, to repair and thereby lessen the mortality attending these injuries. In the master mind of Sims the seeds of advancement had taken lodgment. His observations and associations abroad had given him an oversight into the possibilities of the future, the possibility of surgery becoming a science, founded on findings that were indisputable. With the advent of bacteriology came a new school of surgeons whose knowledge was founded on facts, not theories, and like the mariner who consulted his compass, had known laws to direct them. The field of gynecology, the pelvis, with the abdomen appended, was their hunting ground, and like an army marching to victory, the field was soon taken. Now all the organs of these cavities, abdomen and pelvis, had felt the results of advancement and had yielded of their pathology abundantly; and not pathology alone, as the organs of this casket had even been maimed and sacrificed in their healthy state for reasons that at times would have shocked Hippocrates, and should arouse them, as it was the pur-

pose of this association according to its constitution, to advance the knowledge of obstetrics, gynecology, and abdominal surgery to its highest scientific attainment, to enlighten the general practitioner in all matters pertaining to these different departments, by eliminating the erroneous teachings, and accentuating the essential; to stamp with approval all real merit and extinguish sham. The knowledge of the real etiology of disease robbed surgery of its terrors and opened the pelvic and abdominal fields for investigation through a perfect technique, with but little fear of serious consequences attending thorough exploration, thereby revealing the living pathology and rendering the arrest or elimination of disease possible. In the obstetrical art marked results had been obtained through a knowledge of infection. From a heavy death rate following confinement from these causes, the technique carried out in hospital practice had almost eliminated the mortality. In the field of gynecology, the disease that stood as a lone sentinel against the advancement of science, yielding not its etiology, was cancer. Having existed since the early history of medicine, it had withstood all investigation. While all forms of maladies had crumbled in ruins about it, it had continued its ravages until many thousands of people in the United States were dying annually of this disease. The recognition of cancer of the breast and treatment in its inception by early operation had resulted in a greater percentage of cures and materially lessened the mortality. It was the consensus of opinion that cancer of the stomach had its origin on the site of an ulcer. Prophylactic treatment prevented the cancer by curing the ulcer. Prophylaxis must be introduced in the prevention of cancer of the uterus by early repair of lacerations. Traumatism was the accepted factor in inducing cancer of the breast, and following upon or secondary to lesions in the viscera, as stomach, gall-bladder, pancreas, lip, etc., reasoning by analogy that with its increased frequency at the neck of the uterus in parous cases, the presence of lacerations would be an exciting cause for its presence here encouraged through the degenerations that took place, and as a preventive measure, repair of the injuries would in many cases arrest it. Reference was made to the havoc caused by gonorrhea and syphilis. He said that gynecologists had been slow to impress upon the public and to enlighten women especially as to the great dangers that threatened them through ignorance of these diseases that were liable to be brought to them through unsuspected avenues. This subject had been enshrouded in mystery that boys and girls had grown to mature manhood and womanhood ignorant of the laws that should govern their lives, for fear that the knowledge of sexual diseases might lead to contamination. Gynecology in its inception should be begun as with the tender plant. Proper environment should be placed about the growing child to aid in development and to protect when dangers threatened, thereby promoting stronger healthier bodies.

Puerperal Wound Intoxication and Wound Infection; A Historical and Critical Review of Childbed Fever.—Dr. Henry Schwarz of St. Louis said isolated cases of puerperal fever had occurred at all times among civilized nations, but the dreadful epidemics of this disease appeared with the advent of the lying-in hospitals and they became more dreadful when frequent autopsies were made in the search of the cause of the disease. Oliver Wendell Holmes was the first to point out the contagiousness of puerperal fever and the means for preventing it. His epoch-making essay, "The Contagiousness of Puerperal Fever" appeared in 1843. Semmelweis in 1847 was second to insist on the same points and to demonstrate the correctness of his views by reducing the mortality from childbed fever in his Vienna clinic. The appeals of Holmes and Semmelweis remained unheeded until the advent of Listerism and the establishment of bacteriology. Hungary, the native country of Semmelweis, had honored his memory by having his ashes removed from Vienna and depositing them in an honor-grave at Budapest; a memorial tablet pointed out the house in which he was born; a grand Semmelweis monument had been erected on one of the finest squares in Budapest. The medical profession of the United States had almost forgotten that Holmes had equal if not greater claim to be remembered as the discoverer of the nature of puerperal fever. Most text-books did not mention him while they did justice to Semmelweis; the one pleasing exception was the text-book of Barton Cooke Hirst. Bacteriological classification had caused many teachers to fail to present to their students a clear subdivision of clinical pictures, and while the writer insisted on the necessity of ascertaining the nature of the infecting germ by smears and cultures, he likewise insisted on the advantage of sharply separating wound intoxication or sapremia from wound infection, and of subdividing wound infection into the milder and more or less localized forms which usually got well, namely, puerperal ulcers, puerperal endometritis, puerperal parametritis, puerperal perimetritis, and puerperal phlebothrombosis, and into the general infections which were inclined to be fatal, namely, pyemia, general peritonitis and general sepsis. At present the medical profession was fully acquainted with the nature of puerperal infection and with the means which would absolutely prevent it. In well-managed institutions infection had been driven out, but nevertheless thousands of young mothers died yearly in the United States whose lives could be saved. Who was to blame? The cause lay partly in the inadequate obstetrical training which the medical schools until recently provided; this cause was now rapidly disappearing. The principal cause lay in the fact that throughout the United States a large part, in the large cities the greater part, of the obstetrical work was done by midwives and that with few exceptions no laws existed regulating the practice of midwives. The writer pleaded for the enactment of such laws and for putting the schools for midwives under control of State boards. The exceptions were Missouri, Louisiana, Ohio, Wyoming Utah, and the Philippine Islands; their laws provided for examination and registration, but not for control of the schools. Maine and Mississippi especially declared that their medical practice acts did not apply to midwives; the law of Mississippi said: "Females engaged in the practice of midwifery were not prohibited from such practice, but were entitled to engage therein without a license."

Serum Therapy and Bacterial Vaccines in the Treatment of Puerperal Septicemia.—Dr. Henry Schwarz of St. Louis stated that since Marmoreck's antistreptococcic serum was placed upon the market in 1895 the writer had used the various antistreptococcic sera in those cases of severe acute puerperal sepsis which, according to his judgment, were hopeless under other forms of treatment. The first case in 1896 was one of severe pyemia and recovered; no bacteriological diagnosis had been made. In all other cases cultures made from the blood proved the presence of streptococci; every one of these cases died. Streptococci were found in the blood oftener than was formerly supposed, even in the more or less localized infections, but in these the serum was not employed. When bacterial vaccines were recommended in the treatment of acute infections the writer considered such use not only hopeless and illogical, but he feared that it would injure the reputation of vaccines in their legitimate field. In acute streptococci infections billions of streptococci were found in the blood; they died by millions and their bodies were dissolved, liberating thereby the endotoxin which during life was retained in the capsule, but which now swamped the system. The formation of anti-bodies under such conditions was very feeble or at a standstill; to inject millions more of dead germs, with their endotoxins, showed

as much sense as the injection of morphine into a patient dying with morphine poison. To prove his contentions the writer caused to be undertaken a series of experiments on rabbits, which proved the following points: 1, Vaccination after inoculation had no influence on the infection; all animals died in three days, the same as the control animal. 2. Vaccination simultaneous with inoculation had no influence on the infection; all animals died in three days, the same as the control animal. 3. Prophylactic vaccination produced immunity, but it must extend over a considerable period and vaccination must be stopped ten days before inoculation. Intraperitoneal and intravenous vaccination prolonged the duration of the infection so that animals so vaccinated died two days later than the control animal. Subcutaneous vaccination alone was effective and animals vaccinated every four days from July 24 to August 28 and inoculated September 7 remained well, while the control animal died in three days. Excessive vaccination (50,000,000 to 200,000,000 in average weight animals) produced no ill effect beyond a temporary refusal of food. The experiments were being continued.

Acute Pancreatitis.—Dr. John W. Poucher of Poughkeepsie, N. Y., reported two cases. In his first case the fever only began after the action of the ferment had destroyed the function of the intestines and probably other organs in the abdomen. In the other case prompt and efficient drainage prevented any serious action upon the tissues of the organs. In this case there never was more than a slight rise in temperature. His experience in these two cases seemed to point to two conclusions, namely, early and free incision down to the pancreas and adequate drainage.

Acute Hemorrhagic Pancreatitis.—Dr. John W. Keefe of Providence, R. I., reported eight cases of this disease, and said that these cases were of interest from several standpoints. Two cases recovered of the eight cases reported. Two patients were operated on twice. One was operated upon for acute hemorrhagic pancreatitis and 1½ years later was again operated upon and four gall-stones removed from the gall-bladder. Dr. Giles of New Hampshire reported a similar case. He operated for acute hemorrhagic pancreatitis and his patient was operated upon about one year later by Dr. Irish and a number of gall-stones were removed. Another case in this series was operated upon for acute hemorrhagic pancreatitis and some months later a pancreatic cyst was removed. The events were reversed in one of the cases. Thirty-two gall-stones were removed, but a stone was left in the common duct. The patient some months later died from acute hemorrhagic pancreatitis. They should keep in mind the close relationship between infection of the bile passages and disease of the pancreas. While they should strive to make more accurate diagnosis in lesions of the abdomen, in obscure conditions they should not delay, but should operate early, as most of the conditions that simulated pancreatic disease require surgical interference.

Perforated Gastric Ulcer.—Dr. Thomas B. Noble of Indianapolis, Ind., reported two cases of peritonitis due to perforated peptic ulcers. These cases were the first and only of their kind he had seen. The pathology and symptomatology were very analogous to perforation of any hollow viscus of the abdomen. The diagnosis must depend upon the recognition of a demonstrable peritoneal insult as evidenced by sudden, severe pain about the umbilicus or epigastrium, with local tenderness, followed by vomiting and the general symptoms of shock. Careful inquiry revealed a period of gastric disorder antecedent to the acute attack. Symptoms of acute peritonitis, more or less general in character, rapidly ensued, and it might be that they would overshadow all others at the time of observation as happened in his first case.

Public and Private Hospitals.—Dr. Joseph Price of Philadelphia pointed out the importance of these hospitals in the education of young physicians and nurses and the clinical instruction of practitioners.

Torsion of the Great Omentum.—Dr. William J. Gillette of Toledo, Ohio, said the diagnosis prior to operation was difficult and uncertain. He pointed out the diagnostic signs that were available; also spoke of the frequency of this condition and its mortality, 13 per cent., should warrant its more careful study. The case he reported was unusual and made it probable that death from gastric and colonic hemorrhage as a consequence might ensue.

Cesarean Section.—Dr. J. H. Carstens of Detroit reported a case in which the pregnant uterus was within an umbilical hernia. Mrs. M., aged 40 mother of three children, widow for 10 years, married again one year ago, grew very fleshy. She became pregnant and toward the end it was found that the uterus was in the hernial sac and the abdomen pendulous, hanging down to the knee. On vaginal examination the uterus could not be felt. It was pulled up. Cesarean section was resorted to and followed by a smooth recovery.

High Operation in Cesarean Section.—Dr. William H. Humiston, Cleveland, Ohio, emphasized the substitution of the Cesarean section for the high forceps operation which was attended with a mortality to the mother of 10 per cent. and to the child of nearly 21 per cent. The technique employed in the modern Cesarean operation had been so perfected and the indications for the operation so widened that it was now frequently resorted to in order to give both mother and child greater chances for life. The rapidity with which this operation could be safely performed by an experienced abdominal surgeon was an important factor for the safety of the mother and the life of the child. Modern aseptic technique and favorable surroundings were essential and would insure practically a nil mortality, provided the mother had not already been infected by repeated examinations and efforts to deliver. In all cases in and near a city or town, where hospital accommodations were modern, the patient should be transported to such an institution for operation and convalescence. Dr. Humiston detailed a case in which he resorted to the high operation with success.

Cesarean Section by the Small Median Incision Above the Umbilicus.—Dr. Asa B. Davis of New York stated that of the 78 Cesarean sections performed by him the first three were done in tenements; the uterus was delivered. Since August 12, 1903, he had done the operation 75 times and in no instance had the uterus been removed from the abdomen. Beginning with case four a much smaller incision was used, half above and half below and to the left of the umbilicus. In the seven cases following this one he gradually made the incision smaller and carried it higher up, until November 20, 1904, he, so far as he knew, first independently conceived and practised the small, high median incision entirely above the umbilicus, in a woman, the twelfth of his series, it being the second Cesarean section done on this woman, the same as case four. More than two years after this date an allusion to the high incision was brought to his attention in Blundell's "Midwifery," published in 1842. There was no reason why this operation should be singled out from all others as one which must be performed in great haste. It should be done with the deliberation called for in any other abdominal operation. There was great danger in doing otherwise. Several times the writer had found the intestine in front of the uterus. Once he had seen it injured. The incision should be long enough to allow easy delivery of the child, but the abdominal wall at this point in the full-term woman was thin and stretched easily. The small high incision did not allow easy exposure or escape of the abdominal contents. Not infrequently all

that he saw was the uterus and a small portion of omentum. This wound was away from the site of greatest strain upon the abdominal wall, at a point reinforced by the recti muscles as they approached each other toward their upper attachments. It was small. He had never seen hernia following it.

Secondary Repair of Complete Perineal Lacerations; Its Technique and Results.—Dr. Edward J. Ill of Newark, N. J., said there were still many failures resulting from the operation for complete laceration of the perineum. His first operation after the method to be detailed was done February 1, 1891. A doubtful case of improvement had the power of perfect retention within a few months. Altogether 56 cases were reported, all of which showed remarkable and uniform success. Twenty-six cases were complicated by other operations. In his operations he followed the principle laid down by Saenger, in the Tait operation in 1887. The operation was essentially a flap-splitting operation and could be divided into six distinct steps: 1. The incision. 2. The flap splitting. 3. The suture of the rectum. 4. The suture of the perineum. 5. The suture of the vagina. 6. Twisting of perineal sutures. The operation he described was a modification of the Saenger-Tait operation. Incisions were of H-shape, beginning at a point just outside of the orifice of Bartholin's glands, extending downward and backward just outside of the retracted sphincter. The cross-bar of the H was carried exactly across at the mucous membrane of the rectum and vagina. Two flaps were formed, an anterior and posterior. The posterior one denuded the ends of the torn sphincter. The suture of the rectum was done with the finest catgut in the denuded tissue of the posterior flap. He preferred silver wire for the perineum. Three sutures took care of the sphincter. The fifth step consisted of suturing the anterior flap of the vagina. He urged great exactness in the coaptation of the wound when twisting down the sutures of silver wire. These sutures were cut on the ninth day. The after-treatment consisted of moving the bowels in 48 hours, preceding the act of defecation by a sweet oil injection. It was best to have the first movement with the patient on her left side the nurse supporting the newly made perineum. Urination was usually normal, and the patient was allowed to sit on the commode rather than to be catheterized. The patient should be well aware of her retention powers at the time the sutures were removed.

Intussusception in Infants.—Dr. Herman E. Hayd of Buffalo, N. Y., said that the treatment of this condition was surgical, and the mortality increased tremendously the longer the operation was delayed. Injections, irrigations, and insufflations were too uncertain to be practical and scientific, but in recent cases they were often of value in assisting subsequent reduction after the abdomen was opened. The operation should be done quickly, and no time should be lost in fruitless manipulations of the bowel. It was better generally to eviscerate at once and reduce the mass outside than try to effect its reduction within the belly cavity. Dr. Hayd detailed a successful case on which he had operated.

Conservatism in Operations on the Uterine Appendages.—Dr. Lewis C. Morris of Birmingham, Alabama, drew the following conclusions: 1. No woman under 40 years of age should have all of both ovaries removed, except in the presence of tuberculosis or cancer. 2. Resection or amputation of diseased parts and plastic work on the tubes would occasionally be followed by conception. 3. Even in the presence of infection and more or less involvement of both tubes and ovaries plastic work, followed by pelvic drainage and the Fowler position, might be followed by regeneration. 4. Radical or sacrificial surgery and conservative surgery had about the same *mortality*, but a vastly different morbidity. 5. A very occasional secondary operation might become necessary which might have been avoided by doing radical work.

Intravenous Injection of Magnesia Sulphate in Bacteriemia.—Dr. Raleigh R. Huggins of Pittsburg stated that in the study of drugs causing hyperleucocytosis, it was determined to find out, if possible, whether magnesium sulphate might act in this manner when administered intravenously. After a careful study in both rabbits and the human, it was decided that it did not produce a regular increase in the leucocytes when thus administered. During this study a number of intravenous injections of magnesia sulphate were administered to human beings. It was determined that magnesia sulphate could be given intravenously without any apparent harm to the patient. Experiments showed that a 1 per cent. solution of magnesia sulphate in a normal saline would not produce hemolysis of the human blood. It would not precipitate the globulins, as claimed by Teubusher, when given in this dilution, nor had the writer seen any effect upon the specific gravity of the urine. It was decided that 30 grains of magnesia sulphate in 8 ounces of normal saline could be safely administered intravenously to the average individual. It must be given slowly into the vein at a temperature of 105° to 108°. The time occupied in allowing this quantity to run into the vein was 20 minutes. If allowed to flow into the vein rapidly, respiration became embarrassed, and the patient complained of heat all over the body. It had been given in this manner fifty times either by the writer or his assistants, and the results in many instances had been extremely gratifying. It had been given at intervals of twenty-four hours for several days. It was during this study that it was determined to try its use in a patient suffering from puerperal infection. A number of cases, which were beginning a typical course, similar to others who died in spite of all treatment, had been treated by intravenous injections of magnesia sulphate with apparent benefit. Its use had been limited almost entirely to the treatment of puerperal infection, and the number of cases treated were too few to draw any conclusions.

Fibromyomata of the Uterus Complicating Pregnancy, Labor and the Puerperium.—Dr. Ralph Waldo Lobenstein of New York read a paper which was based upon a study of one hundred cases occurring at the New York Lying-in Hospital. The chief deductions from this series of cases were: 1, A myomatous condition of the uterus predisposed to sterility. Parvin stated that while the average sterility was one in eight, it was one in three in women with myomata. Charpentier's figures correspond closely to these. 2. The tendency to abortion was increased. In the bad cases, both spontaneous and artificial abortion might prove difficult to handle by the natural channel, and was most dangerous to the life of the individual. In the severe cases, where it was difficult to gain access to the cavity of the uterus proper, and in the presence of real hemorrhage, laparotomy was the operation of choice. 3. The great majority of the cases that did not abort early proceeded through pregnancy, labor, and the puerperium with few or no symptoms; therefore, operative interference was but rarely indicated during pregnancy and was, as a rule, meddlesome midwifery. He made this statement cautiously, for he knew well that in the minds of many it would be open to criticism. The operation of myomectomy during pregnancy was just now very popular, but he for one believed it was rarely indicated. The results of myomectomy were none too good. Occasionally it might be wise to do a myomectomy, and occasionally necessary to do a hysterectomy, but as a rule conservatism should be the watchword. 4. Nature accomplished wonders at the time of labor, overcoming any apparent dystocia, in a large percentage of cases. When delivering, avoid all possible trauma to the tumor. 5. With

the development of the symptoms of gangrene in a myoma in the puerperium, operate early to save the life of the patient.

Two Right-Sided Femoral Hernias in the Same Patient.—Dr. N. Stone Scott of Cleveland reported an interesting case, and the points of special interest, as illustrated by him, were the rarity of external femoral hernia; the importance of making a correct and accurate diagnosis; the possibility of the coexistence of an external and internal femoral hernia on the same side of the patient; the ease of overlooking the external when it was associated with the internal or more common form; the operative technic of the external femoral hernia was not essentially different from that of internal femoral hernia. Lastly, where both varieties were operated on the same side, great care was necessary to prevent interference with the functions of the blood vessels.

Puerperal Eclampsia.—Dr. E. Gustav Zinke of Cincinnati read a paper on this subject in which he drew the following conclusions: 1. All cases of puerperal eclampsia were not alike; much depended upon the extent the kidneys and liver were involved. The so-called malignant form, as the term implied, was fatal from the beginning. The so-called benign variety ended in recovery sometimes in spite of the treatment adopted. The variety of mean gravity was without doubt favorably influenced in its course by careful and judicious treatment. 2. The prognosis for both mother and child was much worse when the convulsions supervened during pregnancy, the maternal mortality ranging between 35 to 50 per cent.; the fetal mortality between 65 and 75 per cent. The prognosis of intrapartum convulsions was more favorable, maternal as well as fetal, and amounted to about 25 per cent. The maternal mortality of postpartum convulsions was, as a rule, about 7 per cent. In his own experience, having had but two cases, it was 50 per cent. 3. The most important treatment of puerperal convulsions was prophylaxis before the appearance of symptoms as well as before the eclamptic attacks when prodromal signs existed. The patient must be protected from injury during the convulsions and the duration and frequency of the paroxysms should be controlled and abbreviated medicinally rather than surgically. Veratrum viride in sufficiently large doses was the remedy par excellence to reduce the blood pressure and the pulse frequently. Hoth baths and hot packs, judiciously employed, and free but not excessive catharsis, strict milk diet, and the recumbent position were of almost equal importance. 4. Chloral in large doses per rectum, if the patient was very restless during the interval of the attacks, was a splendid remedy. Chloroform inhalations, especially of long duration, could be regarded as a source of great danger. The same might be said of frequent and large doses of morphia, the both of these drugs having their ardent advocates. 5. The antitoxin treatment (the thyroid, parathyroid extract, and nephrine) might play an important part in the future in the treatment of eclampsia. 6. Saline and sugar water instillations could do no harm and might do a great deal of good. 7. If, of late years, the maternal mortality of puerperal eclampsia had been reduced at all, it was the direct result of careful prophylaxis and intelligent medical care. Surgery had contributed nothing to it. The dictum, "assist in labor, but do not induce it," or "treat the convulsion and let the pregnancy take care of itself," was better than the dictum, "empty the uterus as soon as possible in every case of puerperal convulsions, no matter what the period of gestation." 8. Decapsulation of the kidneys, manual, balloon, and mental dilatation, especially the old time accouchement forcé, were, in the opinion of the author, hardly justifiable and should have no place in the treatment of puerperal eclampsia. 9. If, however, the symptoms were very threatening and the medical care above described failed to bring about promptly an amelioration in the patient's condition, an early delivery might be desirable. If the patient be near term, but not in labor, the conservative Cesarean section should be selected. If the patient was just within the period of viability, vaginal hysterotomy was the proper procedure. If the fetus was not viable before the end of the sixth month of gestation, deep cervical incisions would easily relieve the uterus quickly of its contents. 10. No one had a right to perform any of these three operations unless experienced and familiar with the technic of each, and in every instance the patient should have the benefit of strict asepsis. Without these requirements it was best to rely entirely upon the medical care above outlined.

Pelvic Reflexes.—Dr. Robert T. Morris of New York spoke of afferent and efferent reflexes, and said in a certain proportion of patients with pelvic reflexes there was the neurotic habit. These patients were neurasthenics. If a surgeon took out one ovary for pelvic pain, the patient was just as badly off as before the operation. If the other ovary was removed, she was just as badly off as before. The surgeon must deal with neurotic patients with a great deal of intelligence. They represented a class calling for surgery, but the surgeon should beware of patients with pelvic pains, ovarian and tubal troubles, and neuralgic pains, particularly those of the neurotic or neurasthenic type. We had a group of disturbances proceeding from a scar of the cervix. How were we going to determine whether we were to operate in a case of reflex trouble with a torn cervix? Very many patients had torn cervices. Did the cervix require operation for its repair? Did we do the right thing if we operated because we found tears and scars? No. We were not to operate in such cases unless there were definite reasons for so doing. If one should press on a scar of the cervix with his fingernail, or with the sharp point of a retractor, and bring out instantly that reflex, then the case was one requiring operation for reflex disturbance; but if one should press on a scar and the patient did not know it, or if one should press on another scar and the patient did not know it, we should not operate on that case, no matter how much the cervix was torn, for the relief of reflex disturbance. One might operate for a repair of a torn cervix on general mechanical principles, but not for the object of relieving the efferent reflex.

Officers.—The following officers were elected for the ensuing year: *President,* Dr. Herman E. Hayd, Buffalo, N. Y.; *First Vice-President,* Dr. Henry Schwarz, St. Louis, Mo.; *Second Vice-President,* Dr. Lewis C. Morris, Birmingham, Ala.; *Secretary,* Dr. William Warren Potter, Buffalo, N. Y.; *Treasurer,* Dr. X. O. Werder, Pittsburg, Pa.

Louisville, Ky., was selected as the place for holding the next annual meeting; time, fourth Tuesday in September, 1911.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Pennsylvania Medical Examining Board.

June, 1910.

ANATOMY.

1. Give the origin and insertion of the rectus abdominalis muscle, and describe in detail its relationship to other structures.

2. Give the relations of the peritoneum with the bladder in the distended and collapsed condition.

3. Give the lower border of the pleura on each side in the anterior axillary line.

4. Describe the seventh or facial nerve, and give its distributions.

5. Give relation of bony prominences of the elbow joint in the flexed position.

6. Through what structures of the eye does light pass to reach essential visual structure?

7. Describe the stomach, and give its relationship with other organs.
8. What are the relations of the right kidney, and why is it lower than the left?
9. Describe the formation of the deep and superficial palmar arch with the anatomical landmarks of each.
10. Give the location and structure of the inguinal canal and name its normal contents.

PHYSIOLOGY.

1. Explain in detail the mechanism of intestinal peristalsis.
2. Name three physiological conditions which help to protect the body against disease or injury; citing instances of protective immunity.
3. Enumerate four conditions to be observed in "taking" the pulse, and describe the significance of each.
4. Describe the functions of the liver.
5. Discuss calorifaction with special reference to the maintenance of normal temperature.

PATHOLOGY.

1. Discuss carcinoma uteri with special reference to the age at which it commonly occurs.
2. Name the casts that may be found in the urine and state what is the usual significance of the presence of each form.
3. Describe the pathologic tissue changes in the varieties of pulmonary emphysema.
4. Discuss "fatty" degeneration of the heart.
5. Discuss uremia and state conditions to which it is due.

PRACTICE AND THERAPEUTICS.

1. What are the symptoms which are most characteristic of typhoid fever in its early stages?
2. How would you treat a case of angina pectoris during and between attacks?
3. What are the characteristics of acute articular rheumatism, and how would you treat it?
4. What are the causes of asthma, and how would you treat an attack of bronchial asthma?
5. Give the method of using the cold bath treatment in typhoid fever.
6. How would you treat a case of uremic coma occurring in chronic Bright's disease?
7. Describe the way in which you would vaccinate a patient.
8. How would you manage a case of epilepsy during and between attacks?
9. Describe the prophylactic and curative management of malaria.
10. Name the most characteristic lesions present in the different stages (primary, secondary, and tertiary) of syphilis.

SURGERY.

1. Describe how you would locate on the skull the point to trephine in hemorrhage from the middle meningeal artery.
2. Describe the symptoms produced by loose bodies in the knee joint, with the treatment of same.
3. What conditions are capable of causing stricture of the rectum; describe a surgical operation for the relief of any one form.
4. Give symptoms upon which to base a diagnosis of ulcer of the stomach, and describe a surgical operation for the relief of same.
5. Describe the methods of examination to determine whether a tumor of the breast be malignant or benign.
6. Diagnosticate stone in the urinary bladder and describe suprapubic cystotomy.
7. Describe a backward dislocation of the shoulder joint, and give treatment for same.
8. Describe four of the more usual varieties of fracture at or about the elbow joint with the appropriate dressings for each form.
9. What are the contraindications and dangers of ether and chloroform anesthesia?
10. Name the common causes of ununited fracture and discuss the measures resorted to for its cure.

MATERIA MEDICA.

1. Compare the effects of the two principal alkaloids of opium, and name the drugs that are antagonistic to opium.
2. State to what class of remedies stramonium belongs, and describe two other official drugs belonging to this class or group.
3. What is tartar emetic, and into what official preparations does it enter?
4. Name the salts of manganese, giving their dose and describing their action.
5. Write a prescription for the production of mydriasis, with directions to the patient, and explain its use in refraction.

CHEMISTRY.

1. How are blood and pus chemically detected in the urine?
2. Describe method of use when testing for glucose with Trommer's, Fehling's, or Haines' solution.
3. What is indoxyl-potassium sulphate? Describe a chemical test for its detection.
4. Describe chemical tests for three forms of urinary calculi.
5. Describe a test for the diastasic activity of digestants ("extracts of malt").

DIAGNOSIS.

1. Name five causes of coma and give the characteristic symptoms produced by each.
2. Diagnosticate pernicious anemia and differentiate conditions simulating it.
3. Differentiate impetigo, lichen, and pemphigus.
4. What are the most important defects of vision, and how would you differentiate them by the use of test-cards, lenses, and mydriatics?
5. Differentiate stone, tubercle, and carcinoma of the kidney, giving chemical and microscopical tests of the urine in each.

HYGIENE.

1. Give hygienic and dietetic measures for preventing constipation.
2. What are the dangers from the use of drugs for the preservation of foods?
3. Outline the dietetic and hygienic instructions suitable for a person who has contracted syphilis.
4. What are the possible results of the use of tobacco by growing children in regard to circulation, vision, and air passages?
5. State briefly some practical method for securing good ventilation in houses not properly ventilated at the time of building.

OBSTETRICS.

1. Describe the delivery of the after-coming head.
2. Diagnosticate a shoulder presentation and describe the method of delivery.
3. How would you diagnosticate ectopic pregnancy?
4. During labor what conditions should govern the employment of an anesthetic?
5. What means should be employed to prevent laceration of the perineum?
6. How would you diagnose and treat albuminuria of pregnancy?
7. Discuss the use of "the forceps."
8. Name causes and describe the management and treatment of uterine inertia.
9. Enumerate causes of dystocia and describe the management of any one form.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

PENNSYLVANIA MEDICAL EXAMINING BOARD.

June, 1910.

ANATOMY.

1. See Cunningham's "Anatomy" (1909), page 426; or Gray's "Anatomy" (1908), page 444.
2. See Cunningham's "Anatomy" (1909), page 1153; or Gray's "Anatomy" (1908), page 1444.
3. On *right* side to lower border of ninth rib; on *left* side to lower border of tenth rib.
4. The *seventh or facial nerve* has its superficial origin in the upper end of the medulla oblongata, in the groove between the olivary and restiform bodies. It passes "forward and outward to enter the internal auditory meatus; it lies upon a groove on the auditory nerve, with portio intermedia of Wrisberg between, and at the bottom of the meatus it enters the aqueductus Fallopii, along which it runs first outward between cochlea and vestibule as far as hiatus Fallopii; then backward in internal wall of tympanum, just above fenestra ovalis, at the turn presenting a swelling, the geniculate ganglion; and finally it passes downward, to emerge from the bone at the stylomastoid foramen; it then passes outward and forward in the parotid, dividing behind the ramus of the jaw into temporofacial and cervico-facial branches, which further subdivide and intercommunicate, forming the pes anserinus."—(*Aids to Anatomy.*)

It *supplies* the muscles of expression in the face, the muscles of the external ear, the Platysma, Buccinator, Stylohyoid, and the posterior belly of the Digastric.

5. When the elbow is flexed, the tip of the olecranon process lies below a line joining the two condyles of the lower end of the humerus.

6. Cornea, aqueous humor, lens, vitreous body and on to retina.

7. See Cunningham's "Anatomy" (1909), page 1050; or Gray's "Anatomy" (1908), page 1277.

8. See Cunningham's "Anatomy" (1909), page 1130; or Gray's "Anatomy" (1908), page 1422.

9. The *superficial palmar arch* is formed by the ulnar artery, and is completed by the ulnar artery anastomosing with a branch of the radial (superficial volar or princeps pollicis). It gives off the four digital branches. The surface marking is a line drawn transversely across the palm from a point where the web of the thumb joins the palm. The *deep palmar arch* is formed by the radial artery, and is completed by the radial artery anastomosing with a deep branch of the ulnar. Its branches are the palmar interosseous, perforating, and palmar recurrent arteries. The surface marking is a line drawn transversely across the palm, one-half inch nearer the wrist than the superficial arch. Wounds in this region are dangerous on account of the difficulty in checking the hemorrhage, and also on account of the important structures of the palm that may be damaged. In incision in the palm the line of these arteries should be avoided as far as possible.

10. The *inguinal canal* is an oblique canal situated a little above and running parallel with Poupart's ligament. It is from an inch and a half to two inches in length, runs downward and inward, and extends from the internal abdominal ring to the external abdominal ring.

Its *boundaries are: In front:* the skin, superficial fascia, aponeurosis of the external oblique, and (for its outer third) the internal oblique. *Behind:* the conjoined tendon, the triangular fascia, the transversalis fascia, subperitoneal fat, and peritoneum. *Above:* the fibers of the internal oblique and transversalis. *Below:* Poupart's ligament and the transversalis fascia.

Contents: the spermatic cord in the male, and the round ligament in the female.

PHYSIOLOGY.

1. See Gray's "Anatomy" (1908), page 1330.

2. (1) The epithelial covering, and in some places the presence of cilia to remove the germs; (2) the acidity of the gastric juice, which will kill bacteria; and (3) the phagocytic action of the leucocytes.

3. The points to be observed in taking the pulse are: (1) Its *frequency:* this gives the rate of the heart beats. (2) Its *compressibility:* this denotes the force with which the heart is beating. (3) Its *tension:* this denotes the peripheral resistance, and also the state of the arterial walls. (4) Its *regularity or rhythm:* this denotes the regularity (or otherwise) of the heart's action in force or rhythm.

4. The functions of the liver are: (1) The secretion of bile; (2) the formation of glycogen; (3) the formation of urea and uric acid; (4) the manufacture of heat, and (5) the conversion of poisonous and harmful into inert material.

5. The heat of the body is *maintained* by the thermotactic centers in the brain and cord keeping an equilibrium between the heat gained or produced in the body and the heat lost. *Heat is produced in the body* by: (1) Muscular action; (2) the action of the glands, chiefly of the liver; (3) the food and drink ingested; (4) the brain; (5) the heart; and (6) the thermogenetic centers in the brain, pons, medulla, and spinal cord. *Heat is given off from the body* by: (1) The skin, through evaporation, radiation, and conduction; (2) the expired air; (3) the excretions—urine and feces.

PATHOLOGY.

1. Carcinoma of the body of the uterus is far less frequent than that of the cervix, it also occurs later in life, the majority of cases being seen between fifty and sixty years of age. Carcinoma of the cervix is very frequent, it attacks almost exclusively women who have borne children, it is most frequently observed between thirty and sixty years of age, generally near or at the menopause, but cases have been seen as early as twenty.

2. "*Casts* in the urine occur in nephritis, and different varieties are found in the different forms of that disease. *Hyalin* casts occur in all forms of nephritis, in congestion of the kidneys, in jaundice, and even in health. *Waxy* casts occur especially in chronic parenchymatous nephritis. *Epithelial* casts occur especially in acute parenchymatous nephritis. *Granular* casts are especially common in chronic nephritis, but they may occur in acute nephritis. *Fatty* casts occur chiefly in chronic parenchymatous nephritis. *Blood* casts occur in acute and chronic hemorrhagic nephritis. *Pus* and *bacterial* casts are occasionally met with in suppurative nephritis."—(From Stevens' *Practice of Medicine.*)

3. See French's "Practice of Medicine" (1907), page 679; or Osler's "Practice of Medicine" (1909), pages 633, 635, etc.

4. See French's "Practice of Medicine" (1907), page 607; or Osler's "Practice of Medicine" (1909), page 825.

5. See French's "Practice of Medicine" (1907), page 887; or Osler's "Practice of Medicine" (1909), page 683.

PRACTICE AND THERAPEUTICS.

1. See French's "Practice of Medicine" (1907), page 74; or Osler's "Practice of Medicine" (1909), page 70.

2. See French's "Practice of Medicine" (1907), page 621; or Osler's "Practice of Medicine" (1909), page 842.

3. See French's "Practice of Medicine" (1907), page 225; or Osler's "Practice of Medicine" (1909), page 221.

4. See French's "Practice of Medicine" (1907), pages 658 and 661; or Osler's "Practice of Medicine" (1909), pages 609 and 612.

5. See French's "Practice of Medicine" (1907), page 114; or Osler's "Practice of Medicine" (1909), page 100.

6. See French's "Practice of Medicine" (1907), page 891; or Osler's "Practice of Medicine" (1909), page 702.

7. See French's "Practice of Medicine" (1907), page 311; or Osler's "Practice of Medicine" (1909), page 127.

8. See French's "Practice of Medicine" (1907), page 1132; or Osler's "Practice of Medicine" (1909), page 1064.

9. See French's "Practice of Medicine" (1907), page 247; or Osler's "Practice of Medicine" (1909), page 23.

10. See French's "Practice of Medicine" (1907), page 420; or Osler's "Practice of Medicine" (1909), page 267.

SURGERY.

1. See Rose and Carless' "Surgery" (1908), page 773; or Da Costa's "Surgery" (1908), page 705.

2. See Rose and Carless' "Surgery" (1908), page 675; or Da Costa's "Surgery" (1908), page 579.

3. *Stricture of the rectum* may be congenital; or may be due to malignant tumors, cicatrization of wounds or ulcers (syphilitic or tuberculous), cellulitis, bands of adhesion, gonorrhea, and traumatism. For *treatment*, see Rose and Carless' "Surgery" (1908), page 1140; or Da Costa's "Surgery" (1908), page 1021.

4. See French's "Practice of Medicine" (1907), pages 748 and 750; *and* Rose and Carless' "Surgery" (1908), page 991; or Da Costa's "Surgery" (1908), pages 827, and 829.

5. See Rose and Carless' "Surgery" (1908), page 954.

6. See Rose and Carless' "Surgery" (1908), pages 1212 and 1217; or Da Costa's "Surgery" (1908), pages 1132 and 1141.

7. See Rose and Carless' "Surgery" (1908), page 622; or Da Costa's "Surgery" (1908), pages 588 and 590.

8. See Rose and Carless' "Surgery" (1908), pages 506, etc.; or Da Costa's "Surgery" (1908), page 493, etc.

9. The following contraindications for ether and chloroform are from Hare's *Practical Therapeutics:* "Ether should not be used by inhalation in bronchitis or acute nephritis, because of its irritant properties; in peritonitis or gastritis, because it is apt to induce vomiting; in aneurysm or in the presence of marked vascular atheroma, because it may rupture a blood-vessel by raising arterial pressure; nor in diabetes, lest it produce diabetic coma: and if anemia is present and an examinatiin of the blood shows that the hemoglobin is below 50 per cent., the use of the drug should be avoided if possible.

"*Chloroform* is not to be used in cases of fatty heart or dilatation of the heart, in those with a known idosyncrasy, nor in the so-called lymphatic persons with overgrowth of lymphoid tissues, as, for example, adenoids. In the latter case it is particularly apt to cause sudden death. In valvular disease of the heart chloroform may be used with caution, although either is preferable. Given a case of valvular disease that must be subjected to operation, the chances are bettered with an anesthetic than without it, as the pain and mental shock are worse for the heart than is the anesthetic."

Dangers of Anesthesia: Syncope, or cardiac failure; respiratory embarrassment with obstruction (muscular spasm, tongue falling back, spasm of the glottis, entry of blood or other matter into the larynx) overdose of the anesthetic, shock.

10. See Rose and Carless' "Surgery" (1908), page 484; or Da Costa's "Surgery" (1908), page 460.

MATERIA MEDICA.

1. Codeine is very like morphine in its action, but it (codeine) is less powerful as a hypnotic and analgesic; it is also less liable to cause nausea, and constipation; it is less depressing to the cerebral functions, and less poisonous to the medulla; it is generally weaker than morphine, and has but little effect on the respiration.

Antagonists to Opium: Strychnine, atropine, caffeine; and to some extent also, quinine, digitalis and tartar emetic.

2. *Stromonium* belongs to the same class as belladonna and hyoscyamus; these are classified by Wilcox as cerebral stimulants, by Potter as motor excitants, by Butler as mydriatic narcotics, by Stevens as cerebral excitants.

Belladonna leaves are "Usually of a dull brownish-green color, the leaves much wrinkled and matted together, frequently with the flowering top intermixed; leaves from 6 to 20 Cm. long, 4 to 12 Cm. broad, broadly ovate, apex acute, margin entire, narrowed into the petiole, upper surface brownish-green, lower surface grayish-green, epidermis more or less papillose, particularly on the under surface; odor distinctly narcotic, especially on moistening; taste somewhat bitter and acrid." *Belladonna root* is "in cylindrical or somewhat tapering, longitudinally wrinkled pieces, 1 to 2.5 Cm. thick, the bark somewhat incurved at the edges of roots which have been split before drying; externally pale brownish-gray, dusty or mealy, outer layers of the periderm rather soft, frequently abraded, and thus showing lighter patches; fracture nearly smooth, mealy, and emitting a characteristic puff of dust; internally whitish, the older roots showing medullary rays near the bark; nearly inodorous, taste sweetish, afterward bitterish and strongly acrid." *Hyoscyamus* has "leaves ovate or ovate-oblong, the lower with a short petiole, the uppper sessile, 5 to 25 Cm. long, 2 to 10 Cm. broad, acute, coarsely and angularly toothed or lobed, grayish-green, glandular-hairy, particularly on the lower surface; flowers nearly sessile, with an urn-shaped, unequally 5-toothed calyx and a campanulate, purple-veined corolla, which in the fresh state is yellowish; fruit capsular, 2-celled, and enclosed in the calyx; odor heavy, narcotic; taste somewhat bitter and nauseous."—(*U. S. P.*)

3. Tartar emetic is antimony and potassium tartrate. It enters into the composition of compound syrup of squills, and of wine of antimony.

4. Precipitated manganese dioxide, dose gr. iv; manganese hypophosphite, dose gr. ij; manganese sulphate, dose gr. iv; potassium permanganate, dose (in pill), gr. j. "*The salts of manganese* in small doses improve the appetite and digestion, increase arterial tension, and stimulate the action of the heart. In larger doses they lower the heart's action, paralyze the muscular system, especially the muscular coat of the arteries, causing progressive wasting, paraplegia, and acute fatty degeneration of the liver. They are gastrointestinal irritants, have specific excitant action on the uterus, and the sulphate is a decided cholagogue."

Uses of Potassium Permanganate: "As an antiseptic and oxidizing agent it is used in diphtheria, scarlatina, septicemia, etc., and is given with benefit in dyspepsia, lithemia and obesity. Locally it is employed as a deodorizer in cancer, ozena otorrhea, foul breath, and fetid perspiration of the feet, in solution of 3j to the pint. It is considered a very efficient emmenagogue by many authorities, and is employed in amenorrhea and other derangements of the menstrual function. When used internally it must be instantly decomposed in the stomach, and cannot be absorbed in its own form. It has recently come into prominence as an antidote to morphine and strychnine in the stomach."—(Potter.)

5. R. Atropinæ sulphatis.....gr. j
Aquæ destillatæ .....3ij. M.
Signa: Poison. Put one drop in each eye every four hours.

It will paralyze the sphincter of the pupil, and stimulate the dilator. It is used to paralyze the accommodation, in order to estimate the refraction.

DIAGNOSIS.

1. The following table (from Eisendrath's *Surgical Diagnosis*) gives the diagnosis:

COMA FROM INTRACRANIAL INJURY.	APOPLECTIC COMA.	UREMIC COMA.	ALCOHOLIC COMA.	OPIUM POISONING.
Deep coma; may have history of onset after fall or injury. Evidence of fracture of vertex or base.	Deep coma; sudden onset. If any injury, only a scalp wound.	Deep coma. Slow onset unless convulsions have preceded the coma.	Can be aroused by supraorbital pressure unless very profound.	Can be aroused unless very deep.
Pupil dilated on side of lesion. Choked disc.	Pupils unequal or dilated. Contracted in hemorrhage into the pons.	Albuminuric retinitis.	Pupils normal or somewhat dilated.	Pupils contracted to pinpoint size.
Pulse very slow.	Pulse full and slow, often arteriosclerotic high-tension pulse.	Pulse rapid.	Pulse more rapid than normal and full.	Pulse rapid, may be irregular.
Respiration slow and stertorous.	Respiration slow and irregular.	Respiration frequent and irregular.	Regular respiration.	Respiration very slow—may be 6 to 8 per minute.
Temperature higher—101°.	Temperature higher on paralyzed side, but lower in rectum.		May be low or normal.	
Urine normal or contains trace of albumin.	Urine contains trace of albumin, but may be same as in uremia.	Urine shows albumin, casts, and low urea percentage.	Normal.	Normal.
Hemiplegia on opposite side to that of injury. If contusion of brain is also present, may have generalized convulsions.	Hemiplegia with convulsions on one side.			

2. See French's "Practice of Medicine" (1907), pages 510 and 512; or Osler's "Practice of Medicine" (1909), pages 726 and 729.

3. *Impetigo contagiosa* is an acute, contagious, inflammatory disease of the skin, characterized by discrete, flat, superficial vesicles or blebs, which rapidly become pustular and dry upon the skin as thin crusts. The eruption is most common upon the face and hands. *Lichen ruber* is an inflammatory disease of the skin characterized by the appearance of small, flat, angular, and shining or discrete, acuminated and scaly, reddish papules, running a chronic course and attended by more or less itching. The disease is of neurotic origin and infrequent. *Pemphigus* is an acute or chronic inflammatory disease of the skin, characterized by the formation of successive crops of variously sized, rounded or oval bullas, affecting seriously the general health and often terminating fatally. The blebs of pemphigus are tense, abruptly elevated, noninflammatory, and come out in crops.—(From Gould and Pyle's *Pocket Cyclopedia.*)

4. *The defects of vision* are: Hypermetropia, myopia, astigmatism, and presbyopia.

Test for hypermetropia: "When the vision is tested at a distance, it will be found perfect unless the patient has lost his accommodation, but he will see as well with a convex glass. The strongest convex lens through which the patient sees as well as without, measures the manifest hypermetropia. A cycloplegic such as homatropine hydrobromate

(2 per cent. solution) dropped into the eyes three times during an hour, or atropine sulphate (1 per cent.) three times a day for three days, will paralyze the accommodation, and the vision will then fall below the normal, because the patient can no longer use his accommodation and bring forward the focus upon the retina. The convex lens, which then gives him perfect vision, will be stronger than that for the manifest hypermetropia, and measures the exact refraction of the eye or total hypermetropia. The difference between the manifest and total hypermetropia is called the latent hypermetropia. As one grows older, the accommodation weakens, and the latent hypermetropia becomes less until about fifty or fifty-five, when the manifest equals the total, if it does not before."

Test for myopia: "The distant vision is found considerably reduced, while perfect at the near point. Concave spherical lenses bring the distant vision to normal if there are no complications. The weakest concave lens which gives perfect vision measures the myopia. Atropine is not so important as in hypermetropia, since there is a natural tendency to relax the accommodation. Low degrees of myopia, however, should be tested with a cycloplegic, because spasm of accommodation, or false myopia, is possible, and gives poor vision, improved by weak concave lenses."

Test for astigmatism: "The vision is affected according to the degree of the astigmatism, both for near and distance. Cylinders at the proper axis will give improvement in vision. Atropine should be used for the examination under the same conditions as in hypermetropia. A further subjective test is made with a card having lines which radiate in all directions from the common center, like spokes of a wheel. The astigmatic eye will not see all the lines with equal distinctness, and cylinders can be tried at all axes until the lines appear alike."

Test for presbyopia: "The near point of monocular vision is about two and one-half inches in the young child. This near point gradually recedes until between forty and forty-five it is no nearer than fifteen inches, which is the average reading distance. When the near point of accommodation recedes beyond this point and vision is not clear within this limit, the condition becomes unpleasant for reading, writing, and other near work, and is known as presbyopia."—(Alling's *Epitome on Diseases of the Eye.*)

5. See Rose and Carless' "Surgery" (1908), pages 1175, 1172 and 1183; or Da Costa's "Surgery" (1908), pages 1110 and 1115.

CHEMISTRY.

1. Test for *Blood:* To the urine add a solution of potassium hydroxide to distinct alkaline reaction; heat nearly to boiling (do not boil). A red precipitate is produced.

Test for *Pus:* Add an equal quantity of solution of potassium hydroxide to the urine; if pus is present a viscid gelatinous mass will be produced.

2. *Fehling's test:* Place in a test-tube a few c.c. of the liquid prepared as stated below, and boil; no reddish tinge should be observable even after five minutes' repose. Add the liquid under examination gradually, and boil after each addition. In the presence of sugar a yellow or red precipitate is formed. In the presence of traces of glucose, only a small amount of precipitate is produced, which adheres to the glass, and is best seen when the blue liquid is poured out.

[The reagent must be kept in two solutions, which are to be mixed immediately before use. Solution I consists of 34.653 gms. of crystallized $CuSO_4$, dissolved in water to 500 c.c; and solution II of 130 gms. of Rochelle salt dissolved in 500 cc. in NaHO solution of sp. gr. 1.12. When required for use equal volumes of the two solutions are mixed, and the mixture diluted with four volumes of water.]

3. Indoxyl-potassium sulphate is indican. *To examine for indicanuria:* "The urine is mixed with one-fifth of its volume of 20 per cent. solution of lead acetate and filtered. The filtrate is mixed with an equal volume of fuming hydrochloric acid containing 3:1000, of ferric chloride, a few drops of chloroform are added, and the mixture strongly shaken one or two minutes. With normal urine the chloroform remains colorless or almost so; but if an excess of indoxyl compounds be present the chloroform is colored blue, and the depth of the color is a rough indication of the degree of the excess."

4. Three forms of urinary calculi: (1) Uric acid calculi; (2) ammonium urate calculi, and (3) triple phosphate calculi.

Chemical tests: Saw the calculus in two, take some of the sawdust and heat it on a platinum foil. If it is entirely volatile, take a fresh portion of the dust, moisten with nitric acid, evaporate to dryness at a low heat, add some ammonium hydroxide solution; a red color will be produced. Treat a portion of the dust with solution of potassium hydroxide, but without heating; if an ammoniacal odor is observed, the calculus is *ammonium urate;* if no such odor is observed, the calculus is *uric acid.* Take some of the sawdust and heat it on a platinum foil; if a residue remains, moisten a portion with nitric acid, evaporate to dryness at a low heat, add some ammonium hydroxide solution, no red color is produced; heat it before the blowpipe, on platinum foil; if it fuses, the calculus is *triple phosphate.*

5. The solid extract of malt should be dissolved in nine parts of water; this should be slightly turbid and give an abundant precipitate very shortly after being mixed with an equal volume of picric acid.

HYGIENE.

1. See French's "Practice of Medicine" (1907), page 806; or Osler's "Practice of Medicine" (1909), page 527.

2. The *dangers from the use of drugs for the preservation of foods,* are: (1) That the normal digestive functions will be impaired; (2) the food is less nutritious and more insipid; (3) that improper food will be so used, and because "drugged," will to some extent escape detection; (4) that there is no likelihood that any care will be exercised to add only the minimum quantity of preservative.

3. "Every person who contracts syphilis should be warned of the danger of communicating it to others. Sexual intercourse should always be prohibited while the disease remains active. This direction should never be omitted, as many patients are unaware that they are liable to communicate the disease after the initial manifestation has healed. The contagious nature of the lesions of the mouth and throat should also be pointed out, and the consequent risk of contagion by kissing, or by the use of drinking-vessels, towels, or other articles in common with other persons.

"Syphilis is essentially a debilitating disease, hence it is most important that the general health of the patient should be supported by nourishing diet, good air, warm clothing, extreme moderation as regards alcoholic liquors, cleanliness, cheerful society, and moderate exercise in the open air. In nearly all cases the patient should follow his usual employment, in order that his mind may be diverted from dwelling on the slow progress of his cure. The skin should be stimulated to act freely by the frequent use of soap and water, and an occasional Turkish bath if thought desirable. Flannel should be worn next the skin, and sudden chills avoided as much as possible. Smoking in moderation may be allowed, as long as the mouth and throat remain free; but when syphilitic lesions are present, it should always be discontinued. Regular action of the bowels is also important. Exercise, short of fatigue, should be taken daily, unles the weather is very bad."—(From Quain's *Dictionary of Medicine.*)

4. "The continued use of tobacco, by smoking or chewing it to excess, produces granular inflammation of the fauces and pharynx, atrophy of the retina, dyspepsia, lowered sexual power, sudden faints, nervous depression, cardiac irritability, and occasionally angina pectoris. Used by the young, it hinders the development of the higher nerve centers and impairs the nutrition of the body by interfering with nrocesses of digestion and assimilation. It has been credited with causing cancer of the lips and tongue, blunting the moral sense, mental aberration and even insanity."—(Potter's *Materia Medica,* etc.)

5. Proper ventilation may be secured by having double windows, or double panes of glass, with an opening at the bottom of the outer and at the top of the inner one, so that the fresh air may enter in an upward current.

OBSTETRICS.

1. See Williams' "Obstetrics" (1909), page 425; or Hirst's "Obstetrics" (1909), page 838.

2. See Williams' "Obstetrics" (1909), page 799; or Hirst's "Obstetrics" (1909), pages 426 and 433.

3. "When extrauterine pregnancy exists there are: (1) The general and reflex symptoms of pregnancy; they have often come on after an uncertain period of sterility; nausea and vomiting appear aggravated. (2) Then comes a disordered menstruation, especially metrorrhagia, accompanied with gushes of blood, and with pelvic pain coincident with the above symptoms of pregnancy; pains are often very severe, with marked tenderness within the pelvis; such symptoms are highly suggestive. (3) There is the presence of a pelvic tumor characterized as a tense cyst, sensitive to the touch, actively pulsating; this tumor has a steady and progressive growth. In the first two months it has the size of a pigeon's egg; in the third month it has the size of a hen's egg; in the fourth month it has the

size of two fists. (4) The os uteri is patulous; the uterus is displaced, but is slightly enlarged and empty. (5) Symptoms No. 2 may be absent until the end of the third month, when suddenly they become severe, with spasmodic pains, followed by the general symptoms of collapse. (6) Expulsion of the decidua in part or whole Nos. 1 and 2 are *presumptive signs;* Nos. 3 and 4 are *probable signs;* Nos. 5 and 6 are *positive signs.*"—(*American Text-Book of Obstetrics.*)

4. See Williams' "Obstetrics" (1909), page 321; or Hirst's "Obstetrics" (1909), page 329.

5. See Williams' "Obstetrics" (1909), page 317; or Hirst's "Obstetrics" (1909), page 334.

6. See Williams' "Obstetrics" (1909), pages 176 and 520; or Hirst's "Obstetrics" (Edition of 1909), pages 253 and 249.

7. *Indications for the use of forceps* are: (1) *Forces at fault:* Inertia uteri in the presence of conditions likely to jeopardize the interests of mother or child. (*a*) Impending exhaustion; (*b*) arrest of head, from feeble pains. (2) *Passages at fault:* Moderate narrowing, 3¼ to 3¾ inches, true conjugate; moderate obstruction in the soft parts. (3) *Passenger at fault:* A. Dystocia due to (*a*) occipito-posterior. (*b*) mentoanterior face, (*c*) breech arrested in cavity. B. Evidence of fetal exhaustion (pulse above 160 or below 100 per minute). (4) *Accidental complications:* Hemorrhage; prolapsed funis; eclampsia. All acute or chronic diseases or complications in which immediate delivery is required in the interest of mother or child, or both. *Conditions necessary for the use of forceps* are: (1) The rectum and bladder must be empty; (2) the os uteri must be fully dilated; (3) the membranes must have been ruptured; (4) the diameters of the pelvis must be of sufficient size.

8. See Williams' "Obstetrics" (1909), page 659; or Hirst's "Obstetrics" (1909), page 439.

9. See Williams' "Obstetrics" (1909), page 658; or Hirst's "Obstetrics" (1909), page 439.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION	
Alabama*	W. H. Sanders, Montgomery.	Montgomery	Jan.
Arizona*	Ancil Martin, Phoenix	Phoenix	Jan. 3
Arkansas	F. T. Murphy, Brinkley	Little Rock	Nov. 8
California*	Chas. L. Tisdale, 929 Butler Building, San Francisco	Los Angeles	Dec 6
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	Jan. 3
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov. 14
Delaware	J. H. Wilson, Dover	Dover	Dec. 13
Dist. of Col'ba	Geo. C. Ober, Washington	Washington	Jan. 10
Florida*	J. D. Fernandez, Jacksonville	Palatka	Nov. 9
Georgia	T. H. Goss, Athens	Atlanta	
Idaho*	W. F. Howard, Pocatello		April 4
Illinois	J. A. Egan, Springfield	Chicago	
Indiana	Crawfordsville	Indianapolis	Jan. 10
Iowa	Louis A. Thomas, Des Moines	Des Moines	
Kansas	H. A. Dykes, Lebanon	Topeka	
Kentucky	J. N. McCormack, Bowling Green	Louisville	Dec. 15
Louisiana	E. L. McGehee, New Orleans	New Orleans	
Maine	F. W. Searle, Portland	Portland	Nov. 8
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec. 13
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Nov. 8
Michigan	B. D. Harrison, 205 Whitney Building, Detroit	Ann Arbor	June 13
Minnesota	W. S. Fullerton, St. Paul	St. Paul	April 4
Mississippi	S. H. McLean, Jackson	Jackson	
Missouri	Frank B. Hiller, Jefferson City	Jefferson City	
Montana*	Wm C. Riddell, Helena	Helena	April 4
Nebraska	C. A. Carr, Lincoln	Lincoln	Nov. 9
Nevada	S. L. Lee, Carson City	Carson City	Nov. 2
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	Jan. 3
New Jersey	H. G. Norton, Trenton	Trenton	June 20
New Mexico	J. A. Massie, Santa Fe	Santa Fe	Jan. 9
New York	C. F. Wheelock, Univ. of State of New York, Albany	Albany, Syracuse, Buffalo, New York	Jan. 31
N. Carolina	B. K. Hays, Oxford	Charlotte	June 14
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	Jan 3
Ohio	Geo. H. Matson, Columbus	Columbus	Dec. 13
Oklahoma*	F. P. Davis, Enid	Guthrie	
Oregon	R. E. Miller, Portland	Portland	Jan 3
Pennsylvania*	N. C. Shaeffer, Harrisburg	Philadelphia	Dec. 6
Rhode Island*	G. T. Swarts, Providence	Providence	Jan. 5
S. Carolina	H. H. Wyman, Aiken	Columbus	June 13
S. Dakota	F. W. Freyberg, Mitchell	Aberdeen, Memphis	Jan. 11
Tennessee	C. A. Abernathy, Pulaski	Nashville, Knoxville	May 28
Texas	R. H. McLeod, Palestine	Palestine	Nov. 22
Utah	R. W. Fisher, Salt Lake City	Salt Lake City	Jan. 9
Vermont	W. Scott Nay, Underhill	Montpelier	Jan. 10
Virginia	R. S. Martin, Stuart	Lynchburg	Dec. 20
Washington*	T. C. McFadden, Seattle	Spokane	Jan. 3
W. Virginia	H. A. Barbee, Point Pleasant	Morgantown	Nov. 14
Wisconsin	J. M. Beffel, Milwaukee	Milwaukee	Jan. 10
Wyoming	S. B. Miller, Laramie	Laramie	

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of October 15, 1910.

	Cases	Deaths
Tuberculosis Pulmonalis	492	153
Diphtheria	222	10
Measles	67	2
Scarlet Fever	88	1
Smallpox	—	—
Varicella	17	—
Typhoid Fever	149	20
Whooping Cough	19	5
Cerebrospinal Meningitis	3	5
Malarial Fever	—	—
Totals	1,057	196

A New Reaction in Typhoid Fever.—Silverstrini states that the subcutaneous injection of ¼ to ½ c.c. of a killed bouillon culture of typhoid bacilli causes in the typhoid patient a rise of temperature. In the typhoid convalescent there is a sharp febrile reaction, which is accompanied and followed by an increased agglutination. The reaction is specific.—*Clinica Medica Itáliana.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, during the week ended October 14, 1910.

CHOLERA

PLACE.	DATE.	CASES.	DEATHS
Austria-Hungary:			
Hungary, general	Sept. 19-20	16	..
Vienna	Sept. 11-17	2	..
China: Dalny	Aug. 28-Sept. 3	1	..
India: Bombay	Sept. 1-6	..	2
Calcutta	Aug. 14-20	..	12
Italy, general	Oct. 2-6	47	*10
Naples	Oct. 2-6	47	†11
Bari, province: Barletta	Sept. 18-24	6	4
Molfetta	Sept. 18-24	27	6
Triggiano	Sept. 18-24	1	..
Foggia, province: Cerignola	Sept. 18-24	13	10
Trinitapoli	Sept. 18-24	8	5
Java: Batavia	Aug. 21-27	16	6
Persia: Erzeroum, vilayet	Aug. 22-Sept. 10	52	‡45
Morocco, general	Sept. 27		**4
Russia general	Sept. 4-23	36,490	14,059
Straits settlements: Singapore	Aug. 14-27	7	5
Turkey in Asia: Trebizond	Sept. 10-16	7	1

*Outside of Naples.
†Including 8 cases and 5 deaths previously reported
‡Including 10 cases and 8 deaths previously reported.
**Between Rabat and Casablanca, among troops.

YELLOW FEVER

Brazil: Manaos	Sept. 4-10	1	1
Para	Sept. 11-17	12	8
Ecuador: Bahoyo	Sept. 1-15	1	..
Duran	Sept 19		Present
Guayaquil	Sept. 1-15	1	..
Milagro	Sept. 19		Present

PLAGUE

Brazil: Bahia	Aug. 6-19	3	2
China: Hongkong	Aug. 21-27	1	..
Ecuador: Bahahoyo	Sept. 1-15	1	..
Guayaquil	Sept. 1-15	26	14
Matilde, plantation	Sept. 1-15	1	..
India: Bombay	Sept. 1-6	..	17
Calcutta	Aug. 14-20	..	12
Rangoon	Aug. 21-27	..	7
Russia: Odessa	Sept. 10-16	8	5

SMALLPOX.

Brazil: Bahia	Aug. 6-19	36	27
Para	Sept. 11-17	7	..
Rio de Janeiro	Aug. 29-Sept. 4	6	..
Canada: Dauphin	Sept. 15	..	Present
Victoria	Sept. 18-24	1	..
Ceylon: Colombo	Aug. 21-27	1	..
China: Shanghai	Aug. 29-Sept. 4	..	2
India: Bombay	Sept. 1-6	..	1
Calcutta	Aug. 14-20	..	1
Rangoon	Aug. 21-27	..	1
Japan: Formosa	Aug. 28-Sept. 3	..	1
Gibraltar	Sept. 19-25	1	..
Great Britain: Liverpool	Sept. 11-24	1	..
Java: Batavia	Aug. 21-27	1	..
Mexico: San Luis Potosi	Sept. 4-10	1	1
Portugal: Lisbon	Sept. 11-17	53	..
Russia: Moscow	Sept. 4-10	3	1
Odessa	Sept. 4-10	1	..
Riga	Sept. 11-17	4	..
St. Petersburg	Sept. 4-10	14	5
Warsaw	June 26-July 30	..	26
Straits Settlements: Singapore	Aug. 14-27	39	11
Switzerland: Zurich, canton	Sept. 11-17	1	..
Uruguay: Montevideo	July 1-31	90	43

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Original Articles.

PERNICIOUS ANEMIA; ITS DEFINITION AND TREATMENT.*

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PERNICIOUS anemia has been known for more than sixty years and the literature has been the subject of much discussion. The symptomatology is described by most of the authors in almost the same way. But notwithstanding there is up to the present time no agreement as to what we should designate as pernicious anemia.

Even a few years ago it was a generally accepted view to summarize under this term all those cases that exhibited during life the most severe symptoms of anemia, without the presence of a depleting organic disease or parasites, cases which even post mortem only showed certain secondary organic alterations as a result of an anemic condition of the blood, but no such changes as could account directly for the etiology of anemia.

Consequently, in the progress of etiological research certain types of anemia were eliminated, as, for instance, that due to Bothriocephalus and Ankylostomum, the field of pernicious anemia being thus restricted to those cryptogenetic or occult cases the primary cause of which we now had to look for.

Now a new factor was introduced by the theories of Ehrlich, who first considered pernicious anemia a specific disease, later, however, a specific reaction of the bone marrow, characterized by a retrogression of blood formation into embryonal megaloblasty. Consequently he assumed a definite blood picture characterized by macrocytosis. In spite of the argument of the various opponents of Ehrlich's conception concerning the significance of the megaloblasts, the advocates of Ehrlich's theory went so far as not only to maintain it, but even to amplify it, inasmuch as they assumed that only such cases of severe anemia could be looked upon as true or genuine pernicious anemia which exhibited intra vitam a macrocytosis of the blood and post mortem megaloblastosis of the marrow.

Disregarding the fact that neither the megalocytic condition of the blood nor the megaloblastic condition of the marrow can hold ground against an objective criticism, the question arises how those fatal cases of cryptogenetic anemia should be classified which do not show these signs in the blood and in the marrow; cases that no doubt occur very frequently and do not at all show the typical course of pernicious anemia. An answer to this question has not yet been given by the advocates of Ehrlich's theory. On the other hand, it gives rise to an entirely unjustified dualism which, while emphasizing the macrocytic types as true or essential pernicious anemia in contradistinction to the other types, causes about the same confusion as formerly was the case with the so-called true and false pseudoleucemia.

The advocates of Ehrlich's theory object to the older definition that in this a negative criterion is applied; that is to say, the absence of an organic finding gives the definition of the disease. This is, however, unhesitatingly accepted in other domains of pathology, for example, in the teaching of diabetes, in which formerly anatomical lesions were not at all known, and even nowadays etiologically different conditions are recognized, without any doubt existing with what is to be understood as diabetes. According to my view, the difficulty of discriminating between pernicious anemia and symptomatic anemia is not greater than separating diabetes from glycosuria. We need only to keep away from assuming a dogmatic standpoint and separating such cases in which anatomical alterations occur as true or genuine anemia; just as nobody ever thinks of separating pancreatic diabetes, as a true diabetes, from other forms, simply because in the latter no anatomical lesions are demonstrable. It is therefore by all means wrong to introduce into the clinically uniform picture a separation into different groups on the basis of certain reactions of the bone marrow.

On the other hand, we must object to the tendency of designating pathological conditions as pernicious anemia which undoubtedly do not belong to this group. I have noticed in numerous patients, who were sent to me in the course of years in a very distressing condition with the diagnosis of pernicious anemia, that this term is often used for entirely unlike conditions. In the majority of these patients I was not able to agree with the assumption that a severe degeneration of the blood was the chief feature of the affection. Moreover, we had to deal with pathological pictures, exhibiting besides a progressive cachexia an anemia of a medium severity with two or three millions of red blood corpuscles per c.mm., and even cases in which these cells showed no degenerative changes whatever and a rather increased content of hemoglobin. Even when death ensued an abundance of hemoglobin was present and consequently the exitus could not be ascribed to the anemia as such.

I have described these diseases in a treatise on organic marasmus that has appeared recently, and I have traced back their origin to functional disturbances of organs, offering at the first glance some analogy to pernicious anemia, but being explained on more careful analysis in quite a different way. I have explained in this work and illustrated by examples how by an increased or a diminished organic function for example of the muscles, of the kidneys, of the spleen, marasmic conditions may

*Read at a meeting of the New York Academy of Medicine, October 6, 1910.

arise which have to be considered as the result on the one hand of cellular hyperfunction, and on the other hand of a loss of function, as in cachexia due to the extirpation of the thyroid. All these marasmic conditions must be carefully separated by clinical investigation from pernicious anemia, the more so as the recognition of these conditions gives at the same time the most valuable indications for the treatment.

Another difficulty has finally arisen in the definition of pernicious anemia by the fact that a false appreciation of persons and names has become general, which, as a brief historical survey shows, is by no means justified.

In general up to a short time ago not only among German, but also among foreign authors, the view prevailed that the modern teaching of pernicious anemia was to be traced back to Biermer, who in 1868 and 1872 had published noteworthy lectures on this affection. Now W. Hunter has recently claimed the discovery of this disease for English authors, and quotes as the first author Combe, who in 1822 described a case of anemia, exhibiting all the phenomena of pernicious anemia, and being unable to discover at the post mortem a primary cause of the anemia, established at once a special classification for this case. Of greater significance were the descriptions published by Thomas Addison in 1855 as an introduction to idiopathic anemia in his famous work on the diseases of the suprarenal. Addison described here the general clinical phenomena of pernicious anemia in an excellent way, and emphasized especially that these conditions were to be traced back neither to loss of blood, nor to exhaustive diarrhea, nor to chlorosis or other organic diseases, and he proposed the term idiopathic anemia in contradistinction to the symptomatic severe anemia in consequence of other diseases. It is furthermore noteworthy that this author on the ground of autopsies already emphasized the absence of primary organic lesions, but was the first to describe the fatty degeneration of the heart muscle.

It is surprising that this correct description at first attracted little attention, although it was published in a work that was the starting point of the so extremely important researches on the affections of the suprarenals. Likewise the publications of the French author, Cazenave, in 1860, who described the disease as essential anemia, and of the German author, Lebert, were scarcely noticed.

Why the publications of Biermer in 1868 were so fertile can scarcely be ascertained to-day. At any rate, in the beginning of the seventies extraordinary work was started in this domain, and particularly the excellent monograph of Eichhorst in the year 1878 summarized in an objective way all the observations that had appeared up to that time.

How strong the influence of Biermer's publications was can be seen best from the fact that the above mentioned terms, "idiopathic" or "essential" anemia were mostly agreed upon even by English and French authors and in the entire international literature Biermer's term "pernicious anemia" was accepted. It is therefore not surprising that the influence of Biermer's work was overestimated, especially in Germany, and that consequently the affection was simply designated as Biermer's anemia. But it must be emphasized that although Biermer had given an excellent clinical description of the affection, his etiological conception was not quite clear, inasmuch as he for a number of these cases assumed no organic lesions as the cause, while he on the other hand considered intestinal ulcers for example a probable factor. In contradistinction to this, Immermann and Eichhorst in agreement with the view of Addison declared that only cases of anemia without demonstrable organic lesions were to be designated as pernicious. Later from 1885-88 William Hunter pointed to an intestinal etiology of anemia through an infection of the gastrointestinal canal with reabsorption of toxic products, by which for the first time a hemolytic injury of the blood without macroparasitical effects was proven. At about the same time the above mentioned theory of Ehrlich originated, who first traced back pernicious anemia to a primary affection of the bone marrow and later to a specific embryonal reaction of the marrow, due to a toxic cause.

If one would designate pernicious anemia after this historical sketch, according to one of these authors, it would be most correct to term it Addison's anemia since this author undoubtedly has given the most proper definition of this disease; however, in recent times William Hunter has claimed the term Addison's anemia for a peculiar infectious disease of the entire digestive tract with a consecutive very severe anemia, and thus it would not be justifiable to introduce this term for all types of pernicious anemia. The term Biermer's anemia is for that reason not correct, because Biermer placed also secondary anemias in this group, and just as little can we accept the term Ehrlich's or even Biermer-Ehrlich's anemia, because the strict limitation of severe anemia to a primary disease of the bone marrow can in the first place not be assumed and secondly cannot be brought in accordance with the conception of Biermer.

In order to obtain an exact definition of pernicious anemia it is at first necessary to say a few words about the clinical picture of this disease. As we know, this affection develops sometimes at an early age, mostly in the middle years of life, especially frequently in women. In its full development it offers the picture of a high degree of pallor, with a grayish shade, a high degree of general mental and bodily weakness, frequently accompanied by psychical anomalies of various forms. It is noteworthy that neither the muscles nor the fatty tissue are usually much impaired. As the most important signs are furthermore to be emphasized hemorrhages of the retina, dilatation of the heart with systolic murmurs, loss of appetite, constipation and in the majority of cases a lack of free hydrochloric acid in the stomach. At the same time there is usually a moderate increase of temperature and in advanced cases edematous swellings. These findings are above all characterized by the fact that a directly depleting organic disease is not demonstrable, and for the diagnosis our first object must always be to exclude by a thorough examination of all organs the presence of carcinoma or intestinal parasites.

The blood findings are of the greatest significance, and the question arises whether they are to be regarded as indicative of pernicious anemia. The most remarkable feature of the blood is the considerable lowering of the number of red blood corpuscles, which may sink far below one million, correspondingly a decrease of the specific gravity and of the dry weight, so that the blood appears

rather watery, and a strong decrease of the coagulability. With reference to the pathology of the red blood corpuscles the following striking difference in the statements of the authors has been found in the course of the last years. Since Quinke's investigations (1876) the prevalence of poikilocytes among the small and even smallest derivatives of blood cells was considered a noteworthy phenomenon in pernicious anemia, and my own former descriptions and pictures of such poikilocytic blood preparations were also generally regarded as correct. Recently, however, the opinion has been spread that the red blood corpuscles in pernicious anemia, to be sure, showed slight differences in shape, but otherwise were abnormally rich in hemoglobin and abnormally large. These statements are in a direct relationship to Ehrlich's theory of the megaloblastic reaction of the bone marrow, in the course of which abnormally large blood cells are also formed. An extreme instance of such a megalocytic blood finding is shown by an illustration in Naegeli's work, who found in pernicious anemia almost solely large, remarkably deeply colored red blood corpuscles, and designated this blood picture as the true type of pernicious anemia. From my own experience in several hundred most severe cases, partly confirmed by post mortem findings, I must confess that I have never seen in pernicious anemia such a blood picture with a total amount of about one and one-half millions of red cells. My experience is not confined to cases in the district of Berlin, but I have also had abundant opportunity to observe such patients from the many different countries. But I have never obtained blood preparations from patients of this kind in which the vast majority of red cells were of a normal or more than normal size with a content of hemoglobin exceeding the normal. It can therefore not be due to the locality that these blood pictures have not yet occurred to me in pernicious anemia.

In order to get an exact picture of the size of the cells, one must take pains in examining many series of fields with the micrometer, as Schaumann formerly did very exactly in bothriocephalus anemia. In order to avoid such rough estimations, I myself have had such countings done in a number of pronounced cases of pernicious anemia, and I have found that about 30 per cent. of the cells belong to the small forms up to 4.5 micromillimeters, about 60 per cent. to the medium sized forms of 4.5-7 micromillimeters, and about 10 per cent. to the large forms. Consequently there cannot be any question of macrocytic blood, and the authors who lay so much stress upon macrocytosis should not avoid the trouble of such a counting. Perhaps in reckoning by exact figures their general statements about macrocytosis would be modified.

It is noteworthy that Schaumann found in his investigations per 100 blood cells of healthy persons 1 small, 66 medium-sized and 33 large cells. In pernicious anemia, however, the average is 17 small, 32 middle-sized and 51 large cells. Just as Schaumann's exact investigations are by some authors pointed to as a proof of macrocytosis of the pernicious anemic blood, I wish to emphasize that the numerical deviation concerning the small cells (17 instead of 1 per cent.) is just as large as that concerning the large cells (51 instead of 31 per cent.), and, according to this, one would be just as right to speak of a microcytic blood picture as of a macrocytic picture. Undoubtedly in the blood picture of pernicious anemia some macrocytic forms are striking. However, these do not give to the blood picture the characteristic appearance, but the most marked feature is, in accordance with the nature of the whole disease, the exquisitely degenerative character of the morphological phenomena. Therefore I designate the blood finding as "erythro-degenerative," it being understood that a varying percentage of regenerative forms is at the same time present in the blood, as in every anemia, as a reaction to the injurious effect on the blood. The erythro-degenerative blood finding is not only according to my material, but also according to most authors in literature the most frequent blood finding, since even authors who emphasize the occurrence of megalocytes as important almost always report also the presence of marked poikilocytosis.

I should like to emphasize that I have observed a macrocytic blood finding without severe morphological changes in those grave anemias and cachexias which I have separated previously as an organic marasmus from true pernicious anemia. I think therefore that many a case of pretended pernicious anemia rather belongs to the group of anemizing organic diseases of various kinds.

The occurrence of megaloblasts was, as we know, also regarded by Ehrlich as characteristic of the blood finding in pernicious anemia. But in the course of years so numerous observations have been made concerning the occurrence of these cells in other cases of severe anemia that this assumption can no more be sustained. Moreover, the megaloblasts have to be regarded solely as a sign of the severity of the anemia, but not of the type of anemia.

Likewise I cannot consider the statement correct that the hemoglobin content of the blood is proportionately high as compared to the number of red blood corpuscles, as on the one hand the source of errors of the hemoglobinometer in these severe types of anemia is by far too large to allow the hemoglobin values to be directly referred to the numerical value of the cells. The figures themselves, however, are very hard to be determined, since only the developed cells, but not the smallest poikilocytes and cell fragments, are counted, which undoubtedly also contain hemoglobin. Consequently, of course, an incongruity must arise between the cell and the hemoglobin value, since for the small number of cells all the amount of hemoglobin is taken in account which is contained in the small cellular fragments. More important than this pretended hypernormal content of hemoglobin is the marked dissimilarity of the content of hemoglobin of the individual cells, which becomes manifest in even simply stained preparations.

According to this, I must answer negatively the question whether there is a blood finding specific for pernicious anemia and whether consequently the diagnosis of pernicious anemia can be made from the examination of the blood itself, since, as a matter of fact, all the same severe degenerative and regenerative types of blood formation are equally well found in other most severe forms of anemia; for example, in carcinosis. One might rather consider the findings in the leucocytes and the blood plasma characteristic since the leucocytes at the acme of the disease are always very much decreased, and the plasma, in contradistinction to carcinosis-anemia, for example, shows a proportionately high content of albumin, which points to

the fact that no general injury of the plasma is present here, but only a very specific injury, involving the red blood corpuscles. The small proportion of leucocytes is of an especial significance for that reason, because it has been found lately that the blood picture of pernicious anemia may also be produced by a leucocytic, especially lymphadenoid proliferation of the bone marrow. This gives rise to pathological pictures, which are on the one hand characterized by a high degree of diminution and degeneration of the red blood corpuscles and on the other hand by an increased invasion of typical lymphoid cells, until finally a mixed blood picture results, which, as we know, has been designated by Leube as leucanemic.

If we ask now whether pernicious anemia can be explained by the post-mortem findings, there can be no doubt but that the fatty degeneration of the heart muscle, the various hemorrhages, and also the lymphoid metaplasia of the bone marrow, which are the most frequent post-mortem findings, cannot be regarded as the primary causes of the grave blood affection, and just as little the atrophic alterations of the gastrointestinal mucosa, which, according to recent researches, are apparently found relatively seldom. Of quite a different aspect is the question whether the megaloblastic metaplasia of the bone marrow is to be considered a particular embryonal type of regeneration, specific for pernicious anemia, though not the only primary affection. According to my own numerous observations, and after studying the literature, I have come to the conclusion that as a matter of fact in a part of these cases a considerable prevalence of megaloblasts in the marrow is present, whereas in others not more of such cells occur than in any healthy marrow, and that again in other cases the lymphoid metaplasia may be absent entirely. Since also these latter forms are undoubtedly to be considered cases of pernicious anemia, they are a problem hard to be solved for those authors who regard megaloblastic metaplasia of the marrow as an essential criterion of the affection, and they have consequently overcome this difficulty by separating a special form of aplastic anemia.

This teaching of aplastic anemia as a particular morbid form is based upon the view that anemia is caused by aplasia of the bone marrow. I cannot at all agree with this view, as it is entirely incomprehensible how by a purely passive inactivity of certain parts of the bone marrow an anemia should arise. Moreover, I accept the opinion of Aubertin, Pappenheim, and others who do not consider these cases of anemia due to aplasia, but anemia with aplasia; that is to say, they regard it as a merely regenerative type of any kind of anemia. At the same time I wish to remark that I do not consider a diagnosis of these forms during life possible from the blood findings, which are supposed to show a diminution of erythrocytes and also of the hemoglobin. For I have often convinced myself that in such cases of pernicious anemia in which the entirely unsuccessful therapy suggested an aplasia of the marrow, a complete red lymphoid metaplasia of the marrow with copious erythroblasts is found post mortem.

Whoever considers the alterations of the bone marrow as exclusively varying degrees of reparative reactions of the blood matrix will see in the various findings in the marrow only the valuable fact that in one case perhaps all the long bones have undergone a lymphoid metaplasia, and that consequently the reparative action is developed up to a maximum. A great abundance of megaloblasts would then only indicate an excessive and accelerated regeneration. In another case one finds only a more intense lymphoid development in some districts of the long bones and consequently but a slight reactive process. Finally in other cases an aplasia is found; that is to say, a complete failure of the reaction.

From all these observations I come to the conclusion that the old definition is still nowadays correct, and that we therefore have to understand under the term of pernicious anemia such very grave forms of anemia as arise without any recognizable organic affection and without parasitic influence, as the result of a specific injury involving the red blood corpuscles.

From this it follows that the etiology of pernicious anemia can be cleared up only by clinical observations, and I think that we have to consider the following principal causes:

1. Pernicious anemia may originate from chronic loss of blood and a gradually developing insufficiency of the marrow. However, the majority of such cases are not to be regarded as pure pernicious anemia, as the diseases bringing about hemorrhages may exert a various and unexpected influence in the origin of anemia. The chronic hemorrhages due to gastric ulcers, for example, must be eliminated, as well as chronic hemorrhages due to myoma, since in the former the influence of the ulcers themselves, the passage of the blood through the gut, and in the latter the specific action of the myoma play a great part in the origin of anemia. Consequently we can only regard such cases as pure posthemorrhagic pernicious anemia, which originate from chronic hemorrhoidal hemorrhage or from epistaxis, unless even in these cases complicated organic diseases are not present.

2. Toxic substances, such as lead, arsenic, carbonic oxide, perhaps also morphine in chronic use, cause an anemia by a continuous injury of the red cells and finally lead to pernicious anemia. There are, however, surely also cases in which toxins of an unknown nature are effective.

3. Also hygienic errors, such as unsanitary dwellings, mode of life, and profession, may apparently cause such severe forms of anemia.

4. As the most important, and, according to my experience, most frequent cause I regard intestinal intoxications, which Hunter first explained as an infection of the gastrointestinal canal by inflammatory processes with the formation of bacterial products, which are supposed to cause a hemolysis after their absorption in the portal vein area. According to my view, we have not to deal with an infection, but with an intoxication; I think that in all these patients a primary lack of free hydrochloric acid in the stomach plays an important part. Owing to this fact toxic substances in the ingested albuminous stuffs may be formed in the following way: I wish to state first that this theory is based upon the picture of intestinal intoxication offered by bothriocephalus-anemia, in which, according to the researches of Schaumann, Rosenquist, Talquist, a hemolytic poison is formed in the intestine which causes severe anemia after absorption. Talquist has recently designated oleic acid as such a poison and also in pernicious anemia not due to bothriocephalus-lipoid substances are said to be formed in the gastrointestinal mucosa which have a hemolytic effect. According to the present stage of re-

searches I cannot agree that the proof has been given of the sure existence of a specific lipoid in pernicious anemia, since also in healthy individuals such substances can be extracted from the intestinal mucosa with a more or less high degree of hemolytic power. Moreover, my view concerning the origin of grave anemia, owing to a lack of hydrochloric acid in the stomach and perhaps to enteric disorders, is as follows:

a. We must take in account the failure of the disinfecting action of hydrochloric acid in the stomach, which plays a particularly important rôle, if, for example, pathogenic microorganisms from carious teeth or other parts of the mouth, especially pus-bacteria, are swallowed. They find a good culture medium in the albuminous substances of the ingesta without being hindered in their development by the influence of hydrochloric acid. Toxic substances, developing on account of such infections during the passage through the small intestine might, above all, be looked upon as a hemolyzing factor.

b. We must, however, consider that with an absence of hydrochloric acid and a lack of gastric digestion the breaking down of the albuminous molecule may be so far impaired that the physiological end-products of albuminous decomposition are not formed and absorbed, but that the transformation of the albuminous molecule remains in an intermediate stage, and that these substances on absorption are able to act toxically.

c. However, another factor comes into consideration which results from recent investigations on anaphylaxia, *id est* on toxic effects from repeated injection of heterogenous albumin. It has been shown that not only after a subcutaneous or intravenous injection of heterogenous albumin a hypersensitiveness to it occurs, but, according to the investigations of Rosenau and Anderson, of Börnstein, and others, these toxic phenomena also occur after feeding heterogenous albumin. By this Römer's view, pronounced some years ago, is confirmed that digestion has the important function of depriving the heterogenous albumin of its property of producing antibodies. Although by boiling the food the specific action of the heterogenous albumin is partly eliminated, yet everybody takes in such large amounts of uncooked heterogenous albumin that phenomena of anaphylaxis would necessarily occur, if the breaking down of this albumin were not sufficiently accomplished by the peptic processes, especially in the stomach. Thus in a functional disturbance of the gastric secretion toxic injuries can be produced either by the influence of bacteria, or by a faulty breaking down of albumin, or by a deficient transformation of the heterogenous albumin. By these toxic substances we can explain the peculiar and specific injury involving the red blood corpuscles in a similar way, as the absorption of the toxic products of *Bothriocephalus latus*.

That this theory really holds good in many cases can be proven by the results of therapy in a great number of cases of pernicious anemia, just as it is done in a similar way in *Bothriocephalus latus*, by expelling the worm.

In entering now into the treatment of these affections, I emphasize from the very beginning that a rational therapy can be undertaken only when (1) most accurate and repeated clinical investigations have established the absence of an organic affection or the presence of a parasite, and when (2) by a thorough consideration of the anamnesis and particularly of the condition of the gastrointestinal canal it can be decided through what injury the individual case of pernicious anemia may have arisen.

In the first place we shall have to think of the effect of some known poisons, as lead, arsenic, morphine; furthermore, of the existence of hemorrhages of the above described kind. And, of course, in these cases the injurious cause will have to be removed first of all.

In the great majority of cases observed by me we had to deal, as I said, with intestinal intoxication. In the course of years I have worked out a treatment on the basis of these considerations. This therapy is in the main dietetic, and is carried out by ingesting on the one hand no animal albumin, which is to be regarded above all as a source of toxin-formation, and secondly, trying to prevent a decomposition of the foodstuffs. The first point of this treatment is accomplished by giving these patients at first exclusively carbohydrates and fats in the most digestible form, vegetables, fruits, soups, and at the same time foodstuffs which stimulate the appetite, avoiding however meat and eggs entirely. If these patients are in a high degree of exhaustion we may give substances very rich in albumin, as in nutritive enemas, eliminating thereby the abovementioned dangers. The second way of disinfecting is at the beginning the best—regular lavage of the stomach with a one to two per cent. sodium chloride solution, and at the same time a daily irrigation of the gut, likewise with a solution of sodium chloride, by which, as I think, the mucosa is best and most safely cleansed, and at the same time stimulated. If the patients are too weak to bear the lavage of the stomach we must restrict the treatment to ingesting fresh juices of fruits, best lemonjuice in form of lemonades, thus supplying a certain substitute for the lack of hydrochloric acid in the stomach. This is the same treatment that has been applied for scurvy, which depends undoubtedly also upon a putrefaction of albumin. I do not consider the use of disinfectants, such as calomel, indicated in these patients. If the patients are very exhausted alcoholic drinks may be allowed. Special attention has to be directed to the condition of the always affected heart-muscle, and therefore it is best to administer digitalis preparations from the very beginning. Of course, the patients must, at first, be confined to bed.

The usual course is now that solely under this dietetic and strengthening treatment the temperature, which is always increased at the beginning, goes down, the appetite, being usually entirely absent, begins to come back, and the patients feel better. At this time I begin then the arsenic treatment, which I carry out by injecting a neutral one per cent. solution of sodium-arsenate in increasing doses from 1 milligram to 1 centigram daily. I am not able to state that the newer organic arsenic preparations give better results in these blood diseases, and the application of inorganic preparations offers the advantage that the toxic symptoms are known and can easily be recognized, while the organic preparations, especially atoxyl, as we know, in not a few cases lead to the most severe symptoms of intoxication, especially to blindness.

Iron is of no use in the treatment of these forms of anemia, if we consider that the patients must have large iron-deposits in the liver, on account of the strong hemolysis, which they can use sufficiently

as a material for building up hemoglobin. The treatment with organic preparations made of bone-marrow has, as far as I can see, given no particular results, and I think it does not offer any chance if we consider the peculiar etiology of these affections.

Transfusions of human blood are, however, important. In some cases they have been done successfully in patients in whom the regeneration of the blood was extremely poor. But it has been recently shown in my laboratory by Werner Schultz in extensive researches, that before carrying out any transfusion the action of the blood of the donor upon that of the recipient ought to be tested carefully with respect to the hemolysing and agglutinating power. I warn, therefore, against performing transfusions without these important precautions.

Finally, I wish to emphasize that, of course, this particular treatment of the intestinal tract cannot be successful in all cases, since in the first place not all cases of anemia originate in the same way, and secondly, the capacity of regeneration of the bone-marrow is an uncertain factor, which can not even approximately be taken into account beforehand. The prognosis is therefore to be considered doubtful in every case. If, however, a favorable result has been obtained by this treatment we have no reason to doubt that this result is a permanent one. Various authors have very correctly pointed out that relapses occur frequently in this affection. These relapses, however, can be explained in just as simple a manner as those in diabetics who have been made free from sugar by a rational diet, in whom, however, the disease appears again after a more copious ingestion of carbohydrates. In the same way the patient with an insufficient gastric secretion is again exposed to the danger of the effect of toxic products if his mode of life becomes irregular, and he eats eggs and indigestible albuminous stuffs; for a complete restoration of the gastric secretion has scarcely ever been observed even in apparently entirely cured cases. It is, therefore, by all means necessary to supply the patient, as soon as he is dismissed as cured, with strict dietetic prescriptions, and in this way we succeed in obtaining not only a transitory but a really permanent recovery.

Gentlemen: I have tried in the limited time I had for this paper to outline the chief features of this affection. Should I have succeeded in attracting your attention to this subject, clinically so very difficult as well as important, I feel that the purpose of my lecture is attained.

SUPPURATION OF THE ANTRUM OF HIGHMORE.*

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SURROUNDING the nasal passages, and hollowed out of the adjacent bones of the face and skull, we have a regular series of pneumatic cells generally spoken of as nasal accessory sinuses. These cells, or sinuses, are in direct communication with the nose by constant and definitely situated mouths, or canals, through which the mucous membrane of the nose becomes directly continuous with the lining of the interior of the sinuses. As it is natural to expect, the accessory sinuses will partake more or less of the inflammatory processes which attack the nose, and recently we have come to understand that many of the symptoms and much of the suffering which formerly were attributed to the inflammation merely of the nasal membranes are really to be ascribed to the involvement of these neighboring air cells. Being residnal organs, the sinuses have less resisting power than parts with active normal functions, for which reason they are prone to fall prey to disease, and, owing to their character and confirmation, inflammations here tend to assume a suppurative type, terminating in abscesses or empyemata. The maxillary, or, as it is called, the antrum of Highmore, is the largest of the accessory sinuses; and it is also the most frequently affected and the most accessible to treatment. We have selected it, therefore, as of all the one most interesting and profitable to discuss before a body of general practitioners.

Surgical Anatomy.—The antrum of Highmore is a somewhat pyramidal-shaped cavity, hollowed out of the body of the superior maxilla. The base of the pyramid is constituted by the outer wall of the nose; the apex is directed toward the malar bone. The roof of the antrum is identical with the floor of the orbit, while its own floor corresponds with the alveolar border of the jaw, and is separated from the roots of the bicuspid and molar teeth by a plate of varying thickness. In many cases the latter is so thin that the roots of these teeth, when diseased, very readily penetrate and thus infect the cavity. It is estimated that about 50 per cent. of all cases of suppuration of the antrum are of dental origin, which explains the frequency of antral diseases as compared to diseases of the other accessory sinuses. The large size and forward situation of the antrum, and especially the fact that it has one entire wall, for the most part thin and membranous in relation with the nasal cavity; and that the floor is in relation with the teeth, and that, finally, it has a third wall which may be surgically attacked presenting in the canine fossa make it the most approachable of all the nasal sinuses.

An anatomical peculiarity of the maxillary sinuses which has an important bearing both upon pathology and treatment is the situation of its ostium. Instead of being at the most dependent point and therefore in the best situation for drainage—as we observe in the case of the frontal sinuses—the maxillary ostium is, on the contrary, in the uppermost part of the nasal maxillary wall and close to the roof, in a situation which is, as is readily understood, the most unfavorable for drainage. The movement of the cilia under normal conditions probably has the power of conducting the secretions toward this ostium and so into the nasal cavity, but the presence of pus and a generally diseased condition of the mucosa hamper the action of the cilia so that such an effect is impossible. Under such conditions the cavity must fill to the top before the secretions can escape, and stagnation is the unavoidable consequence.

Classification.—Suppuration of Highmore's antrum may be due to three different conditions: (1) Empyema, (2) Acute Maxillary Sinusitis, (3) Chronic Maxillary Sinusitis.

Empyema.—By empyema of the antrum of Highmore we mean strictly the mere presence of pus, which has arisen not from inflammation of the antrum itself, but has overflown from a neighboring

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cavity, as the ethmoid or frontal. The situation of the antrum below these cavities is such that it may sometimes act as a reservoir for the pus originating in one or both of them; and, as explained, the pus, being unable to escape, must remain stagnant, eventually becoming stale, and, it may be, foul smelling. An abscess of the root of the tooth may give rise to this condition, and an exceedingly foul-smelling discharge is thought to be a point in favor of its dental origin.

Acute Inflammation.—Suppuration due to acute maxillary sinusitis occurs more often as a complication of grippe than from any other cause. Inasmuch as it is seldom that one accessory sinus becomes inflamed to the exclusion of all the others, we cannot depend for the diagnosis upon the location of the pain. While a maxillary sinusitis should produce a pain especially in the malar region, this may easily be overshadowed by a severe orbital, frontal, or occipital pain due to a contemporaneous involvement of the frontal, ethmoidal, or sphenoidal cavities. If, however, we find tenderness in the area just below the orbit, and toothache on the corresponding side, we may say that the maxillary is at least one of the cavities involved. That the inflammation is of a suppurative type we judge from the character of the discharge coming from the affected side of the nose. A thick, yellowish, gelatinous, or creamy—in the case of grippe sanguinolent—discharge of greater abundance than we should expect from an ordinary rhinitis—should excite a suspicion of sinus involvement. If coming from one side only of the nose this is also strong presumptive evidence in favor of the sinus origin.

Chronic Inflammation.—On account of the absence of pain and other acute symptoms, the existence of a chronic suppurative maxillary sinusitis is much more likely to be overlooked than the acute. In many instances the patients are unable to give any history of a preceding acute attack and they attribute the continuous discharge of secretions from the nose to an ordinary nasal catarrh. In addition to having in common with acute sinusitis a more or less purulent unilateral discharge, patients with a chronic form of the trouble are apt to present another symptom, characteristic of a long-standing suppuration of the maxillary antrum, namely, cacosmia. Disagreeable odors, it is to be noted, are subjective as well as objective; in fact, it is often perceived by the patient and remarked upon, when it is not clearly perceptible to others. This is precisely the reverse of the ozena of atrophic rhinitis, which, though horribly offensive to others, may be entirely unknown to the unfortunate subject on account of the always accompanying atrophy of the ends of the olfactory nerve. In cases of chronic antral suppuration this subjective cacosmia is sometimes the only symptom of which the patient complains, and when mentioned, it should invariably suggest to the physician such a causation and induce him to explore the sinus for the presence of pus.

Diagnosis.—To determine definitely whether or not the antrum is the seat of suppuration we must make a careful examination of the nasal passages, and apply certain well-established tests. Pus seen in the middle meatus in the region of the hiatus semilunaris may have its origin in either the antrum, the frontal sinus, or the anterior ethmoidal cells. The situation of the *ostium maxillare* at the upper part of the cavity enables us to apply a test which, when positive, is quite conclusive of antral suppuration. Having first thoroughly cleansed the nasal passages with some simple saline solution, and then applied a little cocaine or adrenalin in the region of the meatus to contract the tissues and assure a patent ostium, we direct the patient to flex the head to such a degree that the opening is brought into a dependent position. If a quantity of purulent secretion then makes its escape it can only be from the maxillary sinus.

Another test, which, notwithstanding all the adverse criticism which has been directed against it, must still be regarded as a very valuable diagnostic aid is transillumination. If a light placed in the mouth fails to illuminate a crescentic area just below the eyelid upon the suspected side—while upon the other side it appears in its normal intensity—this fact, although not conclusive evidence, gives a presumption in favor of maxillary disease sufficiently strong to justify making at once an exploratory puncture. If, on the other hand, both sides illuminate normally and a light appears in the pupils, objectively or subjectively, we are safe in excluding the supposition of an antrum filled with pus. The transillumination test is therefore one which should constitute an indispensable part of the routine examination. But to determine conclusively the presence or absence of pus, we must resort finally to the exploratory puncture. A fine trocar and cannula are introduced through the wall of the inferior meatus and the cavity irrigated with some bland antiseptic solution. The fluid will return clear if the cavity is healthy; if diseased, it will be cloudy, more or less loaded with flakes or masses of yellowish or greenish matter, at times very fetid.

Treatment.—The treatment of maxillary sinus suppuration can (conjointly with that of the other nasal accessory sinuses) be comprised under the following three indications, viz.:

(1) Remove the products of the inflammatory process which may be only pus, or may be degenerated or polypoid mucosa, or may finally be carious bone.

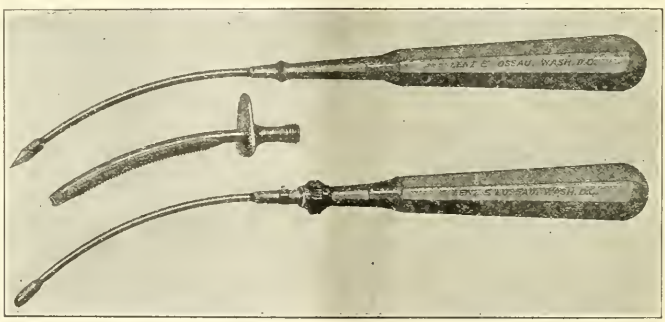
(2) Provide drainage.

(3) Establish ventilation.

If it were possible *a priori* to judge from the clinical symptoms which the patient exhibits, or from the objective signs which by our examination we may elicit, the exact pathological state of a diseased sinus, we might, from the above indications, easily deduce a formula and establish a logical mode of procedure for any given case. This would be, namely: In empyema and acute inflammation, wash out the pus; in chronic inflammation, so expose the cavity as to be able to remove respectively polyps, granulations, degenerated mucosa; or, it may be, carious bone or sequestra. In all cases, do whatever may be necessary to establish a full communication between the antrum and the nasal fossa, thus assuring satisfactory ventilation and drainage. Unfortunately, we cannot by any means other than by the examination of the interior of the sinus definitely ascertain the exact pathological state which may exist. The fetor of the secretion is not, we know, a dependable criterion, as often in such cases the mucosa is so little affected that we find the removal of the secretion alone is sufficient to permit a prompt return permanently to normal conditions. The presence of numerous polyps in the middle meatus might be regarded as favoring the idea of chronic disease of the sinus, but that is likewise a far from conclusive sign. The chronicity of the supparative process should be, if it were

a determinable factor, the most reliable guide for judging the state of the mucosa, and consequently in deciding upon the necessary operative procedure. As we have already stated, however, patients are singularly indefinite as to the beginning of their trouble; and we are often in the dark as to the duration of the disease. In the majority of cases we know that pus is present, but not how long it has been there. Still less are we able to say just what is the exact pathological state of the sinus mucosa. Under such circumstances conservative methods appear to my mind to be the rational ones. We should begin tentatively, apply first the most conservative step, and only upon the failure of this proceed to radical methods. A tentative method of procedure based upon a tentative diagnosis may be adopted according to the following formula:

A. Empyema: One should irrigate the antrum by means of a simple puncture through the inferior meatus. If the pus is draining into the antrum from a neighboring sinus, the indication, of course, is imperative to cure the affected sinus responsible, in order to prevent a reaccumulation of the pus. If a diseased tooth is at fault it should be extracted, and if the removal of the tooth makes a passage directly into the cavity irrigation may be practised through this route.



B. Acute maxillary sinusitis: One should irrigate the cavity as suggested for empyema; this failing, it may be necessary to make a wide artificial opening in the lower part of the nasoantral wall for ventilation.

C. Chronic maxillary sinusitis: One should make a wide artificial opening in nasoantral wall; this failing, one should expose the sinus through the facial wall and curette the interior.

Technique.—To make a simple irrigation of the sinus a fine trocar and cannula are used, and the puncture made in the inferior meatus, close under the attachment of the inferior turbinal, where the bone is thinnest. This procedure can be done quite painlessly under a local anesthetic. To make a large opening through the nasoantral wall it is necessary in most cases to remove the anterior part of the inferior turbinal. An artificial opening should then be made in the lowest part of the outer wall of the nose, close to its floor, as being the most favorable position for drainage. This opening can be utilized subsequently as a way for washing out the cavity, and often it will allow of a limited curettage of the antral cavity.

For making this opening I have found very satisfactory an instrument I devised several years ago, which consists of a trocar and cannula, the latter having upon its concave surface a cutting rasp. The nasoantral wall, having been pierced with the trocar, the latter is withdrawn, leaving the cannula in place. A blunt obturator is substituted and fastened by a thumbscrew to the rasp cannula and then with a to-and-fro motion the surrounding wall is cut away. This operation can ordinarily be performed under good local anesthesia, and requires but a few minutes. Finally, the state of the sinus being such that only a very thorough curettage will effect a cure, the sinus must be widely exposed in the region of the canine fossa. We may then, after cleaning out all diseased membrane or bone, pack with gauze and adopt the open wound method of treatment; or we may close the external wound and allow drainage to be conducted by way of the nose, through the establishment of a large communication artificially created in the nasoantral wall. I prefer the latter, which is known as the Caldwell-Luc procedure.

Whatever method may be adopted for the purpose of removing pathological products of disease found in the antrum, the other two indications must be constantly borne in mind and applied in all cases. To secure adequate ventilation and effective drainage will not infrequently require supplementary operations upon the nasal passages, when the main operation is done, or at some other time. For if we do not correct intranasal conditions, whether it be a deviated septum, a bulbous middle turbinal, a nasal spur or polyp which obstructs the outlet of the antrum, we leave behind conditions which will tend to reproduce the original trouble and so interfere with permanent recovery.

815 Connecticut Avenue.

REMARKS ON THE TWENTIETH ANNIVERSARY OF THE AMERICAN ELECTROTHERAPEUTIC ASSOCIATION.*

By A. D. ROCKWELL, A.M., M.D.,

NEW YORK.

The President of this Association has been good enough to invite me with urgent cordiality to say something about the earlier work of my former associate, Dr. Geo. M. Beard, and myself along the line of electricity in medicine. In a way I hesitate to do anything of this kind, and in acceding, I beg you to remember in extenuation that many of you are no

*Read at the annual meeting of the American Electrotherapeutic Association, held at Saratoga, Sept. 14, 1910.

further from the beginning of an active professional career than I am from the end.

It was in 1868 or 1869, I believe, that my attention was first called to this subject. During my medical college course I do not remember to have once heard the word electricity in connection with the treatment of disease.

Medical journals seldom referred to it in any way, and of American contributions to the subject, with the exception of Garrett's ponderous and unphilosophical work, there was absolutely none. And so when I met an old man about that time who called himself an electrician, my interest was at once excited. He was an excellent example of perfect honesty, large experience, such as it was, and profound scientific ignorance. He had treated a multitude of people and was highly respected by Dr. Willard Parker and other prominent physicians who occasionally sent him patients.

And yet when I approached Dr. Parker, whom I well knew, and said to him that I thought of taking up the subject in a systematic and scientific way, he quickly replied: "Don't do it. Any old woman can apply electricity." Another equally eminent physician with whom I was on most friendly terms said: "do not ask me for the use of my name. You had better leave it in the hands of the quacks where it belongs." So it was evident that while both these excellent men believed somewhat in the virtues of electricity, they believed also that it was as simple an affair to administer as a hot or cold bath. The secret of this old man's success was, that in addition to his stereotyped yet most thorough and skilful method of application, he had at his command even at that time, a coil yielding a quality of current that has not since been surpassed, and far superior to many that are now in common use. About this time I renewed a former acquaintance with Dr. Beard, and to him I related my experience with this old man, and he in turn told me that while a student at Yale he had become interested in the subject and had frequently applied to himself the current from a small induction coil and with what seemed to him beneficial results. For several years this was the only kind of electricity, if I may so speak, at our command. No galvanic apparatus was then readily obtainable, and I well remember the disgust with which we resorted to the voltaic pile with its suffocating fumes, when that kind of electricity was wanted. No static electricity, no high frequency currents, no *x*-ray, no treatment by auto-conduction or auto-condensation, no light apparatus, only the simple faradic current, but when I recall the really excellent work that was done in those days I am impressed with the truth of Dr. Beard's aphorism, "that it is not so much electricity that cures as the method of using it."

It seems to me that this is a fitting time and place to offer a tribute to the memory of Dr. Beard. He has been dead many years, and if he could now witness the progress that has been made in the department in which his acute and original mind took such a deep interest, his astonishment would indeed be great.

He died at the early age of forty-three, when as someone said of him, "notoriety was beginning to merge itself into fame." As a clear, brilliant and rapid writer he was unsurpassed. He told his story with the facility and delightful felicity of a Macauley. No one subject could hold him long after it had ceased to interest him, or after he had taken from it all at the time he thought it capable of giving. In the earlier days of Mr. Edison's career he collaborated with him in investigating what at the time seemed to both of them a strange and mysterious manifestation of electricity which was termed etheric force. It led to nothing practical, but his clever and exhaustive discussion of the subject in the pages of the New York *Tribune* was a notable event. In the late seventies he coined the term neurasthenia and wrote his classic and memorable monograph on that subject. It is not too much to say that all the subsequent literature both here and abroad on neurasthenia is based on Beard's original investigations. Hypnotism and questions of psychic interest then engaged his ardent attention and keen discriminating examination, when presently he fell a victim to his all too strenuous and concentrated labors. His contributions to the subjects of seasickness and hay fever, his fascinating work on American nervousness, his valuable monograph on the legal responsibility of old age, with innumerable other contributions, all more or less original, forceful, and charming in tone, marked him as a worker and writer of an unusual order. What he would have achieved with a few more years of active work—who can say?

And now, Mr. President, a word in regard to our organization. Those of you who have read the interesting reminiscences of Mark Twain by his friend Mr. Howells, will recall that when the genial and philosophic humorist was asked "why men so disliked to talk much of the past," his reply was "because the past is so damned uncomplimentary."

I do not profess to know how it may be with the individual lives here to-night. Doubtless the past could reveal some uncomplimentary things about the best of us, but as it is not the individual life that we here commemorate, but the life of an association, our combined lives as related to the specific work of this society, we will let that pass. Personally I do not much believe in mutual admiration societies, for the man or thing most boisterously praised is often found most vulnerable under the cold, north light of impartial criticism. This society and its work will be judged by the great medical profession, not by what you and I say about it, but by the sum of its recorded activities, and as I recall the many views that have been advanced and the statements as to the specific therapeutic properties of the various physical agents, I am very much inclined to the opinion as to some of them, that Mark Twain's witticism would not be altogether misapplied.

Confession is as good for the soul of an association as for the soul of the individual.

It is not passing strange if in the pursuit of new objects and the exploration of untried fields enthusiasm sometimes overtops judgment.

The pioneer explorers of an unknown world saw many new and wonderful things, and the archives of their respective countries show that in recording their observations, fancy very often ran riot with fact. It was only after many years of repeated explorations and much sifting that the chaff was eliminated and the kernel or truth alone remained. As our strenuous ex-president remarks, "only the man who does nothing makes no mistakes." The same is true of any association of men, and therefore true of this association. It has done things and it has made mistakes.

Let me not be misunderstood. If in the past either as an organization or through individual contributions it seemed at times to tread the empirical,

rather than the true scientific path, yet upon the whole it has been commendably progressive, productive, and original, and if in its archives as in the archives of nations, are found here and there statements that it will be well to forget, let us charitably attribute them to temporary obsessions, excited by new and strange possessions.

Basing his antagonism to this society on what he thought he saw of evil rather than of good, a member of our profession, eminent, but certainly not broad-minded or kind, said that he would like to see it killed or die of inanition. To him I would apply the story of old Ludovicus Vives. The "story of the clown who had killed his ass because he had drunk up the moon, and he thought the world could ill spare that luminary. So he killed the ass ut lunam rederret.

The clown was well intentioned but unwise. Let us not imitate him. Let us not slay a faithful servant who has carried us far. He did not drink the moon, but only the reflection of the moon in his own poor water pail, where, too, he was drinking perhaps with the best intention."*

It would be unfortunate if, either as individuals or as an association, we should come to be regarded as special pleaders only. Let us beware of that. Let us not forget that we are physicians first and electro-therapeutists after, and while not abating one whit of our enthusiasm see to it that the judicial faculty be not subordinated to impulse and desire. Be true if you would be believed. With truth and genuine earnestness on your side, men must and will give heed to you. Let not the promise exceed the performance. Understate rather than overstate, for in so doing, the foundations you are now laying will become so strong, each stone in the structure so firmly set, that the superstructure will be an enduring monument to your honest and earnest endeavor.

616 Madison Avenue.

*Carlyle's Essay on Voltaire.

A CASE OF TYPHOID MENINGITIS.

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Because of the rarity of this condition, I wish to report the following case of typhoid meningitis:

J. C., aged 8, male. Entered the Gouverneur Hospital, April 20, 1910. Family history was negative. Previous history: He has always been thin and anemic. He had measles at the age of seven. Present illness began two weeks ago with frontal headache and pain in the abdomen, soon followed by diarrhea, which became a very troublesome symptom, the patient passing as many as a dozen watery stools daily. He vomited frequently. Three days before admission he took to bed, and during this time his mind gradually became dulled. On admission the patient was in a somewhat stuporous condition, his temperature being 101°, soon, however, rising to 105°, his pulse 102, and his respirations 36. He was poorly nourished and developed. The skin was warm and dry, and no eruption was present. His pupils were dilated. His tongue was dry and heavily coated. The heart sounds were rapid, regular, and weak. The lungs were normal. The abdomen was retracted, not rigid or tender. The spleen was just palpable. The liver dullness was normal. The patellar reflexes were increased There was no Babinski, Kernig or rigidity of the neck. Urinary examination: Light amber, clear, acid, with faint trace of albumin, sugar absent, diazo reaction negative, no casts. Provisional diagnosis: typhoid fever.

April 21: the patient is very restless and irrational, restraint being necessary. Diarrhea continues. The temperature ranges between 103° and 104.8°, the pulse between 100 and 110, and the respirations between 30 and 36. April 22: the general condition is worse. The patient is irrational. Diarrhea continues. The temperature ranges between 101.2° and 102.8°, the pulse between 90 and 120, its quality being weak and irregular, and the respirations between 30 and 40. The Widal is negative. *Slight Kernig* is present. April 23: the patient is restless and irrational. The right pupil is wider than the left, both reacting sluggishly to light. Tache cerébrale is present. There is no rigidity of the neck. Diarrhea continues. The temperature ranges between 100.2° and 102.2°, the pulse between 100 and 130, the respirations between 44 and 48. The white blood cells numbered 10,000, with a differential polynuclear count of 72 per cent., and lymphocytes of 28 per cent. April 24: the patient continues to be restless and irrational. The temperature ranges between 101.2° and 102°, the pulse between 100 and 140, the respirations between 44 and 46. Harsh breath sounds and moist râles are heard over the right base posteriorly. April 25: the patient is in complete coma, passes urine and feces involuntarily. The neck is *slightly rigid*. The temperature ranges between 99.7° and 101.5°, the pulse between 132 and 144, the respirations between 32 and 56. The white blood cells numbered 24,400, with a differential polynuclear count of 68 per cent. and lymphocytes of 32 per cent. A lumbar puncture was performed, tubercular meningitis now being suspected on account of the predominance of the mental symptoms, slight Kernig and rigidity of the neck, the pupillary changes, the presence of pulmonary signs, leucocytosis, the negative Widal, and the absence of roseola. Twenty-five c.c. of a somewhat turbid fluid was obtained under great pressure. The patient died several hours after the subarachnoid space had been tapped. Unfortunately consent for a post-mortem examination was not obtained.

The examination of the spinal fluid was made three to four hours after withdrawal. Smears of the sediment showed the presence of very numerous Gram-negative bacilli, and markedly increased cellular elements. A careful differential count was not made, but there seemed to be a predominance of what appeared to be small lymphocytes. The benzidin test carefully controlled by a positive test with diluted blood was negative. A pure culture of *Bacillus typhosus* was obtained from the fluid. The microorganism was identified by the following characters: *Morphology*. A small and very actively motile Gram-negative bacillus. *Cultural Characters*. Milk was slightly acidified but not coagulated. There was no indol production in Dunham's peptone water. There was a slight growth on potato. Gelatin was not liquified. There was no gas in Hiss tube medium. There was acid production without gas in glucose and mannite serum water. There was no acid or gas production in saccharose or lactose serum water. *Agglutination*. The bacilli were agglutinated by the serum of a known typhoid patient in a half hour in a dilution of one to one hundred.

A meningitis existed in this case on account of

the presence of a large number of cellular elements and the typhoid bacilli in the cerebrospinal fluid.

The cases have been divided by Cole into cases of "meningism" cases of "serous meningitis," and cases of "suppurative meningitis," and the literature carefully analyzed from this point of view. Cases are excluded because of failure to isolate or properly identify the organism. In reviewing the literature I am surprised to find that no effort has been made to eliminate contamination from admixture of blood. Since the *Bacillus typhosus* is present in varying numbers in the circulating blood in practically all cases, this precaution seems to me essential. Many of the cases falling under the second group, "serous meningitis," are open to this suspicion. Thus of the cases cited by Cole, the following must remain unproven for this reason.

Case 1. Tictine: *Arch. de Med. Exp.*, 1894, VI, p. 1.

Case 2. Rocco-Jemma: Abstract given by Loeb, *Deutsches Arch. f. Klin. Med.* Bd. 62.

Case 3. Rocco-Jemma: *Gaz. degli osp. e della clin.*, 1897, XVIII, p. 1575.

Case 4. Boden: *Zeit. f. pract. Aerzte*, 1899, VIII, S. 233, also *Münchener med. Woch.*, 1899, XLVI, S. 303.

Case 6. Fernet et Lacapère: *Bull. et Mem. Soc. Med. des Hôp. de Paris*, 1900, XVII, p. 513.

Case 8. Weichardt: *Zeit. f. Hygiene u. Infectionskrankheiten*, 1901, Bd. XXXVI, S. 440.

Cases 9, 10, 11, 12, 13. Cole, *Johns Hopkins Hospital Reports*, 1904, XII, page 379-410.

The references to meningitis complicating typhoid fever published since the appearance of Cole's paper in 1904 are as follows: Under the first group are included ten cases of typhoid "meningism" in which, following Cole's classification, the diagnosis depended solely upon the clinical features, and was not confirmed by recovering the typhoid bacillus from the spinal fluid:

Huber: *Arch. Pediatrics*, 1904, V. 21, p. 1.

Achard & Paisseau: *Bull. et Mem. Soc. Med. d. Hôp. de Paris*, 1904, 3 s. V. 21, p. 329.

Staublii: *Deutsches Arch. f. klin Med. Leipzig*, 1904-5, V. 82, p. 90. Two cases.

Barie & Lean: *Bull. et Mem. Soc. Med. d. Hôp. de Paris*, 1907, 3 s. XXIV, p. 1080.

Bounamour: *J. de Physiol. et de Path. gen. Par.* 1907, IX, p. 818.

Rocaz and Charles: *Gaz. hebd. d. Soc. Med. de Bordeaux*, 1908, V. 39, p. 39.

Laurie: *Rev. Neurol. Par.*, 1908, XVI, p. 109.

Carbanes: *Bull. Med. de l'Algerie*, Alger. 1908, XV, p. 286. (Not accessible.)

Marfan: *Med. Inf. Par.*, 1909, II, p. 177. (Not accessible.)

Under the second group, the so-called "serous meningitis," there have been five cases:

Case I.—Schutz: 1905, *Berl. klin. Wochenschrift*, V. 42, p. 1465. Male, aged 20, entered the hospital March 6, on the ninth day of illness. Onset with headache, vomiting, rigidity of the neck, and fever. On admission headache was very severe and rigidity of the neck was present. Widal reaction was negative. March 6 to March 11, headache was a prominent symptom. March 11 a lumbar puncture was performed, 13 c.c. of clear fluid being obtained. No smear of the fluid was made. On culture *Bacillus typhosus* was obtained. March 18 the spleen was palpable and roseola were present. The Widal subsequently became positive. Patient recovered.

This case must be considered unsatisfactory, as contamination by blood had not been excluded.

Case II.—Schutz: *ibid.* Male, aged 38, entered the hospital March 12, on the ninth day of illness. Onset with headache, pains in extremities and fever. On admission headache was very severe, rigidity of the neck and petechiæ were present. March 14 a lumbar puncture was performed, 6 c.c. of clear fluid being obtained. No microscopic examination of the fluid was made. The culture showed the presence of *Bacillus typhosus*. *Bacillus typhosus* was obtained from the urine and feces the subsequent week. March 20 roseola present. Widal became positive during the decline of the temperature. Patient recovered.

This case is open to the same suspicion as the previous case.

Case III.—Silberberg: 1908, *Berl. klin. Wochenschrift*, V. 45, p. 1354. Male, entered the hospital on the fifteenth day of illness in a semicomatose condition. Complained of headache when aroused. Roseola and rigidity of the neck were present. Pupils were dilated. Widal positive. Blood culture positive. On the day after admission a lumbar puncture was performed, 25 c.c. of fluid being obtained. Smear showed the presence of lymphocytes and endothelial cells. Motile bacteria were present in the hanging drop. Culture showed the presence of typhoid bacillus. Patient recovered.

This is a satisfactory case.

Case IV.—Nieter 1908, *Münchener med. Wochenschrift*, V. 55, p. 1009. Patient aged 30, entered the hospital November 22 on the second day of illness. Onset with headache and chilliness. On admission temperature was 39° C. Pulse was small and frequent. There was stiffness of all the extremities. The spleen was not palpable. No roseola were present. November 27 patient died, meningitis having been suspected. The typhoid bacillus was obtained from a puncture of the spleen. A lumbar puncture was performed post mortem and bloody fluid was obtained. The smear showed the presence of Gram-negative bacilli. Culture showed the presence of typhoid bacilli. No autopsy was performed.

Although blood was present in the cerebrospinal fluid, the fact that bacilli were present in the smear probably excludes contamination.

Case V.—Claret et Lyon-Caen: 1909, *Bull. et Mem. Soc. Med. d. Hôp. de Paris*, 3 s, V. 26, p. 217. Female, aged 23, entered the hospital April 20, on the sixth day of illness. Onset with headache, fever and lassitude. April 20-April 30, roseola appeared and Widal was positive. May 1, severe headache, photophobia and ptosis. May 3, rigidity of the neck, marked Kernig, pupils unequal. Lumbar puncture was performed, 15 c.c. of clear fluid being obtained. Smear did not show the presence of any bacilli. Cytology, polynuclears 60 per cent., mononuclears 25 per cent., red blood cells 15 per cent. Patient improved somewhat after tapping. May 4 another lumbar puncture was performed. Typhoid bacillus was obtained from culture of the spinal fluid. May 6, intestinal hemorrhage. May 8, delirium and incontinence of urine. Lumbar puncture was performed, 10 c.c. of clear fluid being obtained. Smear showed the presence of lymphocytes and red blood cells. No organisms present in the smear or culture. May 8 to 17, amelioration of the symptoms. May 17, lumbar puncture was performed. Smear showed the presence of lymphocytes. Culture sterile.

The high polynuclear count in the spinal fluid makes the correct diagnosis probable.

Under the third group the so-called "suppurative meningitis" there have been six cases:

Case I.—Staubeii: *Deutsches Arch. f. klin. Med.*, Leipzig, 1904-1905, V. 82, page 90. Male, aged 22, entered hospital June 28, on third day of illness. Onset with chills, violent headache and sore throat. On admision there was slight rigidity of neck. June 28 to July 2, headache severe. July 2, a lumbar puncture was performed, 10-15 c.c. of clear fluid being obtained. Headache somewhat relieved after tapping. July 3, roseola present. July 5, Widal positive. July 9, headache returned. July 12, slight Kernig present. July 14, apathy and rigidity of neck marked. July 15, twitchings of fingers, strabismus, delirium, and coma. July 16 another lumbar puncture performed, 50 c.c. of purulent fluid being obtained. Smear showed numerous bacilli and polynuclear leucocytes exclusively. *Bacillus typhosus* was obtained from culture. July 17, died. At autopsy, slight healed lesions of typhoid fever; suppurative cerebrospinal meningitis; abscess of the right frontal lobe. Microscopic examination: marked round celled infiltration, especially about the vessels of the pia and extending into the brain substance. Numerous bacilli present. The same lesions were found in the spinal cord.

This is a positive case.

Case II.—Delille: 1905, *Pediatric prat.*, Lille, V. 3, p. 89. Female, aged 9, entered hospital November 13, 1904, on the sixth day of illness. Onset with headache, anorexia, malaise, constipation, and fever. November 14 roseola present, Widal positive. November 22, spleen palpable, headaches persistent. December 6, Kernig marked. December 11, reflexes increased; a lumbar puncture was performed, 6 c.c. of slightly cloudy fluid being obtained. Smear showed predominance of lymphocytes and very few polynuclear leucocytes. Culture showed the presence of *Bacillus typhosus*. December 13, intestinal hemorrhage. December 14, coma, convulsions. December 15, died in coma. At autopsy, cicatrization of ulcers of Peyer's patches; ulcer of the cecum; suppurative cerebrospinal meningitis. The details of the cultural characteristics of the organism and agglutination test are not given.

In all probability a positive case.

Case III.—Henry and Rosenberger: 1908, *Am. J. M. Sc.*, Phila., n. s., 135, p. 240. Male, aged 34, became ill six days before his admission to hospital. Onset with headache, dizziness, vomiting, delirium, and fever. On admission the patient in coma, ptosis of both lids, pupils are small, equal, and do not react to light; neck rigid; Kernig present. A lumbar puncture was performed on the following day (April 4), 25 c.c. of a turbid fluid being obtained. April 5, knee jerks absent, lumbar puncture again performed, 30 c.c. of a turbid fluid being obtained. Smear showed the presence of bacilli, polynuclears 76 per cent., lymphocytes 2 per cent., hyalin cells 2 per cent. Culture, typhoid bacillus. Patient died April 6. At autopsy catarrhal enteritis, with slight enlargement of Peyer's patches and mesenteric lymphnodes, suppurative cerebrospinal meningitis. Microscopic examination, infiltration of the membranes of the brain and cord, with lymphocytes and polynuclear leucocytes. Bacilli present. Typhoid bacillus was obtained from the pus at autopsy in smear and culture.

This is a positive case.

Case IV.—Southard and Richards: 1908, *J. Med. Research*, Boston, V. 19, p. 513. Male, aged 22, had tabes and general paresis for two years. One week before death temperature rose 103°, and died from what seemed to be a bronchopneumonia. He was unconscious for two days before death. At autopsy hypostatic pneumonia, enlargement of the mesenteric lymphnodes, acute cerebrospinal meningitis, typhoid bacilli were obtained from culture of the lymphnodes and from the pus of the meninges. Miscroscopic examination: there was an infiltration of the piaarachnoid of the brain and cord with polynuclear leucocytes and mononuclear cells, the former, however, predominating. In addition the lesions of tabes and paresis were present.

This is a positive case.

Case V.—Lavenson: 1908-09, *Univ. of Penn. M. Bull.*, Phila., V. 21, p. 55. Female, aged 26, entered the hospital April 22, 1906, on the fifth day of illness. Onset with headache, vomiting, photophobia and fever. April 25, delirious. April 26, Widal positive. On April 27 a lumbar puncture was performed. April 30, neck rigid. May 3, hematuria. May 4, edema of the lungs and died. Culture, *Bacillus typhosus*. Autopy performed 24 hours after death, body being embalmed: Purulent meningitis, no intestinal lesions, no enlargement of the spleen. Smear of the pus showed presence of Gram-positive and Gram-negative bacilli.

This is a positive case, the Gram-positive bacilli probably being post morten contamination.

Case VI.—Symmers and Wilson: 1909, *J. Bact. and Path.*, Cambridge, V. 13, p. 251. Also reported by Milligan: *British Medical Journal*, Lond., 1908, V. 1, p. 1295. Male, aged 37, entered the hospital August 23, on the eleventh day of illness. Onset with headache, vomiting and delirium. On admission, diplopia, internal strabismus of the right eye. Neck rigid, Kernig present. Spleen felt with difficulty. August 25, twitchings. Pupils sluggish and contracted. Incontinence. Widal positive. August 26, died. No autopsy was performed. A lumbar puncture performed one hour after death, turbid fibrinopurulent fluid being obtained. Cellular elements, polynuclear leucocytes 40 per cent., small lymphocytes, 22 per cent., large lymphocytes 32 per cent., transitional cells 6 per cent. Culture, *Bacillus typhosus*.

This is a positive case.

Reference has also been found to Moda: *Chirigai Iji Shimpo*, Tokio, 1906, V. 27, p. 577. (Not accessible.)

I desire to thank Dr. Cleaveland, in whose service this case occurred, for permission to report this case, and also to thank Dr. Norris and Dr. Pappenheimer for their cooperation.

261 Seventh Street.

THE SAW AND CRUSHING INSTRUMENTS IN SURGERY OF THE NASAL SEPTUM.

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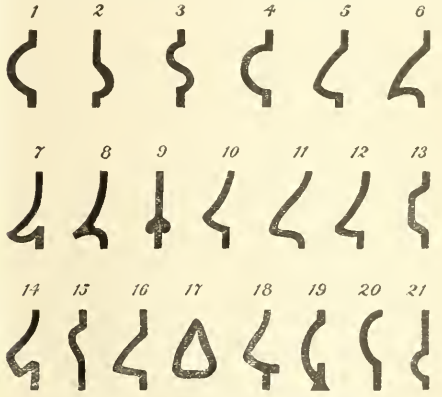
Men following nose and throat work as a specialty have seen many and marked changes recommended by rhinologists during the past few years in the special procedures suggested for the correction of the many deformities of the nasal septum with

which we daily come in contact. The number of inquiries made by under- and post-graduate students during the past few years leads me to conclude that all rhinologists are not yet in accord with the idea that the saw and crushing instruments are useless and unnecessary for the correction of the many obstructive difficulties due to deformities of the nasal septum in which we are called upon to operate. From an investigation made by me I am in a position to state that there are very few textbooks in print to-day, whether issued this year or during the past ten years, that do not give up many pages of their space to the describing of operations that are no longer useful or to be recommended, and, in fact, have long since been found unsatisfactory to both patient and surgeon. In conversation, recently, with a large number of prominent rhinologists from all parts of this country and Canada, I was pleased to learn that the saw and other crushing instruments, formerly recommended in our work on the septum, have been laid aside and nearly all the procedures and operations heretofore used have given way to the submucous resection operation, as recommended in Europe by Killian, of Freiburg, and in this country by Freer, of Chicago. You will not have examined many nostrils, particularly those patients with the cramped adenoid noses, without discovering that practically all have deviated septa. When you use the expression "deviated septum," however, you do not fully describe the deformity which is usually found, for in almost every case that I have seen there has been a deposit of bone or cartilage cells on the septum resulting in ridges or spurs, in connection with the deformity.

Statistics say that about 95 per cent. of all septums are abnormally deviated, the deviation existing in either the cartilaginous or the bony portion. In probably 60 per cent. of these cases, in addition to the deviation, you will find well-marked crests or ridges, extending backward and upward, usually beginning at a point where the anterior tip of the vomer joins the crest of the superior maxillary. This ridge or crest extends along the line of union between the vomer below and the cartilaginous and ethmoidal plate above. Sometimes this crest or ridge is cartilaginous, sometimes bony and sometimes bony and cartilaginous. The location of this ridge or crest, extending into the middle meatus, blocks and obstructs it according to its shape. Occasionally you see these spurs or sharp projections extending across the whole width of the middle meatus, penetrating portions of the middle turbinate or the lateral nasal walls. In pointing out the varieties of deviation which I have observed, I desire that you should interpret them with deposits of cartilage or bone cells here or there on the deviation, forming the ridges, spurs, spines, etc., to which I have above referred. In addition to attracting your attention to the deformities shown, I desire to refresh the reader's mind on the normal structures of the septum.

The upper breathway is divided or separated by the septum into two passageways, known as the nasal fossae. The septum articulates above and behind with the nasal bones, the frontal bone, the ethmoid and the sphenoid. Below the nasal bones, in front, it is intimately connected with the under surface of the triangular cartilages and soft structures that go to make up the prominence of the nose. On its inferior border it articulates with the spinous process of the superior maxillary bone. In front and extending backward for the length of the quadrangular cartilage, we have interposed wedge-shape pieces of cartilage, between the quadrangular cartilage and the crest, designated the vomerine cartilages. These vomerine cartilages frequently extend beyond the perpendicular line of the septum, causing what is known as the vomerine ridge or spur. You will recognize the fact that this is the vomerine cartilage, ridge or spur through the fact that this ridge or spur never extends further back than the posterior edge of the quadrilateral cartilage. Behind these vomerine cartilages the articulation is between the plate of the ethmoid and the vomer and the superior maxillary bone. We seldom have deviations or projections on the line of the articulation between the vomer and the crest of the superior maxillary; the ridge, spur or deviation usually appearing higher up on a line between the vomer and the perpendicular plate of the ethmoid. When we



Various types of deviation of the nasal septum.

study the functions of these two irregular passageways, divided by the nasal septum with the two well-marked, turbinate shelves on the outer wall of each, we find that the whole surface is covered by a special form of mucous membrane; that in the upper part and limited to a very small area are the special olfactory sense bulbs. A study of the anatomy and functions of the upper breathway must lead anyone to conclude that an error was made in considering the nose the special organ of the sense of smell. Not more than 1/100 part of this mucous surface is devoted to the special sense, while 99/100 parts are devoted to other and special functions. The three important functions of the nose, that is, the warming, moistening and filtering of the inspired air, should at all times be borne in mind; for upon the presence or absence of the performing of these functions properly depends the necessity for operative interference.

The accompanying drawings will show the forms of deviation of the septum to which I have before referred. In some of these deviations, particularly in the S-shaped variety, the nostrils will be blocked both anteriorly and posteriorly. When we come to study the symptoms manifested by these deformities we must consider that they will depend upon the age of the patient and the general physical conditions, as well as upon the climatic conditions in which the patient lives. The malformations outlined divert the air current from its normal course and are directly responsible for the inflammation and congestion so often seen in other parts of the upper

breathway which help to block the passageway to normal respiration. It has been said "That a man who breathes through a perfectly healthy nose is entirely indifferent to the severest extremes of heat, cold, dryness and humidity. That the nose is capable of preparing a climate, the atmosphere of which can come in contact with the sensitive lung tissues without creating irritation." The mucous membrane covering the whole of the upper breathway is filled with mucus and serum secreting glands capable of pouring out hot water so rapidly that by the time the driest air reaches the larynx it is saturated with moisture and the temperature raised to that of the blood. The circulation of this mucous membrane, particularly that of the inferior turbinates, is most active and performs a very important part in the warming and moistening of the inspired air. The great necessity, therefore, exists for us to always give the greatest amount of consideration and deliberation to these structures before removing a part or the whole of them.

If the passageway is crowded and there is a lack of room, always attack the septum rather than the structures which contribute so much to the important functions above enumerated. The inferior turbinates act, not only as irrigators and radiators, but also as sentinels. The duties performed by these sentinels are very apparent when a blast of cold air is drawn into the nostrils. At once the structure swells up, becomes erect and by its presence blocks the passageway and interferes with a large current of cold air passing into the lungs, without having the proper nasal functions performed upon it, and possibly causing irritation with resulting bronchitis and lung difficulties. We have all experienced the feeling of stuffiness and suffocation that comes over us in passing from a warm room into a cold one or vice versa. This stuffiness or suffocation is brought about by the overactivity of the sentinel-like functions just enumerated. The presence of new cell formation in the turbinates modifies, to a very great extent, the sentinel action of the latter; so that in considering the proper treatment of a diseased turbinate this fact should always be taken into consideration. Other factors also contribute to the irregular workings of the turbinate, and I would especially mention overeating, overdrinking and the overstimulation that comes from the inhaling of irritating tobacco smoke, snuff and large quantities of dust. Especially is this to be taken into account nowadays when the streets are so very dusty on account of excessive motor car driving; and here in New York we are already face to face with the condition existing on our principal thoroughfare, where our richest and most well-to-do patients are compelled to inhale an atmosphere loaded down with gasoline oil carbon particles. Constipation, gout, and rheumatic conditions also play an important part in the functions and in the producing of symptoms in connection with the normal breathway.

It is, therefore, almost unnecessary for me to emphasize the point that if this mucous membrane, which has so much to do with the general well-being of our patient, is to perform its functions normally and properly it must not be hampered, restricted or interfered with, through destroying its ciliated epithelia, by the performance of lacerating and crushing operations. The important point, therefore, is that we should always, under all circumstances, preserve the ciliated epithelia of the nose as far as it is in our power to do so. We are all familiar with the large number of crusty accumulations that patients complain so much of and that usually follow the use of the saw. So far as I know, there is really no good excuse, to-day, why the saw should be used in the nose; for I know of no deviation or deformity of the nasal septum which cannot be better relieved through the submucous resection operation than by any of the cutting or crushing operations that have been so extensively used in the past and that are still so extensively described in many of the text-books. It is quite impossible to use the saw without lacerating a large amount of mucous membrane with the resulting scar tissue on which cilia will not develop, but on which forever after we have annoying crust formations and accumulations.

In the submucous resection operations, as advised by Killian, of Freiburg, and Otto Freer, of Chicago, with the many modifications that have been recommended and found serviceable through experience, we have procedures that will prevent our patients from suffering many of the difficulties and annoyances they have experienced in the past, following the use of the saw. I refer particularly to the annoying crust formations that most patients complain of. In regard to the symptoms from which patients suffering from the deformities outlined complain, it has been my experience that the location of the deviation and the nervous makeup of the patient have more to do in creating them than any other two conditions that we find. Nearly all patients, however, suffer from a sense of stuffiness in the nose and pain over the frontal region or bridge of the nose, especially if the deviation has been sufficiently marked to interfere with the discharge of the normal secretions from the ethmoidal and frontal sinuses. Dizziness is a frequent symptom if the flow of the secretion from the ethmoidal cells is interfered with; while asthmatic attacks are frequent when the deviation presses on the middle turbinate or when the middle turbinate presses upon the septum, or when the ethmoidal cells are distended by hyperplastic material. Nasal discharge, both anterior and posterior, either of the watery or thick mucus, is a frequent symptom. This so-called nasal catarrh is usually diagnosed and complained of by all of these patients. The symptoms of obstruction, where the nostrils are either completely blocked or only partially so are manifest through the mouth breathing of the patients. All the symptoms vary as to the patient and also as to whether or not both nostrils are completely or partially blocked all of the time or only part of the time. If the obstruction be complete and brought about through bony conditions then the symptoms of obstruction are permanent and the patients are constant mouth breathers. But if the obstruction in one nostril is due to the deviated septum and the obstruction in the other to the intumescent condition of the inferior turbinate resulting from overwork, the symptoms are not so pronounced, because there are times when the patient can breathe through one nostril. The disturbances of phonation, from which all these patients suffering from nasal obstruction complain, should not be overlooked; especially in those who strive for musical notes in both speaking and singing. Nasal obstruction is quite a serious matter for anyone fitting himself for an operatic career.

The dry pharyngitis and laryngitis in adults, the dry tongue for which these patients complain on arising in the morning and the loss of recuperation from a good night's sleep, are all due to the mouth breathing in these cases. The anemia so well-marked in mouth breathing patients, is, I believe,

due directly to the lack of absorption of oxygen; for as you know, atmospheric air which is not properly prepared for absorption into the lungs by passing through the nasal laboratory will not give up its oxygen for absorption. Such air, instead of giving up its oxygen and being a benefit to the mucous membrane of the lungs, acts as an irritant and is the direct cause of many coughs and attacks of bronchitis from which these mouth breathing patients suffer.

Mouth breathing due to deformities of the septum is seen but seldom in children under eight or nine years of age, excepting where traumatism has been suffered. Obstructions of the breath way before that period are usually in the nasopharynx. It is very important, however, for all practitioners who operate for the removal of adenoids and tonsils, to examine the nasal breath way carefully for obstructions created by the turbinate bodies, before giving an opinion that an operation for the removal of adenoids will relieve the patient from mouth breathing and from injurious symptoms associated with nasal and postnasal obstructions. Many unrelieved cases are due to obstruction in the nose, due to enlarged turbinates. Practically all the difficulties of hearing, not traceable to diseases of childhood, rheumatic and sclerotic conditions, can be traced to nasal obstructions, septal deformities and chronic catarrhal conditions due to these deformities and obstructions. Many of the neurotic conditions of childhood can be directly traced to postnasal obstructions; while in older patients, hay fever, epilepsy, chorea and many other nervous disorders have been permanently cured by the correction of the deformities referred to. It is only necessary for you to read the papers and discussions in the Section on Rhinology and Laryngology at the last Convention of the American Medical Association to be convinced that nearly all the leading rhinologists of this country, to-day, are using the submucous resection operation for the cure of the conditions herein outlined, to the almost complete exclusion of the numerous operations heretofore recommended in which the saw or crushing instruments were used. The results of the submucous resection operation are so uniformly satisfactory to both patient and operator in all the conditions herein outlined that there is hardly any excuse why other operations, not so satisfactory, should be taught in the schools or described at length in modern text-books. The only exception to this, that I can think of, is in descriptions which are given as a mere matter of history.

The danger of the nose sinking or becoming depressed, as I have before pointed out, does not exist at the present time if the operation is performed as now recommended.

Formerly, in the crushing and cutting operations, patients were compelled to be away from business from six weeks to two months and during this protracted period were compelled to wear an annoying, painful and depressing hard rubber or metal splint; while with the submucous resection operation, the nostrils are lightly tamponed with a soft material for not more than twenty-four hours and the patient is able to return to business on the third or fourth day following the operation.

Dr. Otto Freer of Chicago, to whom I sent a copy of this paper in manuscript, has written me as follows: "I have looked over the advance sheets of your article and am pleased to be placed on record as being in accord with you and all progressive rhinologists who take their work seriously and prefer well planned and exact intranasal surgery, which gives the best results with the least injury, to the crude hit-or-miss operations which are employed even in this progressive age by some operators. I am wholly in accord with you in discarding the saw and crushing instruments in the correction of deflections of the nasal septum and in the removal of bony and cartilaginous prominences. It is unfortunately true that both the saw and the fracturing methods are still used. Many operators employ them because they have not yet mastered the difficulties of the submucous resection. Others have reverted to them after a trial of the up-to-date methods of operations, following preconceptions of its demands rather than anatomical indications, and represent it as so simple a procedure that it may be performed in a few minutes' time. This misconception has led many to abandon the submucous resection because of unsatisfactory results, traumatism, perforations and depressed noses. The author of the most popular of these methods has recently found it necessary to restrict the submucous resection to "selected cases," reserving the general run of cases for the uncertain fracturing operations of an older era. This is a retrogression not even thought of by the surgeons who have mastered submucous resection and in whose hands it has become a procedure of such mathematical precision that their reports show that they employ it with increasing satisfaction in all deformities of the septum, and with the knowledge that it gives the desired breathing space and preserves the normal physiology of the nose intact, while hundreds of dissatisfied patients are constantly seeking the newer operation where the septum has been damaged by previous operative attempts and though the difficulties are greatly increased, even these patients are permanently relieved.

"Permit me to state that my procedure, though you mention it in the same breath with Prof. Killian's of Freiburg, has been developed independently of his operation since 1901 and was described in two articles by me before Killian's first detailed publication. My methods share with that of Killian merely in the indication to remove the deflected bone and cartilage with the preservation of the mucous membrane. The steps of the operation are, however, entirely different. The Killian method depends upon the elevation of the coverings of the deviation with blunt instruments through a cut on the front of the septum, while in my operation the whole proceeding is done in an open operative field where every step can be carried out with surgical precision. The steps of the operation, as now performed, were described in the *Illinois Medical Journal* for May, 1910, and in that article I have gone into details as to the extent the flap should be left so that after the removal of the deflection there will be exact adaptation of the mucosa. So far as I am able to judge there is no need of depressed noses, perforations or other accidents and I have never known a saddle nose to follow the submucous resection with my open flap method.

"Your recommending the freeing of the nasal passages in septal deviation by properly performed submucous resection, instead of partly clearing them by cutting down the turbinated body, is timely, as I have seen many patients who have been operated upon in this manner without relief. The resection of the deflection affords freedom of respiration from the nasal floor to the nasal vault without interfering in any way with the physiological functions

of the turbinated bodies. I am pleased to commend the advice given to resect spurs and ledges of bone and cartilage to the mucosa of the opposite nostril, as these prominences are merely the projected portions of deviations and are to be removed with them to obtain the best possible results."

In conclusion, therefore, I will say that, judging from our experience and from the favorable reports made to us by our patients, the saw should be discarded as well as all crushing instruments heretofore advised, and which are still recommended in many of the text-books; and that all the deviations, spurs, outgrowths and exostoses of the cartilaginous and bony septum should be corrected by the submucous resection operation.

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GONOCOCCUS URETHRITIS IN MALE CHILDREN.*

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This paper is intended as a simple contribution to a subject that has not received the attention that it deserves. A survey of the more recent literature on the subject of gonorrheal infection in children reveals the striking fact that nearly all writers on this subject, while speaking of gonorrhea in children, confine their remarks to the consideration of the disease in young girls only, without paying any attention whatever to the disease as it occurs in male children. Consequently, though much has been written on the subject of gonorrhea in young girls, very little can be found relative to the occurrence of this disease in young boys.

This is probably due to the fact that gonococcus infection of the urogenital tract is much less frequent in male children than in female children. The anatomic arrangement of the female genitals, especially in childhood, presents a soil that is highly favorable to infection from without, and it would seem that this is sufficient, if a reason were desired, to account for the greater frequency of the infection in girls than in boys. Another plausible reason for the great relative difference in the occurrence of this infection in the two sexes is perhaps found in the fact that the tendency for adult males to tamper with female children is greater than for adult women to indulge in sex relations with male children; hence the greater risk of infection.

Gonorrhea in male children is not a rare condition. It is seen most frequently among the poor of large cities, where the crowding and congestion offer a fine opportunity for the maintenance of the disease as an endemic affection. It is thus apparent that the prevalence of gonorrhea in male children is not to be considered only from the purely surgical standpoint, but also from a sociologic point of view. It is quite customary for these young children to sleep in the same room with their parents or with adult boarders; there is no semblance of privacy whatever in many of these homes, and as a result the children are at a very early age made aware of sex conditions and sex differences. It is, therefore, not unusual for these young boys to indulge in coitus with young girls of their own age, or with adult women, and the remarkable feature is that the number of cases of gonorrheal infection is so small, rather than so large, in view of the extensive intermingling of the young of both sexes and the precocity and extent of their sexual knowledge. Our esteemed president, Eugene Fuller, has mentioned this precocious indulgence in coitus by young boys as an important factor in the development of chronic seminal vesiculitis and sexual neurasthenia later in life.[1]

In 1901 I had the privilege of reporting 22 cases of gonorrhea in boys, ranging in age from 18 months to 12 years,[2] Since that time I have had the further opportunity of studying 15 additional cases, all of them seen in dispensary practice, the youngest being a child 16 months old, and the oldest 14 years old. In all of these cases, without exception, the diagnosis of specific infection was made certain by the microscopic examination of the secretions by the Gram stain.

This total of 37 cases has presented several points of unusual interest, which justify this paper:

The age of the patients was as follows: Sixteen months old, 1 patient; 18 months old, 1 patient; 2 years old, 3 patients; 4 years old, 7 patients; 6 years old, 5 patients; 7 years old, 3 patients; 9 years old, 2 patients; 10 years old, 2 patients; 12 years old, 3 patients; 13 years old, 4 patients; 14 years old, 6 patients. The cases thus divide themselves according to age, namely: 2 years or under, 5 cases (14 per cent.); from 4 to 10 years, 19 cases (51 per cent.); from 12 to 14 years, 13 cases (35 per cent). It must not be inferred from these figures that male infants under two years of age enjoy any special immunity from gonococcus infection; the small proportion of infants in this series of cases is explained by the fact that such cases are most commonly brought to the pediatrist or the general practitioner, rather than to the genitourinary surgeon, both in private and institutional practice.

The largest percentage of infections is seen to be found in boys from four to ten years of age—the age at which sexual instinct and curiosity develop hand in hand with the general growth and intelligence of the child. It is in children of this intermediate age that adult sexual perverts are especially interested; they are old enough to satisfy the unnatural cravings of these perverted minds, and young enough to not understand the seriousness of the act in which they are induced or forced to take part. I believe that it is these children that bear the brunt of that superstition of world-wide extent to the effect that contact with a child of the opposite sex will rid an adult of venereal disease. In better social circles, where nurse maids often sleep with their charges and at times carry on sex relations with them, the victims are usually of this most susceptible age. In this class of cases is the one reported by Pollack[3] of a six-year-old boy viciously infected by his nurse girl, who was sentenced to seven years in prison for the act.

The next largest percentage is found in full-grown boys, from twelve to fourteen years of age. These boys are at the threshold of puberty, and most if not all of them are thoroughly alive to all the possibilities of the sexual function and the means for its gratification.

Infection may be direct or indirect. While indirect infection is quite common in female children, it is but rarely so in male children, for reasons already mentioned. There is, however, one form of indirect infection in boys that is worthy of our

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serious attention—namely, infection through the urethral catheter in hospitals. This shall be considered later. In most cases, however, infection is direct, either through coitus or through the practice of sexual perversions. The sex instinct is at the bottom of most of these cases. Zobel[4] reported three cases of rectal gonorrhea in young men, 10, 18, and 20 years of age, and in view of the fact that many young boys in crowded districts indulge in the practice of sodomy, it is quite probable that this is a somewhat frequent mode of infection. As an unusual instance of indirect infection, Fraser-Harris has reported[5] the case of a boy 14 years old, who contracted a severe gonorrheal urethritis by wearing a pair of contaminated drawers. This is, however, a very unusual occurrence in boys.

Careful inquiry was made in every case that came under observation as to the manner in which the child was infected, this being considered a most essential part of this study. In seven cases the most thorough inquiries were futile. In the remaining 30 cases, however, interesting information was revealed.

In nine cases (24 per cent.) the infection was presumably derived accidentally from some member of the household. In these cases investigation revealed the information that the child slept in the same bed or used the same toilet utensils as some other member of the family, and there was sufficient corroborative evidence in most of the cases to make it reasonably certain that this member of the family was suffering from gonorrhea. For instance, two children slept with their fathers. When the latter were confronted, both admitted having gonorrheal urethritis at the time. Five children slept with the mothers, all of whom were at the time under treatment for various gynecologic diseases. One child slept with his elder sister, and another slept with a female boarder; in both of these cases the suspicion was quite justified.

Direct infection through coitus was admitted by twelve boys. They admitted having had sexual relations with young girls or women, and the periods of incubation seemed to indicate that these females were the actual source of the infection. As indicative of the existence of a precocious sexual instinct in these young children, which, by the way, some writers deny, their ages are of interest: Four years old, 1 patient; 7 years old, 1 patient; 9 years old, 1 patient; 10 years old, 2 patients; 12 years old, 1 patient; 13 years old, 2 patients; 14 years old, 4 patients.

It is of further interest to observe that the younger boys declared that older girls or women had made the first advances to them, and that they consented against their will, sometimes under duress and threats of punishment. Most of the older boys, however, *i. e.*, those over nine years old, frankly admitted that they had had coitus with girls of their own age or younger, or with adult women, at first as a matter of curiosity when the opportunity presented itself, and later for the pleasure they found in the act. In three cases the infection followed after but a single coitus, according to their statements. One boy of twelve solemnly asserted that he had never indulged with any girl other than his own sister, aged eight. Examination of this girl confirmed the suspicion that she was the source of the infection. It is of further interest to note that most of these boys had good records at school, and were not considered bad boys either by their parents or by their teachers.

I have already referred to the existence of the superstition relative to the cure of gonorrhea through contact with a virgin of the opposite sex. There is no way of proving that any of these cases of infection were the sequelæ of this superstition, but inasmuch as they all came from the poor, tenement district, where the women who harbor this superstition also live, it is quite plausible that some of these patients, at least, became its sacrifice. The majority, I believe, were infected as the result of gratification of their own precocious sexual desires, which are highly developed among the children of the poorer districts.

The remaining nine boys were infected while they were in hospitals suffering from various diseases of childhood. I have become especially interested in this mode of infection because of the utter lack of excuse attendant upon it. There seems to be no reason on earth why a child should enter a hospital suffering from diphtheria or pneumonia, and survive the disease, only to come out with a well-developed case of gonorrhea of the genital tract. While we may believe with Holt,[6] that it is impossible to prevent these outbreaks among girls, it seems to me that this ought to be a very rare accident where boys are concerned.

Once the child is infected, the period of incubation and the general course of the disease do not vary from that of the adult. As a rule the pain on micturition appears a day or two before the discharge. Sometimes the pain is so great that the child is afraid to urinate, and complete retention or dribbling may set in. The pain is at times out of all proportion to the clinical symptoms. This hyperesthesia, as I have already shown,[2] is usually found coincident with a contracted meatus or a tight prepuce, which act as a dam to the secretions, and by preventing proper drainage of the canal, cause more or less complete retention and an increase of the inflammation. On the other hand, some children suffer very little pain, and would not be brought for treatment, except for the redness at the meatus and the discharge.

Complications similar to those found in the adult may also occur in male children. In this series of cases there were no complications worthy of note, but other observers have reported them. Holt[6] observed 26 cases of gonococcus arthritis in children; of these nineteen were male, and seven female. The symptoms were a rapidly developing articular swelling, redness, tenderness, and when suppuration was imminent, fluctuation was present. The temperature frequently reached 103, and sometimes 104 and 105, and lasted from one to eight weeks. Death followed in a number of these cases, the patients succumbing to marasmus. In general the disease runs the same course, and subjects the patient to the same dangers and complications as are seen in the adult.

The prognosis is rather better than in the adult. In young boys I have been unable to observe that innate tendency to chronicity that is characteristic of the adult infection, and strictures do not as a rule follow. Recovery is as a rule quite complete. Taylor[7], however, mentions two cases reported by Rona, in which stricture seems to have followed years after the attack. In one, a boy of 17, the stricture probably began in an infection at the age of 10; the second case was that of a medical student aged 21, who also was infected at the age of 10. Taylor adds that it is very probable that to virulent gonorrheal urethritis occurring in early life may

be attributed many of the cases of stricture in boys and young men in whom a history of recent gonorrhea cannot be obtained.

As to treatment, the primary requisite is cleanliness. If the child has been circumcised this problem will not be a difficult one, and many of the complications may thus be averted; when the prepuce is present, however, the greatest care should be taken to remove the intrapreputial secretions, and to provide the fullest measure of urethral drainage. Occasionally a dorsal incision will be imperative; likewise meatotomy is sometimes indicated. This can be done in the presence of a profuse discharge, without danger of infection.

For the urethritis itself the treatment is the same as in the adult, but the solutions should be proportionately weaker. I have found protargol 1-400 and argyrol 1-100 the most satisfactory agents in the local treatment. A small hand syringe is employed; about two drams are injected into the urethra slowly and carefully, twice daily, and retained for five to ten minutes. The more severe the inflammation, the weaker the solution and the smaller the quantity to be used. As a rule, the child soon becomes reconciled to the injections and accepts them in a philosophic spirit of non-resistance. Extensions into the posterior urethra and complications should be treated as in the adult. In my former paper[2] these matters were discussed at greater length.

Summary.

1. Gonococcus infection in male children is not a rare condition, though it is far less common than in female children.

2. Infection is usually the result of precocious sexual activity, or accidental infection in the home; sexual perverts undoubtedly infect a goodly number of children.

3. In hospitals a fairly large number of infections take place, presumably through infected catheters, etc.

4. These young patients are liable to all of the extensions and complications that occur in the adult.

5. It is possible that many cases of sterility, sexual neurasthenia, and urethral stricture are due to gonococccus infection in childhood.

6. The treatment is practically the same as in the adult.

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THE BEDSIDE WIDAL TEST.

By George Gillman, A.B., Ph.G., Ph.C.
San Francisco, Cal.

This simple and efficient modification of the Widal Test is presented in view of fulfilling a long-felt want of the practitioner who is so often placed at a disadvantage and caused much inconvenience by the necessity of being dependent upon distant laboratories to make the test.

The new method requires no laboratory facilities or special technical skill and consumes such little time that it enables the practitioner to readily make the test at the patient's bedside and know the results within a few hours. The test, however, necessitates the use of a formalized culture of the typhoid bacillus which, although the practitioner is not expected to make, can be procured from almost any bacteriological laboratory and kept on hand ready for use at any time. It is prepared as follows: Each 100 c.c. of broth, contained in an Erelenmeyer flask, is inoculated with one (1) normal loopful of an eighteen (18) hour agar-slant culture of the typhoid bacillus. The inoculated broth is incubated at 37° C. for twenty-four (24) hours and then 1 per cent. formalin added and the flask kept at room temperature over night. On the following day tests for sterility are made and as soon as this is established the culture is filtered through ordinary filter-paper to remove any clumps which may be present. The culture should be put in small containers and stored in a cool dark place. This preparation, being a broth culture killed with formalin, there exists no dangers of accidental infection connected with its use, and it has proved itself to be as efficacious as a suspension of live bacilli. Furthermore, it presents an even suspension of the bacilli which will keep well for some length of time and always on hand ready for use. In the past few years this culture has gained much favor among laboratory workers, due to its many obvious advantages.

The test, the technique of which will be subsequently described, is based upon the principles of the original Widal reaction; and, though somewhat similar to the macroscopic agglutination tests now made in many laboratories in preference to the microscopical method, differs from that, in that the whole blood is used instead of the separated serum, and the technique so modified as to make the test available to every practitioner without the necessary special requisites required of the older methods.

Technique.—Into a very small test tube (5 mm. x 3 cm.) or homeopathic vial, place 48 drops of the formalized culture and to this add 2 drops of the patient's blood obtained in the usual manner from the lobe of the ear or tip of finger. The tube is next corked, shaken, and set aside. After having set from 3 to 5 hours, the tube is examined and the reaction noted, taking care not to disturb the fluid.

Interpreting the Reaction.—The formalized culture before use is always turbid, due to the suspension of bacilli. Now, if the added blood should give a positive reaction, the bacilli are agglutinated (clumped) and with the blood cells fall to the bottom of the tube, leaving the supernatant fluid clear. A *clear* supernatant fluid will therefore indicate a *positive* reaction. Should the supernatant fluid be *turbid* it will indicate a *negative* reaction.

When noting the reaction it is of material advantage to compare the supernatant fluid with some of the formalized culture contained in a similar tube as a control. In a positive reaction the fluid will be

decidedly clear as compared with the control, which is always turbid, while in a negative reaction the fluid will be as turbid as the control. During the early part of a positive reaction with a serum of low titre (agglutinating strength), the blood cells will first settle and then a flocculent precipitate (clumps) of bacilli will appear which later settle to the bottom, leaving the supernatant fluid clear.

Following out the technique as described, using forty-eight (48) drops of the culture and two (2) drops of blood, the size of the drops being as near alike as possible, an approximate dilution of one (1) in fifty (50) is made, considering two (2) drops of blood as one (1) of serum. Though, at best, only an approximate dilution is made, the reaction is sufficiently delicate and accurate to warrant it being of clinical value. Of course, the dilution may be varied to suit the worker by increasing or decreasing the quantity of either the culture or blood.

For agglutination tests other than typhoid, the same technique can be employed, replacing the typhoid culture by a formalized culture of the required microorganism.

It would be of great advantage to all concerned if some laboratory should furnish the practitioner with suitable vials containing the proper quantity of the formalized culture ready for use or the culture contained in a larger bottle accompanied by one or more suitable empty vials in which the test could be made any number of times, the vials being cleaned by simple washing before each new test.

EXOPHTHALMIC GOITER SIMULATING TYPHOID FEVER.

By LOUIS DLUGASCH, M.D.,

NEW YORK.

J. W.—Female, age 24. Was perfectly well up to two months ago. Habits as to sleeping and eating irregular. Previous history, negative; nothing of importance that has any bearing on the present condition was noted in the family history.

About six weeks ago the patient's attention was called to the fact that her eyes were protruding more than normal, but she paid no heed and went about her usual duties. Two weeks ago she began to complain of general malaise, headache, nausea, aching pain all over the body, and elevation of temperature. I was called in to see the patient and found that she was being treated for typhoid fever. I made a complete physical examination and found the following: General condition, poor; marked emaciation; slight dyspnea, no cyanosis or edema; ears, nose, and mastoids, negative. Eyes, eyeballs protruded (exopthalmus), Graef's sign present. Thyroid gland, enlarged slightly on right side, pulsation of gland. Throat, negative. Tongue, dry, coated with thick fur. Teeth and gums, sordes on teeth; gums normal. Skin, dry, warm, no eruption, no roseolar spots. Chest, symmetrical, expansion good. Lungs, negative. Heart, systolic murmur at apex; accentuation of second pulmonic; pulse rate ranges from 120 to 160. Abdomen, tympanitic, no masses, no rigidity, no tenderness. Liver, enlarged two fingers' breadth below the free margin. Spleen, very easily palpable. Reflexes, patellar reflex increased, fine tremor of hands.

Laboratory Findings.—Urine, negative, no Diazo-reaction. Blood, reds, 3,750,000; whites, 7,800; polynuclears, 72; lymphocytes, 28; Widal, twice negative.

When I first saw the patient she was running a temperature of 102° to 103.5° for about eleven days, both Widals were negative, and on the twelfth day temperature came down to 98.6°. The insidious onset with general malaise, headache, nausea, a tongue that looked like typhoid, sordes on tongue, enlarged spleen, would make one suspect typhoid fever. We must bear in mind the fact that in exophthalmic goiter we sometimes have rise of temperature with enlarged spleen, and it behooves us to make a careful physical examination. The drop in temperature on the eleventh day, of course, and both Widals negative, cleared up the diagnosis.

45 SECOND AVENUE.

Epidural Injections in the Treatment of Enuresis and Essential Incontinence of Urine.—Genaro Sisto records a case of essential incontinence of urine in a girl of twelve years which was entirely cured by epidural injection. Essential incontinence results from a lesion of the vesical center in some cases, as is seen in paraplegia and spina bifida. It may be spasmodic, the arc of disease including the peripheral conductor and the spinal cord, or of the nature of tic, when the cerebral cortex is implicated. We must carefully study heredity and local symptoms to determine which of these forms we have to deal with. Theoretically it is the traumatism to the canal that causes the cure. Practically we do not know the method of its action. The injections cause little pain and there is not any danger of injuring the cord, which separates into filaments that float loose in the cerebrospinal fluid. The injection is made at the lowest part of the sacrum in a triangular space between the sacral apophysis and two tubercles that are easily seen. The patient lies down for a half hour after the injection. This is an area in which there are a large number of veins, and circulation and absorption of drugs from this part is very rapid.—*Annales de Médecine et Chirurgie Infantiles.*

Serotherapy and Anaphylaxis in Cerebrospinal Meningitis.—V. Hutinel gives us records of four cases in which the serum treatment of cerebrospinal meningitis was interrupted by serious consequences of the nature of anaphylaxis. A final injection of serum, practised some days after the others, caused nervous phenomena that were serious and rapidly terminated in death. These accidents have been interpreted as the result of anaphylaxis. These results are more frequent and severe when the injections are made into the cerebrospinal cavities than when made into the peritoneum. The near proximity of the central nervous system seems to be of importance in these cases. A preventive treatment, called antanaphylaxis, has been attempted by various observers. The attempt to modify the toxins by physical and chemical means has failed. If too great heat is applied to the serum its anaphylactic properties are lost, but at the same time its curative properties are destroyed. If the serum be heated only to 56° its toxicity is modified and its therapeutic value does not suffer. All the sera prepared at the Pasteur Institute are now treated in this way. The injection into a sensibilitized person of serum of another animal also is of value in preventing anaphylaxis. Von Pirquet and Schick interpret these phenomena in this way: the injections cause a product of reaction to be formed, a sort of antibody; this substance acts on the antigen that is in the horse serum which has not as yet been completely eliminated. When a new injection is made the reaction occurs at once because there still remains antibodies in the organism. There are many obscure points about the subject of serum treatment. We should remember the possibility of the occurrence of serious symptoms in the use of sera as remedies, but we should not allow this to deter us in the saving of life by means of their use.—*La Presse Medicale.*

MEDICAL RECORD.

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MILK CHARITIES IN THE UNITED STATES.

It would be useful and instructive in a high degree to learn with a certain amount of exactitude the influence that a milk supply exerts on the health of a population and especially the effect on the morbidity and mortality of infants. That milk has an important bearing on public health seems obvious, but it would be more satisfactory if we had exact statistics to drive home this point. In Great Britain, for instance, infant mortality under the age of five years is considerably less than in the United States and in Germany. Crowded urban conditions are more prevalent and the milk supply is generally not so well safeguarded in Great Britain as in the United States and yet infant mortality is lower. This appears to show that, while milk is an important factor in the rearing of children, there are other equally or more important factors. In *Public Health Reports,* September 30, the history, development, and statistics of milk charities of the United States are given in a paper by I. W. Kerr, Assistant Surgeon-General of the Public Health and Marine-Hospital Service, presented before the American Association of Medical Milk Commissions on June 6, 1910.

The Bureau of Public Health has cooperated with the above association, and at the suggestion of Henry L. Coit both bodies have concerned themselves with the collecting of statistics relating to infant mortality and the factors underlying its causation. Among other information which has been gathered is that the first milk depot founded in this country was established in 1889 and that similar institutions have been established in at least twenty cities. With the view of obtaining further information the Surgeon-General caused letters to be addressed to all the medical milk commissions, milk dispensaries, and milk committees, whose addresses were available, and to health officers in all towns of the United States of over 20,000 population. In this letter information was requested on twenty-four pertinent points, of which the last six were, perhaps, the most important. These six were: Is the milk heated. If heated, to what temperature and how long. Whether heat is applied winter and summer alike. What grade of milk is employed in the work. What was the mortality rate in the particular city for infants under one year of age. What was the mortality rate among the number of children who had been fed on dispensary milk one month or over during 1909.

The information received thus far indicates that there are twenty-eight cities in the United States in which are located infants' milk depots, and that about twice as much raw milk is distributed as pasteurized. The temperature to which the milk is heated varies from 147° F. to 170° F., and the time of heating is 20 minutes in almost all cases. In Chicago the milk commission causes the milk to be heated to 170° F. In Baltimore and in St. Louis the milk is given raw in winter and pasteurized in summer, and three institutions dispense both pasteurized and raw milk. All the institutions supply milk of the best quality. A comparison of the mortality rates of infants under one year of age fed on dispensary milk and of those fed in the ordinary way is impossible to arrive at. The Boston Milk and Baby Hygiene Association places the mortality rate of infants fed on dispensary milk at 2.5 per cent., while the mortality rate for infants under one year of age not so fed was 11.2 per cent. in that city. The Babies' Dispensary and Hospital, Cleveland, states that 1.49 per cent. of infants died under dispensary care and 7.3 per cent. under outside care. However, such data are more or less valueless, and it is only in Philadelphia, Boston, Baltimore, Cleveland, and Newark that any inferences whatever might be drawn from the comparative statistics. If information of definite value is to be derived from statistics the mortality rates should be based on the total number of births, in fact, statistics should be based on a regular system, so that the records kept and investigations made should be comparable.

There would, nevertheless, seem to be little doubt that the milk depots have exercised a considerable influence on infant mortality, for in cities in which they have been present for any length of time infant mortality has been reduced. As Kerr pointed out in his paper, morbidity statistics are of even greater importance to the sanitarian than mortality statistics. They not only indicate the severity of disease and its damage to society, but serve as a guide to prompt sanitary action. So far the collection of statistics relating to the prevention of infant morbidity has been fragmentary in the extreme. There are many features in regard to the milk question which need elucidation and therefore the action of the Association of American Medical Milk Commissions in cooperation with the Bureau of Public Health is to be highly commended.

THE DURATION OF PREGNANCY.

The explanation of the pregnant uterus quietly retaining a constantly growing fetus for a period of ten lunar months and then raising violent objection to its continued use as a domicile, an objection expressed in the form of contractions so vigorous and prolonged that they cease only with the expulsion of the contents or the death of the mother, is one of the most puzzling mysteries of physiology. That the period of continence is governed by definite laws is proven by the regularity with which, in

the great majority of cases, labor begins within a few days of the completion of the tenth lunar month, a fact so well recognized by both physician and laity that doctor and nurse are usually engaged months in advance.

When the date of the last menstruation before the onset of pregnancy is known the prophesy of the probable date of labor is comparatively easy and dependable. When, however, this date is not known, as a result of carelessness in recording it, in the instance of feeble-minded or insane women, or when a second pregnancy follows before the renewal of menstruation, the determination becomes far more difficult. For the solution of such problems Ellice McDonald, in an article in the September number of *The American Journal of the Medical Sciences*, offers a method of calculation which has at least simplicity in its favor. On the theory that the fundus uteri after the sixth month rises 3.5 cm. in the abdomen for each lunar month and at full term in just 35 cm. above the symphysis, the author lays down the following rule: "The duration of pregnancy in lunar months is equal to the height of the uterus in centimeters divided by 3.5." The measurement is taken with the patient lying on her back, the tape being allowed to follow the contour of the uterus from the symphysis to "the final dip" at the fundus.

The author, after six years of observation, says that "after six months this rule is extraordinarily exact." As the height of the fundus depends largely upon the size of the child, and as this may vary considerably in different infants in the same stage of pregnancy, such a rule as a means of forecasting the date of labor and of reducing the calculation to a matter of days would appear to lack exactitude. It is doubtless useful in an average normal case, but that it is of universal application and is more accurate than the old-fashioned calculation by weeks from the last menstruation requires confirmation before it is accepted.

The Prevalence and Geographical Distribution of Poliomyelitis in the United States.

Poliomyelitis has been present in epidemic form during the past two or three years in various parts of this country. Much has been learned concerning the disease in that period, but there is no doubt that as much, if not more, still remains for solution. From the public health standpoint it is manifestly desirable to ascertain as correctly as may be its prevalence and geographical distribution. With this end in view Surgeon-General Wyman of the Public Health and Marine-Hospital Service has caused to be written to the Secretaries of the State and territorial boards of health throughout the country letters of inquiry as to these points (*Public Health Reports*, September 30, 1910). The following information has been taken from the replies received: In Colorado one death from poliomyelitis occurred at Cripple Creek in July, 1909. In Connecticut the disease did not attract attention until June, 1910, when a slight outbreak occurred at Meriden with one death. Up to that time the disease had not been reportable to the State board of health. During July 18 cases with 2 deaths were reported. In the District of Columbia poliomyelitis is not required by law to be reported. However, physicians commenced to report cases during the latter part of July in this year. Up to July 31, 7 cases were reported. During the first 19 days of August 64 cases were reported. In Illinois in July, 1909, an epidemic of poliomyelitis broke out in Champaign County; thirty-two cases were reported with no deaths. In Kentucky, although poliomyelitis is prevalent, no statistics are available. In Kansas the disease appeared in epidemic form for the first time during the summer of 1909. In 1910, 57 cases and 15 deaths were reported in July and from August 1 to 20, 20 cases and 4 deaths. Poliomyelitis is not a notifiable disease in Maine, but several cases have occurred in three towns. The disease has appeared in Massachusetts during 1907, 1908, and 1909. In the latter year there were 923 cases. In Michigan there is no known epidemic. Minnesota seems to have been the hotbed of the disease. In 1909 238 deaths and about 400 cases were reported. It is estimated, however, that there were probably 1,000 cases or more. During the present year 36 deaths from the malady had been reported up to the end of June. Pennsylvania is another State in which poliomyelitis appears to have gained a foothold. In July of this year 152 cases were reported and from August 1 to 18 105 cases. Scattering cases have been found in 32 of the 67 counties. From Alabama, Georgia, Montana, Nevada, Ohio, Tennessee, Utah, Virginia, and West Virginia no information with regard to the disease is available, while the information from New York State was not available for insertion when the issue of *Public Health Reports* for September 30 was published. The remaining fifteen States had not been heard from. In order to cope successfully with poliomyelitis, which would seem to be increasing in this country, a knowledge of its prevalence and geographical distribution is almost essential. From the reports already received by the Bureau of Public Health it is plain that the disease is widely distributed. As has been pointed out, a somewhat remarkable feature of its distribution is that it does not seem to flourish in large cities. In Minnesota, where its ravages have been most extensive, the cases have occurred chiefly in the rural districts. The fact that the term commonly applied to the disease, infantile paralysis, is a misnomer becomes daily more evident, for a large number of adults have been attacked, especially in Canada.

The Registrar-General's Report for Ireland.

For the purpose of comparison some figures culled from the report of the Registrar-General for Ireland recently issued may be of interest to American readers. The population of Ireland is still decreasing through emigration, but at not so rapid a rate as in past years. There were 102,759 births registered during the year 1909, the number of deaths in the same period being 74,973. The death rate, 17.2 per 1,000, is 0.4 under that for the year 1908, and 0.6 under the average rate for the past ten years. Tuberculosis has always been a prevalent and deadly disease in Ireland, owing principally to overcrowding and generally unsanitary modes of living. Of late years, due in some degree to the efforts of Lady Aberdeen and the antituberculosis league, matters have improved. In 1909 tuberculosis stood highest in the mortality tables of Ireland with 10,504 deaths; heart disease came next with 9,052, and then in order old age, bronchitis, pneumonia, can-

cer, diseases of blood vessels, diseases of stomach and intestines, and kidney disease. The decrease in the number of deaths from tuberculous disease which was reported in the year 1908, namely 386, has been followed by a further decrease of 699 in the year 1909. Notwithstanding this reduction it appears that out of seven persons whose deaths were registered in Ireland in the year 1909, one was the victim of tuberculosis, or in other words, over 14 per cent. of the mortality in Ireland in the year 1909 was caused by tuberculous disease. The cancer mortality rate rose in Ireland in 1909, but this is said to be chiefly due to more careful registration and is more apparent than real. The proportion of deaths of infants under one year of age to every 1,000 births registered in Ireland during the year 1909 was 92. In this respect Ireland compares favorably with England, Scotland, and the United States, and the result is chiefly owing to the fact that the majority of the population of Ireland are country dwellers and that the women are so unsophisticated as to feed their infants at the breast. Ireland may be said, both materially and physically, to be in a more flourishing condition than has been the case for many years.

Sleeping Sickness and the Tsetse Fly.

It is stated that the results of the most recent investigations into the cause of sleeping sickness have tended to raise some doubt as to whether the tsetse-fly, *Glossina palpalis,* is really the sole carrier of the disease. The investigations which have led to the formation of these opinions have been carried out in certain districts of Rhodesia and in other parts of Africa in which cases of sleeping sickness have been known to exist, but in which not a single specimen of the fly in question has been discovered. Of course, it is impossible to exaggerate the importance of finding an explanation of this phenomenon and to determine the question as to whether any other insect is capable of transmitting the germs of the fatal disease. If it is the case that insects other than the tsetse fly can disseminate or act as the intermediary hosts of sleeping sickness it is essential to the future of Africa that all the means of transmission be discovered as soon as possible and that measures be promptly taken to stay the spread of the malady, otherwise the whole continent may be overwhelmed by its effects. Arrangements have been made with the British Royal Society and the Sleeping Sickness Bureau in London to send out at once a commission of experts to investigate the matter. The commission will be asked to furnish an early preliminary report on the results of their labors, including any recommendations which they may think it necessary to make in the direction of precautionary measures, bearing in mind the fact that the practice of isolation in case of infected natives of Uganda has proved entirely inadequate.

News of the Week.

Civil Service Examination.—On November 26, 1910, the New York State Civil Service Commission will hold examinations for the following positions: Assistant in experimental psychology, Psychiatric Institute, State Commission in Lunacy, salary, $1,500; men only. Assistant physician, Ray Brook Sanatorium, salary, $1,000 to $1,200; men only. Chief examiner, Board of Alienists, State Commission in Lunacy, salary, $5,000; men only. Application blanks must be filed on or before November 19, 1910. For detailed circular and blank, application should be made to State Civil Service Commission, Albany, New York.

Cholera in Naples.—Despite the optimistic tone of the official reports it appears to be the general belief that the situation in Naples as regards the cholera epidemic has not improved, and that the sanitary measures thus far taken have been ineffectual. It is said that the oyster beds along the coast, instead of being destroyed as the authorities ordered, were merely transplanted at some distance from the city, and that recently a number of fishermen who had eaten some of these oysters died of cholera.

The New Tuberculosis Directory of the National Association for the Study and Prevention of Tuberculosis, that will be issued soon, will list over 400 sanatoria and hospitals with a bed capacity of nearly 25,000; more than 300 special tuberculosis dispensaries and fully 450 anti-tuberculosis associations and committees. Since the first directory was issued in 1904, the increase in the number of agencies fighting consumption aggregates nearly 500 per cent. It will contain up-to-date lists of all hospitals, sanatoria, dispensaries, and associations engaged in the war against consumption. A summary of what has been done by the various State legislatures, and the county and municipal governing bodies will be included in the book. It will be the most complete report of the anti-tuberculosis campaign that has ever been published in this country.

The Rockefeller Institute.—On the day on which the new hospital of the Rockefeller Institute was thrown open to visitors, the Trustees of the Institute announced the further gift from Mr. Rockefeller of securities having a value of $3,800,000, to be added to the endowment of the Institute. This gives the Institute an income-bearing endowment of about six and a half millions of dollars.

New Chicago Hospital.—The cornerstone of the Iroquois Memorial Emergency Hospital on Market street, Chicago, was laid on October 15. The hospital is erected as a memorial to the victims of the fire in the Iroquois Theater on December 30, 1908. It will be four stories high, absolutely fireproof, and equipped in an up-to-date manner, with ambulances, ambulance rooms, surgical dressing rooms, operating and ward rooms, and nurses' and doctors' quarters.

Cornell University Medical College.—The opening session of the college was held on September 28, when 127 students were enrolled, distributed as follows: First year, 28; second year, 20; third year, 11; fourth year, 56; special students, 12. The decline in numbers from the fourth to the third year marks the falling off when the A.B. degree, with a full year's work in physics, chemistry, and biology, was required for admission to the college.

Nobel Prize.—Announcement is made that the Nobel Prize in Medicine for 1910 has been awarded to Dr. Albrecht Kossel, Professor of Physiology in the Medical Faculty of the University of Heidelberg.

Milk Commission in Philadelphia.—Mayor Reyburn has appointed the following commission to

investigate the milk supply of Philadelphia and to recommend regulations to insure its purity: Drs. C. Lincoln Furbush, Chas. B. Penrose, Henry Leffmann, Randle C. Rosenberger, Clarence J. Marshall, and S. McC. Hamill.

Physicians Long in Practice.—A reception was given, on October 21, by the Medical Club of Philadelphia, to twenty-seven physicians from various parts of the State who had been engaged in the practice of medicine for fifty years or more. Among the number was Drs. S. Weir Mitchell, J. Solis-Cohen, John B. Chapin, E. L. Duer, Benjamin Lee, and Wm. S. Janney.

Alvarenga Prize.—The College of Physicians of Philadelphia announces that the Alvarenga Prize for 1910 has been awarded to Dr. M. Katzenstein of Berlin, Germany, for his essay entitled: "The Formation of an Arterial Collateral Circulation in the Kidney." The next award of the prize, which amounts to $180, the income for one year of the bequest of the late Señor Alvarenga, will be made on July 14, 1911, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered. Essays may be upon any subject in medicine, must not have been published, and must be typewritten and sent to the secretary of the college, Dr. Thomas R. Neilson, on or before May 1. 1911. Each essay must be unsigned, but marked with a motto and accompanied by a sealed envelope having on the outside the motto of the paper and within the name and address of the author. The successful essay becomes the property of the college; other essays will be returned upon application within three months after the award.

Charitable Bequests.—By the will of the late Louise Drinen of Philadelphia, the sum of $1,000 is bequeathed to the Rush Hospital for consumptives.

By the will of the late Mrs. Mary Stinson Bean, the sum of $10,000 is set aside for the erection in or near the city of Norristown, Pa., of a hospital for children suffering from contagious diseases. The hospital is to be a memorial to Emily Stinson Bean, the daughter of the testator.

Dr. William J. Mayo was the guest of honor at a dinner given by the Medical Society of the County of Kings in Brooklyn, N. Y., on October 19. Dr. John C. MacEvitt, president of the society, was toastmaster, and the speakers included Dr. Newell Dwight Hillis, Dr. Lewis S. Pilcher, Father John L. Bedford, and Supreme Court Justice Luke D. Stapleton.

Dr. W. J. Burdell of Lugoff, S. C., has been appointed medical secretary for the Southern Division of the Esperanto Association of North America.

The New York Medico-Surgical Society held its annual meeting and dinner at the Hotel Manhattan on October 15. The paper of the evening, on "The Practical Treatment of Nervous People," was read by Dr. J. J. McPhee. Officers for the ensuing year were elected, as follows: *President*, Dr. J. A. Irwin; *Vice-President*, Dr. D. S. Dougherty; *Secretary*, Dr. Samuel McCullagh; *Treasurer*, Dr. J. Arthur Booth; *Member of Executive Committee*, Dr. John A. Bodine.

The Utah State Medical Association.—The sixteenth annual meeting of the association, which was held at Salt Lake City on October 3 and 4, concluded with the election of the following officers for the ensuing year: *President*, Dr. Fred W. Taylor, provo; *Vice-Presidents*, Dr. R. A. Pearse, Brigham City; Dr. W. B. Tyndale, Salt Lake City, and Dr. Heber C. Robinson, American Fork; *Secretary*, Dr. W. Brown Ewing, Salt Lake City; *Treasurer*, Dr. J. N. Harrison, Salt Lake City.

The Delaware State Medical Society.—The one hundred and twenty-first annual convention of the society was held at Wilmington, Del., on October 11. Officers for the ensuing year were elected, as follows: *President*, Dr. G. Frank Jones, Georgetown; *Vice-Presidents*, Dr. L. S. Conwell and Dr. William Wertenbaker; *Secretary*, Dr. G. W. K. Forrest; *Treasurer*, Dr. S. C. Rumford; *Counsellor for three years*, Dr. James H. Wilson. The next meeting will be held in Lewes.

The Minnesota State Medical Association.—At the annual meeting of the association held in Minneapolis on October 6 and 7, the following officers were elected for the ensuing year: *President*, Dr. G. W. Robertson, Litchfield; *Vice-Presidents*, Dr. F. W. Dimmitt, Red Wing, and Dr. F. W. Schofield, Benson; *Secretary*, Dr. Thomas McDavitt, St. Paul; *Treasurer*, Dr. R. J. Hill, Minneapolis. St. Paul was selected as the place for the next meeting which will be held on October 5 and 7, 1911.

Medical Association of the Southwest.—The annual meeting was held in Wichita, Kan., on October 12. The following officers were elected: *President*, Dr. M. L. Perry of Parsons, Kan.; *Vice-Presidents*, Dr. J. M. Griffin of Sulphur Springs, Ark.; Dr. W. H. Stuffer of St. Louis, Dr. E. S. Lain of Oklahoma City, and Dr. W. L. Alison of Fort Worth, Tex.; *Secretary-Treasurer*, Dr. F. H. Clark of El Reno, Okla.

The Second District Medical Society of Iowa, at its annual meeting at Davenport on October 11, elected the following officers: *President*, Dr. D. N. Loose, Maquoketa; *Vice-Presidents*, Dr. G. E. Decker, Davenport, and Dr. George Hoffstatter, Lyons; *Secretary-Treasurer*, Dr. J. V. Littig. The next meeting of the society will be held at Davenport in October, 1911.

The Minnesota State Sanitary Conference was held at Minneapolis on October 5. Dr. H. A. Tomlinson, superintendent of the State Hospital for the Insane at St. Peter, was elected president, and Dr. J. T. Gerould of the University of Michigan, vice-president.

The Late Dr. Andrew H. Smith.—At a regular meeting of the Academy of Medicine, October 20, the following tribute to the late Dr. Andrew H. Smith was read by the President, Dr. John A. Wyeth:

There died on April 8th of this year in the City of New York a distinguished physician who during the year 1903-4 presided over this body. For nearly half a century Dr. Andrew H. Smith was a prominent member of the medical profession of New York City, and it seems fitting in view of his long service and his high character that a formal and official notice of his death should be taken by the Academy of Medicine.

Graduating at the College of Physicians and Surgeons of this city in 1858, and taking a post-graduate course in medicine in Göttingen and Berlin, he returned to America just at the outbreak of the Civil War. He at once entered the army as Assistant Surgeon in the Forty-Third New York

Infantry, and was actively in service until 1868, when, having received the rank of Major by brevet, he resigned to take up the practice of medicine in this city. He was appointed physician to St. Luke's and the Presbyterian Hospital, and Consulting Surgeon at the Manhattan Eye and Ear Hospital.

Dr. Smith took a deep interest in the movement for post-graduate education in the United States, and was one of the original Faculty of the New York Post-Graduate Medical School and Hospital, and for many years Professor of Medicine in that institution. In 1902 he was elected President of the Medical Association of the Greater City of New York, and in 1903 of the New York Academy of Medicine.

It was my good fortune to have known this distinguished physician for many years, and it is enough to say that he was of that noble type of man whom one respected and admired more the more intimately one knew him.

The Late Dr. Brothers.—The Medical Board of the Beth Israel Hospital in special meeting assembled on October 14, 1910, unanimously adopted the following resolutions:

Whereas, after a period of deep anxiety and hopefulness for the recovery of our esteemed colleague, Dr. Abram Brothers, the sad tidings have reached us that death has claimed and taken him from among us, and *Whereas,* Dr. Abram Brothers, who, in the many years of our mutual contact, has become so endeared to us by reason of his sterling qualities as a man, his earnestness as a colleague, his devotion to his profession and contribution to its progress, has been taken from us at the height of a successful career, made so by his own efforts and ability, and which we had hoped to see continued that he might live to enjoy the retrospect, and see the fruits of his self-sacrificing labor and of the energy that he gave to the cause of humanity, therefore be it

Resolved, that we give expression to the feelings of heartfelt sorrow that overwhelm us on the occasion of his untimely death; that we feel that, by his departure in the prime of life and in his uncompleted career, the cause of humanity has lost an ardent advocate, the science of medicine a brilliant contributor, and the Beth Israel Hospital an earnest and able worker, and be it further *Resolved,* that we extend our most sincere condolence to his sorrowing family in this time of their sad affliction, for their grief is great in the loss of so loving a husband and devoted a father, who will live in their memory as Love and Goodness, and with us in his deeds and accomplishments, and be it further *Resolved,* that a copy of these resolutions be spread on the minutes of this Board, that a copy be sent to the bereaved family and that copies be forwarded to the medical press for publication.—Archibald E. Isaacs, David Robinson, Felix Cohn, Committee on Resolutions.

On the same date the Eastern Medical Society, of which Dr. Brothers was at one time president, passed similar resolutions of sorrow.

Obituary Notes.—Dr. James R. Berry of Columbia, Mississippi, a graduate of the medical department of Tulane University of Lousiana in 1880, died at his home on September 29, aged 54 years.

Dr. Cornelius G. Trow of Sunderland, Mass., a graduate of the College of Physicians and Surgeons, New York, in 1872, a member of the Massachusetts State and Franklin County Medical Societies, died at his home on October 7, aged 63 years.

Dr. George F. Witter of San José, Cal., a graduate of the department of medicine and surgery of the University of Michigan, Ann Arbor, in 1856, ex-president of the Wisconsin State and Northwestern Wisconsin Medical Societies, a member of the American Medical Association and American Public Health Association, and of the California State and Santa Clara County Medical Societies, was struck by an automobile while crossing the street in front of his home, and died soon after, aged 80 years.

Dr. Adam Wenger of Concord, Ill., a graduate of the Department of Medicine of the University of Pennsylvania in 1866, a veteran of the Civil War, died at his home on October 10, aged 68 years.

Dr. Richard Leuschner of Mt. Clemens, Mich., a graduate of the Michigan College of Medicine and Surgery in 1892, a member of the American Medical Association, and of the Michigan State and Macomb County Medical Societies, and honary member of the Wayne County Medical Society, died at his home of pneumonia, on October 14, aged 52 years.

Dr. Joseph L. Romero of Jacksonville, Fla., a graduate of the University of Maryland School of Medicine in 1879, died at his home on October 14, aged 56 years.

Dr. Edna D. Timms of Portland, Ore., a graduate of the medical department of the University of Oregon, a member of the American Medical Association and of the Oregon State and Multnomah County Medical Societies, was instantly killed in an automobile accident on October 14, aged 41 years.

Dr. John A. Farnsworth of Fort Morgan, Colo., a graduate of the Colorado School of Medicine, Boulder, Colo., in 1897, a member of the Colorado State and Morgan County Medical Societies, and former Mayor of Littleton, Colo., died at his home on October 12, of heart disease, aged 39 years.

Dr. John C. Flynn of Warren, Mich., a graduate of the Cincinnati College of Medicine and Surgery in 1886, died at his home on October 15, aged 60 years.

Dr. Richard N. Beauchamp of Russellville, Ky., a graduate of the Albany Medical College in 1850, died at his home on October 10, aged 87 years.

Dr. David R. Greenlee of Minneapolis, Minn., a graduate of the department of medicine of the University of Pennsylvania in 1867, a veteran of the Civil War, died suddenly at his home on October 10, of heart disease, aged 78 years.

Dr. William W. Hamilton of Meridian, Miss., a graduate of the Hospital College of Medicine, Louisville, Ky., in 1879, and of the New York Polyclinic Medical School in 1888, professor of obstetrics in the Mississippi Medical College, and a member of the American Medical Association, and the Mississippi State and Lauderdale County Medical Societies, and Health Officer of Lauderdale County, died suddenly while on a railroad train near Lafayette, La., on October 8, aged 49 years.

Dr. James W. Keath of Schaeffertown, Pa., a graduate of the Medical Department of the University of Pennsylvania in 1876, died at his home on October 15, aged 55 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

OPENING OF THE WINTER SESSION—INTRODUCTORY ADDRESSES AT THE SEVERAL SCHOOLS.

LONDON, October 7, 1910.

THE new winter's session is now at work. St. George's Hospital preserved the tradition of October 1 by opening on Saturday, but the others were content to wait until Monday of the following week.

The Middlesex Hospital had the good fortune to secure the presence of Viscount Kitchener to distribute the prizes for the past year, and this function naturally eclipsed the other part of this school's celebration. Lord Kitchener expressed a hope many of the students would join the Royal Army Medical Corps or the Indian Medical Service, and pointed out the good work open to them in either. He hoped enteric would soon be banished from barracks as effectually as cholera had been, but he seemed to have some misgivings that England was lagging behind other nations in prevention of disease and sanitation, particularly seeing what America had done in Panama. Referring to the military training that many are undergoing in the defensive force, he said those thus prepared would receive a warm welcome in the army. But they should remember that the training which turns out competent civil practitioners is quite inadequate in equipping them for the special needs of the army in time of war. Before they could be of real service to troops in the field they must go through a thorough training in the organization of the army and of the R. A. M. C., and also must obtain a knowledge of the conditions of camp and barrack life. Further, they should endeavor to acquire practical experience of the treatment of patients in the field, their collection in advanced hospitals, and of the system which must control their removal thence to general and base hospitals. All this would call on them for considerable sacrifice of time and energy, but in doing it they would have the satisfaction of knowing they were fitting themselves to be of real service to their country.

At St. Mary's Hospital Sir A. Conan Doyle distributed the prizes and gave a most interesting address. At the outset he disclaimed any claim to be regarded as a successful medical man and said an unkind chairman in America once remarked that no living patient of his had ever been seen. He assured them, however, that he could point to a few survivors. He gave his testimony to the extreme value of a medical education, even though one did not practise. It tinged the philosophy of life and furnished the whole basis of thought. The man with a competency would be wise to go through the medical curriculum. He would emerge with qualities which classics and mathematics could not give. There were, he admitted, some dangers, but in the great post-graduate course called Life he would learn to correct those weaknesses. One was undue materialism. He was educated in an age which looked upon mind and spirit as a secretion from the brain as bile was from the liver. Brain centers explained everything; if they could find and stimulate the center for holiness they would produce a saint, but if their electrode slipped on to the center of brutality they would evolve a Bill Sykes. That was, roughly, the point of view of the most advanced of the materialistic school.

He now saw clearly that frame of mind was largely a reaction against transcendental dogmas, so they confused two things which had little relation. He warned them against intellectual priggishness and said that not only had they never got to the end of a medical matter, they had not even reached the beginning of it, they had come to the middle with more or less empirical knowledge. With medical knowledge they had a little lantern of their own to turn on their general reading. In all directions medical facts threw light on customs and historical incidents. For centuries people wore wigs because a skin disease on his head made Francis I. of France cover it with artificial hair and his courtiers followed suit. The association of diseases with certain characters was a puzzling problem. Cæsar and Mahomet were epileptics and many other great men might be thought to be under suspicion of some disease.

History abounded with examples of the romance of medicine—a grim romance truly, but a realistic, absorbing one. This generation, Sir Conan Doyle thought, had brought greater change than any previous century. It was true that thirty years ago the microbic origin of zymotic disease was taught, but they did not expect so many minute organisms would be separated and that they would be able to cultivate these lowly vegetable growths as certainly as they grew watercress or green peas. In literary and dramatic romance the villain was innocuous as soon as he was unmasked. So in the romance of medicine they had been exposing the villain. When he had thus been exposed, microbe or micrococcus and his accomplice, rat, flea, or mosquito, the forces of law and order could then be turned upon him. Britons may well feel gratified that their countrymen have been protagonists in this war.

At St. George's Hospital Dr. Squire Sprigge presented the prizes and gave the address. He remarked that though the merits of the prize system were variously estimated no one had proposed to do without any kind of award. Some looked at education as a thing beginning and ending at a certain period, and from that point of view success in examinations was not a certain prelude to success in life. Medical education did not end with qualification, but in whatever branch they practised their life was one long education. Prizes and examinations were necessary when the State determined that they should not enter the profession until so far educated that they could take advantage of the greater and more comprehensive education of the rest of life. They were an incentive to this end, nothing more, and he protested against the multiplicity of examinations and their intricacy which had grown so much of late. He warned them against regarding knowledge for its own sake as of little account. The highest ranges of philosophical research seldom brought a monetary return. The simple way of righting that wrong would be the endowment of teaching. The short-sightedness and false economy of giving scholarships to students while making scanty provision for teachers was only an exhibition of the old, narrow view of education.

At the Leeds School this same subject, medical education, was discussed by Professor Marsh, who complained in his address of the overweighting of the curriculum. Medicine now rested, he said, on the four sciences of chemistry, anatomy, physiology, and pathology, and it was difficult for students

to keep pace with them. As a result many gained only a superficial knowledge from the mental surfeit supplied to them. He emphasized the need of a training which would develop the higher mental faculties. In examinations he had found intelligent and serious students showing deficient acquaintance with, for example, the essentials of surgical anatomy, owing to the fact that, having tried to learn a great number of details, they had learned nothing. The ideal teaching was to keep to essentials. The rejections at the Royal colleges had been 50 per cent., not that the standard was too high, but men had been struggling with an overloaded curriculum. Reform in this direction was urgently needed and Professor Marsh suggested that a conference be held of all interested to consider it in all its bearings.

University College secured a dean of the English Church to give an address, and he drew a parallel between the medical and clerical bodies. Both, he declared, set out after something more than mere materialism. Between the present and hereafter there was a bridge, thought—the "thought that wandered through eternity." Medical students should not let themselves become altogether immersed in the wonderful sciences they had to study. They should turn to mind culture. He prescribed a little bit of Wordsworth daily. From him they would learn that the heart was more than muscle and the eyes of a girl more than a study in optics. So it was more to be a man than a money magnate; it was useless entering the spirit world with a pauper mind. The dean (of Salisbury) suggested an eight hours bill for all professions and an age limit for retirement, so that all might pay homage to mental culture.

At the women's school Mr. Boughton of the Royal Free Hospital gave a lively address on the position of women in regard to the profession. He admitted their natural gifts were more suited for nursing, but held that if this were so with average women there were many in the highest degree fitted for medical practice. But he insisted that they must confine their work to their own sex. Among the differences between the sexes he offered explanations of some, but said he could not find out why a woman prefers a sharp chisel to a screwdriver for turning a screw or opening a packing case, nor why a woman usually began to turn the screw backwards, nor her strange dislike for oil, nor her tendency to give a bang to a mechanism that does not easily work. Such peculiarities, the speaker said, he was inclined to look upon as having some sexual basis.

At the London Hospital the Schorstein Lecture did duty for the introductory address, as did the Huxley Lecture at Charing Cross. King's College and St. Thomas's Hospitals confined their celebration to the annual dinner.

The School of Pharmacy opened its 69th session on Wednesday with an address by Mr. Howard, who traced its rise and progress. He hoped apprenticeship would not die out as it had done to the detriment of many callings. He deprecated the readiness of people to swallow powerful drugs on the recommendation of friends. In his young days medicines were "nasty," so people thought twice before taking them and often omitted to do so. He warned them against the fatal facility of the tasteless tablets. Well he might, for again this week fatal cases of poisoning by those products are reported.

LODGE PRACTICE.

To the Editor of the Medical Record:

Sir:—In last week's issue of the Medical Record there appeared an article on "The Lodge Practice Evil on the Lower East Side," which, judged from a literary standpoint, would be considered fairly good, but judged in any other light would fail to claim any recognition. The writer has eloquently set forth the evil, but has not intimated how this is to be remedied, if such is feasible. Doubtless he is an ardent advocate for its discontinuance, but this does not tend to remedy the evil in any way. The writer has a tendency to discriminate between good and bad physicians, academic and non-academic men. As a matter of fact, I venture to say that not more than one or two per cent. of all East Side physicians have academic degrees and this should not be a criterion to judge medical ability. The writer says that in former years physicians who possessed medical skill and knowledge were selected for the positions, the truth being that very few physicians desired lodge practice, and as a result physicians had no difficulty in becoming lodge doctors.

If the writer would suggest a means for the uplifting of traditional medical ideals, instead of calling his colleagues young, ambitious tyros, he would be rendering an inestimable deed of good to the East Side physicians.

Chas. Wolf, M.D.
871 Hunts Point Avenue, New York.

Progress of Medical Science.

Boston Medical and Surgical Journal.

October 13, 1910.

Acute Thoracic Empyema. Avoidance of Chronic Empyema. Rib Trephining for Suction Drainage. S. Robinson.
Scoliosis. E. H. Bradford and R. Soutter.
On the Absorption of Protein and Fat in Pulmonary Tuberculosis. A. E. Austin, M. Ordway and R. Montague.
A Rapid Presumptive Test for Diarrhea Caused by the Gas Bacillus. A. I. Kendall and R. M. Smith.

Empyema.—S. Robinson emphasizes the fact that while nature strenuously combats pleural infections in spite of one's incomplete efforts, accuracy of diagnosis, prompt surgery, and diligent after-treatment are necessary not only to save the patient but also to shorten convalescence, to prevent amyloid disease of other organs, and to restore the normal function of the lung and pleura. Abscess of the periphery of the lung, if early recognized and operated upon, might avoid a local empyema. Prompt detection of local empyema often prevents occurrence of general pleural infection, and chronic empyema is a condition that should never exist, being attributed to neglect of early recognition, in operative treatment, or in post-operative management. Re-expansion of the lung is frequently impossible in these neglected cases owing to adherence of the lung. There is a difficulty that attends the diagnosis and localization in certain cases. Cases are reported of spontaneous cure of empyema by rupture into a bronchus. One must not overlook the possible diversity of origin of empyema by lymphatic extension, abscess of the liver, subdiaphragmatic abscess, and perforated duodenal ulcers not infrequently lead to this condition, with or without perforation of the diaphragm. It also occurs by blood metastasis in scarlet fever, measles, typhoid, whooping cough, and other systemic infections. The *x*-ray is a contributing, though unsatisfactory means of diagnosis of purulent pleurisy. In a localized empyema drainage and obliteration of the small cavity need alone be thought of. In a second group of cases in which the acute stage has been neglected and the pus allowed to remain undrained

for a longer time, the author advocates in the early cases a persevering maintenance of the suction provided by the chest wall, which is at least partially accomplished by a gauze dressing and a binder and better by a mackintosh dressing. Numerous devices have been employed in the drainage of empyema, all of them embodying one of three principles—siphonage, suction, and valvular action. Intercostal trocar puncture, and rib-section with or without the use of a rubber collar, constitute the two main divisions in the method of thoracotomy. Leakage is the chief fault of these methods. The permanency of the air-tight closure is the crux of the situation. To attain this permanent air-tight suction, the author advocates a method of rib-trephining, which he has employed in cases of the first and second groups with great success. After trephining a rib he inserts a metal tube with a thread cut on one end and corrugated for the attachment of rubber tubing on the other. As a safeguard against the ill-effects of sudden pneumothorax in patients susceptible to it, differential pressure may be used. The author has employed a positive pressure cabinet in three cases and has always had apparatus at hand to use if necessary. Rib-trephining obviates the possibility of pneumothorax.

Scoliosis.—E. H. Bradford and R. Soutter state that the essentials in treatment of this condition are as follows: (1) A careful examination of the condition of the back, not only as to the curves and contour, but also as to the normal rigidity and lack of strength of the back muscles. (2) Where needed, the use of such exercises as will strengthen the muscles, and such flexibility exercises as will correct abnormal stiffness. These flexibility exercises must be carefully applied so as to stretch at the part of the maximum stiffness, and not increase the flexibility of the flexible portions of the spine. (3) In the more severe cases the constant use of some form of pressure appliance, with the pressure applied to the convexity of the curve, and without pressure on the concavities. (4) These cases need oversight and direction at stated intervals during a long period. That is, during the rapidly growing years such oversight and direction should be given by some one familiar with the course of affections of this class. Such patients also need the constant direction of a parent or nurse or physician who will enforce strict and persistent attention to the details of treatment, and of a family physician who will pay attention to the observance of the laws of health, diet, metabolism, etc. (5) The affection is not to be regarded as a disease, but as a fault in growth, and for this reason care is needed for the patient during the growing years. The combined efforts of a family physician and expert specialist are of benefit in cases with this distortion and gratifying results may be expected to reward persistent efforts.

Protein and Fat Absorption in Pulmonary Tuberculosis.—A. E. Austin, M. Ordway and R. Montague found that the percentage of loss is much greater when the nitrogen intake is small than when it is large; with a diet containing a large amount of nucleoproteids like liver and sweetbreads the comparative nitrogen loss is much greater. The percentage of loss of fat also follows the same law as that of protein; that is, as the amount of fat taken increases, the procentual loss becomes less and less up to a certain point, which has apparently never been fully determined. The melting point of the fat also affects its absorption; the fluid oils are much more absorbable than the solid fats and, what is more important, the addition of a fluid fat to a solid one increases the absorption of the latter. The amount of free fatty acids also tends to increase the absorption of fat, but the suggestion of von Mering that free oleic acid be added to fats is not absolutely necessary, since as far as is known the healthy intestine is able to hydrolize fat in unlimited quantities, nor is this power apparently lost in those chronic cases where cod liver oil is used. Even where the steapsin is diminished or lacking through disease of the pancreas, the intestinal bacteria seem able to split a large proportion of the ingested fat. It is only in forced fat feeding that the inability to split the fat would seem to be suspected, and here, where fat to the extent of 425 gm. daily was ingested there appeared no great increase in the percentage of loss. Cod liver oil, which has no inherent value in phthisis, but which must have had some basis for its long popularity, probably acts on account of its low melting point. This admirable absorption of nutriment under the regimen of the sanatorium treatment of the tuberculous, although such enormous amounts of food are given, is probably due to two reasons: First, the ration is well balanced, and it is well known that under this condition the absorption of any one form, protein, for instance, is much better when given with a corresponding quantity of fat and carbohydrate than when given alone in large quantities; secondly, the human body, provided that the intestinal tract is normal, absorbs nourishment according to its needs, much as a sponge takes up water according to the state of dryness existing within it.

Speech and Voice Defects and Their Treatment.—A. Myerson states that a certain proportion of functional aphonia, greater than most laryngologists recognize, is due to misuse of the entire speech apparatus and not to changes in the larynx. It is necessary to emphasize the fact that the entire apparatus is misused in these abnormal speech efforts, just as it is normally used in its entirety in normal speech effort. Diaphragm, chest, and larynx are all involved in the spasticity—but the larynx suffers most. Moreover, inflammatory and other organic changes in throat and larynx which are associated with pain and hoarseness are often not the causes of the changed functioning of the parts involved, but with the pain and hoarseness are symptoms of the wrong use of the parts. Medical science is adding to the cellular interpretation of disease, the physiological or dynamic interpretation, and therapeutics can most profitably apply the lessons of pathology. The method of using any part that is normally operated by the will can be changed if it be a wrong method to a correct one, at least in most cases. With that change will come a readjustment more or less complete of the parts to the normal. This is as true in laryngology as in orthopedics, and its recognition has an important hearing on the therapeutics of the future.

Test for Diarrhea Caused by Gas Bacillus.—A. I. Kendall and R. M. Smith describe a rapid presumptive test by means of which diagnosis of diarrhea due to an infection with the gas bacillus can be made within twenty-four hours.

New York Medical Journal.

October 15, 1910.

The Mechanicobiological Standpoint in Medical Problems. J. Wright.
A Series of Studies of Nervous Affections in Relation to the Adjustments of the Eyes. G. T. Stevens.
The Comparative Value of Different Methods of Cancer Treatments J. W. Vaughan.
Results of Autogenous Vaccine Therapy in Acute and Chronic Middle Ear Suppurations. S. J. Kopetzky.
Carbolic Acid Poisoning. C. B. Burke.
Report of Fifteen Cases of *Hymenolepis Nana*. C. C. Bass and J. M. Gage.
The Intimate Relations which the Hospitals Bear to Public Health. H. W. Austin.
Hypopituitarism. E. S. Cross.
A Case of Hyperchlorhydria Apparently Relieved by the Use of Prisms. C. J. Astle.

The Mechanicobiological Standpoint in Medical Problems.—J. Wright in discussing some of the problems of surface tension, states that it is the interchange of material through cell membranes, watery material, albuminous fluids, colloid solutions, living colloid bodies with their own marked surface energy—it is the osmosis between cells in the cryptal tonsillar phenomena of infection, which are bound up with the streaming of kations and anions, de-

tected by the electrometer and which interests us in physiology and pathology. It is the alteration which these ions make in the tensile state of the surface of the inter- and intracellular colloids, which determines what shall go in and what shall stay out in the process of surface infection and surface immunity. Recent work has fully justified the growing suspicion that it is the electric charge on the lipoid constituent of corpuscles and fluids, and not the other chemical constituents of the protoplasm, which is chiefly responsible for the serum reactions, so puzzling, especially at present, in the study of the syphilitic infection. It has been fairly well established that a phagocyte flows around a bacterium or a carmine granule as a drop of water spreads freely over a wet surface, while both refuse to do so if the bacterium or glass surface has not the proper surface tension. The author believes that all this shows that one is drawing away from the biochemical concepts of Ehrlich.

Nervous Affections in Relation to the Adjustments of the Eyes.—G. T. Stevens presents as the first of a series of studies on this subject, a report of a case of chronic progressive chorea. He had, many years ago, announced the proposition that chorea is due to faulty eye adjustments and principally to hypermetropia, and he is now better prepared to defend this position. This case was one of violent chorea which had been continuous for fourteen years, long enough to be regarded as chronic, and one to the relief of which the best efforts of able physicians had been directed without avail. Correction of the abnormal adjustments of the eyes, mainly of the declinations, caused at first a rapid and then a steadily progressive improvement.

Methods of Cancer Treatment.—J. W. Vaughan classifies the two methods of approach in cancer treatment as follows: (1) Local, including all surgical procedures, the local application of caustic ointment, zinc chloride, arsenic, and other chemicals, including the use of trypsin and thymus preparations, as well as the various methods of freezing superficial growths, the *x*-ray, radium, and electricity. (2) General methods, through the agency of the blood stream, including the use of Coley's mixed toxins, the employment of various drugs, the use of ascitic fluid obtained from a recovered case, as reported by the late Dr. Hodenpyl, and the use of radium and the *x*-ray. To this class the author adds the injection of cancer residue. Two facts are well established: first, the body in exceptional cases may of itself destroy all cancer cells; and, second, this tendency is shown in almost every case, by means of periods of lessened rapidity of growth of malignant tumors, and sometimes actual decrease of their size, after which growth recurs with renewed vigor. The work of V. C. Vaughan on cellular proteids has demonstrated that any proteid cell may be split into two definite chemical parts by heating the proteid in a 2 per cent. solution of sodium hydrate in absolute alcohol. One portion, which contains the toxic radical, is soluble in the alcohol, and the other portion, which is insoluble, is termed the residue. When the purified toxic portion is injected into animals we obtain no immunity to the entire cell, but only a slight tolerance to the toxin itself. The residue, which is insoluble in the alcohol, is soluble in water, and when this portion of the proteid cell is injected into an animal that animal becomes to a certain degree immune to the injection of the entire proteid, if the latter is a living bacterial cell. In other words, the residue contains the specific chemical group that distinguishes that proteid from any other proteid. The author reports a case of carcinoma uteri in which the patient had been confined to her bed for a period extending over four months. Three weeks after injections of residue prepared from a breast cancer were begun, she was able to be up and about the house. Four months after treatment was started she was actively engaged in household duties, had gained twenty pounds, and made frequent trips out of the city. Within from twenty-four to forty-eight hours following a residue injection the percentage of polymorphonuclear elements falls from 5 to 40 per cent., while there is a corresponding increase in the percentage of mononuclear cells. Thus it appears that while the polymorphonuclear cell is the chemical laboratory in which the specific ferment is formed in the case of bacterial infections, the mononuclear cell is the essential element when dealing with altered autogenous cells. Thus one can reason that with every method of treatment proposed for malignant conditions in which there is some degree of destruction of the cancer cells, the resulting chemical changes necessary to bring about the removal of the dead cellular elements will cause a certain percentage of ferment to be formed which will be available for the destruction of a given number of living cancer cells.

Autogenous Vaccines in Ear Suppurations.—S. J. Kopetzky states that it is impossible to draw final conclusions from his small number of cases, but because they were selected to represent groups of middle ear suppurations, the results thus far obtained are worthy of note. The uniform failure to effect any results in the cases with bone lesions was logically to be expected. The study has, on the other hand, shown that autogenous vaccine therapy has a field of usefulness in otology in properly selected cases; that is, among such where the subsidence of bacterial activity means the end of the lesion. In acute cases, after the period of violent onset and its co-existing constitutional reaction has subsided, the added immunity acquired through vaccine therapy seems to rapidly cure the diseased ear.

Carbolic Acid Poisoning.—G. B. Burke reports a case of this condition and gives in detail the treatment that he has found most effective.

Dwarf Tapeworm.—C. C. Bass and J. M. Gage report fifteen cases of this condition, to further emphasize the fact that infection with this parasite is common in the Southern States.

Relation of Hospitals to Public Health.—H. W. Austin states that the intimate relation of the hospital to public health is perhaps more frequently shown in the United States Marine Hospitals than in any other class of hospitals.

Hypopituitarism.—E. S. Cross reports a case which he attributes to deficiency of the pituitary secretion. The salient points were normal mentality, small stature, striking adiposity, hypotrichosis, amenorrhea, and infantile genitalia.

Hyperchlorhydria Relieved by Prisms.—C. J. Astle states that hyperphoria is one of the many reflex causes by which a marked change is effected in the amount of gastric secretion, and describes a case in which the wearing of prisms relieved the hyperchlorhydria.

Journal of the American Medical Association.

October 15, 1910.

The Relationship of Neurology to Preventive Medicine. J. Collins.
Papillary Cystadenoma of the Kidney, with Myoma of the Uterus and Spinal Caries. G. E. Shoemaker.
Combined Forceps and Tonsil Separator. C. F. Welsy.
Diffuse Idiopathic Hpertrophy of the Mammary Glands of the Female. H. Albert.
A Study of Mistaken Diagnoses, Based on an Analysis of 1000 Autopsies and a Comparison with Clinical Findings. R. C. Cabot.
The Electrocardiogram in Clinical Diagnosis. L. F. Barker, A. D. Hirschfelder and G. S. Bond.
Rachitis. L. W. Van Derslice.
Etiology, Diagnosis and Treatment of Colonic, Sigmoidal, Rectal, and Anal Affections in Infants and Children Under Twelve Years of Age. S. G. Gant.
Tuberculosis of the Female Organs of Generation and the Peritoneum. J. R. Goffe.
A Forecast of the United States Pharmacopeia IX. M. I. Wilbert.
A Simple Bloodless Operation for Hemorrhoids. L. J. Hirschman.
A Case of Pernicious Anemia. B. P. Rosenberry.
Adiposis Dolorosa (Dercum's Disease) in Mother and Daughter. A. H. Carroll.
Anaphylactia. A Preliminary Note. L. K. Hirschberg.

The Surgical Importance of Accessory Renal Arteries. D. N. Eisendrath and D. C. Strauss.
Gangrene of the Lung with Trichomonas as the Only Apparent Etiological Factor. G. C. Dolley.
The Non-Oviparous Female Hookworm. W. Litterer.
Cultivation of Adult Tissues and Organs Outside the Body. A. Carrel and M. T. Burrows.

Neurology and Preventive Medicine.—J. Collins believes that poliomyelitis and epidemic cerebrospinal meningitis should be considered reportable, quarantinable diseases. It is of special importance to recognize the atypical cases of the former which may spread the disease as well as the others. Other infectious nervous diseases which come within the scope of the neurologist are epidemic polyneuritis and pellagra. Preventive medicine has not given the attention that it should to certain occupational diseases, especially of workers in foundries, glass factories and rolling mills. He specially mentions a generalized intoxication of the system in the bronze worker and refers particularly to the effect of dry heat in producing nervous trouble. Workers in these lines should be safeguarded. The latter part of his article is devoted to the subject of psychoneuroses, and he considers the theory of Freud, that these have a sexual origin, deserving of the most careful investigation and consideration. He goes at some length into the explanation of this theory and its applications to the study of the etiology of the various neuroses, including, besides hysteria, the obsessions and phobias which Freud traces back to the same origin. While the treatment of psychoneuroses must be dealt with from a pedagogical standpoint, physicians must devise ways and means for giving the instruction.

Cystadenoma of the Kidney.—G. E. Shoemaker reports a case presenting an unusual series of symptoms, viz., uterine myoma with hemorrhage, spinal caries, and kyphosis, together with a large bleeding tumor of the kidney. Hysterectomy was performed for the uterine tumor and two weeks afterward the hemorrhage from the kidney, which had ceased, recommenced and became serious, and since no chance of infection through the bladder could be taken a vesicovaginal outlet was made for removal of clots and for irrigation, leaving a clean field for the kidney operation. The kidney tumor, removed through a dorsal incision, was roughly in the shape of the kidney, which was mostly replaced by it. The tumor was composed of fine strands of connective tissue apparently growing out from the cortical connective tissue and extending in a branched papillomatous manner in all directions. The diagnosis was papillomatous cystadenoma of the kidney without definite malignancy.

Tonsil Snare.—C. F. Welty describes and illustrates a new combined forceps and tonsil separator which has the advantages of being strong, locked together instead of having screws, and hence is easily kept clean, is easily and quickly threaded, and has a new device for fastening the wire, which, once clamped, tightens it the harder it is pulled.

Mammary Hypertrophy.—H. Albert reports the case of a girl aged thirteen in whom both breasts weighing about twenty-five pounds each, were amputated. From a consideration of the pathological findings and review of the reported cases, the author says that diffuse hypertrophy of the mammary gland is to be looked upon as a simple hypertrophic process, involving all the elements of the gland, but especially those that are most actively growing at the time. It is probably due to the activity of the same hormones that produce the physiological enlargements.

Mistaken Diagnosis.—A full report of this article appeared in MEDICAL RECORD, Vol. 77, page 1030.

The Electrocardiogram in Diagnosis.—L. F. Barker, A. D. Hirschfelder, and G. S. Bond call attention to the value of determination of the electric variation accompanying the movements of the heart in diagnosis. These have an intensity of from 0.001 to 0.003 of a volt and therefore could not be studied accurately until an extremely delicate galvanometer had been invented. Such a one has been contrived by Professor Binthoven of Leyden. It can be used to study very small currents and even .001 of a volt is sufficient to cause a marked deflection of the galvanometer. The electric changes during each cardiac cycle are characteristic and correspond to the successive contractions of the auricle and ventricle. The base becomes negative before the ventricles and gives rise to a typical wave due to the auricular contraction which is followed by another due to the ventricular contraction. The most recent investigations of Kahn in Hering's laboratory have shown that the electric variation and the contractions are absolutely synchronous and that the electric variations do not precede the contractions as was at first supposed. The normal electrocardiogram is illustrated and explained, but it undergoes a very definite change with hypertrophy of the left ventricle, the first ventricular wave becoming inverted. It is also particularly useful in diagnosis of heart block.

Rachitis.—J. W. Van Derslice says that rachitis is a diet disease, but he cannot subscribe to the opinions that have attributed it mainly to the arrangement of the percentages of the different constituents of the food. There are rachitic infants who are fed entirely on breast milk, and the point should be emphasized that, while many cases show this and that contributing cause, in all there is an indigestion which is always present. The digestive symptoms always precede the bone changes, but sooner or later the latter appear. Besides these, there are general muscular feebleness, nervous irritation, enlarged lymph glands, disorders of dentition, and blood changes like those in chlorosis, especially in the severe cases, and a general tendency to catarrhal disorders. The disorder is an insidious one in its onset and the definite clinical symptoms of restlessness, slight rise of temperature at night, profuse perspiration about the head and face, general tendency to tenderness on handling, flatulence and bowel disturbance, either diarrhea or constipation, always precede the bone changes. The term acute rachitis is not applicable, nor is there any definite disease that may be called chronic rachitis. Of the more frequent mistakes in diagnosis, one is the failure to recognize inflammatory and bloody effusions under the periosteum, and this is undoubtedly the cause of the use of the term acute rickets. Another is mistaking the bone changes of congenital syphilis for those of rickets, and still a third is that of considering the pseudoparalysis of rickets as essential paralysis. Infantile scurvy may complicate rickets, but the two conditions are distinct. Children rarely die of rickets *per se*, some intercurrent disorder is the cause of death, especially disease of the lung. The treatment consists in attention to diet and hygiene. In breast-fed infants something should be done to make the mother's milk suitable, and it may be necessary to supplement with artificial food. No diet can be recommended in all cases. There is danger of putting too much stress on the fat diet in these cases. Syrup of iodide of iron is sometimes indicated. The addition of malt and molasses sometimes gives favorable results for the digestive weakness. The intercurrent disorders should be attended to, as well as avoidance of strain on the weakened bones to prevent deformity and help Nature's efforts at repair.

Bowel Surgery in Children.—S. G. Gant gives his experience in 368 cases of bowel surgery in children, in a class of cases which he thinks are sometimes neglected or unrecognized. The time has arrived when physicians should assume the responsibility of treating the anorectal affections of children as soon as diagnosed. This does not always mean an operation, for in many cases a cure can be effected by regulating the bowels and by topical applications. Surgical intervention when necessary should

cause no anxiety, since in the vast majority of cases it can be easily performed, is devoid of danger, the postoperative suffering is slight, and convalescence is short. Several tables are given showing his results, and the special points of technique are briefly mentioned. The age of the patients varied from birth to 12 years, the majority being over 6. The five deaths that occurred are not attributable to the operation. About one-half of the constipated infants and children examined suffered from mechanical obstruction of some kind, and he thinks that such conditions are much more frequent than is at present recognized, occurring in about 25 per cent. of cases. He describes a new method of enterocolonic irrigation by cecostomy.

Genital Tuberculosis.—This paper was reported in MEDICAL RECORD July 2, 1910.

A Forecast of the Pharmacopeia.—M. I. Wilbert reviews the principles and ideals that have been evolved in the various revisions of the pharmacopeia from the time of its foundation.

Bloodless Operation for Hemorrhoids.—L. J. Hirschman describes his technique in performing this operation, under local anesthesia with a 1 per cent. solution of quinine and urea hydrochloride.

Pernicious Anemia.—B. P. Rosenberry describes a typical case of the severe type of this disease, which illustrates the remissions which are so characteristic of the condition and also the manner in which the condition for the time being responds to arsenic.

Adiposis Dolorosa in Mother and Daughter.—A. H. Carroll reports two new cases which shed no new light on the etiologic factors or treatment.

Anaphylactia.—L. K. Hirshberg states that persons subject to urticarial eruptions from a definite food may be regarded as sensitized to that protein. These phenomena may be congenital, acquired, or inherited.

Accessory Renal Arteries.—D. N. Eisendrath and D. C. Strauss direct attention especially to the possibility of severe hemorrhage occurring from such accessory vessels, either during the performance of nephrolithotomy or after the patient has returned to bed. No doubt many cases of serious and in some cases fatal hemorrhage have been due to bleeding from such accessory vessels, especially those passing to the upper or lower poles. In future it would be advisable, before incising a kidney for the removal of renal calculi or performing a nephrectomy for any condition, to examine the upper and lower poles and the hilum of the kidney for the presence of any supernumerary arteries. If such vessels are found, it is advisable to ligate them separately from the main renal pedicle.

Gangrene of the Lung.—C. C. Dolley reports a case of this condition in which the trichomonas was the only discoverable etiologic factor.

The Non-Oviparous Female Hookworm.—W. Litterer is of the opinion that the non-oviparous nature of the female hookworm is not entirely due to the old age period, but is, in all probability, caused by some defects in development, or occasioned by peculiarity in a given strain.

Cultivation of Tissues Outside of the Body.—A. Carrel and A. T. Burrows in an attempt to discover the laws underlying the generation, growth, and evolution of cells, took their cue from the method recently employed by Harrison in observing the development of nerves from the central nervous system of frog embryos cultivated in a drop of lymph. Later Burrows had adapted this method to the embryonal tissues of warm-blooded animals. Their experiments consisted in removing small fragments of tissue from frogs, cats, and dogs, and inoculating them aseptically into a plasmatic medium, taken from the same animal, and sealing the materials in hollow glass slides, which were then kept in an incubator at 37° C. By means of a microscope placed in a thermostat and kept at this temperature, they were able to observe not only the growth of cells, but also their multiplication. They found that the cultures of the different tissues possessed common characteristics, the beginning of the cellular proliferation depending on the nature of the tissue, the age of the animal, and other factors. Thus, in glandular organs of adult dogs the vegetation started after thirty-six or forty-eight hours. Cultures of thyroid, kidney, and suprarenal are in full activity four or five days after the inoculation. The first indication of the growth of tissues is the appearance on the edges or surface of the specimen of a few small and regular granulations, consisting of the cellular cytoplasm in which nucleus and nucleolus are soon visible. In all the tissues there appear, at first, spindle cells, and at the same time, or a little later, appear polygonal or multipolar cells, whose morphology varies widely according to each tissue and organ. A piece of cartilage had in the course of nine days generated outside of the body a piece of new cartilage two millimeters long. In the cultivation of organs the most striking results were obtained in the case of the kidney. In a culture of fragments of kidney tissue obtained from a cat, on the sixth day the cells were observed to have proliferated with the formation of tubes lined with epithelial-like cells, and having the appearance of renal tubules. In a second series of experiments these investigators were able to modify the rate of growth of tissues by passing them into a second medium. By this method they succeeded in reactivating pieces of thyroid tissue, so that the thyroid of an adult animal became as active as the thyroid of an animal a few days old. According to the authors this method may render possible the cultivation of certain microorganisms in conjunction with living tissue cells or alone in plasmatic media. They assume that the perfection of this method will be helpful in the exploration of unknown fields of human pathology.

The Lancet.

October 8, 1910.

The Hereditary Aspects of Nervous and Mental Diseases. F. W. Mott.
The Romance of Medicine. Sir Arthur Conan Doyle.
The Medical Profession and Its Attributes. W. S. Nowell.
Prizes and Performances. S. Squire Sprigge.
Woman's Sphere in Medicine. E. W. Roughton.
The Evolution of Surgery. W. Thorburn.
On the Meaning of the Audible Signs in Mitral Stenosis. A. Morison.
Active Lobar Collapse of the Lungs after Abdominal Operations. W. Pasteur.
Ehrlich-Hata, 606. W. E. Home.

Hereditary Aspects of Mental and Nervous Diseases.—F. W. Mott states that the Mendelian doctrine of dominant and recessive characters explains why a characteristic feature of a particular grandparent which was not visible in the parent reappears in the child. It also accounts for those heritable diseases and abnormalities which are transmitted by the females in ancestry and appear in the males, *e.g.* hemophilia, Daltonism, pseudohypertrophic paralysis. Nonexpression of a disease does not imply noninheritance of a disease, rather a predisposition to disease. A hereditary tendency to nervous disease may have different expressions in successive generations, *e.g.* insanity and epilepsy; the hereditary transmission of nervous or mental disease is rather of the nature of a neuropathic tendency, the character of the disease being largely determined by the exciting cause. As regards the large question of Mendelism in relation to human inheritance, the author has not met with any cases in entire support thereof in the study of the hereditary aspect of nervous and mental disease. Heredity plays an important part in myotonia congenita, pseudohypertrophic paralysis, progressive muscular dystrophy, the neuritic type of progressive muscular atrophy, hereditary ataxia, Huntington's chorea, and family periodic paralysis.

Mitral Stenosis.—A. Morison reports a case of this condition, which exemplifies the existence of unsuspected valvular disease. Mitral stenosis is very frequently overlooked. In this patient an attack of tonsillitis induced an arrhythmical action, which suddenly blazed into a short and sharp tachycardia, which subsided as suddenly as it arose. These sudden explosions of erratic action have been regarded as mainly of neural origin. Recently a myogenic theory has been advanced, as in the conception termed by Lewis fibrillation of the auricle as the cause of irregularity of the heart. The author inclines to the neurogenic theory and states that the disturbances of cardiac motion are induced by exertion, emotion, or reflex irritation. He dwells in this case on the physical signs, which were the absence of bruit in the tachycardial heart, the triple rhythm audible at the apex, the socalled crescendo murmur, and the arrhythmia.

Collapse of the Lung.—W. Pasteur reports five cases which he regards as clear examples of active lobar collapse from reflex inhibition of the diaphragm, occurring most probably in otherwise fairly healthy lungs, and in the absence of inflammatory lesions of the diaphragmatic pleura or peritoneum, such as are almost invariably found in fatal cases of the condition after surgical operations on the abdomen. As to the cause of active lobar collapse in these cases the following points are noted. 1. The cases of diphtheritic paralysis quoted prove that arrest of diphragmatic movement does cause massive lobar collapse of the lung. 2. An entire series of fatal cases (other than those due to paralysis) have, without exception, this feature in common—namely, the existence of a powerful source of irritation in the neighborhood of the diaphragm within the area supplied by the vagus—that is to say, a condition of things in which reflex inhibition of that muscle might very readily be set up. 3. In four out of five cases the lung affected is on the same side as the operation wound. 4. The disappearance of apex beat and heart sounds from the normal position and their displacement toward the affected side. 5. The sudden overdistention of the unaffected lung. 6. The almost complete silence over the affected lobe. The initial symptoms closely resemble those of pulmonary apoplexy. The onset of active collapse is preceded by a prodromal period of some hours in which the patient looks and feels ill. The temperature rises gradually and there may be slight distress of breathing with some duskiness of surface. Then occur sudden dyspnea and cyanosis, and occasionally pain, cough, and expectoration. There is immediate loss of mobility on the affected side of the chest, with loss of breathsounds. The healthy side of the chest presents the usual signs of compensating hypertrophy. The acute symptoms are of short duration, and the lung resumes its functions within a few days.

606.—W. E. Home reviews the history of this remedy and describes his own impressions as to its value from observations made in Berlin and Frankfort.

British Medical Journal.

October 8, 1910.

Hereditary Aspects of Nervous and Mental Diseases. F. W. Mott.
Congenital Pyloric Stenosis. R. Hutchison.
Prizes and Performances. S. Squire Sprigge.
Woman's Sphere in Medicine. E. W. Roughton.
The Evolution of Surgery. W. Thorburn.

Hereditary Aspects of Nervous and Mental Diseases.—See abstracts of articles in the *Lancet* of Oct. 8, 1910.

Congenital Pyloric Stenosis.—R. Hutchison states that the term "congenital" assumes as proved a disputed point in the natural history of this disease, which exhibits clinical and pathological problems of the most interesting and baffling character. Eighty per cent. of all cases occur in boys, and there is a relatively large proportion of firstborn children affected with this disease. There is noted the frequency with which the children of doctors are affected. The most prominent symptom is persistent vomiting which tends to cease for some hours with any change of food and to recur as violently as ever. There are pseudoconstipation (due to failure of food to get into the intestine), rapid loss of weight, and progressive emaciation. The child is not anemic but simply looks starved. The physical signs show a dilated stomach and waves of visible peristalsis. A pyloric tumor may be felt to the right of the middle line. As to the pathology two distinct views are held, namely, that the thickening of the pyloric canal is to be regarded as a congenital malformation, and that it is due to overwork, the consequence of a long-continued spastic contraction. The author inclines to the latter theory. Of twenty cases that he had seen in private practice, seventeen had been treated at home; all of these recovered without operation. Of the three sent into the hospital for treatment two died. Others have had similarly favorable results, which are not equaled by those of surgical treatment. The essentials in treatment are careful feeding and daily lavage of the stomach. Small amounts are to be fed at frequent intervals. Continuous poultices should be applied to the epigastrium. Drugs are of little help, but the only one which has ever seemed to be of any use is opium. Operation is to be advised upon those cases that do not show any improvement after a lapse of three to six weeks.

Prizes and Performances.—See editorial in MEDICAL RECORD Oct. 15, 1910, page 677.

Woman's Sphere in Medicine.—E. W. Roughton describes the suitability of medicine as a profession for women, and discusses, as bearing upon this question, the subtle differences of sex.

The Evolution of Surgery.—W. Thorburn states that in 1884 it had been thought that finality had been reached in the manipulative art of surgery. Few foresaw the rapid evolution of the new surgery which the work of Lister had already inaugurated. Adenoids and appendicitis were then practically unknown. The abdomen was opened with fear and trembling, and abdominal operations were performed only in the hope of averting directly threatened death. In comparing the records of to-day with those of 1883, of the Manchester Royal Infirmary, the author notes that in the earlier year there were but twelve operations on the abdomen, of which seven died; while in 1908 there were performed five hundred of such operations, with a mortality of about 11 per cent. The same disparity is noted in the case of renal and breast surgery. In 1883 one-sixth of all the operations performed were amputations of which one-sixth died. In 1908 only one operation in fifty was an amputation, and the death rate had fallen to one in twenty-five. These figures eloquently attest the advantages of modern conservative surgery in the saving of limb. In 1883 there were only three hernia operations, while in 1908 they were performed 264 times. In the earlier days every wound required a daily dressing; to-day the operations are left untouched for a week. Surgical advance is the result of two great discoveries, anesthesia and asepsis. The hurried and brilliant surgery of bygone days is past; the perfection of asepsis has given the mechanical art of surgery a freedom of action and an exposure of the operative field that were formerly incredible. The extension of operative treatment has demanded and obtained an accuracy of diagnosis which was formerly not required and not obtained. A quarter of a century ago all or nearly all of acute diseases of the abdomen were fatal, death being assigned to peritonitis. The advance in surgery has called for the early diagnosis of all the causes of peritonitis, and to-day the diagnosis can be made. In 1876 Lawson Tait first removed stones from the gall bladder; in 1909 Mayo Robson had collected 3,000 of such operations performed by three sur-

geons alone, with a mortality of less than 2 per cent. Gastroenterostomy has rescued many thousands from the slow martyrdom of so-called dyspepsia. In 1896 Farina made the first attempt to suture a wound of the heart itself, and in 1909 Vaughan collected 150 cases, with 35 per cent. saved from certain death. Among the greatest dangers of modern surgery, one may discern a tendency to operate too early, and without due care for preliminary diagnosis. A closely allied danger is that of extreme specialism, which is another term for limitation of thought.

Berliner klinische Wochenschrift.

October 3, 1910.

Pupillary Disturbances in Dementia Præcox.—Meyer discusses this subject briefly, omitting all reference to the work of French and American authors. He evidently means to do little more than report three cases of dementia præcox in which the pupillary phenomena were of the same character. The cases are of further interest as exhibiting many somatic alterations believed to form a basis for the psychical phenomena. This common behavior of the pupil was as follows: Pressure on the iliacal point caused a dilatation, which remained fixed when light was exhibited. When the pressure was removed the pupils contracted, but still reacted to light. This reflex has naturally suggested a close connection between dementia præcox and hysteria. The two conditions further furnish many symptoms in common, while others which are almost essentially hysterical are absent in dementia præcox. As is well known the pupillary symptoms of hysteria are very extensively discussed in monographs, but all attempts at finding a typical quasi-constant hysterical pupil seem to have ended in failure. No doubt the pupil has its own peculiar anomalies, explicable by pathological physiology, which are in evidence in a number of neuroses, which while possessing many points in common, are nevertheless distinct affections (epilepsy, hysteria, dementia præcox, etc.).

Neuroses of Infants Including Inability to Chew.—Hochsinger calls attention to the fact that yearlings and even two year olds without pylorospasm are still unable to nurse or drink. As these phenomena are peculiarly nervous in character they may be termed hysterical. Close study of these cases reveals other phenomena which are properly classed as hysterical. The inability or refusal to take food suggests hysterical anorexia or anorexia neurosa. The author sees a close connection between these phenomena in the nursling and the weaning period. The act of weaning, in fact, may impose itself upon the child of neuropathic inheritance as a series of psychic traumata which may be expressed by the usual motor and sensory phenomena of hysteria. This anorexia may lead to trophic results if continued. Nutritional neurotic disturbances in older children have been much more widely discussed, especially as regards dystropric change. The chief mechanism or expression of nutritional neuroses in children aged about from three to five years is inability to chew properly. The children cannot undergo the drudgery, so to speak, of mastication. When does the impulse to chew originate? If a finger is introduced into an infant's mouth, either sucking or biting movements are set up. The author's experience is that the biting act should succeed the suction act at about the twentieth week. This means that the child has a normal impulse to chew at the age of five months on the average. Precocious and tardy exceptions naturally exist. The chewing act is complex in character, the lips, tongue, and gums all being involved, along with the swallowing muscles. From another viewpoint chewing should begin with the eruption of the back teeth; at all events these teeth should be developed when the impulse to chew first appears. The entire apparatus involved is so complex that any disturbance in the cortex cerebri must affect it. Disorder in the foreordained state of affairs is exhibited in such phenomena as salivation, choking, and vomiting—in other words nervous anorexia. Children thus affected have an abnormal tendency to suck the thumbs. A vicious circle is set up by the hysterical or neuropathic condition of the mothers of these children, who fear that the latter are bound to starve. The author's remarks which follow are of interest but must be neglected both for reason of space and because his work leads to no fixed conclusions.

Homesthesia.—Sellei has coined this word in connection with a demonstration to show that an individual, under certain circumstances, is as sensitive to his own albuminous fluids as he is believed to be toward the fluids of others, whether human or animal. That is to say, if albuminous fluids of any sort furnished by an individual (prostatic secretion for example) are injected into the tissues of the subject, much more disturbance is caused than if foreign albumin is injected. The practical bearing of this alleged discovery deals naturally with the entire subject of autogenous vaccines and the like. The brevity of the article and the newness of the subject, excuse the reviewer from dealing more extensively with this interesting topic.

Münchener medizinische Wochenschrift.

October 4, 1910.

Röntgen Diagnosis of Ulcus Ventriculi Callosum.—Faulhaber discusses the diagnosis of deeply extending ulcer of the stomach in a provisional communication. Not much advance has yet been made along these lines in comparison with the diagnosis of cancer of the stomach. The paper consists chiefly of case histories with *x*-ray photographs. In part the author merely avails himself of the fact that the ulcus callosum causes a constriction in the stomach (hour-glass stomach). The constriction appears smaller in a photograph than is actually the case. The constriction is detected by observation of the shape of the bismuth spot, as in general gastric diagnosis. According to the diagrams the recognition should be easy. The constricted portion or isthmus appears as a mere cord, although in reality it may be much larger. But not all hour-glass stomachs signify the presence of an active ulcer. The author estimates that the latter was present 10 times in 15. In the others, presumably, the ulcer had healed. Hence to demonstrate the presence of an active ulcer, other symptoms are necessary (hematemesis, melena, vomiting, etc. Moreover not all deep ulcers are so situated as to produce hour-glass stomach. The author, however, evidently does not intend to include the pyloric ulcer at all, for he ignores it. He states, moreover, that he does not include spasmodic or functional hour-glass stomach, although this may be due to a slight ulceration or erosion.

Sudden Deaths and the Parathyroids.—Grosser and Beike discuss this subject in a very concise monograph style. The subject of thymus death and the status lymphaticus in causing sudden death in the nursling and young child is a trite one. Persistent thymus, enlarged lymphnodes, or excessive lymphatic tissue have been freely discussed as causes, immediate or contributory to the fatality. But in the present paper, the parathyroids were accused of causing three deaths. The first child was 9 weeks old, and was suffering from pedatrophy. It was found dead and its death must have been very sudden. The parathyroids were doubled in size and showed evidence of hemorrhage. Thymus normal. The microscopic diagnosis was status lymphaticus, with death from parathyroid disease. The microscope showed these bodies to be extensively diseases but no attempt is made to explain the cause or nature. Two other cases were similar to preceding in course, termination, and autopsy findings, and a few others have been reported within the past two years. It is evi-

dently too soon to establish a distinct type of disease, owing to the smallness of material, the irregularity often in evidence of the syndrome, the possibility of other lethal elements, etc. But the claim for a "parathyroid death" appears at least as valid as that of deaths peculiar to the thymus or status lymphaticus. Some of these children were in a condition to succumb suddenly from slight causes, but the absence of the usual lesions in the lungs, heart, brain, etc., has made it necessary to seek the source of death in the only structures presenting lesions. But to explain how these lesions actually cause death has always been impossible. Take for example the author's third case, the intrathoracic organs were intact as they might have been in a healthy child suddenly killed by breaking its neck. The same may be said of the abdominal viscera and encephalon. Uric acid infarctions were present in the kidneys. Some of the viscera were hyperemic, while the gastric mucosa was anemic. But the sole organs to be actually affected were the parathyroids, which were the seat of the customary enlargement and hemorrhages.

Deutsche medizinische Wochenschrift.

September 29, October 6, 1910.

The Ehrlich-Hata Remedy in Malaria.—Werner has been nsing 606 largely in the Marine Hospital at Hamburg, and also, it would appear, on shipboard or elsewhere in the tropics. His own summary of his work is as follows: The drug is an efficacious antimalarial remedy much more powerful in ordinary tertian than in the tropical malaria (Brazilian). In the tertian form, after a single dose, combined intravenous and intramuscular, the parasite disappeared from the peripheral blood on an average within the first 24 hours. No relapse followed during an observation period of several weeks. In the tropical form the author succeeded in only one-half the cases in driving the parasite from the peripheral blood. But this result was only temporary, for the parasite along with the fever reappeared within a few days. The drug generally speaking is indicated where quinine fails or where there is quinine intolerance. The relative failure of 606 in Brazilian malaria has already been reported by Werner, and is explained *pro tem.* by the the theory that a different plasmodium is the cause of the latter.

Metabolism in Constitutional Obesity.—Locwy and Hirschfeld find that in normal individuals, in other words fat-poor subjects, the oxidative energy of their protoplasm is so low that it may serve as a minimum of metabolic action, standing on a par with the corresponding forces in individual obese subjects. It may in time be shown that certain of the latter may show higher rates of oxidation energy than those previously found. Values hitherto given do not represent anything pathological. It seems at present that certain oxidation values furnish merely a predisposing cause for obesity and that the minimum figures may occur in certain lean subjects. When such subjects do put on fat the condition is not a pathological one, but simply represents a surplus of intake over outgo, such as readily occurs from the choice of food, etc.

Prophylaxis of Typhoid Fever.—Zweig finds a number of clinical aspects of typhoid, as follows: 1. There is a type in which the fever is neither long nor high, but such cases do not give a better prognosis than others. 2. In other cases there is neither bacillary excretion nor Widal reaction up to the fifth week. 3. There are cases in which a Widal of 1:50-1:100 does not prove the existence of an acute typhoid. 4. In certain cases a perfectly normal appearing spleen may contain bacilli. 5. In bacillus carriers an extract of lactic bacilli should be used forthwith; and the same may be tried in acute typhoid. 6. Certain cases are contact cases. In any outbreak we must first think of such contact. We must always find out with whom the patient has taken his meals. 7. Each one of these table companions should have his temperature taken repeatedly. 8. In treating dirty patients woodwool is safer to use than moss.

Pneumatosis of the Stomach Cured by Bloodless Dilatation of the Cardia.—Fey refers to that rare condition, the sudden distention of the stomach by gas. It is of hysterical or neurasthenic origin in most cases, but in a few is dne to purely local causes. The mechanism consists of spasmodic simultaneous closure of the cardia and pylorus. A most desperate case (noted in the abstract columns of the MEDICAL RECORD at the time) reported by Schlesinger, recovered only after the establishment of a gastric fistula. The present author stretched the cardial orifice with a Gottstein sound, following the use of bougies of progressive size. The permanent distention secured a circumference of 14½ cm. All the ills due to cardiospasm subsided promptly and permanently. Patient still swallows air but readily expels it.

Difficulties in the Diagnosis of Progressive Muscular Dystrophy.—Erb gives four cases in detail, and then adduces the point that a typical affection of this sort does not exist. The entire development and course of the disease, its periods of quiescence and its relapses, and especially the restriction of certain phenomena to individual groups of muscles justify this conclusion. Thus we may find the electric excitability depressed in a number of muscles, with a localization and diffusion of the atrophy, but with immunity of the small hand muscles and actual hypertrophy of the infraspinatus. The matter of differentiation from spinal amyotrophy comes in question and this is not always easily made, for the two conditions have a number of symptoms in common. Another affection requiring differentiation at times is chronic anterior polyomyelitis. It may be conceded that when it comes to differentiating primary muscular dystrophies from spinal amyatrophies, we must admit the existence of transitional forms. These naturally present a great variety of symptoms of the most diverse character and are bilateral in character. Both conditions have at least been found to coexist at autopsy. If we assume that primary progressive dystrophy originates in the nerves of the muscles, the relationship between this affection and spinal amyotrophy does not appear so remote. Erb has always held to this belief. In recent days a connection between Thomsen's disease and amyotrophy has been claimed. The entire subject is as difficult as interesting to the specialist and more clinical reports are wanted.

Reflex Neuroses.—Killian writes briefly on this old theme. We see here one of the most progressive of scientific moderns discussing an old empirical subject. The author's conclusions are brief and pointed. There is a hypersensitiveness of the mucosa with special reference to agencies provoking the sensation of tickling. In subjects this constituted the most minimal irritation may cause local, regionary and even remote reflexes. Thus reflex neuroses are readily set up. The source of the reflex is all important as it then gives indications for treatment. Thus there are ethmoidal, sphenoidal and olfactory neuroses.

Centennial of the Berlin University.—All the papers in this number of the *Wochenschrift* save the two abstracted above, consist of addresses in connection with this centennial. These either do not lend themselves to abstracting or if reproduced would prove too long for abstracts. Thus Ribbert's paper on "Disease" is itself a condensation of the author's known views on this subject. The same is true of Haeckel's "Borderland of Science," and Wassermann's "The Influence of the Conception of Specificity on Modern Medicine." The balance of the articles are chiefly reminiscent.

Book Reviews.

Medical Vademecum in German and English. By B. Lewis, with preface by Prof. Dr. A. Politzer. Published by B. Lewis, Vienna. London: J. & A. Churchill. Leipzig and Stuttgart: K. F. Koehler. Philadelphia: P. Blakiston's Son & Co., 1910.

The novel idea of this work is one to be warmly welcomed by the medical profession of all German and English speaking lands, and its projectors are to be congratulated on the excellent method in which it is presented here. As stated in the preface, "The purpose of the work is to make as easily accessible as possible to German and English physicians the medical vocabulary of both languages." To this end the work is divided into three parts, with the German and its English equivalent opposite each other, line for line. Part I is devoted to original clinical pathological lectures by the younger men of the Viennese school. Part II is given up to histories, tests, examinations, operations, with instructions to patient and assistant. In Part III we find examinations by means of chemical and microscopical methods. It is needless to point out the ease with which an enormous number of German or English words could thus be mastered in a very brief time. Apart from its linguistic value this book shows the methods of teaching in vogue in the Viennese clinics, through the means of lectures by such men as Hirschl, Holzknecht, Kapsammer, Lorenz, Neuman, Schlesinger, Von Pirquet, and Wertheim. Great praise is due the editor for the care with which the work has been compiled and the pains which have been taken to make the English an accurate transcription of the German as well as perfect English. The book is convenient in shape and size, well printed on good paper, and reasonable in price, and we most heartily recommend it to members of the profession in this country as a valuable short cut to that difficult goal, good medical German.

Atlas und Grundriss der Zahnärztlichen Orthopædie. Von Zahnarzt Emil Herbst, D.D.S., in Bremen. Mit 3 vielfarbigen lithogr. Tafeln und 438 schwarzen, zum Teil zweifarbigen Abbildungen. München: J. F. Lehmann's Verlag, 1910.

Like all the atlases in this series of Lehmann's Herbst's work is brought out with a prodigality of illustrations that makes it most valuable and instructive. In fact, the illustrations are of equal importance with the text. The various apparatuses are shown and described in detail, as they are used for straightening the teeth and correcting deformities of the jaws. Two short chapters are devoted to operative work. It is always somewhat surprising to a physician to find to what a height the dental specialty has been carried.

Die Orthopädie des Praktischen Arztes. Von San.-Rat Dr. Georg Müller, Berlin. Mit 151 Textabbildungen. Berlin und Wein: Urban & Schwarzenberg, 1910.

Written ostensibly for the benefit of the general practitioner, this book contains little that can be of use to him. Instead of dealing with broad, general principles it is full of personal views of the author on what may be called minutiæ. One finds it difficult to believe that it was brought out in the year 1910. Its style is more that of ten or twenty years ago. Scoliosis is due to "certain predisposing causes." It is a matter of "heredity," and can often be cured by exercises. Müller lifts the vertebræ away from one another in Potts' disease in order that the tuberculous virus be not pressed out into the tissues by their crowding together. He regards the removal of the exudate from tuberculous knees as an essential of treatment, and in children. He strikes the bent knee to see if a tuberculous hip is well, and mobilizes his old tuberculous hips. He praises the Hessing braces, and then proclaims their impracticability in the hands of the general practitioner. Bilroth years ago said that the chief attribute of the Hessing brace was its great cost (horrendes Geld!), and that people who had nothing to pay a doctor could be persuaded to buy them. Hammer-toe is said to be due to short shoes, a view that has been abandoned, lo! these many years. That some of Müller's tuberculous hips recover in two or three months never makes him doubt his diagnosis, but instils in him the idea of "aborting" the disease. A book such as this should not be taken seriously. It reminds one of Chesterton's description of George Moore: "We feel as if we were being shown through a gallery of really fine pictures into each of which, by some useless and discordant convention, the artist had represented the same figure in the same attitude. 'The Grand Canal, with a Distant View of Mr. Moore,' 'Effect of Mr. Moore through a Scottish Mist,' 'Mr. Moore by Firelight,' 'Ruins of Mr. Moore, by Moonlight,' and so on, seems to be the endless series."

Appendicitis; When Should One Operate? By Julius Baumgärtner, Geheimer Medizinairat, ex-Directing Physician of the Hospital, Baden-Baden. With 32 illustrations. Translated from the Second German Edition by Amy M. Mander, formerly Member of the School Board for Wolverhampton, and revised by L. Martindale, M.D. London: T. Fisher Unwin, 1910.

This monograph of 64 pages is in the form of a lecture, and, written in a more or less popular style, is intended not only for physicians, but also for the laity. It contains some very good points and some poetry.

Hookworm Disease: Etiology, Pathology, Diagnosis, Prognosis, Prophylaxis, and Treatment. By George Dock, A.M., M.D.; Professor of the Theory and Practice of Medicine, Medical Department Tulane University of Louisiana, New Orleans, and Charles C. Bass, M.D., Instructor of Clinical Microscopy and Clinical Medicine, Medical Department Tulane University of Louisiana, New Orleans. Fifty illustrations, including one colored plate. St. Louis: C. V. Mosby Company, 1910.

The present volume is one of those valuable monographs which appear only too seldom. The first chapter contains a brief history of the disease, and in it previous workers receive full recognition. The economic importance and geographic distribution are then discussed, and the former topic will be found to be of considerable practical value. Succeeding chapters treat of the zoologic features of hookworms, modes of infection, pathological anatomy and pathology, symptomatology, diagnosis, prognosis, prophylaxis, and treatment. The book is well written, and will be found indispensable to practitioners and those interested in hygiene and sanitation in those districts where hookworm disease is found. Further, it will prove an important factor in the solution of what is an economic problem in those same districts. The general getup of the volume is all that can be desired, and much more than is often obtained; it is admirably printed, with type of a size which makes the reading of the volume a pleasure.

Nephrocoloptosis. By H. W. Longyear, Professor of Gynecology and Abdominal Surgery, Detroit Post-graduate Medical School; Clinical Professor of Gynecology, Detroit College of Medicine; Gynecologist to Harper Hospital; Consulting Obstetrician to the Woman's Hospital; ex-President of the American Association of Obstetricians and Gynecologists. With eighty-eight special illustrations and a colored frontispiece. St. Louis: C. V. Mosby Company, 1910.

Dr. Longyear describes in this monograph the nephrocolic ligament, upon which he looks as the principal etiologic factor in nephroplosis. He gives in full the clinical symptoms of this frequent and serious condition, and names the various diseases with which it may be confused and the points in differential diagnosis. He recommends a special abdominal bandage in the treatment of the affection and describes an original operation for its radical cure. The book is lavishly illustrated, and is provided with a number of clinical histories which seem to bear out the author's theory of the causation of nephroptosis. Its perusal is recommended to both surgeons and physicians, who are so frequently confronted with the vexing problem of diagnosing and treating this affection.

Claims Arising from Results of Personal Injuries. The relation injury bears to disease and disease to injury. A treatise showing how personal injuries may affect various diseases, and how certain diseases may add to claims for accidents by protracting recovery. By W. Edward Magruder, M.D.; Associate Professor of Clinical Medicine, College of Physicians and Surgeons; Visiting Physician Mercy Hospital and Bay View Asylum; Medical Examiner and Adjuster for Life, Accident, Health, and Liability Insurance Companies, Baltimore, Md. New York and Chicago: The Spectator Company, 1910.

This is a small book forming a sort of compendium. It contains a brief compilation of opinions drawn from various medical writings on the subject of trauma in its relationship to about fifty different diseases. It is written in a popular style. The compiler states that it is for the use of all persons who may be engaged in the handling of claims arising from results of personal injuries, such as insurance companies, railroad claim adjusters, attorneys, and physicians. As a condensed reference book showing how personal injuries may affect various diseases, and how certain diseases may add to claims for accidents by protracting recovery, it will doubtless be found convenient. It contains also a useful bibliography.

Society Reports.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

Sixtieth Annual Meeting, Held at Pittsburg, October 3, 4, 5 and 6, 1910.

(Special Report to the MEDICAL RECORD.)

THEODORE B. APPEL, M. D., OF LANCASTER, PRESIDENT.

Tuesday, October 4—First Day.

President's Address.—Dr. THEODORE B. APPEL of Lancaster, Pa., in his address analyzing the purposes of the society as set forth in the ordinances found them to embrace a three-fold aim: Organization, individual aid, and duty to the public, uniting in the one definite object of advancement of the medical profession in its usefulness as a distinct entity in the body politic. The work of the committees on cancer, tuberculosis, for the prevention of trachoma and the abuse of privileges by the refracting opticians, showed the progress of work for the public. In the matter of legislation the hope to unite all national efforts in the fight against disease had come to be nearly realized. The record of the sixty-two years of the society's life was a matter of medical history. Future problems were necessarily to be settled by the cooperation of organized bodies with the people.

Some Considerations on Infant Mortality.—Dr. SAMUEL G. DIXON of Harrisburg divided influences responsible for excessive infant mortality into: (1) Prenatal, and (2) postnatal, and claimed that preventive measures must be educational and discretely philanthropic. The problem was defined as concerning the mental, moral and physical prosperity of all people throughout the civilized world, and to that extent there should be enlisted the influence of individuals, societies, churches, schools, states, and nations. This offered the only solution of the large problem.

Typhoid Fever in Pennsylvania—Past, Present and Future.—Dr. SAMUEL G. DIXON and Dr. B. FRANKLIN ROYER of Harrisburg presented this paper which was read by Dr. Royer. Typhoid fever was said to be a preventable disease by prophylaxis and sanitation. The work done by the Department of Health was reviewed, and the possibilities of the future outlined. Such advance, however, was possible of accomplishment only through hard work, an outlay of much money, and close cooperation between the family doctor and the health official.

Work of the Council on Pharmacy and Chemistry.—Dr. DAVID L. EDSALL of Philadelphia summarized the problems which had been met by the Council and referred to the support received from the medical profession and some manufacturers, speaking also of obstructions offered by other manufacturers. He reviewed the work accomplished, speaking of its value to the profession, and directed attention to future problems.

Wednesday, October 5—Second Day.

A Report on the Tuberculosis Situation in Pennsylvania for the Year 1909.—J. BYRON DEACON, Executive Secretary, Pennsylvania Society for the Prevention of Tuberculosis, Philadelphia, considered the extent of tuberculosis in Pennsylvania in 1909, the State's antituberculosis equipment at the beginning of that year, and the increase in equipment during 1909. He then compared Pennsylvania's work in 1909 with the work of previous years and with the work of other States.

Mr. ALEXANDER M. WILSON, Director of the Sociological Department of the Henry Phipps Institute, Philadelphia, said that the dispensary should be the center of the campaign against tuberculosis. Mr. Wilson emphasized the importance of a coordinated plan in combating tuberculosis, and said that another important feature was the hospital for advanced cases. What were needed in every county were hospitals free from the stigma of pauperism.

Mr. EDGAR M. GREEN, Easton, said that it was too early to say how much work had been accomplished by this antituberculosis movement, as the statistics dated back only to 1906. He did not believe it right to force advanced consumptives to go so far away from home that they could not at frequent intervals see their families and friends. Therefore, hospitals for advanced cases should be established in every county or in every district comprising three or four counties.

Dr. LAWRENCE F. FLICK, Philadelphia, thought that the crusade could be better carried on by private organizations than by the government; that work properly done brought a reduction in the death rate from tuberculosis; that local organization and local control of tuberculosis gave the best results for the least money; that care of advanced consumptives in hospital beds near their own homes was our best asset for the prevention of tuberculosis; and that the interest of the people at large could be most easily aroused by getting them to participate in the actual work.

The Early Diagnosis of Pulmonary Tuberculosis.—Dr. ALFRED STENGEL, Philadelphia, said that there were a large number of cases of tuberculosis that began clinically in ways other than with colds or coughs, and mentioned the following modes of onset: The pneumonic cases; the bronchitic cases; those which begin with obscure fever, chill, and other symptoms of infection, but without definite localization; those that begin with no very manifest symptoms, but with indication of failure of health and vitality; hemorrhagic cases; and pleurisy cases. No man, he said, could diagnose pulmonary tuberculosis at a stage when it should be diagnosed by making an examination through the clothes. Regarding the specific reaction, he considered this another direction in which the practitioner allowed himself to be too much influenced by the laboratory. He did not think heredity of much importance, but said that environment could not be emphasized too much.

Dr. H. R. M. LANDIS, Philadelphia, Director of the Clinical Department of the Henry Phipps Institute, said that every case that presented itself should receive a thorough physical examination. Occupation might give a clew to the condition. Typhoid fever and pneumonia, he thought the greatest sources of error in the diagnosis of tuberculosis. Any individual who had a pulmonary hemorrhage should be labeled as a case of pulmonary tuberculosis. Pleurisy was usually a forerunner of a pulmonary outbreak. If persons with chlorosis were put on the regimen prescribed for tuberculosis, the condition often cleared up amazingly soon.

Dr. GEO. W. NORRIS, Philadelphia, said that the examination of a case would take from twenty minutes to an hour. All doubtful cases should be treated on the supposition that tuberculosis exists. He felt that the diagnosis could be made by the old-fashioned method, without resort to the modern laboratory devices, in a very large proportion of the cases.

Dr. CHARLES H. MINER, Wilkes-Barre, said that the Committee on Tuberculosis appointed by the Society thought that it would be of interest to have one meeting of each county society devoted to a clinic on tuberculosis, and that a number of such meetings had been held.

Dr. WILLIAM C. WHITE, Pittsburg, said that if patients were questioned about having a little morning sputum, one would find out that this was present in a large percentage of cases. He considered this as a factor in producing progression in the disease.

Dr. LAWRENCE F. FLICK, Philadelphia, said that in every examination made the healthy tissue should be included. The two things most frequently overlooked were empyema and old lesions that had recovered far enough to permit of their giving but very few signs. Dr. Flick thought that

Dr. Stengel had been too severe in saying that no living man could examine a patient over the clothing.

Dr. Arthur A. Watkins, St. Benedict, Cambria County, felt sorry that Dr. Flick had made the remark that he had in regard to examination over the clothing; as he was afraid that many physicians were getting to be satisfied with making an examination in this way, and that this would be an additional excuse for them to do so.

Dr. Stengel said that Dr. Flick had misrepresented him in stating that he had said that no patient could be examined through his clothing. What he had said was that no man living could diagnose tuberculosis properly without taking the patient's clothes off.

The Open-Air School.—Dr. William C. White of Pittsburg said that Pittsburg had probably the largest school of this kind in the United States. The question of the open-air school involved a care of every child who is later to be one of the citizens of our country. It also involved the building of proper school buildings in the State, and the proper medical supervision of the children by the most intelligent physician that could be obtained.

Dr. K. H. Van Norman, Pittsburg, said that the children in these open-air schools were not treated as dispensary cases, but as hospital cases. He thought that people interested in such schools did not pay enough attention to the feeding of the children, while at the hospital they were fed from a medical standpoint. After having gained five or six pounds in weight they were very much keener at their work.

Dr. John B. McAlister, Harrisburg, thought that the question of the open-air school was very largely a business proposition. The State appropriated very large sums of money for education, and had the right to expect the very best results. In judiciously selected cases, the open-air treatment had been very successful.

Dr. H. H. Herbst, Allentown, said that he had been connected with the public schools for twenty years, and that from his observation he could say that the open-air school was needed. The first question to be settled was that of whom to place in these schools.

Dr. Clark of Pittsburg thought that very little tuberculosis originated in the school, the great trouble being in the homes, even in the good ones.

Thursday, October 6—Third Day.

Venereal Affections Considered as Epidemic Diseases.—Dr. J. F. Schamberg of Philadelphia read this paper, saying that there was a lamentable lack of interest in Pennsylvania as to the spread of venereal diseases. A statute should be enacted requiring a physician's certificate as to the physical eligibility of males for marriage. The world movement on foot for the prophylaxis of venereal diseases and the attitude of physicians to it as well as that of the laity puts the matter in a hopeful position.

Prophylaxis of Venereal Diseases.—Surgeon M. F. Gates, U.S.N., read this paper saying that this subject was of great importance to the military service owing to the inroads made by venereal diseases upon the fighting efficiency of the forces of the nation. It was possible to obtain statistics as to morbidity of these diseases more accurately in military than in civil life because sailors and soldiers were required to submit to examination. During recent years much more interest was taken in prophylaxis and measures were being carried out which would have received scant attention a few years ago.

Dr. L. F. Flick of Philadelphia said that it was impossible to control the disease and prevent new infection without registration of venereal diseases. There should also be required for a marriage license a certificate of freedom from venereal diseases from a reputable physician. Every hospital in the commonwealth should be thrown open to the treatment of venereal diseases.

Hon. William A. Magee, Mayor of Pittsburg, said that the law did not authorize a public official to say that prostitution should be regulated; that prostitutes should be dispersed all over the city or that prostitution should be permitted to exist in one form or another. The police power merely attempted to act in regard to this thing in accordance with what they believed the fickle popular fancy of the moment to be. If the police did their duty they would have to arrest several thousand persons every night, but the public really did not want them arrested. The public did not intend that the laws which are now on the statute books should be enforced. The hospitals of the State should be opened up for the treatment of venereal diseases. This could easily be done if the Legislature demanded it.

Dr. D. G. McCaskey of Witmer said that as he had observed there were no laws regarding prostitution in Japan but that it was there regulated by the commercial element as their interests demanded. The prostitutes were segregated and once each week were required to submit to the most thorough clinical and microscopic examination. Those found infected were treated in hospitals until they had recovered.

Dr. J. A. Nydegger of Pittsburg, of the U. S. M. H. S., believed that the only means of eradicating or lessening venereal diseases was by public education. He believed that this education should be begun in the home and the school and then carried on to the older people.

Some Barriers to Progress in the Case of the Insane.—Dr. W. K. Walker of Pittsburg read this paper saying that mismanagement and abuses in various insane hospitals in the State constituted serious barriers to progress in the care of the insane. He advocated that a commission be organized to investigate all the details of the various insane asylums with a view to procuring adequate legislation to remedy these evils.

The Necessity of a State Laboratory of Pathology for the Study of Insanity.—Dr. T. H. Weisenburg of Philadelphia read this paper saying that further knowledge of insanity could be gained only through pathological work. Every physician connected with an insane hospital should have a working knowledge of the pathology of insanity and of the progress that was being constantly made in serum therapy. A State laboratory was therefore necessary.

State and County Care of the Indigent Insane.—Dr. C. W. Burr of Philadelphia read this paper saying that Pennsylvania, while theoretically assuming the care of its insane, did not supply sufficient provision for them. Certain of the counties took fairly good care of the insane, others did not. It was better to have one central body, officials of the State, to take charge of all indigent insane than to have many county officials responsible only to the county authorities.

Dr. C. K. Mills of Philadelphia said that we had methods which were not so bad if these methods could be carried out under the provision of the statutes. The State Board of Charities and the Committee on Lunacy had certain powers but it had been found that they had not been able to do all that was imperatively required.

Dr. T. M. T. McKennan of Pittsburg said that a committee had been appointed by the State Legislature to investigate the condition of affairs in the State of Pennsylvania as regards the care of the insane and that the Commission had gone to the different hospitals in the State and investigated them. They reported to the Legislature of 1902-03. From their report was formulated a bill which was modeled after the New York State law but that bill was finally put into committee and never brought out for certain reasons. A movement in that direction was all that was required at this time to get a law passed.

Dr. E. E. Mayer of Pittsburg said that the same care in

nursing, recording of symptoms, and treatment was necessary in county and State asylums as in general hospitals and the medical profession must insist on this. Psychopathic hospitals should be created for the observation and treatment of patients before commitment. Recreation grounds and workshops should be compulsory adjuncts of every institution to which the insane were committed.

Dr. W. W. Hawke of Warren said that in his ten years' experience in the Philadelphia Hospital for the Insane there had been a number of attendants arrested, not only for slight evidences of brutality but even for murder, and none had ever yet been convicted.

Dr. Theodore Diller of Pittsburg said that he favored a central Board of Lunacy with larger powers than was at present possessed by the Lunacy Committee. He now favored the view that the State should take care of all of her insane.

Officers.—The following officers were elected to serve for the ensuing year: *President*, Dr. John B. Donaldson of Canonsburg; *Secretary*, Dr. C. L. Stevens of Athens; *Assistant Secretary*, Dr. Alexander R. Craig of Philadelphia; *Treasurer*, Dr. George W. Wagoner of Johnstown.

Harrisburg was named as the place of the next meeting.

The House of Delegates passed without a dissenting voice a resolution offered by Dr. John B. Roberts, requesting the Legislature to appoint a commission consisting of members of the House of Representatives, the Senate, the State Board of Public Charities, two physicians and a lawyer, to investigate the subject of State appropriations to hospitals not under State control, and the management of all hospitals, and to report upon a better method than the present of making hospital appropriations. The House reaffirmed its position taken last year upon the question of pure foods, endorsing the work of the Federal authorities on this subject. It endorsed also the principles outlined in the Owen Bill, providing for the establishment of a National Department of Health. Commissions were authorized to continue the study of malignant growths, the end results in the treatment of fractures of the femur, and the work concerning trachoma.

SECTION ON MEDICINE.

Tuesday, October 4—First Day.

Oration on Medicine. Recent Progress in Medical Sociology.—Dr. Charles H. Miner of Wilkes-Barre thought the medical profession in this country had probably done more for the benefit of the people and for their own reputation in the past few years through sociology than in any other field of their labor. He referred to work in the campaign against tuberculosis, in the medical inspection of schools, the temperance movement, and in the prevention of cancer and venereal diseases. The great possibilities of social service in connection with hospitals was mentioned and consideration given to the interest taken by the medical profession in industrial insurance, the employers' liability law, prevention of infant mortality, and a clean milk supply.

Gall-Bladder Dyspepsia.—Dr. John A. Lichty of Pittsburg detailed the symptoms of gall-bladder dyspepsia, and the conditions included in gall bladder and duct affections. Symptoms usually described as indicating cholelithiasis were said to be found in only 5 to 35 per cent. of all cases; hyperchlorhydria in about 70 per cent. of 208 cases of gall bladder and duct affections. From experiments on dogs it seemed that hyperchlorhydria was secondary to affections of the gall bladder and ducts and was a symptom of considerable value. In cases of hyperchlorhydria where gastric and duodenal ulcer were excluded, before the diagnosis of nervous dyspepsia was made, the presence of disease of the gall bladder should be carefully considered.

The Treatment of Fermentative and Putrefactive States of the Intestines.—Dr. David L. Edsall of Philadelphia emphasized the fact that in this class of cases attention was too often directed to the bowel to the exclusion of the stomach. The very great importance of the routine examination of the feces was mentioned. Test diets he thought were often misleading, and a better plan was to have examinations made during the usual diet. Improvement of the general tone of the abdominal muscles, attention to the circulation, and to the blood pressure were regarded as important factors in treatment, with efforts directed toward an increased resistance. Long continued use of active purgatives was decried. Surgical intervention was believed to be sometimes indicated.

Gastric Manifestations of Nongastric Disease.—Dr. Clement R. Jones of Pittsburg discussed the symptom complex of nongastric disease as compared with those of true gastric origin.

Constipation of Colonic Origin.—Dr. Judson Daland of Philadelphia said that cases of chronic constipation due to abolition of the rectal reflex might be relieved by a determined effort of the patient to secure a movement of the bowels each morning immediately after breakfast. Such effort might with advantage be supplemented by the introduction of a soluble glycerine suppository, or the employment of an enema. Diet, exercise, drugs, surgery, and other remedial agents were spoken of in detail as of value.

Dr. I. J. Moyer of Pittsburg thought it probable that many cases of beginning gall-bladder disease were due to modern habits of eating and of nervous hurry. He agreed with Dr. Edsall that the cause of many gastrointestinal conditions was outside of the intestine. The management of these cases he thought had come into disrepute from having treated them entirely symptomatically.

Dr. Ernest LaPlace of Philadelphia emphasized the importance of looking elsewhere for the cause of the trouble if not located in the organ apparently the seat of the difficulty. He felt there was a tendency to forget the intimate relation of all the organs within the abdominal cavity.

Dr. James M. Anders of Philadelphia agreed that gallstone dyspepsia was frequently overlooked even by competent observers. An anatomical basis outside of the organ implicated should be suspected in the presence of symptoms not yielding to ordinary measures.

Dr. Lichty, in closing, explained that the object of his paper was to counterbalance the paper by Mr. Moynihan laying considerable stress upon appendix dyspepsis. Much that was said of appendix dyspepsis he felt was true of gall-bladder dyspepsia.

Dr. Daland, in closing, said that the possible objection to frequent rectal irrigation could be overcome by careful determination of the quantity, time, and temperature of the injection.

The Significance of Transient Cerebral Crises and Seizures as Occurring in Arteriosclerotics.—Dr. James D. Heard of Pittsburg considered as some of the possible factors in cerebral crises: The action of a toxin upon brain cells in localized areas; a spasmodic localized contraction of cerebral arteries sufficient to interfere with the function, but not to affect the integrity of a part; so considerable a decrease in a compensatory hypertension that certain areas of the brain are temporarily insufficiently supplied with blood through the sclerotic vessels supplying them; localized areas of edema in the brain substance. In the light of present knowledge, a toxic basis might be assumed as a general underlying cause for all these conditions. The supposition that the condition was due to a localized poisoning of brain cells was said to be that which Tanzi invokes to explain the closely allied, if not at times identical, seizures of progressive paralysis. An intermittent closure of the blood vessels supplying the affected

area was mentioned as a simpler possible factor, which theory has the adherence of Russell, Osler, and others. Evidence as to separate vasomotor control over the cerebral vessels was considered, and the conclusion reached that the probability was strongly in favor of the fact that these vessels do contract or dilate independently of the action of the center in the medulla. Reference was made to the association of cerebral seizures of an apoplectiform nature with migraine, and to the fact that J. Mitchell Clark had observed apoplectiform seizures in nine members in three generations of a migrainous family in which hemiplegia, usually accompanied with aphasia, was a constant feature. The importance of an appreciation of the nature of these crises was said to rest upon the fact that their proper interpretation might influence both prognosis and treatment. The danger was pointed out of having a routine conception as to the blood pressure desirable in an individual of a given age. As the cerebral seizures are usually the result of toxic influences it was pointed out that prompt measures should be instituted aiming at the removal of circulating poisons and the limitation of their further production.

Dr. Theodore Diller of Pittsburg had seen several cases such as referred to by Dr. Heard and appreciated the difficulty in determining the etiology. In an apoplectic stroke in a man in the forties the practitioner should bear in mind the possibility of paresis. In this connection the mental condition of the patient and a history of previous attacks were to be considered.

Clinical Studies in the Auscultatory Method of Determining Blood Pressure.—Dr. Edward H. Goodman and Dr. A. Alexander Howell of Philadelphia contributed this paper which was read by Dr. Goodman. The belief was expressed that by studying the relation of the five phases to one another much could be learned diagnostically from the auscultatory method. No particular phase was regarded as of greatest significance, but the importance of each phase was to be interpreted by its relation to the other phases and by its relation to the total pulse pressure. The length of the individual phase should be recorded and its percentage relation to the pulse pressure ascertained. The following conclusions were drawn: (1) That for accuracy and simplicity, the auscultatory method of estimating blood pressure is to be preferred to any clinical method. (2) In diagnosing aortic insufficiency, absence of the fifth phase is almost pathognomonic. (3) In the diagnosis of cardiac neuroses, the recognition of tonal arrhythmias and irregularities in maximal and minimal pressure, and variation in sequence relation will prove of much value.

The following papers were read by title:

High Arterial Tension. A Clinical and Therapeutic Study.—Dr. R. Max Goepp of Philadelphia.

Medical Treatment of Ulcer of the Stomach.—By Dr. James B. Walker of Philadelphia.

Dysuria Due to Hyperacidity of the Urine.—By Dr. Henry D. Jump of Philadelphia.

Wednesday, October 5—Second Day.

Some Observations on Mitral Stenosis.—Dr. James C. Wilson of Philadelphia referred to the general agreement that rheumatic endocarditis is the most common cause of mitral stenosis, and to the probability that whooping cough is the occasional cause of the primary endocarditis as a result of the great mechanical stress upon the mitral valve in the paroxysm. That mitral stenosis carries with it some degree of immunity against pulmonary tuberculosis he felt required confirmation. The etiological uncertainties were to his mind greatly increased by the numerous cases encountered in young women in which none of the ordinary causes of endocarditis could be determined. Muscular or spasmodic mitral stenosis; and the mitral stenosis of acute malignant endocarditis were also mentioned under causation. The well recognized types of anatomical lesions in mitral stenosis showed variations so essentially different in their circulatory effects as to constitute at least two valvular diseases having little else in common than a narrowing of the auriculoventricular orifice, the physical signs to which that narrowing gives rise, and a tendency to the transference of the blood pressure from the arterial to the venous side of the circulation. In Dr. Wilson's experience, hemoptysis in mitral stenosis, though often very alarming, had been usually followed by abatement of cardiac symptoms and sometimes by prolonged improvement. Prognosis was regarded as less favorable than in mitral insufficiency. Treatment was to be carefully adjusted to the individual case.

Treatment of Cardiac Irregularities.—Dr. Alfred Stengel of Philadelphia following the more common classification divided cardiac irregularities into three important types, viz.: Juvenile; extrasystolic; nodal rhythm. Conditions ultimately determining myocardial failure were noted as (*a*) progressive increase of the myocardial disease; (*b*) conditions outside the heart, finally causing incompetency. Treatment designed to prevent the former condition included improvement in nutrition, regulated exercise, tonic treatment, antisyphilitic treatment; that to prevent overhardening of a damaged myocardium, correction of gastrointestinal troubles, relief of strain and undue blood pressure, promotion of renal and dermal activity. The fact was emphasized that in very many cases of beginning failure of cardiac power attention should be directed to the gastrointestinal tract, and to external conditions.

Blood Pressure and Other Observations in Hypertrophy and Dilatation of the Heart.—Dr. Joseph H. Barrach of Pittsburg based his observations upon a study of a series of over 50 young men who had practised distance running for at least six months. The pure forms of hypertrophy and dilatation such as occur in the absence of valvular lesions and history of previous disease were mainly dealt with and the author concluded that there is a usual occurrence of transitory dilatation following cardiac overstrain.

The So-called Nodal Rhythm of Mackenzie.—Dr. Joseph Sailer of Philadelphia observed that Mackenzie and others had found as an essential feature of the tracing of the venous pulse a wave which occurs before the time of the contraction of the ventricles, which had been pretty definitely ascertained to be due to the contraction of the auricles, forcing the blood back into the veins of the neck from which the tracing is taken. Mackenzie had observed in many of his cases of persistent arrhythmia that this wave was lacking. He therefore concluded that there was a synchronous contraction or a paralysis of the right auricle. In trying to find the cause of this it occurred to him that the node of Tawara, which is found on the wall of the right ventricle and is probably situated upon the conduction fibers passing to the bundle of His, might be involved, and that its involvement would account for this condition. The electrocardiograph had shown that a series of fine contractions due to muscular effort take place in the right auricle between the ventricular contraction, so that complete paralysis of the auricular wall cannot be present. This, however, did not necessarily invalidate Mackenzie's explanation. Mackenzie had applied the term "nodal rhythm" to this condition because he believes that the lesion is situated in the node. This view Dr. Sailer said had not met universal acceptance.

Dr. Lawrence Litchfield of Pittsburg emphasized the statement regarding the frequency with which mitral stenosis is overlooked. Too often after making the diagnosis of mitral insufficiency the examination of the heart is discontinued and thus the stenosis overlooked. He spoke of the possibility of nitroglycerine doing much damage.

Dr. George W. Norris of Philadelphia admitted that nitroglycerine, under some circumstances, was a good drug, but believed its use was abused. As a rule also the drug was not correctly given.

Dr. James D. Heard of Pittsburg spoke of the value, in the early stages of the condition, of measures other than drugs.

Dr. Stengel, in closing, referred to the relationship between polycythemia and cardiac disease, and to the importance of the temperature of the saline bath.

Dr. Sailer, in closing, spoke of the interest attaching to nodal rhythm chiefly because of its introducing a further refinement in cardiac diagnosis. Treatment was regarded as largely in the experimental stage and apt to be directed according to the individual choice of the physician.

Remarks on the Treatment of Croupous Pneumonia.—Dr. George W. Norris of Philadelphia regarded many of the drugs employed in the treatment of pneumonia as worse than useless. Serum treatment had proved of no value as had also that with leucocytic extracts. Vaccine therapy he thought somewhat promising. He emphasized the fact that death in pneumonia was generally the result of toxemia and to a considerable extent independent of pulmonary involvement. In its production vasomotor failure was said to play a much more prominent part than heart failure. Treatment was often misdirected and inefficient because this fact was not sufficiently appreciated. All drugs and methods tending to lower blood pressure were, therefore, contraindicated.

The Public and Private Aspects of the Pneumonia Question.—Dr. William Charles White of Pittsburg suggested in this paper two plans for a systematic crusade against pneumonia: (1) The discovery of a specific cure: (2) The inauguration of a popular campaign of education and instruction in the laws governing the prevention and cure of pneumonia similar to, and involving the same scope as the plan already utilized for the reduction of the mortality of tuberculosis.

A Case of Progressive Universal Pneumonia with Recovery, Presenting Some Very Unusual Features.—Dr. William H. Mercur of Pittsburg described a case marked by rapidity of involvement, absence of cyanosis, of toxic symptoms, of marked delirium, and of excessively high pulse rate, long continued, and excessively high rate of respiration. The possibility of an underlying tubercular infection was considered and treatment outlined.

Dr. Frank D. Stolzenbach of Pittsburg had seen Dr. Mercur's case with him. The only case he had found in the literature was reported in the *British Medical Journal* for July 24, 1909, that of a child 3½ years of age in whom the affection had spread from the lower lobe of the right lung, involved the middle lobe and then the lower lobe of the left lung. The temperature dropped to normal, and within a week the left base was involved and later on the left upper lobe.

Dr. Edgar M. Green of Easton agreed that after the extent of the disease has been determined it was much more important to pay attention to the abdomen than to the chest.

Dr. Lawrence F. Flick of Philadelphia regarded the increase of average life and the decrease in tuberculosis as a possible explanation of the increased prevalence of pneumonia. In his experience, pneumonia was one of the most frequent avenues of exit from life of tuberculous subjects.

Dr. James D. McClure of Wilkinsburg regarded the most important factor in the treatment of pneumonia the rendering of the patient comfortable until the disease had run its course. He advised against the giving of an opiate since the patient was already full of poison. The tympanitic condition of the bowels was uncalled for and he believed it to be due to feeding during the paralyzed condition of the secreting organs. Treatment should be largely eliminative.

Dr. I. J. Moyer of Pittsburg would use morphia in pneumonia only for pain and restlessness in 1/16 gr. doses repeated every two hours until the effect is attained.

Dr. John W. Boyce of Pittsburg believed that the routine administration of strychnia in pneumonia was harmful. He marveled upon the impression received by the average graduate that strychnia was the universal remedy to administer, and felt it important that they be taught that strychnia could kill without ever producing a muscular twitch.

Dr. Clement R. Jones of Pittsburg regarded salol in five grain doses every hour almost a specific in the treatment of pneumonia.

Dr. Arthur Allan Watkins of St. Benedict thought that if every physician could have an attack of pneumonia it would alter his views as to treatment. Personally he had found morphia, and an abundance of fresh air particularly grateful.

Dr. Mercur in closing said he did not use morphia if possible to avoid it, because of its hindrance to elimination. He thought it better to feed patients moderately and to watch against tympanites. Medication was a minor matter.

The Effect of the Different Forms of the Leucocytes in Cases of Tuberculosis Produced by Some Therapeutic Measures.—Dr. Myer Solis-Cohen and Dr. Albert Strickler of Philadelphia presented this paper which was read by Dr. Cohen. One hundred and thirty-five leucocyte counts had been made on 25 patients with pulmonary tuberculosis. The effect of various physiological measures and of medicinal measures was given in detail.

Enuresis from Thyroid Insufficiency.—Dr. E. Bosworth McCready of Pittsburg presented this paper, stating that there is a large class of individuals, including those who as children showed various developmental defects, whose condition might be traced to a primary defect in the ovum. He believed that the resulting cell hypoplasia involved the structural elements of the ductless glands. He regarded enuresis as a very common symptom of hypoplasia, and believed that the administration of thyroid extract would not only relieve the enuresis but that it also caused a very marked improvement in the general physical and mental condition.

Dr. Joseph Walsh of Philadelphia presented "Treatment of Hemorrhages in Tuberculosis of the Lungs," which paper was read by title.

Thursday, October 6—Third Day.

Mental Disturbances Following Traumatism; Medico-legal Considerations.—Dr. Alfred Gordon of Philadelphia had studied 37 cases during a period of eight years. Among his conclusions were noted: That trauma may be a determining cause of abnormal psychic manifestations, following immediately, or some time later; that their appearance weeks after the shock excites suspicion of their existence in a mild form immediately following the accident. Confusional states and delirium he had found to be the most frequent forms of insanity following traumatism. Dementia was mentioned as the possible ultimate result of persistent confusional and delirious states. Traumatic psychoses were said not to present a strictly defined morbid picture, but presented a great variety of psychic manifestations.

The Present Status of Psychotherapy.—Dr. E. E. Mayer of Pittsburg spoke upon this subject, presenting some of the practical principles he thought should be remembered by the general practitioner. He advised an intimate knowledge of the patient's mental complexus ascertaining what things are troubling him. The treatment of these conditions was said to have a technique fully as important and as complex as that of any other disease.

Traumatic Neurosis.—Dr. J. L. Salinger of Philadelphia said that while the causative factor in traumatic neurosis is trauma, there were many predisposing conditions. The litigation frequently ensuing after accidents was regarded as a large etiologic factor. If proper and speedy adjustment of the patient's claims was impossible, he believed the neurosis was apt to be prolonged.

Dr. Theodore Diller of Pittsburg said that while the claims of the subjects of traumatic neurosis remained unsettled there was practically no effectual treatment. He would hesitate to attempt an analysis of the patient's mental troubles as suggested by Dr. Mayer, though he had practised the old-fashioned psychotherapy, that of ordinary sympathy, re-education, suggestion, etc.

Dr. Tom A. Williams of Washington, D. C., thought the general practitioner should at once disabuse his mind of there being any special difficulty or special complexity in psychotherapy. Psychoanalysis he claimed was no more difficult or impossible than chemical analysis, but required a technique of its own and a great deal of knowledge of the phenomena, which knowledge, however, might be acquired by any one willing to take the trouble.

Dr. Gordon in closing said there was no rule in regard to recovery in cases of litigation following traumatic neurosis, and instanced cases in which the neurosis had remained in spite of satisfactory settlement of litigation. Also he had had cases with no expectation of indemnity in which the neurosis had continued.

Dr. Mayer in closing said it was the physician's duty to find the cause of trouble—physical, or mental, and doubted not that Dr. Diller did this, though possibly not dignifying his effort by calling it psychotherapy.

Dr. Salinger in closing expressed his belief that the cases mentioned by Dr. Gordon as not recovering, although receiving indemnity, were not cases of neurosis, but of organic disease.

The Symptomatology and Pathology of Tumors of the Pituitary Body; Pathological Report of One Case.—Dr. J. H. W. Rhein of Philadelphia reported this case in a man of 33 years with symptoms extending over two and one-half years. Autopsy revealed a large tumor in the region of the hypophysis, which proved microscopically to be an adenocarcinoma.

A Case of Brain Abscess with Post-Mortem Findings; Presentation of Specimen.—Dr. Theodore Diller and Dr. James K. Everhart of Pittsburg presented this paper. Improvement followed operation but there was return of symptoms. The wound was opened, but because of a general convulsion while on the table operation was delayed. The patient afterward died suddenly and autopsy revealed a large abscess entirely within the brain substance and apparently not communicating with the first abscess cavity which was just below the dura mater. Dr. Diller felt that he had made a mistake in not having continued the operation.

Dr. Tom A. Williams of Washington felt that surgeons and neurologists were too timid about operating on the brain, for it had been most conclusively demonstrated that the brain can be operated upon with as much impunity as the abdomen.

Some Observations Upon the Treatment of Alcoholic and Other Drug Addictions.—Dr. C. C. Whaley of Pittsburg in this paper said that drug addiction presented its own peculiar etiology and that it is as distinctive a specialty as is neurology. As to cure it separated itself into three classes: (1) Those who began the use of the drug inadvertently, and who after a short course of treatment remained free from the habit; (2) Degenerates, those who take their drugs as a dissipation, and who are incurable; (3) Those who, owing to reduced resistance by long use of the drug, find cure a slow and tedious process.

Dr. Diller believed that religion offered the best remedy in drug addictions, that if it were possible to get a dose of the real article into the patient it was the best and the most fundamental source of help. He claimed this as a result of his own observations supplemented by the testimony of some of the most conservative men.

Progress in Empirical Therapeutics.—Dr. John W. Boyce of Pittsburg suggested the possibilities of progress were the observation of drug effects as carefully recorded as were inoculation experiments in the laboratory, if the value of "controls" were appreciated; also as much thought would be devoted to the compounding of the prescription as the surgeon gave to the preparation of gauze and suture, and it would be fully realized that the whole business of a physician would be to cure disease, appreciating at the same time that to this end no means compared with the skillful handling of drugs.

The Diagnosis and Treatment of Relaxed and Weak Feet.—Dr. Charles A. E. Codman of Philadelphia said that the relaxed foot and the weak foot commonly referred to as flatfoot was, technically speaking, a relaxed or weakened condition of the plantar arch. The author's method and the exercises for permanent relief were described.

Dr. Rugh agreed with the author upon the importance of the exercise for the correction of the condition. In diagnosis care should be taken not to accept the history of "rheumatism."

The Treatment of Acne Vulgarus.—Dr. John G. Burke of Pittsburg advised the usual constitutional measures in the treatment of acne. An additional constitutional agent was found in bacterins, though the results could not be relied upon to the exclusion of other remedies Stock vaccines had been of little service. He had found the following preparation of service: Beta-napthol, 5; precipitated sulphur, 20; green soap, 35; lanoline, 35. Although the *x*-rays would cure, the tendency to produce telangiectasis made one hesitate to employ them.

The Diagnosis of Hay-Fever in Children.—Dr. William C. Hollopeter of Philadelphia claimed that hay-fever is essentially a disorder of early life. The sequelæ of this affection, annually repeated, was that which was found eventually seriously handicapping mature life in the form of asthma, emphysema, cardiac and renal troubles. Like diphtheria, hay-fever was a local expression of a systemic toxemia, and its relief ofttimes called for the making over of the child physically as well as mentally.

Officers of the Section on Medicine elected for the ensuing year: *Chairman*, Dr. Edgar M. Green of Easton: *Secretary*, Dr. Charles H. Miner of Wilkes-Barre.

SURGICAL SECTION.

Tuesday, October 4—First Day.

The Chairman, Dr. Edward Martin of Philadelphia called the meeting to order in the main auditorium of the G. A. R. Memorial Hall, Pittsburg, at 2:05 p. m.

Subacromial Bursitis; Its Etiology, Anatomy, and Pathology.—Dr. Americus R. Allen of Carlisle read this paper, saying that sepsis, traumatism, and non-use are the causes of subacromial bursitis. The abnormal conditions found in these cases are thickening of the bursal walls, adhesions, and adhesive bands. In some cases cheesy deposits occur.

Treatment of Subdeltoid Bursitis.—Dr. J. T. Rugh of Philadelphia presented this paper saying that inasmuch as the seat of the trouble was in close relation to the shoulder joint, the restoration of function would be accompanied by pain. The fact that treatment would extend over a prolonged period of time must be impressed upon the patient and his will power and fortitude must be developed to secure and maintain the thorough coopera-

tion so essential to success. Many of these patients were unfortunately of the nervous, shrinking and pessimistic type, which rendered the labor and efforts of the surgeon doubly hard as he must overcome their tendency to give up after a week or two of painful experience. A very necessary adjunct to be constantly held out to the patient is the fact that the condition is curable no matter what the character of the lesion in the bursa.

Dr. David Silver of Pittsburg said that he found in these as well as post-operative cases it was very much better to put them up to the full limit of motion once a day, then let them alone. He had not found it necessary to use a splint, but kept the arm in a sling and used manipulation; put them through the whole range of motion and found that they came out very nicely. He thought an error was made in diagnosing these cases as rheumatic instead of trying to find out what the real condition was.

Dr. William H. Cameron of Pittsburg said he dealt almost entirely with subacute and chronic cases and some of these supposed to be rheumatism came to his office and he seldom found that the case had been examined. The doctor never went into the history. One must examine all these cases if he wants to find out anything at all.

Dr. T. Turner Thomas of Philadelphia said that he had been making some studies on the cadaver in the last year in connection with these cases. The bursitis theory is being rather rapidly and generally accepted in this country to-day and is gaining ground abroad, still he did not believe that the cause of the trouble in these cases was in the bursa. They are due to a periarthritis but not one localized to the bursa.

Dr. G. G. Davis of Philadelphia believed that there was such a thing as a bursitis induced by disease in the same way that a person could get housemaid's knee in rheumatoid cases; also that bursitis, subacromial or subdeltoid, could be due to an injury. When the joint was moved it moved to a certain extent and then it was stopped by the ligaments. It was not stopped by the bursa. The bursa having nothing to do with the strength of the joint.

Traumatic Lesions of the Brachial Plexus and Its Component Roots.—Dr. Charles K. Mills of Philadelphia presented this paper and said that lesions of the brachial plexus and its component roots were usually of traumatic origin, the few cases not instances of traumatism being examples of a neuritis due to infection or toxemia and rare cases of neuromata and of hemorrhage into the plexus or its roots. He referred to the literature of the subject, recalling especially cases of gunshot injury, recorded by the Mitchells, examples of obstetrical paralysis with Klumpke's symptom complex, and cases due to fracture of the clavicle, dislocation of the shoulder with torsion of the plexus, and injuries to the spinal column and the roots of the plexus. In one case which was discussed in the paper the injury to the plexus resulted from a man falling from a third story window and striking the patient upon the head, the shoulder, and back. In this case, as subsequently determined by a unilateral laminectomy, the cervical roots from the fifth to the first thoracic were literally torn from their connections with the spinal cord. The diagnosis is to be made in the first place from affections like hysteria and various forms of organic paralytic disease. The diagnostic points of most value in distinguishing from hysteria are the absence of atrophy, electrical changes in the nerves and muscles, and also the retention of the deep and superficial reflexes in the hysterical case. The sensory changes if carefully studied have a different topography, those of hysteria being glove-like or assuming some other form not related to the nerve supply; those of root and plexus lesions following the peripheral or root distribution of the sensory nerves. Emotional crises may be present in the hysterical and organic cases. Dr. Mills in conclusion discussed the prognosis and treatment, especially considering the importance of surgical procedure in traumatic cases.

Dr. Charles H. Frazier of Philadelphia said we had two groups of cases, those in which we operated and found the plexus embedded in a mass of cicatricial tissue, and in which after the removal of the cicatricial mass and careful, well planned nerve anastomosis, the results of the operation were very unsatisfactory, and a second group in which at the operation no gross macroscopic lesion was demonstrable even though patients may have been subjected to the same character of injury. The operation of laminectomy for relief of traumatic neuritis, such as brachial neuralgia, the tabetic crises, excessive pain for inoperable tumor of the cord, should be resorted to much more frequently than it was. It was not nearly so formidable an operation as in the past.

Dr. T. Turner Thomas of Philadelphia said that the extravasation of blood around the nerve due to injury produced a condition which probably explained a good many of the so-called traumatic conditions in which the plexus itself was supposed to be injured.

Fracture of the Shaft of the Femur, End Results.—Dr. W. L. Estes of South Bethlehem read this paper, saying that one must make a sharp distinction between good functional results, and satisfactory cosmetic and functional end-results, in estimating his success in the treatment of a fracture. One must differentiate his results into two classes: 1st, Patients who immediately after union were able to use the affected member properly; and 2nd, patients who acquired good use of the member after comparatively long periods. Less than a dozen cases have ever left his hands with an ideal result, namely no appreciable callus, no shortening, no deformity, and perfect function. The open method of treatment of fractures was the best for most cases of adults who were treated in a clean and well conducted hospital.

Dr. G. W. Guthrie of Wilkes-Barre said there was no doubt that the future would justify the open method of treatment of fractures of the femur as well as other fractures of the bony structure. He had never treated an open compound fracture where he could make perfect adjustment and perfect fixation of the fragment that he ever regretted.

Dr. David H. Strickland of Erie said a large majority of fractures occurred in laboring men who could ill afford to be confined to bed; they had a family dependent upon them and consequently the quicker they were restored to usefulness to the support of their families the better our reputation would be. We ought not to pay very much attention in this class of cases to cosmetic surgery. If we got a good limb that enabled a man to perform his work as he did previous to his fracture, it was very much better that we return him to duty as early as possible than that we should return him with a beautiful limb.

Dr. Charles E. Thomson of Scranton made a plea for better and repeated attempts to reduce fractures without cutting. Two years ago he had two physicians with fractured thighs under his care. He reduced one of these cases twice.

Dr. J. T. Rugh of Philadelphia said that the open operation for fracture was a difficult one and a big one, and if undertaken extensively by surgeons generally would have a very extensive mortality.

Dr. John B. Roberts of Philadelphia said that there were three kinds of fracture: those which could be treated well if they were opened, a middle class, and a class which could be treated best by opening. The whole question depended upon the fact that the man who undertook to reconstruct that portion of the bone must know his anatomy. Don't open a fracture unless you know something of aseptic surgery, don't treat a fracture unless you know anatomy of the part and its relationship with the surrounding parts,

and be careful not to believe all that the skiagraph appears to show. There is nothing that lies so much as a skiagraph taken by a man who knows nothing of anatomy.

The Surgical Reconstruction of the Human Skeleton.—Dr. JOHN B. ROBERTS of Philadelphia read this paper. He said that all operative and mechanical procedures designed to correct congenital or acquired deviations of the bony framework of the body were included under the caption Surgical Reconstruction of the Human Skeleton. Recent developments in physics and surgery had greatly widened the field of osteoplastic and osteogenetic reconstruction. We were no longer limited to curing broken bones, removing supernumerary digits, straightening bowlegs and knock knees and improving lateral curvatures of the spine. We could lengthen or shorten the limbs, convert solidified joints into movable ones, substitute the fibula for the tibia, successfully repair osseous lesions that formerly left hideous deformities, and transform many useless members and parts into satisfactory substitutes for normal structures.

An Operation for Ankylosis of the Hip Joint in Which Baer's Membrane Was Used.—Dr. G. G. DAVIS of Philadelphia presented this paper giving the history of a girl of 10 years with bony ankylosis of hip in a somewhat flexed position due to a previous rheumatic attack. Incision was made below anterior superior spine of ilium. The head of the femur was solidily united by bone to pelvis. The bone was cut away in the line of union. The head of the femur was enveloped by a sheet of Baer's membrane (chromicized pig's bladder), held in place by chromicized catgut. The wound was closed and a drain left for 24 hours. Position of the limb was good about five months after operation. The patient suffered no pain on walking; there was slight shortening, and the thigh was flexed to an angle of about 45°.

Dr. J. T. RUGH of Philadelphia said that there was no doubt that the method proposed by Dr. Baer was a very decided advance over any method previously employed in selected cases. In those cases in which there still remained some of the articular structures there was no doubt of the value of chromicized pig's bladder.

Spina Bifida and Its Surgical Treatment with a Description of an Efficient Osteoplastic Operation.—Dr. W. WAYNE BABCOCK of Philadelphia presented this paper and said that the features of the operation which he performed were a vertical suspension of the patient with the head dependent to limit shock and the leakage of cerebrospinal fluid, local anesthesia; the return of the distended inner layers of the sac to the canal without extensive isolation or injury to adherent nerve trunks. If no semblance of a canal is present a sufficient groove is cut into the spine or sacrum; the isolation of the edges of the dura and their accurate suture over the cord; the mobilization of a ribbon of bone upon either side of the defect which is left attached above and below. For this purpose the rudimentary laminæ or bases of the spinous processes are divided by Satterlee's bone forceps. The two osseous double pedicled flaps are united in the mid-line. The isolation of two broad double pedicled flaps consisting of the outer layers of the erector spinae muscle and their overlying aponeurosis which are slid inward over the bone flaps and united in the median line by buried chromic catgut. The union of the everted edges with skin by means of mattress and interrupted sutures without drainage.

Dr. STEWART L. MCCURDY of Pittsburg said that one of the most difficult things, especially in the surgery of children born with defects, was spina bifida. There was no one condition that had called forth the ingenuity of the surgeon as this. There had been as many different methods used to close the defect as operators almost. The one which had been presented by Dr. Babcock was certainly very admirable.

Wednesday, October 5—Second Day.

Oration on Surgery: Surgery, Past, Present and Future.—Dr. JOHN B. DEAVER of Philadelphia gave this oration, saying that every race in every age had flattered itself that it was the true age of progress and believed that the like could never be seen again. The surest antidote to such complacency was to realize how often this had proven false in the past. The surgery of the past had been notable chiefly for the establishment of a few underlying principles upon which all our modern practice was based. For centuries men had been content to have pus and even praised it if it were of that consistency and character which was thought proper. Then as now the object of the surgeon was to get his patient well and he gave less thought to originating epoch-making innovations applicable to all surgery than to the individual problem presented by his patient. It had been accordingly only after ages of groping among details that principles began to emerge. The period did not lack for men of boldness and ingenuity, but they suffered from a lack of these underlying essentials of successful surgery. The present era of surgery dated from the discovery of anesthesia by Morton and the practical recognition by Lister of Pasteur's discoveries. The surgery of the present was remarkable for the elaboration of method and technique and the rise of surgical pathology. With the introduction of new methods surgery had found its main field in the body cavities, regions previously secure from entrance. Also operations for cancer and upon the vascular system had been vastly improved. Abdominal surgery had been opened up as a new field. The surgery of the pylorus and the pancreas was being rapidly developed. Dyspepsia had been found to rest usually upon an organic basis. The surgery of the pelvic organs and the genitourinary tract had reached a plane of efficiency where it waits upon improvement in diagnosis and early reference of patients. The surgery of the head had advanced *pari passu*. Its contents responded to the same principles as in surgery elsewhere. The surgery of the thoracic cavity had lagged behind on account of the difficulties of practical application of surgical principles. This problem belonged to the future. The treatment of infections would be greatly aided in the future by sera and vaccination. As yet the early application of the aseptic scalpel reigned supreme as the cure of tumors benign and malignant. Every tumor should be considered malignant until proven benign.

Pathology and Treatment of Acute Bone and Joint Infections.—Dr. JOHN B. MURPHY of Chicago (by invitation) delivered this address. Dr. Murphy said that ankylosis of joints occurred only where the bony surfaces came into contact. Therefore, in acute joint affections, to prevent ankylosis, extension should be put on. In the second place tension must be relieved not by incision, as that leads to obliteration of the cavity, but by aspiration. Following aspiration there should be injected into the joint a 2 per cent. solution of formalin in glycerin. In acute osteomyelitis in order to prevent destruction of bone it was essential to relieve pressure at once. This could be done with a knife and a gimlet. In case the bone was destroyed it could be restored by transplanting.

Acute Dilatation of the Stomach. Report of a Remarkable Case.—Dr. ERNEST LAPLACE of Philadelphia read this paper saying acute dilatation of the stomach was very fatal, 63.5 per cent. dying. It was not as rare as the literature leads us to believe. This was shown by the rapid increase in the number of cases reported since the subject had become better known. The stomach tube was the immediate resource. When, however, the condition was more accentuated a large gastroenterostomy should be performed to effectually and permanently drain the stomach. The rarity of this condition should be no excuse for our overlooking its possible existence in a given case for

an early diagnosis might by washing out the stomach prevent a condition which would prove fatal in a few hours.

Chronic Gastroduodenal Dilatation.—Dr. George P. Müller of Philadelphia read this paper saying that the etiology of postoperative dilatation of the stomach was still obscure; dilatation of the stomach being considered by some as primary and by others as secondary to compression or kinking of duodenum. The chronic type had been reported in only a few instances but may have a similar etiology.

Dr. John H. Musser of Philadelphia said that the only case of dilatation of the stomach he had seen was one that appeared to be due to defective innervation. He had been on the lookout for gastroduodenal dilation, but confessed that he could not during life make the diagnosis of the condition.

Diffuse and General Peritonitis.—Dr. John J. Buchanan of Pittsburg read this paper, saying that the best treatment of peritonitis was its prevention. The bulk of the cases are usually the result of perforative appendicitis and can be prevented by removal of the appendix within a few hours or a day of access of first pains. Purgation was the most deadly medication that could be employed in acute appendicitis or diffuse peritonitis. Immediate operation, or at least during first 24 hours, by removal of appendix, dry mopping, closure of abdomen without drainage can be relied on to cure almost every case of free, diffuse or spreading peritonitis from perforative appendicitis. Treatment by irrigation was disseminative of septic products and should not be employed. Even the earliest operations can not yet be relied on to check the spread of peritonitis from perforated gastric ulcer, and in these cases the delay of a few hours may mean death for the patient.

Dr. John B. Murphy of Chicago said that he has had 64 consecutive cases of perforative peritonitis with 62 recoveries. This did not include the appendiceal abscesses or appendicitis cases with large quantities of pus that did not communicate directly from the alimentary tract into the free peritoneal cavity. He felt that we as a profession must come up to the standard that all of the cases of appendiceal peritonitis with the exception of 1 per cent. of primary perforation were avoidable. The diagnosis could and should be made before the perforation.

Diagnosis of Duodenal Ulcer; Indications for Operative Intervention.—Dr. John H. Gibbon of Philadelphia read this paper, stating that the pain of duodenal ulcer came two to four hours after ingestion of food and was apt to keep up until the next meal was taken. The pain was a steady ache, might be referred to the back or right mammary region, and was accompanied by a sense of fullness in the upper abdomen. The pain was also relieved somewhat by eructations of gas, vomiting, lavage, and alkalies. The pain would last a few days to a few weeks with an interval of comfort. Blood in the vomitus or stools was a late symptom and diagnosis should be made before this occurs. Gastric analysis was of very little value. Every case of chronic duodenal ulcer should be subjected to surgical treatment. In early cases a cure might be obtained by medical treatment. Never do any operation upon the gastrointestinal tract for ulcer unless ulcer could be plainly demonstrated.

The Indications and Technique of Partial Gastrectomy.—Dr. C. H. Frazier of Philadelphia presented this paper. He said that the resort to gastrojejunostomy in all cases was undesirable. This operation was suitable for ulcers of the pylorus when causing obstructive symptoms. Pre-pyloric ulcer and saddle-back ulcer not causing obstruction should be removed by resecting the pyloric portion of the stomach. Ulcers far distant from the pylorus, as in the fundus, should be removed by partial excision. In the development of the radical operation for carcinoma of the pyloric portion of the stomach, too little attention was paid to the topographical anatomy of the lymph nodes. Operation to be radical should include removal of the six primary lymph chains, namely, the suprapyloric, inferior coronary, right paracardial, gastrocpiploic, subpyloric or retropyloric, and the suprapancreatic. The retropyloric were the most frequently overlooked and the supra pancreatic the most difficult to remove.

Delayed versus Immediate Operative Treatment of Terminated Ectopic Pregnancy.—Dr. C. A. Stillwagen of Pittsburg read this paper, stating that hemorrhage and shock in terminated ectopic pregnancy were rarely sufficiently severe to cause death. In cases in which hemorrhage was severe and persistent death not infrequently resulted before operative treatment could be instituted. Patients who survived the initial hemorrhage, but were profoundly shocked and anemic, could be more safely treated by delaying operation until the condition improves than by immediate laparotomy. Operation should be performed as soon as possible after termination of ectopic pregnancy, provided it could be done with safety to the patient. In selecting the time every surgeon will, of course, use his own judgment, but he must show a low mortality in order to justify any given plan of procedure.

Surgery as a Prophylactic Measure Against Intestinal Complications in Typhoid Fever.—Dr. L. J. Hammond of Philadelphia read this paper, saying that when, during the course of typhoid fever, there was reasonable certainty of the existence of bands or adhesions, especially affecting the functions of the intestinal tract at any of its flexures, sufficient to produce severe abdominal symptoms, exploratory laparotomy should be done with a view to removal of mechanical barriers to intestinal activity which favor ulcerative processes going on to perforation.

Dr. G. L. Hays of Pittsburg said that in his experience in about 50 cases of operation for complications of typhoid fever none had shown any preperforative signs. While it was possible he doubted if they were very frequent. Of course if we could prevent this condition by any means by operation he thought it would be a very good thing to do.

Treatment of Stab Wounds of the Chest with the Demonstration of a New Intratracheal Cannula for Any Positive Pressure Apparatus.—Dr. G. M. Dorrance of Philadelphia read this paper and stated that hemothorax was the complication which determined the method of treatment; when this was present immediate operation was advisable. The chest should be opened, clots and serum removed, wounds in the lung sutured and the chest wall closed, the lung being expanded by negative or positive pressure. An apparatus for artificial respiration during thoracic operations should be simple, easily operated, cheap, portable, capable of being operated by hand power in case of necessity; it must not damage the larynx. The Matas clinical respiratory apparatus with the intratracheal pressure bulb tube which Dr. Dorrance had devised closely approximated these conditions.

The Relative Value of the Various Methods for the Determination of Kidney Sufficiency.—Dr. B. A. Thomas of Philadelphia read this paper, saying that the most accurate and dependable test for the determination of renal function was that by quantitative metabolic study, but such study was usually impossible. Any test dependent upon synchronous catheterization of the two ureters had a limited field of application. The cystoscope together with one of the aniline dye tests, notably indigocarmine, afforded the most practicable means of kidney diagnosis.

Results of Gallstones.—Dr. J. A. McGlinn of Philadelphia read this paper, saying that in eight out of eleven cases of cancer of the bile-duct stones had been present. In a series of autopsy records of gallstone cases various

related lesions were noted. While it could not be said that all these lesions had been due to gallstones, many undoubtedly had been. These lesions could be prevented only by early operation in gallstone cases.

The Pelvic Fascia with Reference to Operation for Cystocele.—Dr. R. E. Brenneman of Pittsburg read this paper, saying that the bladder and anterior vaginal wall were attached to the white line which gives rise to the levator ani and by cutting these attachments a cystocele is produced by downward pressure. These protrusions of the anterior vaginal wall, either lateral, bilateral, complete or partial, must be considered true herniæ and were produced by a variety of cases. These were repaired by restoring the normal anatomy, as far as possible. This was best done by the method of White of Savannah which the author has used in several cases with success.

Cecostomy versus Appendicostomy for Colonic Irrigation.—Dr. William M. Beach of Pittsburg read this paper, stating that the comparative safety of cecostomy is apparent. Cecostomy or appendicostomy should always be considered as an adjuvant to medical measures to be invoked in order to treat local conditions locally. It should be considered a legitimate treatment of toxemias of intestinal origin, amebic dysentery, obstinate colitis and constipation, tuberculosis and syphilis and it is believed to be justified as an adjunct to medical measures in anemias, intussusception and typhoid fever.

(*To be continued.*)

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held October 6, 1910.

The President, Dr. John A. Wyeth, in the Chair.

Report of the Trustees and Council Relating to the Recent Purchase of Adjoining Properties.—Dr. John H. Huddleston, the Secretary, said that the Academy had recently acquired adjoining property and the house abutting on Forty-fourth Street in order to enlarge the building. Particulars of the change were given in the Medical Record of September 10, page 453. This matter will come up for final action at some future meeting.

Amendment to Constitution.—An amendment to the constitution was offered to raise the limit of non-resident Fellows from 150 to 250.

More Money for the Use of Library.—It was moved that the sum of $500 be voted for the use of the library. This was in addition to the sum already given.

Presentations.—Dr. Chas. E. Denison presented to the Academy a photograph of Baron von Humboldt. Dr. Paul Bartholow of Philadelphia presented to the Academy a photograph of Professor Bartholow who for many years was connected with Jefferson Medical College of Philadelphia. D. W. Johnston presented an engraving of Dr. William T. Bull. These gifts were all accepted, and the secretary was directed to send the thanks of the Academy to each of the donors.

Report of the Committee on Finance.—Dr. L. Emmett Holt stated that there were 1208 members of the Academy and at least four-fifths of these would contribute something; therefore, the Committee had elaborated a scheme of contribution as follows: It was assumed that 300 members would give $5.00 a year for five years; that 200 members would give $10 a year for five years; that 150 members would give $25 a year for five years; that 125 members would give $50 a year for five years; that 100 members would give $100 a year for five years; that 50 members would give $200 a year for five years. By such a scheme he said that from $150,000 to $200,000 should be raised.

The Definition of Pernicious Anemia and Its Treatment.—Dr. E. Grawitz, Professor of Pathology of the University of Berlin, made this address. (See page 751.)

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of October 22, 1910.

	Cases	Deaths
Tuberculosis Pulmonalis	515	163
Diphtheria	253	18
Measles	75	2
Scarlet Fever	90	3
Smallpox	—	—
Varicella	44	—
Typhoid Fever	108	20
Whooping Cough	24	2
Cerebrospinal Meningitis	2	2
Malarial Fever	—	—
Totals	1,111	210

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, during the week ended October 21, 1910.

PLACE	DATE	CASES	DEATHS.
CHOLERA			
Austria-Hungary: Budapest	Sept. 8–24	6	1
Sept. 29, still present			
Kalocsa	Sept. 23		Present
Neusatz	Sept. 23		Present
Preesburg	Sept. 23		Present
Chica: Amoy	Aug. 28-Sept. 3	1	
Germany: Freiburg	Sept. 9–13	2	
Marienburg	Sept. 13–15	3	1
India: Calcutta	Sept. 12–21		9
Madras	Sept. 3–9		6
Italy, general	Oct. 11–14	101	32
Outside of Naples			
Naples	Oct. 11–14	40	21
Rome, province and city	Sept. 25-Oct. 1	5	
Sicily, province—Monreal	Oct. 1	1	
Palermo	Oct. 1	4	
Japan: Kobe	Sept. 12–21	44	26
Sept. 12, first case from ss. Amakusa Maru.			
Osaka	Sept. 11–17	9	7
Java: Batavia	Sept. 3	15	9
Manchuria: Dalny	Sept. 4–10	1	
Persia: Erzeroum, vilayet	Sept. 11–22	272	168
Philippine Islands: Manila	Aug. 7–Sept. 10	70	54
Provinces—Albay	Sept. 4–10	3	2
Batangas	Aug. 7–Sept. 10	522	349
Bulacan	Aug. 7–Sept. 10	101	79
Ilocos Sur	Aug. 14–20	10	7
Mountain	Aug. 14–20	1	1
Nueva Ecija	Aug. 7–Sept. 10	124	83
Pampanga	Aug. 7–Sept. 10	46	45
Pangasinan	Aug. 7–Sept. 10	395	347
Rizal	Aug. 7–Sept. 10	88	64
Tarlac	Aug. 7–Sept. 10	112	85
Russia, general	Aug. 28–Sept. 3	9,899	4,405
Sept. 25–30, cases 3,663, deaths 1,815.			
City of St. Petersburg	Aug. 28–Sept. 3	429	168
City of Cronstadt	Aug. 28–Sept. 3	24	11
Governments—St. Petersburg	Aug. 28–Sept. 3	62	37
Vologda	Aug. 28–Sept. 3	57	24
Novgorod	Aug. 28–Sept. 3	24	6
Livonia	Aug. 28–Sept. 3	2	1
Minsk	Aug. 28–Sept. 3	52	14
Moghilev	Aug. 28–Sept. 3	17	4
Vitebsk	Aug. 28–Sept. 3	6	7
Smolensk	Aug. 28–Sept. 3	28	3
Podolia	Aug. 28–Sept. 3	102	32
Volhynia	Aug. 28–Sept. 3	2	1
Servia: Belgrade	Oct. 12		Present
Straits Settlements: Singapore	Aug. 28–Sept. 3	5	2
Turkey in Europe: Constantinople	Sept. 26–Oct. 2		20
Turkey in Asia: Samsoun	Sept. 18–24	1	
Tizirk	Sept. 18–24	1	
Trebizond	Sept. 11–24	97	60
YELLOW FEVER			
Mexico: Campeche	Sept. 25–Oct. 8	5	3
Including 3 cases previously reported.			
Venezuela: Puerto Cabello	Oct. 12		Present
PLAGUE			
India: Bombay	Sept. 7–13		12
Calcutta	Aug. 21–27		10
Peru: Callao	Sept.	1	
Russia: Odessa	Sept. 20–26	7	1
SMALLPOX			
Canada: Kingston	Oct. 3		
In vicinity			
Toronto	Sept. 11–17	1	
Victoria	Sept. 25-Oct. 1	1	
China: Shanghai	Sept. 3–11		2
Egypt: Alexandria	July 1–31		3
	Aug. 1–31	1	
India: Bombay	Sept. 7–13		1
Madras	Sept. 3–9		4
Russia: Moscow	Sept 11–17	3	1
Warsaw	Aug. 1–6		7
Spain: Vigo	Sept. 18–24		1
Straits Settlements: Penang	Sept. 4–10	11	
Singapore	Aug. 28-Sept. 3	13	5

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Original Articles.

THE EHRLICH-HATA (606) PREPARATION.

(THERAPIA STERILISANS MAGNA.)

A REVIEW OF SOME OF THE REPORTS MADE BY GERMAN AND FRENCH PHYSICIANS UPON THE TREATMENT OF SYPHILIS BY THIS PREPARATION.

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No place perhaps lends itself so well to the study and treatment of syphilis as Finger's Clinic at the Allgemeines Krankenhaus, Vienna. For there, adjoining the dispensary, is the laboratory (serodiagnostic investigation station) where not only the seroreaction of the patient is studied, but examinations by means of the microscope and dark-field illuminating apparatus are made of specimens taken from various syphilitic lesions in order to determine the presence of the *Treponema pallidum* (*Spirochæta pallida*); while above stairs are the wards for the patients suffering from venereal diseases. In one of these (the now called historical ward) there were no less than 35 cases, all of whom had received an injection of 606. The results seen there by the writer form the incentive for this review.

The attention of the entire medical as well as the lay world has been for some months past seriously fixed upon the treatment (*therapia sterilisans magna*) of syphilis by means of the new preparation recently discovered by Geheimrat Ehrlich in Frankfurt, Germany. Needless to say, not only he who makes the study and treatment of syphilis his specialty, but the medical profession as a whole and the world at large, await the results obtained with not a little particular interest.

As the first field of experiment with 606 was in Germany, and as the greatest number of diverse cases of syphilis and parasyphilis, now amounting to several thousands, have been treated with this drug and studied for some months past in the numerous clinics where German is spoken, the facts here presented will be taken mainly from German and French writers.

In September, 1909, Prof. Conrad Alt of Uchtspringe (Altmark) received from Ehrlich an arsenical preparation, named dioxydiamidoarsenobenzol, having the formula $C_{12}H_{12}O_2N_2As_2$, the clinical value of which he was requested to prove in the treatment of syphilis in man. The preparation was actually made by Dr. Bertheim, a coworker of Ehrlich's, and the investigation of the effect of the drug upon animals was conducted by Hata (a pupil of Kitasato). They were able with this preparation to cure relapsing fever in rats and mice after a single injection; and it was further shown that the drug had an action upon the syphilitic process in rabbits which were infected with this disease. There were 605 different preparations experimented with before the 606th was selected; hence the name, Ehrlich-Hata (606).

The preparation was first used upon a man in Uchtspringe; but not before it had been tried upon dogs as a precautionary measure, in order to prove its harmlessness. Later two healthy physicians presented themselves for experimentation and allowed themselves to be injected with a dose of the drug to show that it had no deleterious effects upon the human organism. The physicians suffered no ill results, except considerable pain for several days in the region where the injection was made and where there was some swelling. Ehrlich said that 606 was not organotropic and that it had a high parasitotropic value. Both of which statements thousands of experiments have proved. Hoppe was the first who actually tried the drug upon man.

The Technique.—Dioxydiamidoarsenobenzol is a bright yellow powder, not pure, but an acid salt and might more properly be called a dichlorhydrate of the dioxy-diamido-arsenobenzol. It is put up in tubes *in vacuo* and before the preparation is used it must be converted into a sodium salt.

The solution to be injected should always be prepared immediately before it is needed as it cannot be sterilized after it is ready for use. Rigorous asepsis is necessary in its preparation. All instruments, pipettes, mortars, pestles, stirers, etc., should be sterilized either in an alcohol or a Bunsen flame and the various solutions sterilized either by boiling or by some other means. The technique for the preparation of the drug for injection differs with different experimenters.

1. *Alt* prepared the solution in the following way: There was placed in a measure glass (capacity of 50 c.c.) a single dose 0.3 gm. of 606 (at that time they never used more than this) and about 10 c.c. of sterile water added. It was well shaken up; then a sterile normal solution of NaOH was added until only a small amount of the substance remained undissolved. It always needs for this about 2 to 2.3 c.c. normal NaOH. After this 20 c.c. of sterile water is added and 10 c.c. of the fluid is slowly but forcibly injected deeply into the right and left gluteal muscles respectively. The 20 c.c. of water are added usually after the addition of some anesthetic. After the injection, the patient is ordered to lie on his belly and remain so for half an hour.

2. *Procedure of Herxheimer.*—A medium dose (0.5 gm.) is used, which is very carefully triturated in a mortar, to which is added 0.3 c.c. of a 20 per cent. solution of NaOH. The trituration is continued and finally there is added little by little 10 c.c. of water. The fluid is injected immediately in

order to avoid a sort of coagulation which is liable to occur.

3. *Blaschko* also employs a 20 per cent. solution of NaOH (Sp. Gr. 1025), of which he adds 0.09 grm. per decigram of the powder treated, that is 0.36 c.c. of a 20 per cent. solution of NaOH are used for a dose of 0.5 grm. of 606. The powder is slowly triturated and finally 5 to 6 c.c. of very hot, boiled water is added.

4. For a dose of 0.5 grm. *Michaelis* pours on the powder, which has been placed in a test tube, 1 to 2 c.c. of ethyl alcohol, and gradually adds 20 c.c. of very hot distilled water. While doing so the tube is to be shaken vigorously. When the solution is perfect he adds 1 c.c. of a normal solution of NaOH (40 parts in a 1000 per decigram of the powder). To this fluid he adds 2 or 3 drops of a ½ per cent. solution of phenolphthalein. The color of the solution becomes red. He then adds a few drops of a normal solution of acetic acid until the preparation is colored a sulphur yellow. At this moment 2 or 3 drops of the alkaline solution is added to neutralize the excess of acid. When a rosy halo is formed at the upper part of the fluid it is ready for use.

5. *Wechselmann* made the solution as follows: A given dose, which in the tube is *in vacuo* and is really an acid salt, a dichlorhydrate of the diamidoarsenobenzol, is mixed, with either methyl alcohol or glycol until dissolved, then 10 c.c. of distilled water is added, then 1 to 2 c.c. of a decinormal NaOH solution, to which is added 25 c.c. of water and this strongly acid solution is then injected. Later he added the decinormal NaOH until the fluid was cloudy, whereby a monochlorhydrate was formed. The concentration of the solution or the fact that the drug was dissolved in water appeared to produce very little difference in the pain at the seat of injection. Wechselmann now adds decinormal NaOH solution until he obtains an alkaline reaction with phenophthalein and neutralizes the solution with 1 per cent, acetic acid. This preparation of the drug is cloudy, and whether its action is as rapid as that of an absolutely clear solution we do not know; however, an absolutely painless injection may be efficacious. The place where the injection is to be made can be entirely anesthetised by a deep injection of 0.02 grm. novocain.

The syringe should be an instrument easily sterilized, have a capacity of 10 c.c., with a platinum-iridium needle of large caliber and about 6 c.c. long. In Germany they frequently used a Record syringe. An automatic syringe for intravenous injection is made by B. B. Cassel in Frankfurt.

The region where the injection is to be made should be thoroughly washed and cleaned with alcohol and ether and finally painted with tincture of iodine. Various points may be selected for the introduction of the drug, the buttocks, the back between or below the scapular or the chest in the submammillary region. The injection can be subcutaneous, intramuscular, or intravenous when it is desired to get a particularly rapid action of the drug upon the lesions, for with the intravenous injection the symptoms subside more quickly. The intramuscular injection is made in the buttocks or such places as are selected to inject insoluble mercurial preparations.

Wechselmann and many other experimenters prefer the intragluteal injection. The injection is made in the same manner as we make those of insoluble mercurial preparations. Slowly and forcibly about 10 c.c. of the fluid is injected deeply into the right and left gluteal muscles. The solution flows imperfectly, as it forms itself into a sort of light, salty coagulate which often leads to the blocking of the syringe. From 5 to 25 c.c. may be injected, following the quantity of the fluid and the capacity of the syringe. 606 may be suspended in paraffin oil and then injected. The volume is less.

Dose.—Alt gave at first only 0.3 grm. Wechselmann gives 0.45 grm. to women and 0.6 grm. to men. Some give as much as 0.7 grm. without harmful results. The average dose is 0.5 grm. Schreiber repeated the injection after four weeks in four cases where there were relapses. Neisser employs the intravenous method whenever possible. Gérrone and Huggenberg treated 56 cases since April 2, 1910. Twelve by the intramuscular injection (0.3 grm. 606) and 23 by the intravenous 0.3 to 0.4 grm. of 606, according to the body weight.

The volume of the solution to be used for intravenous injection is 100 c.c. containing 0.4 to 0.5 grm. of 606. Schreiber recommends that it be still further diluted, for in that way it may be able to avoid the skin eruptions which may by chance follow the administration of the drug. Michaelis advised that the seat of injection be massaged for at least 10 minutes after the injection, in order to assist the absorption of the drug.

After the injection the seat of operation is again painted with iodine and covered with sterile gauze which is held in place with adhesive plaster.

One of the most important points, which the medical man as well as the layman should know, is the absolute necessity for the patient to remain in bed for the first two or three days after the injection, and in his room for a period varying from six to ten days. These precautions must be taken as much for the observation of the local reaction at the seat of injection as for the general condition of the sufferer. The drug should not be administered to patients in dispensaries or to those who will not submit to the exigencies which the injection demands. The injection, which is not painless, is accompanied by some reactions both local and general, the importance of which should not be exaggerated, particularly when the injection has been made with great care; nevertheless, they are at times so active and evident that it is necessary to assure the patient he is in no danger.

The Reactions.—1. *Pain,* which is often tolerable, at times acute, appears some hours after the injection and reaches its maximum in 12 or 24 hours. The pain lasts for one to six days. In rare cases where it is intolerable applications of ice and an injection of morphine must be given. At times the pain persists in an attenuated manner for several days. Gérrone and Huggenberg have seen cases where the pain radiating to the back and legs lasted several weeks. These pains radiating to the legs and thighs cripple them. They have mistaken this crippling for a paralysis of the legs. There is more of a dull ache than a real pain, nevertheless it sometimes persists for a long while. At times the pain is only local. With the intramuscular method very great local pain was noticed (Gérrone and Huggenberg).

2. The inflammatory swelling resembles the local reaction produced by a large injection of calomel. The subcutaneous injections, without being more painful than the intramuscular, often seem to favor the appearance of this swelling. When the vehicle of the drug varies between 15 and 25 c.c. the swell-

ing appears immediately. The swelling is at times accompanied with a redness of the skin, which at first sight appears as if an abscess was forming, but there is no fluctuation on palpation. The tumor is firm, scarcely depressable and generally painful when palpated. According to Neisser, in most cases after an intramuscular injection, the hard infiltration and pain disappear without leaving a trace in six or eight days. Tomaszewski states that the painful infiltration lasts fourteen days and is accompanied by a rise in temperature (100.4° F.) lasting several days. If the technique, aseptic and operative, is not at fault no complications should follow. Wechselmann punctured the infiltration in one case.

3. A *rise in temperature* appears with a medium dose (0.5 grm.) once in four or five cases. The rise in temperature is slight, particularly if the patient is not imprudent. Sometimes the oscillations of temperature are insignificant. The temperature continues to rise not over 12 to 16 hours and does not exceed 102.5° F. Gérrone and Huggenberg say the average temperature is 101.3° F., in one case 103.1° C., and in an old man 104° F. After intravenous injections of 606 in nonsyphilitics the fever does not occur. After the lapse of 24 hours the temperature sinks in each case to about 98.3° F. or 99° F. One hour after the injection the difference in temperature amounts to 2.16° F. to 2.7° F.

4. *Constipation* is usual; diarrhea at times follows a large dose. The latter is often met with when the febrile reaction is violent, with dryness of the throat and other signs of arsenical poisoning. Duhot considers the diarrhea a normal complication following the intravenous injection of a large dose. According to Gérrone and Huggenberg, with the intravenous method, there were quite constant symptoms of poisoning, which began one to two hours after the administration of the drug and were over in eight to twenty hours. With the intramuscular injection they observed no abscess, no symptoms of arsenical poisoning.

Frequently severe headache, nausea, vomiting, and great restlessness are observed (Spatz), cutis anserina, but no chills have been reported. The tormenting thirst, about which the patients chiefly complain, cannot be attributed to the fever alone, as it has been observed when the temperature was 99.5° F. (Spatz). In one case (Spatz) the heart's action was more rapid and irregular, accompanied by a general feeling of uneasiness. The same observer reports a case of polyuria (over two liters of urine daily) which lasted three to four days.

5. The consequent *eruptions* are quite frequent in patients who have specific eruptions and are generally limited to a sort of accentuation of the specific erythema. Frequently macular spots appear upon the skin the first few days (two or three days) following the injection. If the rash is a roseola it becomes congested, redder in color, increases in size and at times surrounds itself with a kind of macular eruption. If it is any of the types of a papular syphilide, the papules become surrounded by a sort of areolar or halo which makes the lesion appear as if suddenly aggravated. Sometimes a sort of nettlerash appears. In one case, six hours after the injection, there appeared upon the whole body and head "a bright red, elevated, itching nettlerash sort of infiltrate" which after two hours disappeared without leaving a trace (Spatz). Exceptionally are these drug eruptions of importance.

This consequent eruption is known as the Herxheimer reaction, or, more properly, Jarisch-Herxheimer reaction. Herxheimer considers cases, where the reaction is seen, as being infrequent and not at all constant, a sign unfavorable to healing and even heralding a new rapid growth of the lesions. Gérrone and Huggenberg report that half an hour after the injection (intravenous) the syphilitic eruption becomes intensely red, as in the Herxheimer reaction, "but exceptionally there forms in other parts of the body, free from the exanthem, an urticarial eruption." All these disappear in 24 hours. In their 35 cases treated, they only observed the eruption with an intravenous injection.

Schreiber reports three cases (he studied 150 injected cases) where the Herxheimer reaction appeared 12 hours after an intramuscular injection. After the intravenous injection of 606 the Herxheimer reaction appeared in a few hours. One patient developed an exceptionally severe exanthem three hours after the injection, the character of which Schreiber had never seen.

The cases which show a Herxheimer reaction, Wechselmann considers as having been given a dose of 606 too small to kill the *Treponema pallidum*, and that the reaction is an expression of a kind of biological excitement of the same brought about by too small a dose. A second injection can be tried in such a case, yet it is possible that this will be answered by symptoms of anaphylaxis, or be ineffective on account of the power the spirochetes have of withstanding the drug. In the last condition mercury can be used in order to destroy the remaining organisms.

Before we speak of the clinical results obtained by Ehrlich's method of treatment, we must note the striking efficiency of the method as attested by laboratory control. The search for the *Treponema pallidum* (*Spirochæta pallida*, or commonly called spirochetes) under the microscope, especially by means of Burri's or the dark-field illuminating method, combined with the examination of the patient's blood, in order to find its seroreaction according to the method of Wassermann, are indispensable complements of the clinical observations. They are both necessary in order to know at what point Ehrlich's treatment is efficacious.

Siesskind, the assistant of Wechselmann, found that the spirochetes disappear at about the end of a day (24 to 36 hours), but they may persist for several days (6 or 7 days). Before they disappear one can see that their vitality is greatly compromised; they appear swollen, their mobility is diminished or has disappeared and the refringence, so characteristic of them, is lost. Gérrone and Huggenberg could not find the spirochetes in the primary or secondary lesions after the day of injection; and in two cases, in which six hours after the injection the spirochetes were still found, they were fewer than before, and appeared rolled up and flattened with irregular windings. A. Neisser says: "We can say with surety that the new drug exercises an eminent, straight-away influence as well upon the spirochetes as upon the syphilitic products themselves. The spirochetes, not only in animal syphilis, but also in human syphilis, disappear in very many cases after 24 to 48 hours from the chancre and condylomata, where they previously were present in great numbers. The

Herxheimer reaction (a reddening and swelling of the macules and papules) which appears 24 hours after the injection is another proof." Neisser leaves the question open, as to whether the Herxheimer reaction is a question of the killing of the spirochetes by the preparation together with a freeing of the endotoxin or a sort of stimulation of the spirochetes and thence the ensuing rich secretion of the toxic material.

The reaction of Wassermann furnishes us with a means to determine and appreciate the decline of the infection after the injection of 606. Alt first used 606 upon 23 paralytics. In only two cases out of 18 which gave a positive Wassermann reaction did the positive reaction entirely disappear. Two showed a marked decrease, while three showed an appreciable decrease in reaction. Of 27 cases treated in Magdeburg by Schreiber, all gave a positive Wassermann reaction before the injection. Up to the time Alt reported these cases (a short time, not quite a month and a half), 4 of the 27 gave a negative reaction. "Two recent cases of chancre, which before the injection still reacted negatively to Wassermann, were positive eight days after, then they became negative after 14 days and have since remained so" (Géronne and Huggenberg).

Spatz reports nine cases treated by him. In six cases out of the nine, the Wassermann reaction was repeated on the twelfth day. In two cases the previously strongly positive Wassermann reaction became entirely negative. In three the reaction remained strongly positive. In one case of ulcerated chancre (spirochetes were present) in which the injection of 606 was given, while the Wassermann reaction was still negative, the negative Wassermann continued to persist after the injection. Emery states he has seen the reaction after the injection of 606 become negative in from three weeks to two months. "The disappearance of the reaction takes place slowly and progressively without submitting to those oscillations that I have encountered in mercurial cures" (Emery).

Neisser relates that in about 10 per cent. of the cases was the Wassermann reaction negative and only in those who came under treatment very early after the appearance of the chancre. A patient with a chancre (proved by the presence of spirochetes in the lesion) to whom the injection of 606 was given while his Wassermann seroreaction was still negative, became gradually positive, perhaps on account of the smallness of the dose given him (0.3 grm. to 60 kg. weight). Géronne and Huggenberg tell us (they treated in all 45 cases) the Wassermann reaction became negative in 10 cases after 4 to 10 weeks of observation. In 4 cases it remained positive (of 2 of the 4 cases 1 was 56 the other 70 days old). In the 25 cases which had been observed less than 4 weeks, the Wassermann reaction became negative in only 6 cases.

Hoppe and Schreiber found in the 52 cases treated by them, which they could observe 50 or more days, that after 50 days 84.6 per cent. of the cases which previously had a positive Wassermann reaction lost the same. Four other cases lost it later, thus making a total of 92.3 per cent. The earliest the reaction was negative was after 4 days; the latest after 70 days. Lange (an assistant of Wechselmann) examined the patients who were injected with 606 twice weekly in order to ascertain their seroreaction. Those who were long enough under observation showed a negative reaction. Comparative studies of the disappearance of the positive reaction of Wassermann in patients under treatment with the Ehrlich preparation and those with mercury have not as yet been sufficiently pursued in order to draw formal conclusions on the superiority of one or the other of these methods. Emery also states: "It was only just to recognize that if the mercurial medication has given me at times a precocious and complete negative seroreaction, I have scarcely ever obtained this negative and durable reaction, except after the application of a vigorous intermittent mercurial treatment carried on during three or four years."

Influence Upon Metabolism—Excretion of Arsenic after Injection, etc.—Alt observed that after the injection of 606 the lecithin metabolism was favorably influenced. The injection of the first fifty cases was made in Magdeburg under the direction of Hoppe of Uchtspringe. In each case exact investigations as to the metabolism of the patient were made, especially was the excretion of arsenic carefully studied. It was established that the excretion of arsenic was not so rapid as was intimated by other authorities. In some cases arsenic was excreted ten to twelve days after the injection. "With an intragluteal injection it is assumed that a sort of depot for the drug is formed, it is encapsulated as it were, and it cannot be recorded that on such and such a day will so and so much of the drug be taken from the place" (Alt). With intramuscular injections the arsenic is slowly absorbed. Ehrlich says that in hens injected, intramuscularly, with the *Spirillum gallinarum* it takes the infection thirty to forty days to develop; whereas after intravenous injection only three to four days. According to Ehrlich, muscle necrosis arises in the sphere of the injection which contains the preparation and slowly gives it up.

"From Magdeburg, two death are recorded for which the treatment with 606 was proved not to be responsible. In one of these cases fourteen days after the injection a considerable amount of arsenic could be found in a piece of the gluteal muscle. The other case, which thirty-six days after injection came to section, showed arsenic still present in the gluteal musculature (0.01 grm.). Doubtless, in a number of cases, where the intragluteal injection is given, a depot, so called, remains a long time. "If the dose is not effectual can we say it was too small, but is it not possible that the introduced drug did not come in contact with the several tissues of the recipient?" (Alt).

With intravenous injections of 606, the excretion of arsenic is almost ended after two days, only a trace being found after the third day. "During this time almost the entire amount of arsenic can be found in the urine and stools, a very small amount is found in the sweat" (Hoppe and Fischer). Hoppe and Fischer found arsenic in the urine of paralytics 10 days after the intramuscular injection of 606. They also report that after a subcutaneous injection in paralytics the excretion of arsenic in the urine (0.3 grm.) terminated after 12 to 14 days, in epileptics after 15 to 16 days, and with other syphilitics mostly before the fifteenth day. The excretion of arsenic from the intestinal canal, after an intramuscular injection of 0.03 grm. continued 10 days. According to Fischer and Hoppe arsenic was not found in the blood (30 c.c. of blood) 14 days after injection.

Heubner states that after the intravenous injec-

tion the excretion of arsenic is exceptionally rapid. Schreiber observed a light arsenical exanthem in two patients which appeared eight or ten days after the injection of 606, and very quickly disappeared. One of the patients had a rise in temperature. Hirschfeld found no changes in the blood except in a single case where there was a slight hyperleucocytosis. Schwarz also found a hyperleucocytosis. Neisser reports a hyperleucocytosis (3800) which appeared after an injection and which slowly declined. According to Heubner, even with the strongest concentration of 606, the formation of methemoglobin does not take place.

At the instigation of Fournier of Paris, Emery went to observe the experiments which were being made with the Ehrlich preparation at the clinics of Herxheimer (Frankfurt), Lesser (Berlin), Neisser (Breslau), and Wechselmann, Michaelis, Tomascyewski, Blaschko, Sachs, and finally Ehrlich himself. The experiences of Emery are of not a little value and on that account the writer will frequently draw from them.

Primary Lesion.—After Alt had found the efficient dose of 606 to be 0.3 grm. he had Schreiber try the drug upon recent cases of syphilis, in the Altstädtischen Krankenhaus in Magdeburg. Alt says: Since the 31st day of January, 1910, twenty cases of florid syphilis have been treated by us, each with a single injection (0.3 grm.) of 606, with immediate and astonishing results. The initial lesion itself, together with its induration, showed marked retrogression after a few days. The maculopapular eruption quickly healed, leaving pigment spots. Ulcerations on the labia are covered with epithelium in a few days. Large condylomata about the anus and perineum, in exceptionally bad cases, are entirely cured after four weeks. A large stubborn lesion on the head is after scarcely three weeks entirely cicatrized. In a few days the specific laryngitis disappears. There is, in all cases, an undeniable specific influence favoring the healing process. The tendency to heal is astonishing, dates from when the injection is given and there are no complications. With three exceptions the patients gained in weight. Pain at the site of injection and a rise of temperature (101.5° F.) were noted."

Emery says: "The action of 606 on a chancre of the lip appeared to me singularly rapid. It cicatrized in three or four days and the submaxillary adenitis disappeared as if by enchantment. The rapidity of action on the genital lesions was not quite so great."

I have seen chancres clear up in three days and cicatrize in seven, but the nodular infiltration, although softened and diminished in volume, persisted and the inguinal adenopathy slowly declined. Emery has seen chancres clear up in two or three days and cicatrize in five to ten days.

Ten chancres (Géronne and Huggenberg) about the size of a ten-cent piece were healed in ten to fourteen days. *A chancroid remained uninfluenced by* 606. The diminution in the size of lymph ganglia is especially rapid—eight to fourteen days. In most cases there remains a slight swelling of the lymph nodes and vessels.

On June 18, 1910, at 2.30 P.M., Wechselmann injected with 606 a patient suffering from about twenty roseolar spots upon the trunk and a dirty erosive chancre on the shaft of the penis. At 6.30 P.M. almost all the roseola had disappeared and the next morning the chancre was clean, almost without any induration, and on June 22, 1910, there remained of the lesion a mass about a lentil in size. Wechselmann recites a case of an initial lesion, the size of a dollar, which destroyed the lower lip. There was also a maxillary bubo, the size of a goose egg, upon which (in May) inunctions of mercury were used without much effect. On May 20 an intramuscular injection (0.04 grm.) of 606 was given. On June 2 the lesion was flat, about the size of a ten-cent piece, the glands small, and on June 8 the lesion was completely cured. A markedly indurated chancre (cartilaginous) observed by Wechselmann, cleared up rapidly, but the complete healing took a long time, a time corresponding to the resorbtion of the tissue growth.

Spatz employed the Ehrlich preparation in nine cases. The sum of results is the following: "The primary lesion, in six days, was covered with epithelium and was softened, the moist papules dried up and the macular eruption entirely disappeared."

Dörr treated twenty-six cases by the intragluteal injection and observed no complications other than a rise in temperature and a sensation of pressure at the seat of the injection. He says, "he must designate the instantaneous results as almost dumfounding." Some cases, which were injected before the symptoms of the secondary stage appeared, in which the nature of the disease was definitely established by the presence of the spirochetes in the initial lesion, accompanied by a positive Wasserman reaction, the initial lesion quickly disappeared. One case, which was injected shortly before the secondary stage, is still (one month later) free from all symptoms. It was the same with all cases treated by this so-called "preventive injection." The time, however, since they were treated is too short to give definite results.

The action of the drug upon the initial lesion is at times not so marked as it is upon other syphilitic lesions. This peculiarity has not escaped Ehrlich himself, but he says it is exceptional. Ehrlich told Emery of a chancre with an ulcerated center, where the spirochetes persisted, which would not heal, and which responded to treatment only when the mercurial treatment was added to his treatment. This fact is very unusual, as usually the spirochetes disappear in an extraordinarily short time in recent syphilitic lesions. The fact that there exists at times only a relative softening action by 606 on the chancre is explained, as Emery says, by the vascular thrombosis which partially prevents the drug from coming in contact with the spirochetes. The same phenomenon can be observed with the mercurial medication, particularly when we use insoluble mercurial preparations. Soluble mercurial preparations act upon the chancre with a much greater rapidity than insoluble; yet, nodular indurations persist for a long time. Who has not observed the nodular infiltration which persists after the chancre has healed? We should not call in question the efficacy of 606, at this period of the disease, because of these partial and exceptional failures and because at times its action upon the initial lesion is slow. The only syphilis which we can diagnose is a general syphilis. The syphilitic infection, as we know, is already beyond the limits of the chancre when it appears. There is a double generalization of the disease, one early and rapid by the blood vessels, the other late and slow by the lymph vessels. The seroreaction of Wassermann,

which is almost always negative three weeks to two months (Emery) after the injection of 606, attests unimpeachably the sure "sterilizing" action of the drug upon the human organism so far as the syphilitic infection is concerned.

The value of the reaction of Wassermann in the diagnosis of syphilis is universally recognized today. Practically, the reaction is a specific one. It is also certain that the reaction of Wassermann is a valuable indication not only as to the existence of the disease, but also as to the degree of virulence of the infection. It is clearly evident that the percentage of positive Wassermann reactions diminishes proportionately to the number of cures by the mercurial medication (Neisser). We must not, however, lose sight of the fact that the reaction gives indications only for a variable time and that a negative Wassermann reaction has been concomitant with the appearance of a localized tertiary lesion.

The only practical conclusion to be drawn from the foregoing observations is the necessity, if we wish to attempt to "sterilize" the body rapidly and completely, so far as the syphilis is concerned, of joining (as Blaschko has recommended) a local treatment (excision, destruction with the galvanocautery, or local mercurial treatment) with the general treatment of Ehrlich. Emery thinks the local and general mercurial treatment should be administered with 606. Ehrlich interdicts entirely the parallel use of another arsenical preparation such as atoxyl or hectine, but is not at all opposed to the concomitant or consequent use of mercury with 606.

Secondary Lesions.—The action of the drug upon mucous lesions of whatever nature and wherever located is most extraordinary. Mucous patches on the tonsils and soft palate, eroding syphilides, or superficial ulcerations of the lips disappear, as if by enchantment, twenty-four to thirty-six hours after the injection and sometimes there is not a trace twelve hours after the injection. Wechselmann cites a case of a young girl with severe mucous lesions of the tonsils, fauces, and labia pudendi which disappeared entirely eight days after an injection of 606.

Schreiber reports 150 cases treated by him, of which 128 were intramuscular and 22 intravenous. In all cases a prompt decline in the manifestations was noted. In ten cases, in which apparently the dose was not sufficient, new manifestations appeared before the expiration of four weeks.

Lesions of the vulva and penis, particularly when they take the form of vegetations and are bathed and irritated by the neighboring discharges, heal more slowly, but the action of 606 is none the less exceptionally rapid. In the service of Professor Lesser of Berlin very extensive vulvar lesions were healed in eight or ten days, the lesions simply being kept clean. Isolated and conglomerated condylomata regress, dry up, and disappear in almost the same time. At times, twenty-four hours after the injection the beginning of the drying up appears. Some disappear five or six days after the injection. Géronne and Huggenberg report that "small condylomata heal in fourteen days, ulcerated ones in two or three weeks."

The roseola and simple macules disappear in two to five days. Papules at the latest in three weeks. A hemorrhagic exanthem on the lower part of the thigh disappeared in eighteen days. With an impetiginous syphilide of the head and back, the lesions on the head disappeared in sixteen days and those on the back in three weeks. In five cases of laryngitis the laryngitis healed in seven to ten days.

The action, so extraordinary, so sure, and so rapid, of 606 upon eminently contagious lesions gives us a remedy which is destined to play a great as well as a first part in the prophylaxis of syphilis. The action of the drug on secondary skin lesions is very rapid. The roseola disappears more rapidly than a papular syphilide and much more rapidly than a papulomacular or follicular syphilide. Dörr states that in cases which had received Ehrlich's preparation after the manifestation of the secondary lesions or after a relapse the mucous and skin lesions (mucous patches, papular, macular, and lenticular syphilides) together with the local and general adenopathy declined in the course of a few days. There were no relapses in a space of time covered by one to four weeks. In many cases Neisser observed such a rapid decline of the initial lesion, the papular syphilide, the ulcerous processes, and especially the malignant types of syphilis that he says: "Regarding the specificness of the remedy no doubt can prevail."

Tomasczewski, coworker with Miekley at the University Skin Clinic (Berlin), injected (intramuscular, 0.3 gram 606) and observed seventeen patients with secondary syphilis. The manifestations of the disease promptly subsided, "in some cases surprisingly, and in one case astoundingly fast." Wechselmann reports two cases: one of pernicious anemia after syphilis with fever, dyspnea, and 20 per cent. hemoglobin, in which death followed eight days after an injection of 0.3 gram 606. The other case was one of papulocrustaceous syphilide of the worst kind, together with a rupial efflorescence on the forearm (1 cm. high and 2.5 cm. in diameter) from which, a few days after the injection, the crusts peeled off and there were left only small fresh granulating surfaces, and the syphilitic infiltration entirely disappeared.

There are different grades of resistance to treatment with 606 on the part of cutaneous lesions; the same can be observed when similar lesions are treated with mercury. Emery states that in some cases, where the mercurial treatment is vigorously used, where large doses of calomel or biniodide of mercury are given, the mercurial treatment compares very favorably with that of Ehrlich so far as rapidity of action is concerned. He has seen papulolenticular syphilides (they were considerably scattered over the trunk) disappear in less than three days, leaving behind only a light rose coloration. We all know how rapidly inunctions of mercury sometimes act upon cutaneous lesions.

The action of 606 upon the early malignant syphilides (pustular, ulcerous, ecthymatous, frambesioidal) is a veritable triumph. Not only are the lesions of the skin and mucous membranes rapidly and completely cured, but the general constitutional disorders which accompany them are *pari passu* ameliorated and disappear. The integument takes on its normal color, the fever and headaches cease, appetite returns, the patients gain in weight, and their general physical and mental conditions are reestablished in an extraordinary degree.

Alt recites a case of icterus syphiliticus, with very severe icterus, marked general adenopathy, and an extremely well-developed maculopapular syphilide. About nine days after an injection

(0.4 gram) the icterus had almost disappeared together with the eruption and adenopathy. Wechselmann also relates a case of syphilitic icterus healed by 606 in a week.

Dörr reports the following two cases of malignant syphilis: One a soldier, previous to his infection a robust man, who was treated for months with mercury and potassium iodide without any results. He was exceedingly pulled down, bedridden, unable to move himself, had night sweats and fever and his entire body was covered with an extensive crustaceous and ulcerated syphilide. His condition was such that his physician, Dr. Furhauf, gave a lethal prognosis. The patient was given a single injection, which on account of his decrepid condition contained only 0.3 gram 606; yet two days later the pain, fever, night sweats had ceased and on the third day the ulcers began to heal. He gained in weight and according to his own account felt exceptionally well. At the time of writing all the ulcers were covering themselves with epithelium. The second case (which was one of tertiary syphilis and is inserted here only for convenience) was in a woman who acquired syphilis five years previously and for four years suffered, in spite of all treatment, from a torpid ulcer about as large as the palm of the hand, which was 2 cm. deep and had an elevated sort of border. She was injected with 0.4 gram 606. Her condition became better at once, the ulcer, nothwithstanding its size and extensiveness, began to fill up with granulation tissue and the epithelium began to grow inward from the walls of the same. The injection produced no untoward effects in this patient, who was in a weak and reduced condition. Emery cites cases of infiltrated nonulcerated syphilides which healed in the same way although somewhat slower.

Herxheimer is of the opinion that localized ulcerater tubercular syphilides (forehead, wrist, arm, shoulder) heal less quickly than when they are scattered. Emery, however, says that the ulcerated tubercular syphilides heal as quickly as the nonulcerated.

Besides these secondary manifestations which are not easily or quickly cured by mercury or potassium iodide, there are other manifestations of syphilis, inveterate, deep, extensive, of the palm of the hand and sole of the foot, which are remarkable for their pertinacity and prolonged resistance to mercury. Emery saw two such cases. One in Ehrlich's laboratory which was "radically cured in a relatively short time." The other was in the service of Herxheimer, which was effaced about four days after an injection of 606. Géronne and Huggenberg relate two similar cases. One disappeared ten days after the injection of 606 and there was little to see of the other after seven days.

Comparison of the Ehrlich and Mercury Treatments.—Of special interest are some cases in which Wechselmann compared the results of the mercury and potassium iodide treatment with Ehrlich's treatment. He designates the following case as "quite unbelievable." Seven months previously the patient had a chancre and four weeks later an eruption. From November 28, 1909, to the middle of March, 1910, he received thirty-five injections of mercury. For three months he had pain in both knees and on May 5, 1910, he came under Wechselmann's care. "The patient was a skeleton, the skin sallow and corpse-like, his appearance that of a death's head, with an exceedingly painful expression." On the face and body were crustaceous lesions as large and larger than a ten-cent piece. Ulcers and scars of the same extended into the subcutaneous tissue. From the nose came a most offensive odor. The septum of the nose was perforated and the left inferior turbinated bone and vomer had sloughed away. Swallowing was very painful and the patient was kept alive by the stomach tube and nutrient enemata. The pulse was small, of low tension, and 120 or more. The end was daily expected. On May 21, 1910, Wechselmann injected 0.4 gram of 606. There was no rise in temperature and the pain remained moderate. Two or three days later the general condition was distinctly improved and on May 26, 1910, a general healing began. The diseased bone of the nose was thrown off *in toto*. The fetor vanished. On May 30, 1910, the lesions were healing or had healed, and on June 7 the patient began to swallow and go about. The weight increased from 84.7 pounds, on May 21, to 107.8 pounds, on June 22.*

Wechselmann also saw similar surprising results in two hopeless cases, which for years had been fruitlessly treated by the usual method. In one of these cases after an injection of 0.25 gram 606 the temperature rose to 102.8° F. and remained so during four days and morphine had to be given on account of the pain. Michaelis gives the following case with an idiosyncrasy toward mercury. On June 9, on account of an extensive papular syphilide covering the entire body, with psoriasis on the palms, and papules on the back of the hands, 0.3 gram of 606 was injected. No pain or disturbance was felt. The papules on the forehad and skin of the head began to disappear on the third day after the injection. On June 22, 1910, the only evidence of the disease were pigment spots on the backs of the hands. The following case of Michaelis offers another comparison of the two methods. A patient who contracted syphilis in 1906, in spite of mercury, atoxyl, and potassum iodide, had ulcers on the palate on either side of the uvula, and on the bridge of the nose. The uvula was ready to slough off. On the third day after the injection of 606, the edges of the ulcer became healthy and eight days after the injection on each side of the uvula was a small scar.

Pick reports two cases of malignant syphilis (ulcerated gummatous lesions of the pharynx and tonsils) on which mercury and potassium iodide were used without effect. The lesions began to heal a few days after the injection. The Wassermann positive reaction was not influenced by the drug.

Tertiary Lesions.—Particularly striking is the action of this drug upon all forms of ulcerated gummata. A case in Ehrlich's laboratory of an enormous gummatous ulcer of the leg was more than half healed (filled) five days after the injection of 606. The writer saw two very striking cases in Müller's service in Vienna. One a large ulcer of the face, the other of the leg, both of which were rapidly healing after the administration of 606, and which had previously resisted all treatment. It is a remarkable fact that the signs of periostitis, frequently so painful, beneath these gummata are the first to disappear. This is also the case in the other forms of syphilitic periostitis and the pain usually disappears the first night after the injection.

*Pick states that often with the rapid decline in symptoms the patients gain in weight (8.3 lb.).

Emery saw a case in Professor Lesser's clinic where two large gummatous ulcerations had developed in the middle of the dorsum of the tongue. The pain was so severe that the patient could only swallow liquids. Since 1900 the patient had taken mercurial inunctions and injections without staying the progress of the disease. Eight days after the injection the tongue was completely healed. In the middle of which was a linear fibrous cicatrix; the organ itself had its normal suppleness; all pain and inconvenience had disappeared, and, finally, he was shown a colored photograph of the intact lesions taken eight days previous. In the service of Herxheimer there was a gumma of the arch of the palate which had not been treated locally. Three days after the injection of 606 it showed a clean surface and cicatrizing edges. Michaelis cites the three following interesting cases from his service (Berlin): One was that of a pharyngeal and perilaryngeal gummatous ulceration which threatened the life of the patient. It was totally healed a few days after the injection of 606. The second case was one of syphiltic ozena; the repulsive odor from which disappeared forty-eight hours after the injection and was radically cured three weeks afterward. Von Zeisel and Duhot had the same extraordinary results with a diffuse hypertrophic syphiloma of the nose and upper lip after using Ehrlich's treatment. The third case was one of chronic syphilitic arthropathy which had resisted all treatment but yielded at once to 606.

Kromayer observed two cases of very extensive ulcerations (subcutaneous gummata) on the thigh, exposing the bones, which healed so quickly "as to be scarcely believable." He treated fifteen cases with 606,

The following two cases are taken from those reported by Géronne and Huggenberg. One, a gummatous orchitis, the size of a small fist, was sixteen days after the injection only a little larger than the sound testicle. "An accompanying psoriasis vulgaris shows no signs of disappearing." The other was an interstitial glossitis of two years' standing. Eight days after the injection the swelling diminished and the tongue could be easily moved. Ledermann reports a gummatous ulcer of the leg which was treated very successfully by Ehrlich's method.

Visceral Syphilis.—In cases of renal and hepatic syphilis the Ehrlich treatment can be profitably used. Alt recites a case of icteric syphilis cured after nine days, and Wechselmann one after seven. Lesser gives a case of lung syphilis accompanied with chronic nephritis in which the 606 gave brilliant results. Emery relates a case of grave stomachic syphilis relapsing in spite of mercurial treatment, which was successfully treated by 606. A case of syphilitic ulceration of the rectum is reported by Wechselmann, which rapidly healed, with slight consequent stenosis not embarrassing to defecation. It is thought that the treatment of visceral syphilis with 606 will very likely play an important part in the therapeutics of this disease. Up to the present visceral syphilis has been but little studied clinically. This is probably accounted for by the apparent rarity of the cases and the difficulty in observing and diagnosing them. Nowadays, after a positive or part positive seroreaction of Wassermann had been obtained, of course combined with a careful clinical examination of the patient, we can almost positively conclude that the trouble is syphilitic.

We must, however, keep in mind *that, when we have to do with nonsyphilitic visceral lesions concomitant with syphilis, the drug is contraindicated.*

Ocular Lesions.—There was an undoubted improvement in the cases seen by Emery of syphilitic conjunctivitis, choroiditis, and iritis; but he says the treatment was of too recent a date for one to appreciate definitely the results which appeared so excellent. Gluck reports a case of iritis with synechia, in which the photophobia disappeared on the second day after the injection and the eye became normal after eight days. A double iritis was cured three weeks after the injection of 606. The same observer cites a case of parenchymatous keratitis which cleared up two days after the injection of 606 and was notably improved but incompletely healed when the patient left the hospital twenty-one days after the injection. Wechselmann reports an optic neuritis appearing two months before 606 was injected. Since the injection the fundus oculi and vision have remained normal.

Syphilitic Lesions of the Nervous System.—Although Ehrlich himself has made the formal statement that the presence of certain lesions of the nervous system are contraindications for the administration of 606, nevertheless the drug has been employed in many nervous diseases consequent to syphilis. Wechselmann cites at least five cases (two of recent date) of syphilis of the central nervous system which underwent treatment with 606 without harmful results. A case of cerebral syphilis presenting a menacing gait was treated with 606 by Michaelis. The symptoms were soon reduced to headache. A case is reported of a woman with a long standing syphilis, where among other preataxic lesions there was a commencing optic atrophy. After the injection of 606 the opthalmologists who examined the eye said there was a considerable improvement in vision.

Alt gives a number of cases of epilepsy of syphilitic origin which were greatly benefited by the injection of 606. The attacks almost disappeared. Two cases of severe epilepsy with syphilis, which daily had four to five epileptic attacks and where the status epilepticus was so severe that death appeared imminent, were given an intravenous injection of 606 (for fear the pain of an intragluteal one would bring on a new status) with astonishing results. "In one case the seizures have quite disappeared; for five days none occurred."

The following reports of late syphilis which were treated with 606 are given by Dörr. Three paralytics were injected with insufficient quantities of the drug; accordingly, no effect could be expected. The patients who received 0.4 gram 606 were naturally improved. One patient who suffered from attacks of dizziness, paresthesia (one side), and diplopia was three weeks after the injection free from all these symptoms. Another suffered from dizziness, headache, disturbance in speaking and writing, and very marked disturbances in perception and conception. Four weeks after the injections of 606 the patient was less forgetful and suffered no longer from headache and dizziness Mattauscheck, who examined him, states that his powers of perception and conception were materially improved and that the disturbances in speaking and writing have disappeared. Wechselmann cites a case of testicular and brain syphilis which healed within fourteen days after an injection of 606.

Neisser reports the case of a woman with a syphilitic brain lesion (optic neuritis) following one

year after the initial lesion. There were choked disk, paralysis of several eye muscles, and terrible headache. The case was treated ineffectually with large doses of mercury and an appropriate amount of potassium iodide. After an injection of 0.3 gram in conjunction with the potassium iodide treatment all the subjective and objective symptoms declined with striking rapidity.

The Ehrlich-Hata preparation was used by Alt in a number of relatively recent cases of tabes. In six cases not only the subjective but the objective symptoms subsided and hand in hand with this there was a general improvement and the patients took on weight.

The fact that Ehrlich himself forbids the use of the drug in cases of syphilis of the nervous system, combined with some recent bad results following its use there, should force one to show very great reserve in treating such cases with 606. Fraenkel and Grouven have reported a death ensuing two hours after an intravenous dose of 0.4 gram. The patient was a young man suffering from a cerebral gumma. Ehrlich absolutely forbade Emery to use 606 upon a case of syphilis of the central nervous system which developed less than eight months after the infection and in which mercury had only given partial results. It is necessary to be very cautious until experience shows what forms and localizations of syphilis of the nervous system we can treat by the Ehrlich-Hata preparation. Of course, it is different with the tabetic patients at the beginning of their trouble, who still have their ocular integrity and appear much benefited by the treatment.

Hereditary Syphilis.—Pregnant women have received an injection of 606 without ill results. Gluck, however, speaks of a case where the heart beats of the fetus ceased a short time after the injection of 606. Michaelis injected a nursing child which was literally covered with a pemphigus syphilide with 0.1 gram. From the day of the injection it gained in weight and the cutaneous and buccal lesions began to disappear. Wechselmann injected with 606 a nursing child who had a large papular and pemphigus eruption, which was shortly cured. The positive Wassermann reaction disappeared and the child remained well.

Michaelis tells of a syphilitic child with an exanthem, an infiltration of the palms of the hands and soles of the feet, upon whom the lesions began to heal three days after and had entirely disappeared eight days after the injection of 606. A coryza persisted, however.

Two nurslings, according to Wechselmann, with pemphigus neonatorum were cured after the injection. Three others with the same disease died a few days after 606 was injected. The skin lesions indeed began to get better, but anemia, fever, and, in one case, opisthotonus appeared and death resulted. The section showed, in the first case, most extensive miliary gummata of the liver; in the second, gummata of the heart; in the third, pedatrophy. There were no signs of arsenic poisoning.

Wechselmann considers only those children whose nutrition is faultless are fitted to be treated by the new method. He holds that it is possible through the rapid dissolving of the large number of spirochetes by the administration of 606 to set free such an amount of endotoxin that thereby a transient damaging agent enters which the weak infant's organization cannot stand.

Ehrlich has stated that nursing children should not be given more than 0.03 to 0.05 gram of his preparation. He considers even this dose as lethal for some; for it was found that the syphilitic lesions of the nursing child were completely cured through the milk of the mother, who had already received an injection of 606. Ehrlich maintains that recourse should be had for some time to the action of the mother's milk before the child is injected with 606. Schreiber reports that the infants of two pregnant syphilitic women who were injected with 606 previous to the birth of their children showed no evidence of syphilis.

Relapses.—Wechselmann had not seen any relapses up to the time his paper was published, nor has Emery seen any in the various clinics he visited; yet various experimenters have observed them.

Géronne and Huggenberg, in their last report of twenty cases which were treated by 606 with good results, say they had five relapses. They observed the cases for thirteen weeks. Among these cases "there were two men who received an intramuscular injection (606). The clinical symptoms strikingly diminished, the Wassermann was soon negative and remained so, and then, after seven or eight weeks, on the site where the chancre was there appeared a new erosion in which the spirochetes were found. They conjecture that in the upper layers of the epithelium the spirochetes remain alive because the drug has not reached them. They intend in the future to treat the primary lesion, etc., locally. The two following cases are also reported by them. A case of specific laryngitis treated with 606 (the Wassermann was not negative) reappeared five weeks later. Another case of specific laryngitis was treated with 606. Wassermann became negative and remained so some weeks. After eight weeks it again became positive, but no clinical manifestations appeared. Neisser explains the relapses noted by the fact that too small doses (up to 0.4 gram) of the drug were used.

The relapses explain themselves, according to Wechselmann, by the fact that the spirochete is not a parasite of the blood, like the trypanosome, except in a very transient way; that it leaves the blood, enters the lymph spaces, and forms what might be called sorts of isolated centers in different parts of the body and that it is possible for the organisms in these foci to wake up and become virulent at periods more or less remote. Not only are the various relapses accounted for in this way, but the negative Wassermann reactions followed at variable intervals by the positive Wassermann reactions are also explained.

Failures with 606.—No failures were reported to Emery from the several clinics he visited. He saw in Lesser's clinic a syphilitic ulceration of the head and face in which no modification appeared ten days after the injection of 606. It was thought that the drug became encysted, so to speak, at the site of the injection, where a tumor persisted for some time, and therefore the 606 was not properly absorbed. It is to avoid such a condition that Michaelis recommends massaging the site of injection for at least ten minutes after the drug is administered. Ehrlich told Emery of a case in which he attributed the tardy healing to a previous administration of arsenic.

As to how the 606 medication compares with the mercurial (excepting, of course, the treatment of parasyphilides in which the drug has partially failed

and for which it was originally not intended) the following expressions of opinion are given:

"In most of the cases the syphilitic manifestations declined faster with 606 than with any other remedy used by us." (Pick.)

"In all the cases where the time of observation is long enough there was a decrease of the manifest symptoms; indeed, the improvement was mostly a striking and quick one." (Géronne and Huggenberg).

The instantaneous result of 606 was "almost dumfounding; whether a lasting cure (the absence of relapses) has been accomplished or whether this can be accomplished with greater doses we will report next winter. I would like to call your attention to the fact that forms refractory to mercury which had been for years in a stationary condition improve strikingly and quickly after the injection of 606" (Dörr). "Regarding the specific character of the remedy no doubt can prevail" (Neisser). He is also quoted elsewhere. Speaking of his cures, Kromayer says "on the whole I did not think it possible."

"It is obvious that after so short a time we cannot say whether a final cure of lues is brought about by the new remedy. Experience will teach this. I believe there is no longer any doubt (I have more than 150 cases on hand) that so effective a specific remedy as the Ehrlich preparation has not existed till now" (Alt).

"Sceptical criticism can no longer exist. The new preparation affects the symptoms of syphilis in their infectious forms with a rapidity and thoroughness that no former drug had in any way approached. The healing is so rapid that one cannot exhibit the patients because most of them show nothing after a few days and leave the hospital" (Wechselmann). (He tried the drug on eighty cases.)

Prophylaxis.—On account of an action so constant, rapid, and durable, upon the mucus patches and all erosive and ulcerous lesions whence the infection takes place, 606 will play a prominent part in the contest against syphilis. Thanks to the Wassermann reaction and 606 it may be possible quickly to "sterilize" partially or entirely all those infected with syphilis.

The appearance of some form of latent syphilis entailing an injection of 606 will assure at least for a considerable time an innocuousness. At present protective measures are unfortunately often too late and on account of the frequency of application therapeutic interventions are difficult.

For those syphilitics who have not conformed strictly to the mercurial treatment and whom we cannot forbid marrying because their disease is old and they have had no lesions for a long time it would be well to advise as a measure of precaution and security an injection of 606 some months before marriage. With syphilitics desiring to marry we usually consider the frequency and intensity of their relapses, the character and duration of the treatment, the period over which the disease has extended, the time elapsed since their last manifestation, and finally the Wassermann reaction. Can we now tell them after the administration of 606 that they are cured and are fit to marry? We know the wonderful effect 606 has upon the lesions of syphilis and even the power it has of changing a Wassermann reaction from positive to negative. We might even legitimately stop all treatment after an injection of 606, provided the Wassermann reaction frequently repeated showed negative results. We cannot, however, lose sight of the fact that, at times, a negative Wassermann reaction has been coexistent with the manifestation of a tertiary lesion, and finally have we enough evidence of the definite action of 606?

Emery makes the following emphatic statement: "The complementary precaution of a mercurial treatment should in every case be exacted." With this statement we must at present agree. Ehrlich is not opposed to the consecutive or simultaneous use of 606 and mercury; he is, however, opposed to the synchronous use of 606 and other arsenical preparations.

The question is continually asked to-day, not only by the physician, but the layman as well: "Will 606 after a single injection definitely cure syphilis? It is this question which has caused the greatest confusion regarding the *real value* of Ehrlich's discovery. This confuson can be cleared up easily by reading Ehrlich's article, "Chemotherapie von Infektionskrankheiten." A certain number, very few perhaps, are certainly not cured by a single injection of 606, as is attested by the relapses reported and where a second injection is necessary. We can readily understand the possibility of some of the spirochetes escaping destruction either by the fact that the dose of the drug was too small or that they might have scattered themselves in such places in the body where a single injection could not reach them.

We must remember that Ehrlich says that the dose of the drug can be learned only by slow and patient observation. We know positively that 606 has shown itself superior to any other mode of treatment so far as its action upon a large number of syphilitic lesions is concerned. It has been said we must discriminate between the action of 606 upon the lesions and its action upon the evolution of the disease (the clinical development of syphilis), that is, the syphilitic infection itself. The clinical development of the disease is determined by the parasites, in that they hinder the curative reaction of the cells of the organism.

The lesions, of course, are the consequence of the infection and the obvious lesions in almost every case rapidly disappear after the injection. This fact accompanied by the appearance of a negative Wassermann reaction three weeks to two months after the injection of 606, together with the early disappearance of the spirochetes in lesions before the healing process begins, and probably the appearance of the Herxheimer reaction, which appears about the same time the spirochetes disappear from the other lesions, combined with the results of animal experimentation, are most convincing proofs of the high parasitotropic value and great sterilizing power of 606.

"How can we prove," says Emery, "this action quasi miraculous, which we see with our eyes, which we believe perfectly realizable, but which we still only catch a glimpse of?" In order to demonstrate that a definite cure is produced by 606 we must dispose of the following facts: (1) The presence or absence of the spirochetes in the lesions. (2) The presence of a positive, part positive, or negative Wassermann reaction. (3) The results of experimentation upon animals. (4) The results of a study of the clinical developments of the disease.

The first of these facts is proved in many lesions. The second is proved in the greater percentage of cases. Some consider it so in all. Regarding the

third, it may be said that experimentation upon animals is open to some objections, in that it is so much more difficult to generalize in them the infection than in man. The following report quoted from Neisser is of no small value as bearing upon this subject:

Of twelve syphilitic apes which were treated by intramuscular injections of 0.025 gram 606 per kilo and by intravenous 0.015 gram per kilo only three of these were surely healed at the time he published his article; two possibly and the other seven were certainly at that time not cured. With two of the apes, which were given an intramuscular injection (0.25 gram) of 606 eleven days before they were infected with syphilis, the primary lesion appeared very much later and was much less extensive than with the apes who had been simultaneously infected and who had not received a previous injection of 606. It is further reported that Neisser has succeeded in reinfecting syphilitic apes cured by 606. As for the fourth fact *only time will show.*

In answer to the question: Is a definite cure brought about by the injection of 606? Emery answers as follows: Yes, in the majority of cases. But who has not seen syphilis, unknown or ignored, consequently not treated, craftily disappear during the first stages of its development and remain mute during periods of ten, twenty, thirty years and even during a generation, wake up in the aspect of a grave disease of the nervous system—general paralysis?

Indications — Contraindications. — The patient should be carefully examined with a view of ascertaining the presence of lesions other than syphilis.

As we know the toxic effect of the arsenical preparations, and especially their injurious action on the optic nerve, Spatz insists that in every case we intend to treat with 606 we must previously examine the fundus oculi and accept for treatment only those who have a normal fundus. Before an injection of 606 is given an examination of the blood should be made in order to ascertain by the Wassermann method what the seroreaction is. Spirochetes should be looked for in the chancre, the examination being made according to Burri's method or, better possibly, with the dark field illuminating apparatus or both methods. The temperature and body weight should be taken and the urine examined (especially for albumin). *If the form of the disease is appropriate then and then only should we give an injection of 606.*

According to Blaschko the contraindications are: old age, affections other than syphilis of the kidney, heart, liver, spleen, lung, blood-vessels, such as an advanced aneurysm, and particularly those who have not a normal fundus oculi; with those who are suffering from a grave syphilitic affection of the brain, such as recent hemiplegia or an acute or subacute meningitis, 606 should be used with the greatest caution and only after the physician is thoroughly convinced that the treatment with mercury is not efficacious. Cachexia or a weak constitution is not always a contraindication.

The method of Ehrlich is indicated (Blaschko): (1) In all cases where the lesions are refractory to mercury. (2) In a relapse immediately following a so-called mercury cure. (3) In cases where there are continual relapses. (4) When there is an idiosyncrasy toward the mercury medication. (5) With all cases of malignant syphilis with secondary and tertiary syphilides which are destructive or dangerous on account of their site and the disorders they occasion. (6) To make the first attack on the disease with this drug at the appearance of the chancre and at the same time treat the initial lesion locally followed by a prolonged and intermittent treatment.

In all other cases we can treat the lesion independently either by Ehrlich's or the mercury method, as occasion and convenience present themselves. Not a few syphilographers think that these two modes of treatment in a certain number of cases, instead of excluding one, can complete and supplement each other. A long comparative study of the two medications as to their advantages, propriety, and efficacy will doubtles permit us to narrow the precise indications of the one or other.

Whatever may be the future of the Ehrlich-Hata preparation, and now there is no doubt regarding it, the admiration of the entire world must go out to the man who bestowed it, who gave us the Ehrlich side-chain theory, the Ehrlich granules in the leucocytes, who proved that there are chemical substances which are fixed by microorganisms living in our body, and now—to crown it all—conceives the *therapia sterilisans magna* which gives the *coup de massue* to syphilis almost at the moment of its inception.

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CUSTODIANSHIP OF THE WATCH AND BIBLE OF DR. BENJAMIN RUSH.*

WITH BIOGRAPHICAL NOTES.

By ROBERT ABBE, M.D.,

NEW YORK

Few more interesting souvenirs could come into the keeping of the profession than the two typical possessions of Dr. Benjamin Rush—so full of character—as his watch and his bible. He was a man of such rich experience, rare character, and notable attainments, that he made a lasting impression on his time both in professional and patriotic fields.

The old inscription of the former owners of the watch, namely,

BENJAMIN RUSH, M.D.
Sig. Dec. Ind.
Ob. 1813
RICHARD RUSH.
Ob. 1859
BENJAMIN RUSH

*Read at a meeting of the Practitioners' Society, October 14, 1910.

gives it a personality of its own. One feels something of a thrill as one holds it in his hand and thinks of the hand that held it long ago at the death bedside of many great heroes of revolutionary days, or when keeping appointments with the early presidents, the highest statesmen, Franklin, Humboldt, and a host of others.

A little later it followed the fortunes of Richard Rush, the son, equally great in the annals of the day, as attorney general of the United States, and later our minister to England and to France. This watch was often at the court of St. James, where the younger Rush figured well and became an important factor in establishing the Monroe Doctrine by writing a warning to our government of the secret understanding between European monarchs to thwart the spread of republican ideas which were taking root in America. From his letters extracts were used by President Monroe in his message to Congress devising the Monroe Doctrine. It also figured in France where Richard Rush as our minister was the first to recognize the Republic in 1848.

I have been asked to bequeath this souvenir to the most distinguished member of our profession, whom I consider to represent the spirit and quali-

ties eminent in Dr. Rush, and by him to be passed on to successive custodians as years go by. Thus it is believed it will be a mark of distinction to be one of a chain of honored names perpetuating the just renown of Rush. We have in our country none too much of the oriental "ancestor-worship." We may well keep alive the names of good men.

In seeking a name for the first custodian I have, by elimination, chosen one whom I think you will agree with me has added to scientific research, an untiring spirit of work, a broad human helpfulness, patriotism, and literary culture—Dr. Weir Mitchell. It is specially fitting that Dr. Mitchell is a Philadelphian and an ex-president of the College of Physicians of which Dr. Rush was a founder. Dr. Mitchell agrees with me that the idea of perpetuating this memorial is most happy, and he accepts the trust, and agrees to nominate a successor, and to have the watch preserved in the cabinet of the institution as one of its most valuable assets.

As a companion piece to be kept with the watch, I have had made a book of blank pages finely bound, in which I have written the following brief biographical statement as representing the estimate of one of the profession in New York, followed by one from the pen of Dr. Weir Mitchell of his own city. Following this is a collection of photographs and engravings of all the existing portraits of Dr. Rush, with such autograph letters as I could obtain. Then comes the letter presenting the watch and inaugurating the scheme by the lady from whose hands it came to me. On succeeding pages are portraits of successive custodians of the watch, assigning perhaps the essential reasons of choice as well as of the acceptance of the trust.

Thus in time there will be a most valued series of portraits and autographs of noted medical men and the custodianship of the watch will be a sort of blue ribbon.

The name of Dr. Benjamin Rush has outlived the century of his birth and, by general concession, a century and a half later, stands on the roll of the medical profession the most noteworthy in our country's history.

The traits of character and qualities of mind which brought him to this commanding eminence may wisely be kept before succeeding generations as worthy of admiration and emulation.

He was born in a century when the light of science was dawning; when the art of medicine was only emerging from the crude customs and practices of medieval darkness. Medical teaching

was as child's play compared to modern revelations.

He was among the earliest students to sail back to the old world and listen to the masters of English and French teaching after he had absorbed the limited training of our provincial schools. Organized science was not known. Men were gathering facts. The personal friendship of Franklin, the acquaintance of Humboldt and of many other distinguished men, inspired him. Rush followed this spirit of study and as he says, had "a habit of making everybody with whom he conversed contribute to his improvement." He was untiring in his work —insistent on meeting the most distinguished men in all professions wherever he went.

He habituated himself to the improvement of every hour of the day and contributed letters to the lay and medical press whenever stirred by popular questions. Drawn into political controversy when his country was disturbed, he sacrificed time and energy to correcting public abuses. He was fearless in differing with friends on topics of the day, displaying a rare independence of thought.

He joined the patriots of his time, when to be

a republican threatened his prosperity. He fought prerogatives of royalty and led in committees advocating separation from the mother country. He was called to represent his State in the first congress and signed the Declaration of Independence in the stirring days of the revolution.

He was the intimate of all the patriots and heroes of the early days of our country's peril. For many years he was trusted by General Washington, who gave him command of the medical and surgical work of the Continental army, but whom he afterwards criticized with fearlessness of results that won the President's disfavor. Staunch admiration for his sterling worth led President Adams to appoint him Director of the U. S. Mint in the face of forty competitors. This responsible office he held during the last twenty years of his life.

No greater tribute could be paid to any man than that in which President Adams speaks of him after his death in a letter to Elbridge Gerry, saying "As a man of science, letters, taste, sense, philosophy, patriotism, religion, morality, merit, usefulness, taken altogether, Rush has not left his equal in America, nor, that I know, in the world. In him is taken away, in a manner most sudden and unexpected, a main prop of my life." Allowing for the exaggerations of friendship, President Adams in those words attempted a portrayal of virtues which, in his mind, dominated the portraiture of the man.

Dr. Rush was a deeply religious man from his youth, first a Presbyterian, then after marriage an Episcopalian. His studious and thoughtful habits, his controversial mind, incessant work and fearless independence made him irascible and brought him enemies. Nevertheless, he sustained the largest practice in Philadelphia, mainly among the poor.

We must, for all time, respect the man whose great humanitarian impulses dominated every act of his life. The epidemic of yellow fever in 1793 brought out the type of man most clearly. Deeply pondering on the terrible ravages of the disease, which swept Philadelphia in midsummer and reduced it to a few thousand, left to brave the fight, Rush remained among them, defying the disease, and putting in practice his best wisdom, though his methods differed from those of most of the faculty.

In retrospect, modern research shows that his opponents were more in the right than he in ascribing the epidemic to specific causes brought from without to the city, while he insisted it was from the unsanitary condition of the city only.

Rush was proud of his own calling and always ardent in the defence of the right as he saw it. We see the spirit of independence germinating in the grandfather who was a captain in Cromwell's army, came over with William Penn, and founded the stock from which Benjamin Rush was born in Philadelphia in 1745.

Of his medical writings some were controversial, some instructive, but more remarkable than all was his work on insanity, which competent judges regard as a century ahead of his time.

13 West Fiftieth Street.

Diagnostic Value of the Lipoids Excreted in the Urine and Sputum.—The so-called anisotropic "liquid crystals" sometimes found in these excreta doubtless represent a mixture of fat and albumin. While we know little of their chemical constitution, their presence, as revealed by the polarisation microscope, should possess diagnostic value.—*Deutsche medizinische Wochenschrift.*

COMPLETE SUBPARIETAL RUPTURE OF THE KIDNEY, WITH REPORT OF A CASE.

By HENRY G. BUGBEE, M.D.,

NEW YORK.

The extreme rarity of this injury, the vagueness of the signs and symptoms, with the probability that many cases are never diagnosed, or when recognized are placed upon proper treatment when too late, leads me to review the condition and report this case.

In few of the monographs on this subject, or even in the textbooks, is any attempt made to divide the cases into groups according to the extent of the lesion, hence it is impossible to give the proportion of the cases in which the lesion was complete. All ruptures, of whatever degree, are rare, as shown by the following statistics: In 2,610 post-mortem examinations in the course of ten years at the Middlesex Hospital there were 12 instances of subparietal rupture of the kidney, of all degrees. Goldstein reports 23 cases in 20 years at the Friedrichshain Hospital. Watson found 27 cases recorded at the Boston City Hospital in 14 years. He collected 603 cases recorded to 1903. In another series of 13,455 autopsies there were 31 instances of kidney rupture (Morris and Herzog). Johnson, in his report of all kidney lesions treated at the Roosevelt Hospital from 1890 to 1898, found one case of complete rupture of the organ. Brewer in a series of 140 cases of surgical kidney had one case of complete rupture.

Inasmuch as a very slight laceration of the kidney causes a relief of tension, it is probable that few ruptures are complete.

Injuries of the kidney occur more frequently in men. This relative frequency is probably due to their exposure to injury, but is also attributed, by Küster, to the fact that injury more commonly produces movable kidney in women. Thus he found of 306 cases of subparietal ruptures of the kidney, that 281 were in men. Complete rupture of the kidney may result from direct or indirect violence. The former is more common, and, as in the writer's case, the force is severe. Falls upon the feet or buttocks have produced the lesion, and Watson reports a case in which muscular exertion was the exciting cause. The ribs, by crushing the kidney against the spine, may assist in the production of the lesion. Hydraulic pressure, acting through the blood-vessels and the distended pelvis, is thought by Küster to play an important rôle. The organ distended with urine is certainly more prone to rupture. The right kidney is more frequently the seat of lesion than the left (242 of 272, Morris).

Pathology.—In complete rupture of the kidney one pole may be separated from the remainder of the organ, or the laceration may extend through the pelvis of the kidney and even into the vessels, as in the writer's case. The kidney usually ruptures in a horizontal direction, in the interlobular lines of the embryonic kidney. Although the rupture is complete, should it not involve a calix or the pelvis of the organ, urinary extravasation does not take place at once. Hemorrhage of more or less severity is immediate. If the fatty capsule is not torn, a hematoma rapidly forms beneath it. Pressure of the surrounding organs, also of the peritoneum, tends to check it. When the laceration involves the kidney pelvis, hemorrhage is more severe, and

an extravasation of blood may fill the loin. The peritoneum is protected by the fatty capsule interposed between it and the kidney, yet it may be torn, allowing a rapid extravasation of blood into the peritoneal cavity. Often other viscera are injured, most commonly the liver and spleen. Fractures are not infrequent complications. Suppuration rapidly ensues, should the patient withstand the primary shock, when a complete rupture is treated expectantly.

Symptoms.—The history is usually that of a severe crushing blow in the side, followed by pain, symptoms of shock, and internal hemorrhage. Hematuria is present unless the renal artery or the ureter is plugged with blood clot, or a complete destruction of the kidney has taken place. A tumor may rapidly fill the loin of the injured side. This tumor is tender, often irregular in contour, is due to perirenal extravasation of blood and urine,

and may rapidly increase in size (from a secondary hemorrhage); or may disappear altogether (from a dislodgment of a clot in the ureter). An absence of the tumor indicates a rupture of the peritoneum, with extravasation into the peritoneal cavity. Peritonitis may follow this, but Tuffier has shown that in single introductions of urine into this cavity, when made gradually, or when sufficient time is allowed to elapse between introductions, peritonitis does not result. Vomiting is often immediate. Rigidity of the abdominal muscles and ecchymosis may be noted. Anuria may take place immediately after the receipt of the injury, and is due to extensive laceration of the kidney with reflex inhibition of function in the other kidney; to injury of both kidneys; a plugging of the ureter; laceration of the renal vessels; or rupture of a fused kidney. Often it is of short duration (12 to 24 hours). Symptoms of suppuration follow these extensive ruptures if operative treatment is not employed at once.

Diagnosis.—The patient will, as a rule, give a history of having received a severe blow in the side. The examination reveals a tumor in the loin. There is, as a rule, hematuria. The patient is in a state of profound shock. These symptoms with evidences of internal hemorrhage should lead one to treat the patient for rupture of the kidney.

Prognosis.—This depends upon the delay in applying the proper treatment. The primary mortality is due to hemorrhage, while secondary deaths are caused by infection, which may be hematogenous or ascending in origin. The mortality of all cases of subparietal ruptures of the kidney has been estimated at from 32 to 92 per cent.

Treatment.—This resolves itself into expectant and radical. Expectant treatment should be employed only as a temporary procedure, to allow the patient to recover from the primary shock. The patient should be watched very closely, and this line of treatment must be immediately superseded by operation if the hemorrhage is progressive, or where there is reason to believe that there exists a rupture of the peritoneum with intraperitoneal complications. Expectant treatment consists in rest, application of cold and pressure to control the hemorrhage, treatment of the shock, with a refilling of the depleted vascular system. Operation is indicated in the vast majority of cases, and should be immediate. The choice of the operation depends upon the presence or absence of complications. When intraperitoneal organs are injured the abdomen should be opened anteriorly along the linea semilunaris. In uncomplicated cases the posterior incision, along the outer border of the erectorspinæ, and quadratus lumborum muscles, or the oblique incision parallel to the free border of of the ribs is preferable.

The steps of the operative procedure should lead to the checking of the hemorrhage, removal of the kidney if necessary, and drainage of the wound. Associated lesions, when found, must be treated. Manipulation should be reduced to a minimum, and the operation should be performed as rapidly as possible.

The case which I wish to report is as follows: Patient R. O., aged 15. Family history negative. Past history: Ordinary diseases of childhood, otherwise, negative. Present illness: On February 19, 1910, while coasting downhill, his sled turned, throwing him violently against an iron post. The blow was received squarely between the ribs and the crest of the ilium. Immediately he passed into a state of collapse, was carried home, and seen by a physician who stated that he was unable to find any evidences of severe injury and expressed the opinion that the boy would be all right in a few days. His mother states that he became very pale and cold, and complained of pain in his side. Two hours after the accident he voided an ounce of bright, bloody urine. One hour later, another small quantity of the same character was passed. He was now seen by a second physician, who advised his immediate removal. He was placed under my care at the Vassar Bros.' Hospital, in Poughkeepsie, nine hours after the accident. Physical examination on admission: A boy of medium frame, fairly well nourished; extremely pale; surface of the body covered with a clammy sweat; pupils dilated and sluggish; respirations slow and gasping;

pulse thready, weak, and irregular; temperature 97°. The right side of the abdomen was filled with a rather firm, rounded, slightly movable, tender mass. The remainder of the abdomen was slightly distended, tender, and rigid on the right side. Rectal examination negative. I made the diagnosis of probable rupture of the right kidney, with extensive hemorrhage. Owing to the exceedingly poor condition of the patient, it seemed best to apply palliative measures, in the hope that he would rally sufficiently from the shock to render the operation a less grave procedure. He was placed in bed; pressure and cold applied to the abdomen; salines administered per rectum, and morphine (grain ⅛) given. After watching the patient closely for ten hours, with little improvement in the general condition, I decided to operate without further delay. An intravenous infusion of 400 c.c. of saline solution was administered and a rapid exploration of the right kidney made. The posterior vertical incision was made along the outer border of the erectorspinæ muscle and the mass exposed. The mass filled the loin, extending above the free border of the ribs, and below to the crest of the ilium. Lying posterior to the peritoneum, it consisted of a completely ruptured kidney (as shown in cut), and blood clot. The whole mass was surrounded with fluid blood and urine. The pedicle was rapidly ligated and the kidney removed. Exploration revealed no injury of the peritoneum. The wound was packed, the bladder catheterized, four ounces of urine and blood were evacuated, and the patient returned to bed. The pulse, which was scarcely perceptible at the wrist, when the patient was placed upon the operating table, improved with the infusion, and remained strong throughout the operation, which lasted twelve minutes. Following the operation the patient's condition rapidly improved. Salines per rectum, and a second intravenous infusion of 400 c.c. were given. From this time on recovery was uneventful and complete. The first few days after the operation albumin and casts were found in the urine. On the fourth day the urine became normal, and has remained so ever since. The amount of urine has averaged 35 ounces a day. The patient left the hospital cured six weeks after the accident.

40 East Forty-first Street.

THE NONENTITY OF ACUTE DILATATION OF THE STOMACH.

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In the index of diseases of the stomach is mentioned acute dilatation. Although cases of it are very infrequently reported, it is considered by the profession generally and even by gastrologists to be a real condition. I, however, have never been able to convince myself of its existence. I cannot comprehend how a muscular organ like the stomach can suddenly dilate to large proportions. In the living body there is no sufficiently distending force to overcome quickly the accustomed and prevailing strength of the gastric musculature. Such great atony and stretching as is supposed to exist could hardly be produced so acutely. It seems to me that in cases of supposed acute dilatation the dilatation is chronic and the symptoms are produced chiefly by other conditions, usually an intestinal stenosis or obstruction. The multiplicity of the assigned causes of this supposed disease is itself significant of error.

Boas recognizes acute dilatation or paresis as a real entity but states that at the present time no decisive view on the etiology of the recorded cases can be reached. He suggests that not enough attention has been given to deflections of the duodenum as a possible cause of the condition. He classifies seven causes of acute dilatation and says that the most characteristic cases are due to mechanical kinking. He specifies kinking of the pylorus or the jejunum, acute obstruction of the pylorus by gallstones, torsion of the mesentery and compression of the duodenojejunal section by the superior mesenteric artery. I agree that these conditions would cause symptoms, but I cannot see how and he does not state how they could cause acute dilatation of the stomach. They could hardly operate through nervous reaction or by damming the stomach contents, which could be thrown off by vomiting.

Indiscretions in diet are considered to be the most frequent cause of acute dilatation. Riegel states that many of the patients have stomach trouble or are reduced by anemia or some other disease before they have the acute dilatation, that the disease may be mild or severe, and that slight degrees of acute atony are probably more frequent than we suspect. He also states, "While it is true that in these cases of acute insufficiency and dilatation indiscretions of diet are the direct cause, it seems difficult to understand why such very severe forms are rare, as great indiscretions are undoubtedly frequently committed." Now he and other clinicians concede that some of these cases have a history of pre-existing stomach trouble and, although the cases, of course, had not been previously examined, it is fairly certain that the patients had chronic dilatation. It is also almost as certain that other cases reduced by anemia or other diseases had also chronic dilatation before they had the supposed attack of acute dilatation. Patients with chronic dilatation are prone to have also anemia and other chronic diseases, especially of the involuntary muscles. The mild cases of acute dilatation following indiscretions are probably only cases of acute disturbance of digestive functions coincident with and sometimes referable to the chronic dilatation. Some stenosis or obstruction may also occur. Our patient was in the habit of overeating. After eating a large quantity of green peas she had nausea and vomiting, continuing for two days, *i. e.* indigestion or acute dyspepsia. On the third day the patient was unable to vomit and was in a state of collapse. The doctor, called on that day to see the case, found on examination that the stomach was very much dilated. Such finding, however, does not at all prove that the dilatation did not antedate this acute sickness. The doctor aspirated from the stomach a liter of brownish fluid and some of the undigested green peas. The quantity and color of the fluid can be accounted for in several ways and is consistent with an obstruction, and the presence of the green peas was an indication, perhaps, of an obstruction and certainly of gastric insufficiency which was neither necessarily nor probably acute. The case gradually improved. Six weeks later patient had another attack from which she recovered. Riegel says that a suggestive feature of this and some other cases is the absence of vomiting in the advanced stage of the disease and that this can be explained only by the weakness of the stomach resulting from excessive distention of its walls, or because paralysis of the musculature had become complete. But it must be evident that absence of vomiting was due to the very

weak condition of the patients. Moreover, it is believed that no weakened condition or paralysis of the musculature can prevent vomiting. There can be in such a case as this no acute overdistention of the stomach. Green peas certainly did not dilate the stomach. Nothing—neither air, water, nor food—was being forcibly pumped into it and stretching it. Pain does not appear to be a symptom in the mildest cases. But it is most improbable that an acute dilatation could occur without producing severe pain.

The more severe cases of acute dilatation following dietary indiscretions are said to represent a more serious sickness and some of them are said to end fatally. In these cases I think that the chief symptoms and the fatal issue are caused by an acute intestinal stenosis or obstruction and that the dilatation is an old condition. But I also think that symptoms of acute indigestion due to the chronic dilatation may cause the kinking of the intestine which produces the obstruction. Patients with chronic dilatation often have attacks of acute indigestion due to stasis, and experience severe vomiting. During the churning of the intestines by the diaphragm and abdominal muscles in the act of vomiting, especially when the intestinal walls are also atonic and flabby, a coil may be thrown about so as to produce a valvulus or kink, particularly at the duodenojejunal angle where one end of the coil would have a fixed point of attachment and a predisposing dent would be made anteriorly by the superior mesenteric artery which itself would act as a fulcrum. When such a kink is found at autopsy the conclusion is jumped at that it caused the gastric dilatation, whereas the reverse relation indirectly is really more logical.

Acute dilatation is said to develop after laparotomies. Riegel says that it seems clear that most of the cases of postoperative dilatation so far reported are secondary to occlusion of the duodenum or some other portion of the intestine, resulting from pressure by cicatricial bands, or some other event connected with the operation or with the preceding disease. It is most probable that there are cases of intestinal obstruction arising from injuries received during operation, and I think that the dilatation is not the result of such obstruction, but a pre-existing condition. The occluded point, however, would probably be below the duodenum. Extensive or careless handling of intestines during operation may indeed produce a volvulus or kink which would cause obstruction both in patients with and without chronic dilatation.

A similar statement may be made about cases of supposed acute dilatation following acute peritonitis. Peritonitis, however, if extremely severe, might cause temporary paralysis of gastric musculature and possibly some acute dilatation. There have been reported three cases of supposed acute dilatation following peritonitis after abdominal operations. One of these, for instance, followed an operation for incarcerated hernia. But I am inclined to think that the symptoms were due to the condition of the incarcerated gut and that the dilatation was pre-existent and coincident. The field of operation in cases of this kind is so remote from the stomach that a consequent peritonitis would not be apt to involve the organ unless the infection is general and severe. Kinks might be produced during operation in these cases as well as in those not followed by peritonitis.

Again, traumata of the abdomen probably do not cause acute dilatation, but may cause kinks from irregular peristalsis, peritonitis which produces bands, clefts, or fenestra in the mesentery or omentum, and local contusion, all of which resulting conditions may cause acute stenosis or obstruction in patients with as well as without a chronic gastric dilatation. If on autopsy of a patient who has died from a blow in the epigastrium or elsewhere a dilatation is found it need not be concluded that the blow caused the dilatation and that the dilatation caused death.

A case is reported in which, it is claimed, characteristic acute dilatation was caused by scarlatina during convalescence. It is inconceivable how scarlatina during convalescence or any other period could cause acute dilatation. The case is typical of acute intestinal obstruction terminating in death, the dilatation being a chronic and coincident condition.

It is likewise inconceivable how certain chronic diseases could cause acute dilatation. As already stated, patients with chronic diseases are probably more apt to have in general weak involuntary muscles. But this condition would permit a chronic and not produce an acute dilatation and would predispose to intestinal obstruction.

Emotions affect the peristalsis of the stomach, but it is beyond imagination how violent emotional disturbances could produce acute dilatation. It is possible that much violent weeping, like vomiting, could cause a kink of the upper jejunum. Prolonged emotional disturbance might be in part a cause of chronic dilatation only. Strange as it may seem on first thought, no relation can be seen between central lesions and acute dilatation.

Anesthesia is supposed to cause acute dilatation, but it is past recognition how it could either by central, local or general action. Such cases are probably the same as those called postoperative, which have already been mentioned.

Epigastric hernias could not very well cause acute dilatation by tugging on the omentum or in any other way, but they could cause symptoms which might be wrongly referred to a dilatation which is chronic. Other internal hernias, notably into the duodenojejunal fossa, might also cause misinterpreted symptoms. The manifestation of hernias, too, is apt to be chronic rather than acute.

Acute parenchymatous gastritis could not cause acute dilatation for the musculature would not be involved.

One writer considers acute dilatation to be due to paralysis of gastric musculature or spasmodic contraction of the pylorus. But, as has been already intimated, nothing short of crushing and stretching of the musculature could cause acute dilatation, and such causes do not exist. According to present knowledge, as also already stated, destruction of the nerves innervating the stomach would not cause acute dilatation. It is a mechanical impossibility that spasmodic contraction of the pylorus should cause acute dilatation. This author says that the cause of death is difficult to state, but that it may be autointoxication or some direct injury of the vagus nerve. Such a virulent autointoxication is unknown, and no injury to the vagus could cause death as a result of acute dilatation, even if the latter condition ever occurred.

But few autopsies have been made on these cases of so-called acute dilatation, but in a part of them an obstruction has been found at the duodenojejunal juncture. An obstruction in the upper intestine might easily be overlooked or obliterated in post-mortem manipulation. Varying degrees of ob-

struction at this predisposed point would account for the symptoms in the majority of cases, but the dilatation would be a chronic pre-existing condition.

It is possible that in some cases of so-called acute gastric dilatation the symptoms may be produced by some functional disturbance of the duodenum (instead of indigestion or intestinal stenosis or obstruction), the dilatation, however, being chronic.

REPORT OF TWO CASES OF TETANUS FOLLOWING VACCINATION.

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The alleged disastrous effects of vaccination is a subject concerning which so much has been written that it might seem, in view of the beneficent effects of this operation, a work of mistaken frankness to add to the body of literature anything which, with the remarkable ingenuity possessed by the fanatical antivaccinationist in distorting the statements of medical writers, might be seized upon as incontrovertible evidence for the support of his favorite theme. Yet, notwithstanding this unfortunate propensity, it is the belief of the writer that the best interests of the medical sciences are subserved by exact statements of the facts in these cases, as in others; for in the past the lack of exact data is to a considerable extent responsible for the misdirected enthusiasm of the antivaccinationist to-day.

The following two cases of tetanus occurring in children recently vaccinated came under my observation during the fall of 1909, incidental to the annual campaign of vaccination prosecuted under my supervision, by the Health Department of St. Louis.

Case I.—E. D. F.; white; male; aet., six; nativity, St. Louis; a pupil of one of the public school kindergartens, was vaccinated (primary) on November 1, 1909, by a vaccine physician of the Health Department, in the customary manner and with one of the standard viruses prepared in this country, under the supervision of the Public Health and Marine Hospital Service, and which was received from the laboratory about three days previously. Upon the same day on which this child was vaccinated 117 other children in the same school and 48 additional children in other schools in the city were vaccinated with a virus procured from the same dealer and of the same consignment, making a total of 165. The operation in all of these cases was performed in the usual manner adopted by the Department, as described below, and by a physician of large experience in this work, in whose experience no unfortunate result had previously occurred. With respect to this particular child, the evolution of the vaccine lesion was uneventful, the successive stages of its development being as is normally observed. During the course of the progress of this lesion, the family, of which he was the only child, went through the domestic ordeal of "moving," the affected arm of the child being dressed, from time to time, by members of the family. Some days after the vesicle had begun to dessicate, and after the family had become settled in their new home it was observed by the mother that the child was not feeling quite well. This state of ill-being continued for a day or two, various symptoms of discomfort being manifested, and on the morning of Sunday, Novermer 21, after a restless night, the child was seized with a sudden and severe convulsion, which so alarmed the parents that they at once called in their family physician, Dr. E. H. Johnson of this city, who, after a careful examination of the patient, pronounced it as suffering from tetanus. Dr. Johnson at once communicated his diagnosis to the Health Department, and upon this information all vaccine virus on hand was at once called in and vaccinations temporarily suspended. The local depot of the firm from which the virus was obtained was at once notified of the occurrence and was requested to submit samples of the strain of vaccine issued the Department for use on Nov. 1. This request, unfortunately, could not be complied with, for the reason that no records of the laboratory numbers of vaccines had been kept by the depot in question. As a consequence of this and from the fact that all of this supply on hand had been exhausted, it was impossible to obtain a specimen for experimental purposes. In order to obviate any further possible bad results, in the event we had been dealing with a contaminated product, all vaccine on hand was returned to the dealer and a fresh stock was had from another laboratory. The condition of the child's arm at this time presented nothing of an unusual character to the eye, the inflammatory reaction being of moderate degree, and the remains of the crust being still present. The state of the patient became rapidly worse during the day and night following the initial convulsion, all the classic symptoms of a severe tetanus being well developed, and, despite a very active treatment by means of antitetanic serum and other well-advised measures, on the morning of Monday, November 22, the patient died.

Case II.—R. D. J.; white; male; aet., seven; nativity, St. Louis; a pupil of the public schools, was vaccinated (primary) on November 5, 1909, by a vaccine physician of the Health Department, with a virus prepared by the same firm which supplied that used in the case recorded above, and received from the laboratory a few days later than the consignment mentioned in connection with that case. Upon the same day on which this child was vaccinated 103 other children were vaccinated in the same school, and in other schools in the city 72 additional children were vaccinated with virus procured from the same house and of the same consignment, making a total of 175. The operation was performed in the usual manner and by the same physician who vaccinated the child mentioned above. The evolution of the lesion was orderly and resulted in a well-formed vesicle, with moderate inflammatory reaction. During the course of its evolution the child was attending school and at odd times playing about as usual, portions of his time being spent at the home of a relative nearby, a teamster, who had occasion to apply a dressing to the child's arm five days before the onset of the first convulsion, the lesion having been traumatized by a fall while at play on his premises. The customary inflammatory phenomena were present as the result of the vaccination and the process of development was normal so far as could be distinguished by the eye. The boy continued with his school duties until November 25, when he was taken with a slight convulsion, after a day or two of malaise. On November 27 his condition was such that it was deemed advisable by his parents to call a physician. Accordingly, Dr. C. C. Emerson of this city visited the child at his home, and, after an examination, pronounced the disease tetanus. The result of his in-

vestigation was communicated at once to the Health Department, where considerable apprehension was occasioned by the appearance of a second case in such swift succession. An attempt to obtain a sample of the virus employed in this case was as unsuccessful as in the previous one. At the invitation of Dr. Emerson I called to see the patient, finding as the result of my examination a condition which was unmistakably tetanus, the symptoms being well marked. With the onset of the disease an active treatment was at once instituted, consisting of large and frequently repeated administrations of antitetanic serum together with sedative and supporting remedies of an appropriate character. The further history of the case is not material in this connection beyond the statement that after a somewhat protracted illness, extending over a period of upwards of six weeks, and despite a very unfavorable prognosis, a complete and satisfactory recovery was effected, the patient returning to his school duties in the latter part of January, 1910.

The technique of the vaccinal operation as practised by the Department at the time of these cases and at the present, and at no time deviated from, is as follows: The arm selected for the purpose having been exposed, the skin surface of the site is carefully cleansed by a preliminary washing with soap and water, a strong preparation of green soap being employed and applied on a pledget of cotton. After this preliminary toilet the skin is rinsed with clean water and then given a copious washing with 95 per cent. alcohol, administered with some friction. After the alcohol has evaporated the vaccination is done, an individual glycerinated glass point being used for each patient. The circular scarification is usually employed by the Department, with at times the linear, the former, however, being believed to result in the most symmetrical and pleasing cicatrices. A dry gauze dressing is at once applied in such a manner as to afford protection from the sleeve or other source of possible contamination.

Especial interest in connection with the two histories recorded above naturally centers around the question of the causation of the tetanic infections, or, more properly, around the determination of the exact dates of the entrance of the tetanus bacillus into these two patients, it being taken for granted that the entrance was effected through the avenues afforded by the vaccinal operations, no other portals presenting themselves in the course of careful investigations made for the purpose of establishing their possible existence. Three possibilities for infection seemed apparent, viz., that the bacillus was present in the virus and entered with it; that it was present upon the person of the patient, physician, or some article employed in the operation and not eliminated by the preliminary sterilization; or that it entered at some date subsequent to the time of vaccination as the secondary or supernumerary infection.

In the consideration of these two cases one is very forcibly impressed with two facts, viz., 1, the remarkable lapse of time between the operations and the appearance of the initial symptoms of tetanus, *i.e.* the apparent incubation period; and 2, the fact that *in neither of the two schools* attended by these children, in which so large a number of vaccinations was performed on the same days, did another case develop, *nor, in fact, in any other school, or in the city*. As regards the length of time elapsing between vaccination and the appearance of tetanic symptoms, this was in Case I twenty days, and in Case II twenty days, the normal incubation period for tetanus, as allowed by common consent among the authoritative writers on this subject being from seven to fourteen days. An inspection of the previously reported instances of this disease as a complication of vaccination, as collected and analyzed by McFarland,[1] shows that an average of twenty-two and one-half days has elapsed between vaccination and first symptoms, while the figures as given by Willson in his collection show an average of seventeen days.

Considering the uniformly prolonged incubation periods in all of these cases, the inference would clearly seem to be, aside from prejudice, that at least the great majority of these cases of tetanus resulted, not from contaminated virus, or from carelessness at the time of the operation, but, as a matter of fact, from secondary inoculation of the wound with the tetanus bacillus at a period of a week or more after the vaccination, unless, indeed, it be claimed that the coincidence of the vaccine matter with the organism of tetanus exerts a decided and uniform inhibitive influence upon the activity of the latter, which hypothesis to the present time has not been demonstrated. The second fact is equally, if not more, impressive than the first, for, considering the large number of pupils vaccinated simultaneously with each of these children in the same and in other schools, under precisely similar circumstances, it is absolutely impossible rationally to accept the hypothesis that the bacilli were present in the virus and were introduced into the patients through it at the time of the operation, since in neither of these schools did another case appear, nor in any other, beyond the two mentioned, either within the normal period or at any later date. In each of the two cases we would have a right to expect others, at least to the extent of nine, since in each box of points from which these children were vaccinated there were nine other points of virus, put up at the same time and in all likelihood from the same strain of vaccine.

Viewed in the light of these facts, therefore, it would appear that we are justified in assuming that the bacilli gained entrance to these patients, not at the time of vaccination, either through the virus, or as the result of careless technique, but at some time subsequently, in the neighborhood of a week after the operation, through a secondary infection. Material weight is added to this opinion when we consider that exceptionally favorable opportunities presented themselves for such secondary infection, at about that period after vaccination, in each case. In Case I, as cited above, the family moved from one house to another at the time when the vesicle was maturating, and that at the same time that carpets were being taken up and dusted, closets ransacked, and the dirt and dust of months were being spread broadcast throughout the house, the arm of this child was being tended and dressed by its mother and others of the family who at such a time, if ever, would hardly be expected to observe very rigorously the precepts of asepsis. In Case II there is a history of the patient's having played in a yard and consequently having been more or less exposed to such germ life as was in the soil, and of his arm having been dressed on one occasion by a relative, who was a teamster, after an

injury to the vaccine lesion five days before the onset of the symptoms of tetanus. As to the possibilities for contamination of the vaccination wound by bacteria, especially by such as make their habitat in earth and about barns, comment is scarcely necessary.

In 1896 this question was taken up by the British Royal Vaccine Commission, with the result that but one case could be found in which tetanus had occurred as a complication of vaccination, and at that time it was absolutely unknown on the continent of Europe. To the present date practically all of the cases recorded have occurred in America. In the study of this subject by McFarland, to which allusion has already been made, occur the records of ninety-five cases, which represent the sum total up to 1902, when his paper appeared. This paper bore excellent fruit, inasmuch as it was largely instrumental in drawing attention to the desirability of all possible precautions in the preparation of vaccine, and to this end were inaugurated improved methods in the laboratories and in the inspection and testing of all virus sold in this country, by officials of the United States Government. The requirements at this time are highly rigorous and leave little opportunity for the dissemination of contaminated vaccines. To-day no lot of virus is put upon the market in this country until it has been repeatedly inoculated into test animals and the result has been observed.

McFarland's conclusion "that the tetanus organism may be present in the virus in small numbers and that an overwhelming proportion (of cases) occur after the use of a particular virus" would seem to indicate that in his opinion at least some of his cases were the result of infection at the time of vaccination. Willson's conclusion is that the tetanus organism enters as a secondary inoculation, some days after vaccination. Welch and Schamberg,[2] in alluding to this matter, state: "We believe from a study of the recorded instances of this complication that the tetanus infection was in the great majority of cases received into the system at a period subsequent to the insertion of the lymph." It is indeed remarkable, considering the frequency of vaccination and the prevalence of the germ of tetanus, that so few cases are to be found in which tetanus has occurred—which speculation might, with equal propriety, be extended to the trivial wounds of other character occurring in everyday experience.

Cases such as the above are at least instructive, as demonstrating the need for increased carefulness in the after treatment of the vaccine lesion, and it would seem advisable that Departments of Health and those in charge of public vaccination should endeavor to bring about some more perfect system of post-vaccinal hygiene.

In the city of St. Louis serious complications following public vaccination have been extremely rare. During the past three years, in a total of upwards of 30,000 vaccinations by the Health Department, these two cases reported above are the only ones that were in any sense serious and embrace the only death that could, in any way, be attributed to the operation.

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ASTHMA AND THE LUNG REFLEXES OF ABRAMS.

By ALBERT ABRAMS, A.M., M.D.,

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In several issues of the *Lancet* a polemic[1] was waged anent the lung reflexes, and among the disputants, A. G. Auld of London seems to have most fully interpreted the significance of the reflexes in question. It appears that the controversialists ignored the lung as a factor in the lung reflex phenomenon, and referred the later to some recondite condition of thoracic expansion or to some change in the thoracic musculature.

Indeed, one disputant positively affirmed that the question could only be solved by the vivisectionist investigator, thus ignoring the many valuable data which have been contributed to physiology by the clinician as well as the numerous observations of the latter which have discredited investigations emanating from the physiologic laboratory. Neither the pathologist nor the physiologist should forget that "pathology is the physiology of the sick," and that the final court of decree of the clinician is neither the physiological nor pathological laboratory.

In a recent work by Leonard Hill[2] the following obscure observation is made: "Even now most medical writers ascribe the reflex contraction of the lung (Abrams' reflex) which follows any stimulation of the chest wall to the action of the bronchial musculature. It is more probable that the retraction of the lung is due to a reflex contraction of the musculature of the body wall."

The misconception concerning the lung reflex implicates two factors: (1) A failure to differentiate two distinct lung reflexes; (2) A failure to properly interpret the rationale of the reflexes in question. These reflexes are of the greatest importance in diagnosis and their correct interpretation is destined to solve many obscure problems concerning the pathology of the lungs.

Recently, the writer has investigated the reaction of the lung reflexes to atropine and adrenalin and believes that the pharmacodiagnostic inferences from these investigations may prove of some value.

*The Lung Reflex of Dilatation.**—This is a lung dilatation which is evoked in a variety of ways, notably by cutaneous irritation. Thus, if the skin of the precordial region is vigorously rubbed, the ensuing lung-dilatation may be sufficient to obliterate all evidence of cardiac dullness. If, for example, the skin of the thorax in the right axillary line is irritated there is a dislocation of the lower border of the lung averaging 6 cm.

By the method cited one elicits a circumscribed lung reflex of dilatation, but both lungs may be brought into a condition of temporary acute dilatation (diffused lung reflex of dilatation) by any of the following methods: (1) Percussion of the epigastrium; (2) Irritation of the nasal mucosa; (3) Concussion of the spines of the third to the eighth dorsal vertebræ inclusive.

The Lung Reflex of Contraction.—This is a lung contraction which, like the former reflex, may be elicited in a variety of ways, notably by vigorous percussion over any part of the area of the lung. Fixing a pleximeter over any region, it is struck a series of vigorous blows by means of a plexor.

*The lung reflexes and their employment in diagnosis and treatment are exhaustively discussed in the author's recently published book on "Spondylotherapy."

It will be noted that a circumscribed dullness (lasting but a few seconds) will supplant lung resonance over any region thus concussed.

Observed with the *x*-rays after the blows are struck, the adjacent lung area becomes gradually dark, showing that the air has been expelled from the lungs, whereas in a few seconds the lung area becomes bright again. The lung reflex of contraction cannot be obtained if the nasal mucosa has been previously cocainized.

This reflex may be elicited from definite spinal segments so that both lungs are brought simultaneously into a condition of contraction and, when the reflex is thus evoked, it proves of great therapeutic value in the treatment of asthma.[3]

If, after having first accurately determined by percussion the lower lung borders posteriorly, one concusses the spines of the fourth and fifth cervical vertebræ one notes that, in the norm, the lower lung borders retract from 2 to 5 cm. In pulmonary disease this retraction is either absent, diminished, or accentuated.

Rationale of the Lung Reflexes.—Aufrecht[4] has shown that the musculature of the finer bronchi consists of a stout layer of circular and a weaker layer of longitudinal fibers.

The clinical observations of Abrams,[5] in 1896, which were subsequently confirmed by the physiological investigations of Dixon and Brodie[6] in 1903, demonstrate that the vagus contains fibers which can either dilate or constrict the bronchi.

Both lung reflexes are mediated by vagal action; the lung reflex of dilatation by the bronchodilator, and the lung reflex of contraction by the bronchoconstrictor fibers in the vagus.

The Atropine Test.—As is well known to physiologists, atropine paralyzes the motor endings of the vagus. An injection of 0.001 gm. (gr. 1-60) will manifest its action within thirty minutes after the hypodermatic injection and disappears in from one to three hours. This action has already been utilized in the diagnosis of bradycardia.[7] It will be noted that after the atropine injection, both lung reflexes are *absolutely abolished*.

It is well known that small doses of pilocarpine are almost exactly antagonistic in their action to atropine, and this applies in all cogency to their action on the vagus. After a hypodermic injection of pilocarpine (gr. 1-10), one may note an exaggeration of both lung reflexes. Thus, before the injection of pilocarpine, the lower lung border posteriorly could be made to descend (lung reflex of dilatation) 4 cm. after cutaneous irritation, whereas after the injection the border in question descended 7 cm. The lung reflex of contraction before the injection lasted 20 seconds, whereas after the injection it lasted fully one minute.

Adrenalin Chloride.—After a hypodermatic injection of 8 minims of a 1:1000 adrenalin chloride solution, the following phenomenon was observed: After cutaneous irritation the lower lung border, instead of descending as in the norm (lung reflex of dilatation), receded from 2 to 4 cm. In other words, cutaneous irritation elicited the lung reflex of contraction in lieu of the counter reflex of dilatation.

Practical Deductions.—If one accepts the prevailing opinion that asthma consists essentially of a spasmodic constriction of the bronchioles, then an appropriate dose of atropine which paralyzes the bronchial musculature through its action on the motor endings of the vagus must invariably inhibit an asthmatic paroxysm. Here, the action of atropine, as some assume, is not caused by a dilatation of the bronchi, because the action of the drug is to paralyze the dilator as well as the constrictor fibers of the bronchial musculature.

Atropine in sufficiently large doses is one of the most satisfactory drugs in asthma and, aside from its action in inhibiting bronchospasm, it diminishes secretion, reduces the sensitiveness of the mucous membranes to reflexes, and stimulates the respiratory center.

Now, as a matter of fact, all asthmatic paroxysms do not yield to atropine, hence one is constrained to conclude that bronchospasm is not the invariable concomitant of asthma. There may be a hyperemia of the bronchial mucosa analogous to urticaria, a swelling of the same mucosa, or even exudative bronchiolitis.

Determining the tonus of the lung reflex of contraction is an important test in differential diagnosis. In asthma, due to a defective bronchial musculature, the lung reflex of contraction cannot be elicited.

A supposed spasmodic factor in the pathology of pulmonary diseases must yield to atropine and in this sense atropine is of diagnosticotherapeutic value.

Adrenalin chloride (in doses from 8 to 15 minims hypodermatically of the 1:1000 solution) is one of the most efficient agents in inhibiting an attack of asthma. The action of this drug was discovered by Kaplan and Bullowa, and it may truly be regarded as a specific in arresting paroxysms of asthma.

As noted in the investigations of the writer, adrenalin chloride evokes the lung reflex of contraction which permits the longitudinal fibers of the bronchial musculature to expel the residual air imprisoned by the spasm of the circular fibers.[8]

It is, futhermore, evident that, in our employment of drugs in the treatment of asthma, it is irrational to combine atropine and adrenalin in the same prescription.

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8. "Spondylotherapy," p. 308.

246 Powell Street.

A Case of Audible Tinnitus.—H. Tilley reports the case of a girl aged 13, who sought advice for a "purring" noise in her right ear, which she had noticed for at least two years, but which had become louder during the past twelve months after an attack of "influenza." Hearing in both ears was normal, and no pathological conditions were to be seen in the meatus nor in the nasopharynx. The general health was excellent. She has menstruated once—about four months ago—but this seems to have exerted no influence for good or evil upon the aural symptom. Listening through the otoscope, it was noted that: (1) The "purring" sound—very like a hemic murmur—was best heard when the head was erect, and it was synchronous with the pulse. (2) It was diminished by either very light pressure over the right carotid artery, or by much firmer pressure on the left. Tilting the head toward the left shoulder had also a similar effect. The pulsating murmur could be heard in a quiet room if the observer's ear was placed close to the patient's right ear, and was just perceptible if a stethoscope was applied to the temporal bone above the pinna.—*Proceedings of the Royal Society of Medicine.*

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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THE ORGANIZATION AND WORK OF THE UNITED STATES PUBLIC HEALTH AND MARINE HOSPITAL SERVICE.

ONE of the most instructive papers read before the American Public Health Association, the meeting of which was held at Milwaukee, on Sept. 8, 1910, was that by Surgeon-General Walter Wyman describing the organization and work of the U. S. Public Health and Marine Hospital Service. The commissioned officers of the service number 128, and, needless to state, are carefully selected for both their professional and physical qualifications. Commissioned officers are admitted to the corps when under the age of thirty and they hold the position for life. These are stationed at the more important ports where it is necessary to be possessed of experience and training not only in sanitary matters, but in tactful and somewhat diplomatic methods. Acting assistant surgeons are appointed, not by the President, but by the Secretary of the Treasury under civil service rules, and their term of service may be long or short at the pleasure of the Secretary. They are exempted from the civil service rules at foreign ports. These number 274, making a total of 402 in the medical corps. Officers of the corps are stationed at ports in all parts of the world, indeed, at most of the ports in which there is a United States Consulate. As a rule, the regulations for foreign ports are enforced by the consuls, and the duties of the medical officers begin only when medical assistance to the consul seems imperative. No promulgation of quarantine against a foreign port is required. The consul enforces quarantine on his own initiative as soon as he learns of a sudden outbreak of infectious disease. Sometimes, however, they are specially directed from Washington, as recently on account of cholera in Russia and Italy they were ordered to enforce the detention of immigrants en route to America from the infected countries and disinfection of their baggage. Officers are to be found in the principal ports of South America as well as in the several fruit ports of Central America to enforce the regulations regarding fruit vessels. Routine work, however, is not their sole duty; in addition they write important and instructive reports on sanitary conditions and prevailing diseases, which are published by the Bureau at Washington. Their salaries are paid from the fund annually appropriated by Congress known as the epidemic fund, which is for the prevention of the introduction and spread of certain diseases, viz., cholera, yellow fever, smallpox, typhus fever, and plague. This fund can be used against no other diseases than those specified.

It goes without saying that their services are called for in the Philippine Islands, where eleven of them supervise the carrying out of the quarantine. In Hawaii, again, the ten officers of the corps have done and are doing valuable work. The results of their investigations with regard to leprosy have been referred to recently in the MEDICAL RECORD and on several previous occasions. Porto Rico has nine officers, whose duties are to enforce the quarantine regulations relating to Porto Rico and national quarantine. Two commissioned officers are in the Canal Zone at Ancon on the Pacific and at Colon on the Atlantic. These officers are lent to the Isthmian Canal Commission.

Fifty medical officers of the service are engaged in quarantine inspection at the ports of the United States. At three or four ports inspection is made by a State quarantine officer, a survival of the system which prevailed up to 1893. Seventy medical officers are stationed at the principal ports of entry of the United States for the purpose of examining immigrants. In order to convey a clear impression of the magnitude of this task it may be mentioned that during the past year no fewer than 1,280,000 immigrants were thus examined, 30,000 of whom were rejected on account of physical and mental defects. When, too, epidemic diseases break out in the interior of the country officers are requisitioned to suppress such epidemics. A shining example of their activity in this sphere of their duties was that of California when bubonic plague was present in that State. The valuable and even heroic nature of their work on that occasion has been commented on editorially more than once in the MEDICAL RECORD. At the present time some of the members of the corps are endeavoring to exterminate bubonic plague among the ground squirrels of California. In other places the Public Health Service is investigating other diseases than those named in the epidemic law, viz., typhoid fever, infantile paralysis, cerebrospinal meningitis, hookworm disease, pellagra, dengue fever, milk sickness, etc. It should be stated that in this work the service cooperates with the State Health authorities. Referring to the State boards of health, General Wyman says that they are growing in power and efficiency, although the boards of some States are deficient as to laws, equipment, or appropriations.

Research work during the past year at the Hygienic Laboratory included tuberculosis, with special reference to the blood and transmission of the disease by milk; typhoid fever and hookworm disease, the longevity of their causative agents and means necessary for their destruction in nature; typhus fever and its transmission by the body louse; pellagra; infantile paralysis; cancer in the lower animals; the "straw mattress disease"; immunity; the oxydases, with reference to their defensive action in the animal body; the influence of bleaching on the nutritive value of flour; therapeutic prop-

erties of the thyroid and suprarenal glands and their commercial preparations. Much valuable work was also done in connection with rabies.

There are numerous marine hospital relief stations on the sea coast, lakes, and rivers throughout the United States, twenty-two of them being hospitals owned and operated by the Government. These furnish the means for training the medical corps in governmental work; 51,500 patients from the merchant marine were treated therein during the past fiscal year. At the Sanatorium for Consumptive Seamen at Fort Stanton, N. Mex., which is under the charge of the service, 350 patients are treated annually.

The Bureau of the Public Health and Marine Hospital Service at Washington consists of seven divisions, each presided over by a commissioned medical officer. These are: (1) Scientific research and sanitation. (2) Foreign and insular quarantine and immigration. (3) Domestic (interstate) quarantine. (4) Sanitary reports and statistics. (5) Marine hospitals and relief. (6) Personnel and accounts. (7) Miscellaneous division. Through the division controlling maritime quarantine 16,766 vessels were inspected during the last fiscal year at domestic, insular, and foreign stations, involving inspection also of 1,433,134 persons and the disinfection of 1,603 vessels. This division supervises the medical inspection of immigrants. Under the division of domestic quarantine the operations with regard to plague on the Pacific Coast are conducted, besides other State work. The Division of Sanitary Reports and Statistics compiles and publishes each week Public Health Reports. It is announced that a compilation is in preparation of State laws bearing upon the reporting of diseases with a view to increasing the collection of morbidity statistics and bringing about improved methods and greater uniformity in their collection.

The address of General Wyman was a remarkably lucid exposition of the manifold duties and research work performed by the able and energetic body of men over which he holds the command. The account of the organization and work of the service should be made known throughout the entire country for the benefit both of those who oppose the creation of a Department of Public Health in Washington and of those who favor it, many of whom are in ignorance of the multiplicity of duties which fall to the lot of the officers of the service and of the highly valuable research work done at some of the stations and at the hygienic laboratory. Here is really a Department of Public Health already in working order, although hampered by red tape and by the fact that it is only a bureau in the Treasury Department. Only a little legislation, and that not radical, would be needed to make an independent department out of this well-organized and efficient body of practical sanitarians.

The Cholera in Italy.—The official bulletin issued in Rome on November 1, reported six new cases of cholera in the preceding twenty-four hours, two in the Province of Caserta, three in the Province of Salerno, and one in the Province of Palermo. Two deaths occurred in the same period.

DEVELOPMENT OF MEDICAL INSTRUCTION AT BERLIN UNIVERSITY.

That a great medical university is no place for teachers who are mere figureheads, stopgaps, absentees, etc., is shown in the issue of the *Berliner klinische Wochenschrift* of October 10, which is devoted entirely to a retrospect of the teaching body of the past, through a series of essays by the present incumbents of the various chairs. This principle of efficiency is as old as education itself, but has never obtained anything like universal acceptance, because the smaller institution is always in the majority. When several smaller schools consolidate and one special chair has to be filled instead of a number, the chances for filling this chair with an efficient man are naturally proportionally greater. In anatomy, for example, it should be possible to fill the chair with an enthusiast, at least, to the exclusion of the indifferent man who accepts the position under protest, and who has to teach himself daily to make any showing at all with his class. If the consolidated school is endowed, it is naturally not difficult to lay hold of a teacher already famous. But the small school is by no means always at fault, for it has happened that some of these have had "all-star" faculties—this naturally in the days when but few chairs were required; and it has happened and perhaps still happens that great and even endowed schools have as the incumbents of the chairs inefficient men, who have done absolutely nothing to demonstrate fitness for their work. Such men are or ought to be mere honorary professors, for the real teaching body, which confers renown on the school, is found in some of the associate, adjunct, and clinical professors.

In prescientific days, or, in other words, well into the nineteenth century, the incumbents of the Berlin chairs did little to distinguish themselves, although many of them wrote text-books. But coincident with numerous epoch-making discoveries in chemistry, biology, minute anatomy, physiology, and pathology, when the opportunity for efficiency at last presented itself, appears the name of Johannes Müller, whose fame is constantly increasing as one who taught many of the great teachers who succeeded him. Müller taught anatomy, physiology, and pathology at the same time; and since his day all chairs evolved from this parent institution have been worthily filled. Among incumbents are Reichert and Waldeyer in anatomy, and Hertwig in embryology, whose monumental works are well known. The chair of physiology had such incumbents as du Bois-Reymond, who taught many of the men who afterwards became famous throughout Europe, and Rubner, the present holder. Müller's successor in pathology was Virchow, who held the chair with such renown for so many years, and whose death occurred not so long ago. The work done in the institute of pharmacology by Liebreich from 1883, the date of its establishment, to 1908 must be mentioned. Of the chair of internal medicine, beginning with Schölein, one of the founders of scientific medicine, the incumbents were Frerichs and von Leyden for the first medical clinic, Traube and Gerhardt for the second medical clinic, and

Hufeland, Romberg, and Senator for the poliklinik. The clinic for children's diseases is represented by the names of Henoch and Heubner, and that for psychiatry by Westphal, Jolly, and Ziehen.

In surgery the first incumbent of the university at the time of its reorganization a century ago was von Graefe, who was also a pioneer in ophthalmology. He was followed by Dieffenbach, von Langenbeck, von Bergmann, and Bier. In the surgical clinic at Charité Hospital we find such names as von Bardeleben and Koenig, with Gusserow and Bumm in the gynecological clinic. The latter is not to be confounded with the university clinic for gynecology and obstetrics, held by the following succession of teachers from its outset—Siebold, Busch (who taught some of the greatest modern specialists), Martin, Schroeder, and Olshausen.

Space hardly suffices to complete this series. It is enough to state that all other chairs have had equally strong representation. All the names mentioned and which might be mentioned are or should be familiar to the profession as a whole; but when we look from the mere names themselves to the incredible amount of work done by the bearers—the illustrious pupils instructed, the volume of literature, the museum specimens, the innumerable advances made in the science and art of medicine—imagination must fail us. No one reaches a chair without first having shown himself worthy, and no one can hold his position without continually showing his fitness for it. While some of our great universities have long ago adopted this necessary course of procedure in filling chairs, a study of these papers in the *Wochenschrift* should possess much value for our medical schools in general. No chair ever made a teacher great, yet the thoughtless sometimes look upon any honorable position as they do an honorable title as the making of the man. Look at the significance of the magic phrase among the laity "he is professor in the college."

It is true that the very greatest university cannot always possess an "all-star aggregation of teachers." Hardworking teachers have a tendency to overwork, or may fall victims of disabling diseases. There may be interregnums,in which the department is not filled at all, or filled by an emergency man. A few men may profit unfairly by the special ability of their assistants. There may be men fully equipped for the best teaching who never receive recognition. In the United States it is largely because of this class of men that new schools have continually arisen. The proper incumbent of a chair is evidently the hard and constant toiler, rather than the merely brilliant man. Whatever else he is he must be a glutton for work. Next in order would appear to be the ability to inspire others to toil as he does, and to give them tasks which lead to something. Brilliancy, as shown in snap diagnoses and dexterous operating, plays a relatively small part in university teaching.

SYMPOSIUM ON 606.

At the eighty-second meeting of the Deutscher Naturforscher und Aerzte at Königsberg on September 20 last over thirty contributions on this subject were made in some form. A considerable number of papers were read outright, while numerous reports were submitted by those to whom the remedy had been sent. Abstracts of these papers occupy the entire originalia of the *Deutsche medizinische Wochenschrift* for October 13. This immense body of data is nowhere summed up in any manner to determine the consensus of findings. Many have already expressed their views in previous papers, notably Ehrlich, Alt, Wechselmann, and other pioneers. We may assume that their views can have undergone but little change.

Neisser, Iversen and others confirm their original views with frank enthusiasm. Salmon of the Pasteur Institute, Paris, in speaking of prophylaxis, states that if a married man developed a suspicious sore he would at once infect the wife. He regards tuberculosis as a contraindication. As to dosage there is no relationship between it and the degree of disease. The most severe and malignant type requires only a medium dose. Schindler states that himself and Canstern appear to be the only reporters who have encountered primary sores which resisted 606. Ledermann has seen no unpleasant effects save tachycardia. Others have noted insomnia, troubled sleep, anorexia, constipation, orchodynia, retention of urine, slight rise of temperature, etc. There is naturally much activity in connection with results of treatment in parasyphilis. As far as a cursory perusal can inform the reader such results were negative or doubtful. The incidental disappearance of conditions usually amenable to arsenic is sometimes noted (psoriasis, lichen).

Many writers dwell on details of technique and methods of preparing injections. Others touch on the relationship between the treatment and the Wassermann reaction, and on the association of 606 with other remedies. Quasi-miraculous cures of syphilis maligna seem, if anything, to be increasing in greater ratio than others. It seems paradoxical that when the most inveterate and severe forms yield so marvelously, that the milder and earlier forms should not yield at least as readily. It has been claimed, however, that spirochetes are much less numerous in severe tertiary forms, the severity of the disease being due to acquired supersensitiveness. Hence the fewer spirochetes present the more rapid the cure. With the death of these in severe tertiary syphilis, the supersensitiveness is no longer in evidence and the patient has enough latent vitality to recover.

Although the papers are nominally devoted to syphilis, several reporters mention the treatment of other spirilloses and trypanosoma diseases, especially in animals, in which repeated doses caused neither aniphylaxis nor unpleasant consequences. It is confidently believed that 606 will prove as efficacious for many of these maladies as for syphilis.

Restraining the Nostrum Vendor.

The Illinois State Board of Health has won an important victory in its war on quackery in that State. The medical practice law of the State places the itinerant medicine vendors under the control of the State Board, they being compelled to obtain a license from the Board, paying therefor a fee of

$100 per month. In the present instance the Board had a vendor arrested for not having procured a license, but he pleaded that he had not violated the provision of the medical practice act in that he had not professed to cure with the remedies he sold. The lower court decided in the defendant's favor, but the Supreme Court has now decided that the State Board was within its powers in demanding that this man, and by inference all other patent medicine vendors, should first procure a license and pay the fee, even though he had not upheld by word of mouth the claims to cure made on the labels and wrappers of the nostrum which he sold. Illinois is, we believe, the only State exercising control over itinerant vendors of patent medicines who do not combine the vending with advice which would render them liable to the charge of practicing medicine. Of course this does not affect the sale of nostrums by druggists, but they are not the only, if indeed the chief, agents in the wholesale poisoning or defrauding of the people. The most profitable market for patent medicines is not in the cities, but in the small settlements and farming districts, where the nostrum peddlers go from house to house vending their remedies, often stocking farmhouses with a supply left on trial. They know full well no one can resist a bottle of cure all, with the virtues of the remedy and the symptoms for which it is good all attractively emblazoned forth on the label. So when they call again they find a bottle used, collect the price, and have more of the same kind or something else. The regulation of suppression of such a trade is an important duty of a health board, and it would be well were the medical practice or the health laws of every State so amended that a practically prohibitive tax could be put upon this nefarious trade.

News of the Week.

Army Medical Corps Examinations.—The Surgeon-General of the Army announces that the first of the preliminary examinations for the appointment of first lieutenants in the Army Medical Corps for the year 1911 will be held in January 16, 1911, at points to be hereafter designated. Full information concerning the examination can be procured upon application to the "Surgeon-General, U. S. Army, Washington, D. C." The essential requirements to securing an invitation are that the applicant shall be a citizen of the United States, shall be between twenty-two and thirty years of age, a graduate of a medical school legally authorized to confer the degree of doctor of medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training or its equivalent in practice after graduation. The examinations will be held concurrently throughout the country at points where boards can be convened. Due consideration will be given to localities from which applications are received in order to lessen the traveling expenses of applicants as much as possible. The examination in subjects of general education (mathematics, geography, history, general literature, and Latin) may be omitted in the case of applicants holding diplomas from reputable literary or scientific colleges, normal schools, or high schools, or graduates of medical schools which require an entrance examination satisfactory to the faculty of the Army Medical School. In order to perfect all necessary arrangements for the examination, applications must be complete and in possession of the Adjutant-General on or before January 3, 1911. Early attention is therefore enjoined upon all intending applicants. There are at present seventy-six vacancies in the Medical Corps of the Army.

Civil Service Examination.—The United States Civil Service Examination announces an examination to be held on November 23, 1910, for the purpose of securing eligibles from which to make certification to fill vacancies as they may occur in the position of physician in the different services. As an insufficient number of eligibles to meet the needs of the Indian and Isthmian Canal services resulted from the examination held on September 14, qualified persons are urged to enter this examination, to which men only will be admitted. Application for the manual containing the necessary information and for the proper blanks should be made to the United States Civil Service Commission, Washington, D. C.

Deaths in Childbirth.—Dr. F. S. Crum writes that one of the ratios in his recent article entitled "Deaths in Childbirth" was incorrect, the decimal point being wrongly placed. The fatality ratio of the Society of the Lying-in Hospital of New York City should have been expressed as 44.3 per 1,000 of total confinements, instead of 4.4. This correction would, of course, change also the reading of the third paragraph. The Society of the New York Lying-in Hospital experience showed about 2.6 times higher fatality ratio than the experience of the Boston Lying-in Hospital.

City Death Rate.—For the week ending October 22, the death rate in New York was 13.78 per thousand of population, representing 1,269 deaths, or 77 less than for the same week of last year, when the rate was 15.38.

Healthy Communities.—East Orange, N. J., can now lay claim to the lowest death rate of any municipality in the country. The Bureau of the Census reports that for 1909 its death rate was 9.5 per thousand of population. The next lowest on the list is Akron, Ohio, with a death rate of 9.7.

Statistical Advisory Board.—Dr. Ernst Lederle, Commissioner of Health of New York, announces that he has secured the assistance of three physicians and two college professors who will act as an advisory board of statisticians to the Health Department. With Commissioner Lederle the Board will comprise Dr. Roger S. Tracy, formerly registrar of the department, Dr. William S. Guilfoy, the present registrar, Dr. Cressy L. Wilbur, Prof. C.-E. A. Winslow, formerly of the Massachusetts Institute of Technology, but now a member of the Faculty of the City College, and Prof. Walter L. Wilcox of Cornell University, who is also consulting statistician of the State Department of Health. The Board will endeavor to outline a plan for the better computation of health and mortality statistics.

Plague in Venezuela.—Because of several new cases of bubonic plague in Caracas the Government of Venezuela has instituted more active measures to fight the disease. Schools have been closed, and services and funerals in the churches have been prohibited. The Bolivar celebration which was scheduled to begin on October 28 has been indefinitely postponed.

Typhoid Fever in New York.—Interesting statistics on the prevalence of typhoid fever in New York State are contained in a report made

recently to Governor White by Dr. Porter, State Commissioner of Health. Comparison is made of the average number of deaths from typhoid during each month for the years 1900 to 1909, with those of the first nine months of the present year, as follows:

Month.	Average 1900 to 1909 Inclusive.	1910.
January	126.1	87.0
February	107.1	87.0
March	108.2	92.0
April	94.4	68.0
May	92.0	63.9
June	74.4	70.0
July	106.2	94.0
August	153.9	131.0
September	192.6	183.0
October	212.2	....
November	170.5	....
December	156.1	....

The figures show that the normal variation of typhoid fever during the year is very marked, and also that the mortality from typhoid fever in the State during 1910 is well below the average. An appreciable excess in the number of cases has occurred recently, however, in Syracuse, Niagara Falls, and Yonkers, the conditions in the last named having been investigated by the health department.

The Harvey Society.—The second lecture of the Harvey Society for the present season which was to have been delivered on Saturday, November 5, at the New York Academy of Medicine, has been postponed owing to the impossibility of Prof. Castle being present on that evening.

College of Physicians and Surgeons.—The total registration for the year at the College of Physicians and Surgeons, New York, is 334, the classes being made up as follows: First year, 81; second year, 88; third year, 90; fourth year, 72; special students, 3.

Dr. Benjamin A. Thomas has been elected Professor of Genitourinary Diseases in the Philadelphia Polyclinic.

Medical Reciprocity.—The State Medical Examining Boards of Kansas and Missouri have adopted reciprocal relations, so that licences to practise granted in one State will be honored in the other. The States have not recognized each other's certificates for a number of years.

American Society of Sanitary and Moral Prophylaxis.—The regular meeting of this society will be held at the New York Academy of Medicine on Thursday evening, November 10, at 8.30 P.M. The subject for discussion will be "The Sanitary Supervision of Prostitutes and Clause 79 of the Page Bill." The discussion will be introduced by Hon. Julius M. Mayer, counsel for the Page bill.

The Alumni Association of the Lying-in Hospital will hold their next meeting at the Harvard Club on Wednesday, November 9. Dr. J. Whitridge Williams (Baltimore) will read the paper of the evening, entitled "My Experience in Labor Complicated by Contracted Pelvis."

The Menard County (Illinois) Medical Society at its annual meeting at Petersburg, on October 20, elected the following officers for the ensuing year: *President*, Dr. T. T. Hill of Athens; *Vice-President*, Dr. Orr of Tallula; *Secretary and Treasurer*, Dr. A. L. Brittin of Athens.

The Colorado State Medical Society at its annual meeting in Colorado Springs, on October 11 to 13, elected the following officers: *President*, Dr. William Howard Swan of Colorado Springs; *Vice-Presidents*, Dr. T. E. Carmody of Denver, Dr. M. J. Keeney of Yampa, and Dr. Samuel French of Meeker; *Secretary*, Dr. Melville Black of Denver. Steamboat Springs was selected as the place for holding the annual convention of 1911.

Fish Diet and Cancer.—Several dogs, so it is stated in a dispatch from Washington, have been sent to the Maine hatcheries of the Bureau of Fisheries, to be fed upon fish (presumably fish with malignant growths) in order to determine whether cancer is communicable in that way. There are many men who would gladly subject themselves to such an experiment at the price of being sheltered and well fed on fresh fish during the winter.

Cholera in an Insane Asylum.—It is reported that the majority of the inmates of an asylum for the insane near Naples have died of cholera during the present epidemic, the deaths numbering from four to seven a day for a fortnight.

The Hookworm in Samoa.—In the annual report of Capt. Parker, U. S. N., governor of the American Samoan Islands, it is stated that uncinariasis is extremely prevalent in the islands, no less than 85 per cent of the natives being affected. The disease was discovered accidentally by a naval medical officer and an investigation was then instituted which led to the finding of 5,700 cases among the native population of 6,780.

The Straus Milk Stations in this city will not be discontinued, it is stated, Mr. Nathan Straus having been persuaded to reconsider his announced intention of giving them up. The determination to discontinue them was formed in consequence of bitter personal attacks by a newspaper of this city, but a committee of physicians and philanthropists convinced Mr. Straus that the newspaper did not express the sentiment of the community.

Pneumonic Plague in England.—A number of cases of pneumonic plague have been discovered in Preston, a village in Suffolk, England, and at the same time many rats and rabbits have been found dead in the fields. The introduction of the disease is attributed to plague infested rats in grain transports from Odessa.

Death of the Founder of the Red Cross.—M. Henri Dunant of Geneva, founder of the Red Cross Society, died on October 30 at Hilden, Switzerland, aged 82 years. His attention was turned toward the needless suffering in war when he took part in the battle of Solferino in 1859, and he then initiated an agitation which led to the calling of an international conference by the Swiss Government in 1863, followed in 1864 by the Geneva Convention. At this convention nine articles were adopted, signed by twelve and later by forty governments, "for the amelioration of the condition of the wounded in armies in the field." The Society of the Red Cross was established at this time, through the labors of M. Dunant, to carry out the provisions adopted by the Convention.

Obituary Notes.—Dr. Frederick Holme Wiggin of New York, a graduate of the Bellevue Hospital Medical College in 1877, consulting surgeon to the City Hospital, visiting gynecologist to St. Elizabeth's Hospital, and consulting surgeon to the Metropolitan Throat Hospital and the Litchfield County Hospital of Winchester, Conn.; a member of the American Medical Association, of which he was at one time vice-president; a former president and secretary of the New York State Medical

Society, and a former president and vice-president of the Society of the Alumni of Bellevue Hospital; a member of the New York Academy of Medicine, the Harvey Society, the Medico-Surgical Society, the Connecticut State and Litchfield County Medical Societies, the Vermont State Medical Association, and the New York County Medical Society, and an honorary member of the Congress of German Surgeons, died at Atlantic City, on October 28, after a long illness, aged 57 years.

Dr. John E. Allen of New York, a graduate of the Bellevue Hospital Medical College in 1875, for twenty-five years a member of the Department of Health of the City of New York, died at his home on October 25.

Dr. Harry B. Lochhead of Pittstown, Pa., a graduate of the Jefferson Medical College of Philadelphia in 1902, and a member of the Pennsylvania State and Luzerne County Medical Societies, died at the White Plains Hospital, on October 25, aged 35 years.

Dr. Shelton Law of Springfield, Ill., a graduate of the Baltimore University School of Medicine in 1897, died at his home, on October 22, aged 38 years.

Dr. Edgar R. Knapp of Saginaw, Mich., a graduate of the Department of Medicine and Surgery of the University of Michigan, Ann Arbor, a veteran of the Civil War, died at his home, on October 19, aged 76 years.

Dr. James McC. Duncan of Pawnee, Ill., a graduate of the Miami Medical College, Cincinnati, Ohio, in 1892, a member of the American Medical Association and of the Illinois State and Sangamon County Medical Societies, died at his home on October 16.

Dr. Louis Auerbach of Denver, Col., a graduate of the University Medical College of Kansas City, Mo., a member of the American Medical Association and of the Colorado State and Denver County Medical Societies, died in St. Luke's Hospital, Denver, on October 14, aged 58 years.

Dr. Martin L. Corbin of Ellenboro, W. Va., a graduate of the Kentucky School of Medicine in 1892, and a member of the American Medical Association and of the West Virginia State and Ritchie County Medical Societies, died at his home, on October 17, aged 58 years.

Dr. George A. E. Carey of Indianapolis, Ind., a graduate of the Cincinnati College of Medicine and Surgery, Ohio, in 1864, a veteran of the Civil War, died at his home on October 14, aged 77 years.

Dr. John W. Hammond of Wellsville, Ohio, a graduate of the Jefferson Medical College of Philadelphia in 1856, a member of the Ohio State and Columbian County Medical Societies, died at his home, on October 18, aged 79 years.

Dr. Charles C. Davidson of Philadelphia, Pa., a graduate of the Jefferson Medical College of Philadelphia in 1880, a member of the Pennsylvania State and Philadelphia County Medical Societies, died at his home, on October 19, aged 62 years.

Dr. Edgar H. Douglas of Little Falls, N. Y., a graduate of Dartmouth Medical College in 1890; a member of the American Medical Association and of the New York State and Herkimer County Medical Societies, and attending surgeon to the Little Falls Hospital, died in the Faxton Hospital, Utica, on October 29, as he was about to undergo an operation for gallstones. Dr. Douglas was 43 years of age.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

THE SCHORSTEIN LECTURE.—THE HUXLEY LECTURE.—MEDICAL SOCIETY OF LONDON.—SIR W. RAMSEY ON NEW ELEMENTS.—OBITUARY.

London, October 14, 1910.

The Schorstein Lecture at the London Hospital was delivered this year by Dr. Robert Hutchinson, one of the physicans. This lectureship was founded in memory of the late Dr. Gustav Schorstein, who was elected assistant physician to the hospital in 1894, became full physician in 1905, and died in 1906. His earnest work during this time as a clinical practitioner and teacher and his special devotion to children's diseases induced Dr. Hutchinson to take for the subject of his memorial lecture "Congenital Pyloric Obstruction," though fain to admit that to call it "congenital" was to beg one of the most disputed points in the natural history of the disease. Still that was the name first conferred on it and the proposed alternatives are open to the same objection. The lecture then was a clinical one and presented in an interesting manner the experience of a physician who has had the opportunity of studying the several problems that surround it. The history is particularly interesting for though its recognition only dates from 1888 it must have been in existence from time immemorial. This the lecturer regarded not only as an instance of the difficulties of clinical observation but as a humiliating example of a whole profession overlooking for long periods of time what was all the while "lying, so to say, under its nose." The confession may be painful to the clinician, but then the pathologist cannot scoff, for he has just as completely overlooked it on the post-mortem table. The greater frequency of the disease in boys and in the first-born seems to be a fact, but no explanation has been proposed and Dr. Rob. Hutchinson had none to suggest, so he passed on to the symptoms: (1) The peculiar vomiting, projectile in character, and persistent, though there is a tendency on any change of food for it to cease for a few hours and recur as violently as ever. This vomiting comes on a few weeks after birth and is accompanied by pseudoconstipation, from failure of the food to find its way into the bowel. (2) Visible stomach peristaltic waves. They begin at the left side as a rounded swelling below the costal margin and pass across the abdomen obliquely downward to the right and before one wave disappears another comes on so as to form a sort of hour-glass shape across the abdomen. Sometimes three waves may be seen at once. This vigorous peristalsis is just as diagnostic of pyloric obstruction in the infant as in the adult. It is not painful and the infant often lies apparently unaffected by it. (3) A pyloric tumor can sometimes be felt and that would settle the diagnosis. Dr. Hutchinson said this should be felt for to the right of the middle line and they should try to get under the stomach and press the pylorus against the right side of the spinal column. Passing to the pathology the lecturer said that post-mortem there was an enormous increase of the pyloric canal, forming a dense, almost cartilaginous, tube, projecting into the duodenum and the wall of the vestibule was thickened and to some degree the whole stomach and even the lower end of the esophagus displayed thickening. As to how the

condition is brought about two views were held; one was that it was congenital, the other that it arose in consequence of long-continued spastic contraction. The lecturer pointed out the difficulties of both these hypotheses but had no alternative to offer, so recommended waiting for further information, especially as to the condition of the pylorus in those who have recovered and died years afterwards of other diseases. As to the treatment the lecturer confessed that at first he was deeply imbued with the idea that surgery alone could cope with the disease. In fact in his first case in private practice he strongly recommended operation but the parents declined and the child recovered under another doctor. This case converted him to a belief in the efficacy of medical treatment and since then he has seen twenty cases in private practice of which seventeen recovered under medical measures; the other three went to hospital and two of them died. Some others have also recorded nearly as fortunate statistics and so he thought all cases should undergo treatment by careful feeding and lavage for a time—say from three to six weeks before appealing to surgery.

The triennial Huxley lecture was delivered on Monday by Dr. F. W. Mott, Fullerian Professor of Physiology to the Royal Institution and Physician to Charing Cross Hospital. He devoted it to the hereditary aspects of nervous and mental diseases. I need not say he grasped his subject with a master hand. He showed a series of pedigrees and referred to statistics he had gathered from the County Council Asylums, to which he is the pathologist. Cases of insanity, he said, were seldom simple, but were in various degrees inborn tendencies combined with mental or bodily stress or strain on important organs and functions. In the majority of cases transmission was by the female side. The fact that a cousin was insane or even several members of a large stock did not show bad heredity. Often persons of genius come from such a stock. The general tendency was that insanity did not go beyond three generations—there was either a regression to the normal or the stock died out. This often happened by the tendency showing itself in imbecility of adolescence, and such patients were further prone to tuberculosis, and so rotten twigs were continually being broken off the tree of life. The vexed question of transmission of acquired characters, of special interest in relation to alcoholism, was wrapped up in the causes which led a man to drink, and his observations seemed to show that a man who could drink continually for years and keep out of an asylum or a prison had an inherent stable physical and mental organization and he might in a measure transmit this, though his offspring in all probability would have been stronger had he been temperate. Drunkenness in succeeding generations would, however, without doubt lower the virility, mental and physical degeneracy being the result.

The study of pedigrees had confirmed the doctrine of Maudsley that a person did not inherit insanity, but a tendency to it, and further that the tendency was inherited from the stock. The unsound strain in the stock might not be seen as insanity but in some allied neurosis. Conversely these might forebode insanity in the next generation. With the spread of the knowledge of heredity and the cult of eugenics there might be improvement of the human race by the double process of multiplication of the fit and elimination of the unfit. But the study of heredity taught also that the measure of fitness depended largely on inborn characters; "you do not gather grapes of thorns or figs of thistles."

Sir Wm. Ramsay in opening his course gave the class a lively sketch of the search for new elements that had been carried on all over the world and "outside as far as they could go." It had been proved that there were "missing elements." Some 240 minerals had been examined and some gases separated but no element. Water from springs and gases from them yielded nothing new. Then meteoric stones were examined and nothing found which was not known before. At last krypton was discovered in liquid air, and by the same process helium, neon, argon, and xenon. An entirely new light was thrown on the subject by the discoveries in connection with radium. They showed that some elements were not stable, never lasted long enough to allow examination. No one had created or annihilated matter, but in certain forms it changed so rapidly as to be unrecognizable. This was the case with radium emanations. So very small is the amount of radium available, its estimated cost at present being £420,000 for an ounce, that experiments to determine the nature of the emanations had to be conducted on a microscopic scale. It had now been discovered that the gases given off were not merely "mysterious influences or emanations," but that they contained a new element of which the existence would never have been suspected but for the discovery of radium. Still there were some blanks to be filled up.

The first meeting of the 138th annual session of the Medical Society of London was held on Monday. Dr. Samuel West, the retiring president, occupied the chair during the formal business and then made way for the incoming president, Mr. Charters Symonds, who gave his inaugural address, taking for subject "the treatment of chronic abscess of bone by means of metal drains."

Mr. Cecil Huntingdon Leaf, surgeon to the Cancer Hospital, died on the 5th inst. He was a student of the London Hospital, where in due course he became house surgeon, house physician, clinical assistant, and demonstrator of anatomy. He graduated at Cambridge, M.A., M.B., and B.C., and afterwards became a member of the senate of the university. He proceeded to the F. R. C. S. Eng. in 1895. In 1900 he was elected assistant surgeon to the Cancer Hospital and as vacancies occurred passed on to the senior position. A man of great literary power, he wrote for the journals, was one of the reporters of the "*Lancet* Experiments with Chloroform," 1893, and translated French and German works. His "Surgical Anatomy of the Lymphatic Glands" is well known.

Dr. John Anderson, C.I.E., died in North Kensington on the 10th inst., aged 70. He qualified in 1861 and entered the Indian Medical Service, attained the rank of Hon. Brigade-Surgeon and was on the viceroy's medical staff during Lord Ripon's viceroyalty, becoming at that time C.I.E. Returning to England in 1885 he took the St. Andrew's M.D., joined the College of Physicians and began practice in London. He was appointed Physician to the Dreadnought Hospital and to King Edward VII Hospital for Officers. He lectured at St. Mary's Hospital on tropical diseases, on which he was a recognized authority, and on which he contributed to the societies and journals, one of his most interesting papers being on the "Remote Ef-

fects of Tropical Life on Europeans." *Trans. Med. Soc. Lond.*, 1902.

Brigade-Surgeon Lieut.Colonel Rob. N. Macpherson, late of the Royal Artillery and Army Medical Staff, died on the 28th inst., aged 72. He qualified in 1864-5 at the London and Edinburgh Colleges. In 1879 he contributed to the *Lancet* a case: "Stricture Followed by Rupture of the Urethra." He saw fifteen years' service in India and three in the Mediteranean. His last appointment was at the head of the Portsmouth Military Hospital. He has three sons now serving in India.

The death is announced of Dr. Joseph H. Hill, who was Government Medical Inspector of Emigration for the Port of London and had held official positions under the New South Wales government as well as in this country for the United States. He qualified at the Edinburgh College of Physicians, the Glasgow Faculty, and the L. S. A., London, 1867-8. He proceeded to F. R. C. S. Edin., 1872, and took M.D. Brux., with honors, 1879.

Dr. F. W. Dyce Fraser, who died suddenly at the age of 55, was formerly Professor of Anatomy and Physiology at the University of Osaka. Since then he has been on the staff of the Victoria, Children's, and Charing Cross Hospitals. He was an Edinburgh graduate in arts and medicine and F. R. C. P. of the Edinburgh College.

OUR PARIS LETTER.

(From Our Regular Correspondent.)

MIGRATION OF CALCULI FROM THE RENAL PELVIS AND URETER BY TEARING OF THE WALLS—CHOLERA—TREATMENT OF SYPHILIS—NECROLOGY, PROFESSOR FARABŒUF.

PARIS, September 30, 1910.

At the Academy of Medicine, Le Dentu presented an interesting investigation by Tuffier demonstrating by authentic facts that the migration of calculi from the ureter through its walls is possible. In the course of the migration of calculi from the ureter after injury of the walls, the marked infiltration of the urine is not an accident much to be feared or dreaded. The tearing of the ureteral wall is preceded by an active ureteritis and periureteritis. At the point where the calculus is arrested "it makes its nest"; eccentrically compressed, the walls of the ureter end by contracting; the calculus incrusts itself and when the walls are destroyed by the pressure and the inflammation they become torn and perforated. The ureteral walls cicatrize almost immediately after the exit of the calculus; from the moment of the extraction not a drop of urine escapes from the wound. The reason why the infiltration of the urine is sometimes so slight when calculi have been evacuated, and sometimes considerable, may be found in the condition of the tissues around the ureter. If the sclerosis has taken on considerable thickness the tissues oppose an almost insurmountable obstacle to the infiltration of the urine; if they have maintained a certain amount of suppleness they resist badly and a large urinary pocket is formed in the neighborhood of the tear, which remains freely communicating with the canal. In such circumstances the cicatrization of the tear will be inevitably retarded.

Chantemesse has studied the march of cholera through Europe from 1904 to 1910. In September, 1904, the actual epidemic of cholera penetrated Russia by way of Bakou, returning to Persia. In 1906, the cholera reached St. Petersburg; it killed more than 6,000 persons in 1907. In 1908 the cholera reigned in Russia, where its victims numbered 30,000. The extension of cholera continued into Germany and Holland, following special lines. One was the propagation of cholera from place to place; the other was transportation of the disease by a ship or a train. The fight which the Hollanders have undertaken against the invading march of cholera has been victorious. In that country cases of cholera must be reported by any person who observes its occurrence, and that under pain of apprehension and punishment. Immediately the suspected person is isolated as well as the whole family, and that isolation continues until the end of the bacteriological examination, and ceases when this examination is negative. If it is positive, the whole house is emptied and all the persons who have been in contact with the sick person are placed in an isolation pavilion for observation during a time equal to the period of incubation. The individuals kept isolated are supported at the expense of the State, and receive their ordinary salary as if they had worked as usual. This method of defense is certainly expensive, but it has given excellent results in Holland. It shows how an effective defensive method might be instituted against cholera, whose foci are renewed with activity at this moment in Russia.

Emery has published an interesting article in *La Clinique* on the modern treatment of syphilis. It has been acknowledged for some three years that the salts of arsenic have a considerable power as a specific against syphilis, so that we may qualify arsenic as a specific medication for syphilis. Atoxyl has been tried, but this salt has no preventive properties, for it does not prevent recurrences of the disease. If it has an undeniable action against the skin ulcerations, it is much less efficacious against the mucous lesions; atoxyl also is not inoffensive. Hectine was employed with good results, but not of certain nature. Hectine may be considered as an adjuvant of mercury, but should not be substituted for it. Lastly, the discovery by Ehrlich has given truly extraordinary results. That which his product has shown as most remarkable is the rapidity of action of a single dose. If we cannot say as yet that it sterilizes syphilis, we may, at any rate, hope for this result.

The medical world of France mourns the death of the eminent Prof. Farabœuf. His name stands for the perfection of anatomical studies. Convinced that we should not learn anatomy from books alone but also on the cadaver, he created little by little, from diverse elements, the organization of the practical school of the Faculty of Medicine of Paris. Under his direction this soon became the first professional school in the world and served as a model for all others. Farabœuf was not only the creator of the school of practice of Paris, but also a professor extraordinary. His lessons were marvelously vivid and as he knew admirably anatomy, and how to portray it, his demonstrations, always luminous, drew to his course an innumerable multitude of auditors. Farabœuf also created the teaching of operative medicine; he wrote on this subject a marvelous work whose perfection will never be surpassed, and which remains a model that cannot be equaled. Interne of the Hospitals in 1864, Assistant in Anatomy in 1868, Doctor in 1871, Prosector in 1872, Agrégé in 1875, Chief of Anatomical Works in 1878, Farabœuf, in 1887, succeeded Sappey in the chair of Anatomy of the Faculty. He was Member of the Academy of Medicine. He died at the age of 69 years, of intestinal obstruction by biliary calculi.

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

IMPROVED HEALTH CONDITIONS IN MANILA—ETIOLOGY OF BERIBERI—INFANT MORTALITY—MOSQUITO CAMPAIGN IN MANILA—PHILIPPINE GENERAL HOSPITAL—PERSONALS.

MANILA, P. I., September 8, 1910.

THE annual report of the Bureau of Health for the fiscal year ended June 30, 1910, shows that there has been a marked fall in the mortality of the City of Manila for the year just closed. The average death rate for this city during the past five or six years has been approximately about 40 per thousand, while this year it was 34.93, or approximately 5 per thousand better than the average and by far the lowest death rate that has been recorded since American occupation. The cause of this improved state of affairs has not yet been announced, but it is informally understood that it was largely due to the installation of the new water system, the water from which was exclusively used in the city mains during the past year.

The death rate by nationalities was as follows: American, 12.93; Filipinos, 36.88; Spaniards, 15.65; other Europeans, 21.73; Chinese, 18.23; all others, 9.41.

The regular monthly meeting of the Manila Medical Society was held at 8:30 P.M., September 5, 1910, in the buildings in which the Philippine Medical School was formerly located. Captain E. D. Kilbourne of the United States Army, read an interesting paper, entitled "Preliminary Report of Multiple Neuritis of Fowls Due to Inanition." He exhibited a number of chickens which showed the clinical signs and symptoms of beriberi. This paper was another most important step in showing that the etiology of this disease is not of bacterial origin, but tends more and more to confirm the theory of insufficient or improper diet.

The remainder of the programme consisted of six papers upon the various phases of infant mortality. Nothing particularly new was elicited in this regard. In the discussion which followed, one of the speakers called attention to the few cases of so-called surgical tuberculosis, which were encountered here and suggested that this might be attributed to the very limited use of cow's milk and more especially that the use of other than canned and, therefore, sterile milk was almost unknown.

At the present time a mosquito campaign is being conducted in the resident section of Manila, the area covered being the four blocks which surround the new Philippine General Hospital on all sides. The work is being done by the Bureau of Health, under Dr. Banks, entomologist of the Bureau of Science. Dr. Banks is of the opinion that the mosquitoes that breed in the swamps in this neighborhood do not enter the dwelling houses of the residents of that section and that the large number of mosquitoes that are found in the houses are entirely of domestic origin. The campaign, therefore, consists of destroying only the breeding places which are found immediately around the premises; that is, septic vaults, rain barrels, tanks and all containers which are generally found to furnish breeding places for mosquitoes. If this campaign should prove successful, work upon a larger scale will be undertaken.

The construction work of the new Philippine General Hospital, particularly the interior finishing, was proceeding in the most discouragingly slow manner; the Governor-General during the latter part of July finally took the matter up and directed the Bureau of Public Works to finish the hospital in a period of thirty days, to such an extent at least that the patients at the Civil Hospital could be transferred to the new institution. This caused a tremendous activity and resulted directly in one pavilion of the hospital being made ready for occupancy on September 1st. The Bureau of Health had the Civil Hospital Division accordingly transferred to the Philippine General Hospital on September 2, and the old Civil Hospital, as such, has ceased to exist since that date. Many months must necessarily elapse before the new hospital can be opened to the general public. In the meantime the facilities which are available are superior to those which existed at the old Civil Hospital.

Dr. A. J. McLaughlin, Assistant Director of Health, has left upon a leave of absence in the United States.

Dr. P. K. Gilman, Assistant Professor of Surgery, Philippine Medical School, has gone to the United States upon leave of absence. Dr. John McDill is performing the duties of Dr. Gilman at the medical school, as well as his own.

Dr. Victor G. Heiser was designated physician to the Secretary of War during that official's visit of inspection to the various provinces.

Progress of Medical Science.

Boston Medical and Surgical Journal.

October 20, 1910.

The Technique of Arthrotomy. A Report upon and Discussion of One Hundred and Ninety-eight Cases. C. F. Painter and A. F. Cornwall.
The Small Fibrous Prostate. A. L. Chute.
Analysis of Wound Infection in One Thousand Consecutive Clean Operative Cases. W. P. Graves.
The Comparative Histology of Femoral Bones. J. S. Foote.

The Technique of Arthrotomy.—C. F. Painter and A. F. Cornwall state that for many years surgeons have been loath to interfere with pathological or traumatic conditions located within the larger articulations, owing to the dangers of sepsis and the fear that permanent damage might be done to an articulation by the extent of the excision. With improvement in surgical technique the first of these fears has been largely eliminated. But fear of weakening the capsule of the joint is still a deterring factor in the minds of many surgeons. The authors lay stress upon the importance of postoperative treatment in all cases of arthrotomy, because the success of an operation is quite as much dependent upon the skill with which the joint is managed afterwards as it is upon the judgment which determined upon the operation and the skill which carried it to its completion. The first group of cases described are those of joint lipomata, including the "solitary lipomata," described by Koenig, the hypertrophied alar ligament fringes which are traumatic fibrolipomata, and the diffuse lipomata which usually represent merely the deposition of fat in the subsynovial tissues as a result of a fatty infiltration, occurring commonly in those given to adiposity.

The Small Fibrous Prostate.—A. L. Chute calls special attention to a class of obstructive prostates in which the rectal examination shows little, if any, increase in size of the gland. These prostates are dense and fibrous, showing little similarity to the large hypertrophic prostates. They are the result of an inflammatory process. Their recognition before there is an appreciable residual may be difficult. They are often associated with a contraction of the bladder neck or a bar at the bladder outlet. In order to give these patients relief it is important not to overlook either element of the obstruction.

Analysis of Wound Infection.—W. P. Graves states that the troublesome occurrence of wound infection is still sufficiently frequent in public hospital practice to deserve serious attention. The custom of frequently changing assistants is a considerable deterrent to well-organized and systematic surgical work, and probably has some influence in the matter of wound sepsis. Of 1,000 operative cases, 51 had some form of wound infection which in all but one case was of a mild form, the organism being a staphylococcus in all instances. Twenty-eight of these infected cases were laparatomy wounds in which the infection consisted mostly (19 cases) of slight sepsis of a buried catgut knot, the wound closing immediately after extraction of the knot. Some of these catgut knot infections did not appear until some time after the patient was discharged from the hospital. All the cases of general sepsis in the list occurred in hernia wounds. Wound infection is much more common in hospital work than in private practice, where it is almost nil. The difference is largely due to the personal equation of the patient, for the person whose skin is habitually clean is less likely to incur wound sepsis. Abdominal incisions are much more susceptible to superficial infection than are plastic wounds.

Comparative Histology of Femoral Bones.—J. S. Foote, as the result of a large series of examinations, finds that the pure Haversian system type is shown in the smallest number of animals, the laminar in the next, while the lamellar comprises the largest number. He believes that the Haversian system type is the one best adapted to support weight. He states that this study promises to widen the field of bone histology and possibly to account for some of the individual variations in human femurs which are responsible for bone diseases.

New York Medical Journal.

October 22, 1910.

The Discard Heap—Neurasthenia. G. M. Parker.
Bacteriological Studies in Cases of General Paresis. R. C. Rosenberger and S. Stern.
A Typical General Paralysis of the Insane. B. Glueck.
Paratyphoid Fever. G. P. Paul.
Digitalis Fuchsii. J. Knott.
Hexamethylenamine in the Treatment of a Case of Meningococcus Meningitis. W. Brem.
What Is a Rational Diet? M. Lyon.
The Waters of Bad-Nauheim and Their Therapeutic Effect. H. Engel.
An Easy Method of Determining the Dose for Infants Below One Year. H. Fried.

The Discard Heap—Neurasthenia.—G. M. Parker states that in neurasthenia, the concept of thirty years ago, there are to be seen a considerable number of recent pictures, widely dissimilar. There have been various lines of divergence in the analysis of neurasthenia, namely, anatomical, physiological, psychological, and clinical. In the anatomical classification there had been evolved the splanchnic, spinal, and visceral types. From the physiological viewpoint the essential and isolated fatigue process of the nerve cell has been largely discredited. The toxemic theory has had a tremendous growth; while the rôle of metabolism, particularly the influence of the ductless glands has attracted considerable attention. Psychological inquiry was stimulated by the idea of an endogenous cell fatigue. Freud has perceived the morbid process in the insufficient inadequate sexual reaction in masturbation as distinguished from the adequate reaction of intercourse. The clinical lines present definite subdivisions. The constitutional and acquired neurasthenias were early distinguished. Psychasthenia was evolved from the neurasthenic mass. Traumatic and senile forms were recognized. From neurasthenia have been isolated certain psychoses, particularly the manic depressive group. Many of the so-called acquired neurasthenias are not acquired but have been developed upon a constitutional though latent basis. Many of the secretory and motility disturbances of the stomach fall in this category. In the gastric group the chief disturbance is the hyperchlorhydria, the hypochlorhydria, and achylia. The second main clinical group is that of the psychologically inferior neurasthenic. A third general clinical group has marks too scanty and incomplete to merit an entity. The symptoms are neurasthenic, but they are not neurasthenias. Freud's neurasthenia is placed within this general division, but with certain reservations. Psychasthenia, like neurasthenia, has suffered from its name; out of it, Janet has drawn the crises and derivative phenomena of tics, agitations, phobias, manias, ruminations, and obsessions. Præcox is a psychosis whose early stages bear certain superficial resemblances to neurasthenia. The author states that his paper is directed especially against the exclusive tendency toward psychological interpretation with scant consideration and curt disposition of the physiological factors.

Bacteriological Studies in General Paresis.—R. C. Rosenberger and S. Stern state that after a careful clinical study of this disease there would be detected a profound toxic state at times in certain cases, and the general appearances differed from those usually presented by any syphilitic stage or process usually observed. There was the rapid fulminating type in which syphilis could be surely excluded, as well as family and other indulgences. Certain cases would resemble in many ways an infection. Many cases of general paresis were very closely allied to, if not themselves pellagra. Bacteriological studies were performed as follows: Cerebrospinal fluid obtained by lumbar puncture was inoculated into culture media, and a bacillus was obtained in no way allied to Robertson's bacillus. The studies were carried out in twenty-nine cases, including other forms of insanity as controls. The organism obtained differed from any that had yet been described. It is the authors' opinion that general paresis is seen today is a symptom complex and not a disease entity as heretofore accepted; but a symptom group possible in at least three forms one is familiar with to-day. They refer to cerebrospinal syphilis, alcoholic pseudoparesis, and pellagra. They recognize the futility of endeavoring to secure an organism in the first and second, though the possibility of an organism in the third or the probability and possibility of even a fourth class or group of cases presenting the symptom complex of general paresis that may be due to bacterial invasion.

Atypical General Paralysis of the Insane.—B. Glueck in reporting a series of cases, quotes Wernicke, who insisted that a paretic is liable to show during the course of his disease any or all of the possible symptoms or groups of symptoms which may be caused by lesions in the cerebrum. The author perceives that the paretic process is able to produce severe circumscribed lesions of the posterior half of the cerebrum to such an extent that the predominant picture of the disease is that of manifestations of focal disturbances, before distinct signs of a general psychic disturbance can be manifested. Such cases tend to have prolonged remissions of the disease, interrupted by sudden manifestations of a focal nature. An easy transition from the ordinary to the atypical forms of the disease—because the pathological process is essentially the same—is readily possible. The importance of emphasizing upon the general practitioner the possibility of the disease manifesting itself in local paresis or hemiplegia solely, without the least signs of dementia until the disease has reached an advanced stage, cannot be overestimated. Of course, the use of the Wassermann reaction and the cytoanalysis of the cerebrospinal fluid should, under no circumstances, be neglected in these cases, because in the whole field of psychiatry there is nothing equal in importance to the earliest possible diagnosis of paresis.

Paratyphoid Fever.—G. P. Paul concludes that the diagnosis of paratyphoid fever is of most import. The clinical course of the disease bears a close resemblance to

that of typhoid fever, and it may be absolutely impossible to distinguish the two diseases clinically. There are, however, certain points of dissimilarity. The abrupt onset, the short prodromal period, the marked diurnal remission of temperature, the blotchy eruption, the moist tongue, and the bowel condition of parthyphoid fever will greatly aid in diagnosis. The surety of diagnosis must, notwithstanding, rest on bacteriological methods. The repeated absence of the Grueber-Widal reaction is of utmost importance. Gwyn has said that this reaction is found in 99.6 per cent. of all patients suffering from typhoid fever; hence its constant nonappearance or its occurrence only in low dilution (1 to 10 or 1 to 5) in a typhoidlike disease is very suggestive of paratyphoid fever. The finding of a paratyphoid agglutination is typical and may occur in dilution as high as 1 to 6,000. The most conclusive evidence, however, is the isolation of the bacillus from the patient's blood.

Digitalis.—J. Knott presents a study in the history, pharmacology, and therapeutics of this drug.

Hexamethylenamine in Meningitis.—W. Brem states that Crowe had shown that this drug is not only excreted in the bile and pancreatic juice, but also appears in the cerebrospinal fluid. The latter has recommended the prompt administration of hexamethylenamine in all cases in which meningitis is a threatened or possible complication. Following this suggestion the author treated a case of meningococcus meningitis with this drug, and was able to demonstrate its presence in the cerebrospinal fluid. The apparent effect of the drug upon the organisms of the spinal fluid, the comparatively long duration of an apparently very acute infection treated with hexamethylenamine, together with its demonstrated presence in the spinal fluid in strengths of from 1 in 50,000 to 1 in 200,000, indicate that the drug might be useful as an adjunct in the treatment of meningitis cases or as a substitute for Flexner's serum in meningococcus meningitis should the serum not be obtainable or delayed.

What Is a Rational Diet?—M. Lyon states that the study of the physiology of digestion will give the key to the general principle.

The Waters of Bad-Nauheim.—H. Engel gives the various indications and contraindications of these waters.

Determining the Dose for Infants Below One Year.—H. Fried has devised the following formula: Make the age in months the numerator and 150 the denominator of the fraction. Thus for a baby two months old 2/150 will be the dose. This does away with complex computation. The results are close to those obtained according to Young's rule, which is, however, more intricate; moreover, in the former the fractions are easily reduced.

Journal of the American Medical Association.

October 22, 1910.

Certain Popular but Erroneous Notions Concerniug Angina Pectoris. J. B. Herrick.
Visceral Anesthesias of Tabes Dorsalis in Relation to the Diagnosis of Acute Inflammatory Conditions in the Abdomen. L. A. Connor.
Teaching the Principles of Surgery. M. B. Tinker.
Compression of the Spinal Cord Causing Paraplegia, and Its Surgical Treatment. A. Primrose.
Traumatic Facial Paralysis. Anastomosis of Facial Nerve to Spinal Accessory. W. W. Grant.
Intestinal Obstruction Due to Ascaris Lumbricoides with Necropsy. C. Whelan.
A Simple and Efficient Means of Supplying Artificial Heat. S. E. Tracy.
A Case of Foreign Body Calculus. I. S. Hirsch.
The Submucous Resection of the Nasal Septum. C. E. Purcell.
Results of the Operation of Submucous Resection of the Septum in Private Life. F. P. Emerson.
Surgery of Cystic Degeneration of the Kidney. T. C. Witherspoon.
The Nutrition of the Feeble Infant. H. D. Chapin.
The Prognosis in Congenital Dislocations of the Hip. E. H. Ochsner.
Radioactivity Induced by the X-rays. H. Schiller and P. S. O'Donnell.
Bites from Copperhead Snakes. G. R. Davis.
Symposium on the Treatment of Acute Anterior Poliomyelitis. I. Treatment of the Acute Stage. H. M. McClanahan.
II. Treatment from the Neurologist's Point of View. B. Sachs.
III. The Orthopedic Treatment. J. Ridlon.
The Value of Ehrlich's New Discovery 606 (Dioxydiamidoarsenobenzol). B. C. Corbus.

Angina Pectoris.—J. B. Herrick points out certain fallacies in the popular conception of angina pectoris. The first is that in true cardiovascular angina pectoris, peripheral arterial sclerosis, cardiac hypertrophy, and high blood-pressure are essential. This is by no means always the fact. Arterial change may be widspread and the coronaries sclerotic without hypertrophy of the heart or rise in blood-pressure. The sclerotic or atheromatous process may be quite limited, localized to the beginning of the aorta and only encroaching a little on the coronaries, while the peripheral vessels may be normal. Especially in syphilitic cases are the conditions liable to be thus localized. In some of the most serious cases there may be no abnormal arterial pressure, indicating perhaps a weakened cardiac muscle. The finding of aneurysm or lesion of the aortic valves does not exclude angina, but is rather in its favor. The attacks are not always few in number, and following exertion, and life is not necessarily cut off within a few months after the appearance of the disease. Patients may live a number of years with comparatively frequent attacks. While comparatively rare in women, the disease is by no means unknown, and serious mistakes may be made in diagnosis, especially in nervous and hysterical cases. The cardiopath is often a neuropath also. Pain is not always excessive. Even in fatal cases there may be no constant pain. Unconsciousness, though unusual, is seen at times and, while the patient usually is afraid to move and will not lie down, there are exceptions to this rule. Eructations or vomiting during an attack do not prove it to be a false angina and not organic or cardiovascular. While the disease is very grave, there is no certainty that death is imminent. The kidneys, as well as the heart, must be investigated as regards prognosis. The nitrates are sometimes marvelously efficacious in checking an attack and their failure to give benefit does not exclude true angina. In some cases digitalis does more good than all the nitrates or iodides.

Visceral Anesthesias of Tabes.—L. A. Connor, remaking first the value of pain as a safeguard in the body and the disastrous effects of its absence in certain diseases, reports a case of fatal perforated appendicitis in a tabetic without symptoms of pain, tenderness, or muscular rigidity. Roux found atrophy of a large proportion of the small myeline fibers in the sympathetic trunk and concluded that destruction of these was a special pathological condition of tabes and responsible for the visceral loss of sensibility. The loss of painful response to visceral irritation is therefore emphasized as probably due to these lesions and constitutes a special danger in this disease.

The Teaching of Surgery.—M. B. Tinker finds that one great fault is ignoring the relative value of what is taught, and failure to realize that few graduates will actually practise major surgery. The things they will have to handle are comparatively neglected.

Paraplegia Caused by Spinal Compression.—A. Primrose states that hemorrhage in the neural canal may be the cause of the paraplegia, either extra- or intradural or into the substance of the cord. When the paralysis comes on after an interval of time between it and the injury, this possibility must be kept in mind. It is not possible always to say whether the hemorrhage is extradural or intradural, but hemorrhage into the cord is more likely to give local symptoms. Severe injury to the spinal cord may cause death by clot. Acute reflexion of the cervical spine, producing stretching of the cord with hemorrhage, causes paraplegia. If fragments of the neural arch have been driven forward, compressing the cord, early operation may give relief, and if there is any strong evidence of partial severance of the cord the same is true, even before we can absolutely determine the fact. The most common cause of compression paraplegia from disease is spinal caries, and this is frequently amenable to

milder measures, but occasionally operative interference is necessary and should not be delayed too long, as experience has demonstrated to the author. If treatment by extension for three months is not effective, he would advise laminectomy unless other conditions contraindicate it. In tumors of the cord valuable time is often lost by delay until after the cord is damaged beyond repair, and he seems to think that operation should be performed in dubious cases. Even when the growth is syphilitic gumma, operation is better than waiting to cure it by specific treatment. The operation of laminectomy, carefully performed, is not a dangerous procedure and does not seriously affect the stability of the spinal column.

Traumatic Facial Paralysis.—W. W. Grant reports a case of traumatic facial paralysis due to a pistol shot in which the ball lodged on the floor of the anterior fossa in front of the ear. It had cut the facial nerve between the chorda tympani and the stylomastoid foramen. The usual method of using the spinal accessory or hypoglossal anastomosis for the remedy of the paralysis was not employed in this case. After experimenting on several cadavers the author devised the method of connecting the facial nerve with the spinal accessory and the peripheral end of the accessory to the descendens hypoglossi. The results were satisfactory.

Intestinal Obstruction Due to Round Worms.—C. Whelan reports a case of fatal obstruction of the bowels by round worms in the jejunum.

Application of Artificial Heat.—S. E. Tracy recommends the use of the electric lamps, six or eight of which, of sixteen candle power, are attached to the inside of an asbestos-covered frame, covering the patient from shoulders to feet, for the purpose of stimulation by artificial heat after operation.

Foreign Body Calculus.—I. S. Hirsch describes a case of urinary calculus in a girl five years of age, that had formed about a pin as a nucleus.

Submucous Septum Resection.—C. E. Purcell states that the operation is peculiarly fitted for private patients, that the character of the incision is highly important, that the turbinates should be spared, that little cauterization should be done, and that the nose should seldom be meddled with after the operation.

Results of Submucuous Septum Resection.—F. P. Emerson reviews the indications for submucous resection of the nasal septum, and describes his own methods.

Cystic Kidney.—T. C. Witherspoon reports a case in which he treated a typical polycystic kidney by opening the various cysts with scissors and forceps, removing their thin covering and partitions, leaving only the bulkier solid tissue intact.

The Nutrition of the Feeble Infant.—H. D. Chapin believes that a muscular insufficiency of the stomach, comparable to myasthenia gastrica of later life, is responsible for difficulties in infantile nutrition. In the majority of cases the feeble infant with digestive disturbances is fed too frequently and the stomach does not have time to empty itself between the feedings, and thus each successive feeding becomes contaminated and butyric acid fermentation is set up. In a few cases dilatation was marked. He calls attention to the changes of view in regard to nutrition of late years; the recognition of the fact that there are different kinds of proteins, carbohydrates, and fats, and their digestive properties vary according to the combinations. There is no one rule for feeding infants; some thrive on one thing and some on another, and the question of what is theoretically correct must be subordinated to what will practically work. Some infants thrive on a high proportion of carbohydrates, others on a low, and the same variations are observed with proteins and fats. He has long advocated the use of dextrinized gruels, as some patients seem to thrive especially well with a mixture of carbohydrates in high proportion and a low proportion of fats. This is the reason of the success of Keller's malt soup in many cases, though it sometimes signally fails. The general method to be employed in feeding in difficult cases will have to be determined to a certain extent by experiment with the individual infant. The care taken in trying to find a universally applicable food would better be spent in testing individual capacities and idiosyncrasies. The author has tested Finkelstein's method of feeding, based on the theory that digestive disturbances are caused by the sugar of milk, but his results are not very promising. When results follow this method of feeding he thinks it is due more to the form of protein given than to the lessened amount of sugar.

Congenital Hip Dislocation.—E. H. Ochsner in discussing the prognosis of this condition states that no case should go undiagnosed beyond the age of three; that if properly treated at this age the great majority of dislocations can be successfully reduced and can be given good anatomic and functional results.

Radioactivity Induced by X-rays.—H. Schiller and P. S. O'Donnell believe from their experiments that they are able to store up *x*-rays or a part of them and make use of them after they have been long removed from the tube from which they have been derived.

Bites from Copperhead Snakes.—G. R. Davis reports three cases and states that the fact that patients generally recover indicates that the wounds are not serious.

Treatment of Acute Stage of Poliomyelitis.—H. M. McClanahan recommends, among other things, as a routine measure, the use of hexamethylenamine. Elimination by all channels is the keynote in this treatment.

The Treatment of Poliomyelitis from the Neurologist's Point of View.—B. Sachs believes that intelligent gymnastic exercise of the paralyzed or weakened limbs is the method to which one should pin one's faith, and from personal experience he states that the physician who directs these exercises intelligently, and who will direct them patiently, will have no reason to regret the time devoted to this good cause. In recent epidemics the disease has been of such varying intensity that one has no right to claim that any case is a hopeless one, and much can be done by properly directed therapeutic efforts.

The Orthopedic Treatment of Poliomyelitis.—J. Ridlon discusses this subject under the headings of movements, braces and splints, surgery and massage, contraction deformities, tendon surgery, and prognosis.

The Value of 606.—B. C. Corbus states that in order to fulfil the theory of Ehrlich's *therapia sterilisans magna*, there must be certainty of diagnosis and careful technique in preparing the substance for injection.

The Lancet.

October 15, 1910.

The Education of the Student of Medicine. F. H. Marsh.
Industrial Tuberculosis. T. D. Lister.
Mineral Waters as Artificial Sera. C. Fleig.
Ulcerating Granuloma of the Pudenda, a Protozoal Disease. R. Markham Carter.
A Case of Tumor of the Pituitary Body. W. Boyd.
A Case of Carcinoma of the Cecum Removed after a Preliminary Evacuation of a Fecal Abscess and an Ileosigmoidostomy. J. D. Malcolm.
Treatment of a Uterine Fibroid by *X*-rays. A. F. Savill.
A Case of Uremia with Facial Paralysis and Intestinal Ulceration. G. Parker.
Radium and Radioactivity. Dr. Guyenot.

The Education of the Student of Medicine.—F. H. Marsh believes that as medicine has now become a department of biology its pursuit necessarily demands a sound acquaintance with the broad principles of those departments of biological science upon whose foundations it rests, namely, chemistry, anatomy, physiology, and pathology. The teaching of medicine has suffered from the incubus of an overloaded curriculum. Could there be some adjustment, the teaching of the preliminary subjects would become most valuable to the student.

Industrial Tuberculosis.—T. D. Lister states that the industrial classes suffer from consumption at least twice as heavily as the leisured classes, and in many occupations the penalty paid in phthisis mortality is from five to ten times that of the phthisis mortality falling upon those who toil. From the general review and rearrangement of the figures for male adults regarding the occupational mortality one can gather that there is a distinct relationship between certain kinds of employment and phthisis mortality. Apart from certain highly special conditions involving the respiration of sharp, metallic particles (*e.g.* the tin miners), the highest mortality from phthisis is associated either with the trade in alcohol, or with the occupations which are the refuge or the penalty in the struggle for existence of the least competent. The unskilled workers and laborers, the street sellers, and similar classes on the one hand, and systematic poisoning with alcohol on the other, cause a phthisis mortality of three to four times that of all males, and six to eight times that of the agriculturist. In these classes phthisis is part of a high general mortality. But there are many industries whose mortality as a whole is low and yet their phthisis mortality is about or above the average. Typical instances of these occupations are clerks, indoor shopkeepers, many of the textile industries, the printing trades, and those working in metals other than iron and steel. Confinement, foul air, metallic dust, bad housing, and other conditions inherent to the occupations are the causes of the phthisis excess. In writing on the eventual conquest of consumption medical writers and laymen interested deal with it too exclusively from the point of view of infection. This involves the idea that by treating the early cases and segregating the advanced cases this great scourge can be eradicated, but it seems that the greater part of the question would remain untouched. To secure a regular and systematic examination of every employee, as is now attempted in the case of school children, is at present a counsel of perfection, even if sufficient skilled observers were available to make the necessary early diagnosis. To attempt to segregate all the comparatively advanced cases would involve a great deal of concealment in the present state of popular ignorance. Compulsory notification is an essential first step in the discovery of the real number of the phthisical population. The widest possible health teaching among the poorest and most ignorant classes of the people, and the most careful regulation of all the conditions under which the more or less skilled but yet unhealthy industries are carried on, are also essential preliminaries to the real stamping out of consumption.

Mineral Waters as Artificial Sera.—C. Fleig contributes an account of investigations on the question of mineral waters as artificial sera and of injections of mineral waters into the tissues both from a physiological and a therapeutical point of view. The conception of mineral waters as vital plasma and as artificial sera rests on a triple series of facts, (1) the facility of their injection in enormous quantities and by every possible channel, within animals and in man; (2) the effects of their transfusion after copious blood-letting in animals and in man; and (3) the examples of the survival and reviving of organs or of cellular elements isolated from the body and placed in mineral waters. These effects are more beneficial than those observed from the use of normal salt solution. The mineral waters owe their physiological virtue to their electrical, calloidal, radioactive, and other properties still unknown. They can be used at their exit from the spring as injections in an aseptic condition without preliminary sterilization, thus avoiding the slightest change in their natural condition. In the event of sterilization being necessary it should be done at a low temperature by filtration. The advantages of injections of mineral waters into the tissues as a method of so-called cellular balneotherapy and of the application of the hydromineral cure in general are very numerous, but the greatest discrimination is imperative in utilizing these injections in certain cases, as they cannot in any way be looked upon as substitutes for the methods of administration habitually employed, although they are calculated to augment the activity of these last and to notably enlarge the field of application, already so extended, of hydromineral medication. The therapeutic employment of mineral water injections is logical. In a general way they can be used both in cases where injections of normal saline solution or of isotonic sea-water are indicated, as well as in those in which we consider it of importance to apply a hydromineral cure, the maximum conditions of activity of which one may wish to realize.

Ulcerating Granuloma of the Pudenda.—R. M. Carter states that this is not a venereal disease, but it is contagious and is autoinoculated by the host on other parts of the body. The disease is of extensive geographical distribution, being found more frequently in India than in other countries. It is caused by a parasite belonging to the same class as that found in Oriental sore.

Tumor of the Pituitary Body.—W. Boyd describes the case of a man thirty-eight years of age, who began eight years before to complain of severe neuralgic pains in the temples, then had failure of sight, epileptic attacks, ataxia, acute mania, lethargy, and stupor. He died suddenly. Post-mortem examination showed a large, soft, friable, vascular tumor growing from the infundibulum; microscopically it bore a close resemblance to a mixed-celled sarcoma. The chief points of interest in the case were: The long duration; the absence of wasting and of any symptoms of acromegaly; the sudden termination; the nasal discharge of cerebrospinal fluid; the enormous amount of albumin and extraordinary lymphocytosis in the fluid from a case of nonsyphilitic tumor (for the naked eye and microscopic characters, together with the resistance to large doses of potassium iodide, clearly pointed to the non-specific nature of the growth); and the remarkable destruction to the floor of the skull.

Treatment of Uterine Fibroid by X-Rays.—A. F. Savill describes her results in the treatment of a patient forty-three years old in whom a rapidly growing fibroid caused menstrual hemorrhages. The tumor was as high as the umbilicus, and upon the refusal of the patient to submit to surgical treatment, the author resorted to *x*-ray treatment, using Bordier's method. The result was a disappearance of the monthly flooding, although the size of the tumor was but little reduced.

Uremia with Facial Paralysis and Intestinal Ulceration.—G. Parker states that ulceration of the bowel and hemorrhage from it are important complications of Bright's disease and may lead to a fatal result. When a bowel hemorrhage takes the place of a cerebral one the patient may have a better chance of recovery if he survives the immediate risks, but if it is due to extensive ulceration the condition is a very serious one. He reports a case of intestinal hemorrhage and facial paralysis, which were the first symptoms of uremia that manifested themselves, and illustrated the difficulties sometimes encountered in the diagnosis of kidney disease.

British Medical Journal.

October 15, 1910.

The Education of the Student of Medicine. H. Marsh.
Acute Arthritis of Doubtful Origin. H. D. Rolleston.
Experiment and Observation in Medicine. J. A. Codd.
Fever Caused by the Bite of the Sandfly. T. G. Wakeling.
Skiagrams of Multiple Renal Calculi and of Fractures Due to Muscular Violence. O. L. Rhys.

The Education of the Student of Medicine.—See abstracts of articles from the *Lancet*.

Acute Arthritis of Doubtful Origin.—H. D. Rolleston states that cases are seen which are at first assumed to

be rheumatic fever, but which fail to react to salicylates, and yet as shown by the sequel are not pyemic, gonococcic, or due to any other obvious infection. Vigorous salicylate treatment may produce a reaction in cases of arthritis due to other causes than rheumatism. In some cases an attack of arthritis clears up under salicylates except in one or two joints which progress in spite of treatment, suggesting suppuration, which, however, does not occur, and eventually the joint or joints present some fibrous ankylosis. In other cases a complete recovery is followed by a relapse, but the arthritis does not subside under salicylates and fibrous ankylosis results. Patients with oral sepsis are especially prone to relapses of rheumatic fever. Acute non-rheumatic arthritis consists of two groups: 1, infective, in which microorganisms are present in the affected joints, and 2, toxic, in which the joints are sterile, and apparently the seat of poisons brought from other parts of the body. In addition to the recognized forms of infective arthritis, such as gonococcic, pneumococcic, etc., there are others due to the *Diplococcus intracellularis*, to the *Bacillus coli*, and to the influenza bacillus. In pyemia, apart from purulent arthritis, the joints may become swollen and painful, without anything further taking place. Acute epiphysitis in children is a form of pyemic arthritis. There are cases of multiple arthritis that respond to injections of polyvalent antistreptococcic serum. Acute synovitis in generalized miliary tuberculosis is rare. There is also a form of tuberculous pseudorheumatism. Still's disease, or the special form of chronic arthritis with enlargement of the spleen or lymphatic glands, has been thought to be a tuberculous manifestation. An obvious difference between the tuberculous pseudorheumatism of adults and Still's disease is the relatively acute nature of the former and the chronicity of the latter. Toxic arthritis has been noted after the use of diphtheria antitoxin. Both suppurative and toxic forms of arthritis may complicate scarlet fever. Intermittent hydrarthrosis is supposed to be an affection of the synovial membrane analogous to a cutaneous erythema.

Experiment and Observation in Medicine.—J. A. Codd states that the advances in medicine have not kept pace with those of the pure sciences. Science depends on exact measurement, and most of the observations in medicine do not take the form of measurement but of signs that have only a relative value. Moreover in medicine the element of control is largely lacking, that is, it is impossible to check up the results by comparison with identical cases. Empiricism still plays a large rôle, although pharmacology has made important progress. The want of correlation between chemical affinities and pharmacological affinities is still very marked. With the advances in medical practice there has been a decline in the use of alcohol for therapeutic purposes. The scope of the physician has been narrowing. The advance in surgery has been enormous, and much of it at the expense of the physician. The field of physical therapeutics is widening. The enlarging sphere of antitoxin and vaccine therapy represents work of an eminently scientific nature. Vaccine therapy is the most promising line of the future that will redeem the physician from the secondary rank into which his brilliant surgical colleague has placed him.

Fever Caused by the Sandfly.—T. G. Wakeling describes a non-fatal three days' fever, with a week's convalescence and certain sequelæ, due to the bite of the *Phlebotomus papatasii*. There is a tendency to inflammation of synovial and pleural cavities, and to neuritis and headache.

Skiagrams of Renal Calculi and of Fractures.—O. L. Rhys presents skiagrams, one of which shows multiple renal calculi, and the other of which shows fractures of the transverse processes of three lumbar vertebræ. These fractures had been produced by muscular violence.

Münchener medizinische Wochenschrift.

October 11, 1910.

Significance of Calcium Metabolism in the Origin of Rachitis.—Dibbelt pronounces in the course of a serial article on this subject as follows: The pathogenic causation of rickets lies in a disturbance of the calcium metabolism, represented by an increased excretion of calcium salts by the intestine. This leads to the skeletal alterations after the blood has become poor in calcium content. The attraction of the blood for lime salts is sufficient to deprive the bones of their lime content, to say nothing of preventing the deposition of lime in the skeleton. It appears that the blood must have its lime salts, although the skeleton suffers.

The Wassermann Reaction in Tropical Affections.—Baermann of Sumatra has investigated syphilis, yaws, lepra, and malaria of indigenous origin with the Wassermann reaction. So far as syphilis is concerned the findings seem to agree with those obtained in Europe. Of very great interest is the outcome of this test in frambesia, the relationship of which to syphilis is so problematical. Thirty-eight untreated cases gave 100 per cent. positive reactions. These cases all presented abundant eruption. Of ten cases with isolated lesions eight reacted positively. Of twenty-eight cases which had undergone one or two courses of mercurial treatment, 50 per cent. still gave positive findings. So-called tertiary yaws, untreated, gave about 67 per cent. positive findings. Hence it must appear that the old question of unicism vs. dualism, concerning syphilis and yaws, must be reopened. The parallel of the reaction is striking, and, for the time being, the unicists seem to have regained advantages lost through inoculation tests. The author is conservative and thinks that his material, however large, is too small for conclusions. It has further been alleged oftentimes that Wassermann's reaction is applicable chiefly to temperate zones; and that it possesses a vanishing significance for tropical diseases. This is in part borne out by findings in malaria of the tropics, in which a considerable per cent.—20 or more—of positive findings were obtained; and, still more strongly by lepra findings, where the positive percentages vary—being low or high, 18 to 80 per cent. without apparent causes.

Laceration of the Tentorium in Labor.—Beneke is inclined to believe that the mechanism of many fetal deaths and intracranial diseases in the living may be referred to laceration of the infants' tentorium cerebelli in labor. The sutures being still open, lateral compression of the skull would tend to cause this lesion and the results might be relatively mild or severe. In the latter case we should find immediate death or protracted asphyxia; in the former hydrocephalus internus as well as a structural basis for neuroses. These lesions of the tentorium, resulting in more or less hemorrhages, do not exhaust the intracranial pathology of the newly born infant, but represent an important factor in the same, if not the most important. Thus hemorrhage from the tentorium, from its basilar location, is able to influence powerfully the medulla and the nerves which originate therefrom, and likewise the fourth ventricle, and most of the sinuses. Hemorrhage of the vertex, often mentioned in textbooks, tends to produce at the outset only the general symptoms of intracranial compression. It is evident that a whole series of subjects, such as asphyxia neonatorum, deaths of numerous types soon after delivery (notably trophic deaths from lesion of the medulla), chronic hydrocephalus, congenital neuroses, idiocy, and so on, should derive new significance when studied from this etiological standpoint. At the same time the idea is by no means new, having been foreshadowed by some of the fathers of modern pathology.

Book Reviews.

Die Praxis der localen Anästhesie. Von Dr. Artur Schlesinger, Berlin. Mit 22 Textabbildungen. Berlin und Wien: Verlag von Urban und Schwarzenberg.

This handy volume of 160 pages fully covers the entire subject of local anesthesia in its many phases. The author traces the extraordinary progress that this subject has made, giving full credit to Corning's contributions, particularly to the latter's demonstration of the feasibility of regional anesthesia by means of cocainization of the nerve trunk. The main object of this book is to enable those who have no opportunity of learning by actual observation the various methods of local anesthesia to acquire the technique by meaus of graded exercises. At the same time the author seeks to satisfy the more difficult requirements of specialists in the most advanced methods of local anesthesia.

Un Nouveau Traitement du Tabes (Ataxie Locomotrice). Avec quelques considerations sur la repercussion centrale des irritations périphériques. Par le Docteur Helan Jaworski, de la Faculté de Médecine de Paris, et de la Faculté de Médecine de Lemberg (Autriche); Médecin et Chirurgien de la Faculté de Médecine de Lima (Pérou), et du Royaume d'Espagne. Paris: A. Maloine, 1910.

This "new treatment" is the one associated with the name of Denslow, and is sufficiently familiar to English-speaking physicians. In this work Dr. Jaworski endeavors to make the theory known to the French.

Department of Neurology, Harvard Medical School: Contributions from the Massachusetts General Hospital, the Boston City Hospital, the Long Island Hospital, and the Neurological Laboratory. Vol. IV. Boston, Mass., U. S. A., 1910.

This publication brings together in one volume articles published during the year in several medical journals. The various contributors have endeavored to maintain the standard of previous volumes, and some of the twelve contributions are timely and interesting.

Visiting Nursing in the United States. Containing a Directory of the Organizations Employing Trained Visiting Nurses, with Chapters on the Principles, Organization, and Methods of Administration of such Work. By Yssabella Waters, Henry Street (Nurses') Settlement, New York City. New York: Charities Publication Committee, 1909.

It may be said that the appearance of this work commemorates the fiftieth anniversary of the establishment of visiting nursing in Liverpool, England. During these fifty years there have been established in the United States alone 566 visiting nurse associations with a staff of 1,413 nurses, while in the past year 112 new organizations were formed. The purpose of this book is to show what is being done in this country through the services of the trained nurse, in district nursing, and in the more recent extension of her activities in tuberculosis, school inspection, social welfare, and other more general social work. There are a description and a history of visiting nursing, a chapter on principles, and a directory of all visiting nursing organizations in the United States. The book is practical, and may be used as a guide by those who wish to establish a nurses' settlement. The author has admirably embodied in this work the fruits of her experience as a trained nurse and as a settlement worker on the East Side of New York

The Science of Living or the Art of Keeping Well. By William S. Sadler, M.D.; Professor of Physiologic Therapeutics, The Post-Graduate Medical School of Chicago; Director of the Chicago Institute of Physiologic Therapeutics; Member of the Illinois State Medical Society, the American Medical Association, the American Association for the Advancement of Science, the American Health League, the Sixteenth International Medical Congress, etc. Illustrated. Chicago: A. C. McClurg & Co., 1910.

It is a pleasure to read a book so interesting, practical, and helpful. The work has been prepared primarily for those who are well and who wish to remain so. Health rules are presented with physiological explanations. Of great value is the section on foods, in which many common daily errors are discussed with reasons for their avoidance. The fuel value of foods is given, with a description of the prevalent adulterations and methods of detecting them. Other interesting and useful chapters are the cause of worry and the cure of worry. The text is free from fads and extremes, so much in vogue in many works of this nature. Results of the latest scientific discoveries in the field of hygiene are incorporated in the text in a simple, straightforward style. Numerous phases of the subject ordinarily overlooked in health books are given a place in this volume, which with a full index and illustrations lend value to the book. The retail price is $1.50 net.

Radium Therapy. By Dr. Louis Wickham, Médecin de Saint-Lazare, Ancien Chef de Clinique Dermatologique de la Faculté de Paris, Lauréat de l'Académie de Médecine; and Dr. Degrais, Chef de Laboratoire à l'Hôpital Saint Louis, Lauréat de l'Académie de Médecine. Translated by S. Ernest Dore, M.A., M.D. (Cantab.), M.R.C.P., with an introduction by Sir Malcolm Morris, K.C.V.O. Illustrated with 20 colored plates and 72 figures in the text. New York: Funk & Wagnall's Company, 1910.

The appearance of this book is at once a tribute to the discoverers of the new epoch-making element, and to the scientific skill of those who first saw and applied its therapeutic possibilities. With the matchless facilities of the Laboratoire Biologique de Radium at his disposal, Dr. Wickham has been enabled to contribute largely to the recent progress in radium therapy. The authors have been guided by the principle that assertions must be made with great caution, and always based on a sufficient length of time and number of cases. They have paid special attention to the study of measurements, filtration, and dosage. The first part of the work is concerned with physics—the description of the nature, origin, and available energy of radium. The second part deals with instruments and technique, describing the methods of treatment and the conditions of measurement and dosage. The third part is concerned with clinical therapeutics, and includes general considerations on reaction, together with chapters on carcinoma, cheloids, and disfiguring cicatrices, angiomata, pigmentary nevi, tuberculosis, chronic refractory affections of the skin (inflammatory and pruriginous), and various other diseases; and a chapter on the use of radium in gynecology. Numerous colored plates and figures in the text add to the value and beauty of the book.

La Medecine à Bord. Notes recueillies au cours de dix-huit années de navigation. Par Franck Clair, Médecin sanitaire maritime, Membre correspondant de la Société de Pathologie exotique, Membre de la Société de Médecine et d'Hygiène tropicales, Medailles d'honneur des épidémies en argent. Ouvrage couronné par l'Académie de Médecine (Prix Clarens). Paris: Vigot Frères, 1910.

Growth in the subject of maritime medicine has been coincident with the extraordinary development of international traffic on the high seas. A number of works on this subject have appeared within recent years, but none seems to have fulfilled its purpose so admirably as this book, which is intended to be at the same time a brief compendium of maritime pathology and hygiene, as well as a guide book for those ship surgeons who are just entering upon their vocation. In the first part of this book the author describes succinctly the affections most commonly observed at sea, dwelling especially upon those peculiarities created by the nautical environment, and upon those methods of treatment compatible with the resources that may be found aboard ship. The second part of the book deals with the organization of maritime medicine under the control of the state, somewhat after the pattern of the Public Health and Marine Hospital Service of the United States, which represents the best institution of its kind in the world.

Zur Transformation des Knochenkallus. Experimentelle Untersuchungen und ihre klinische Bedeutung. Von Dr. M. Zondek, Berlin. Mit 11 Abbildungen im Text. Berlin: Verlag von August Hirschwald, 1910.

In order to clear up some of the uncertainty existing as to the exact process of healing following fractures, Zondek broke the right hind leg in six mice, killed the animals after an interval of six to thirty-five days, and made a great number of serial sections at the seat of fracture. He finds that the production of cartilage in the interior of the diaphysis is due to pressure. It was greater on the concave than on the convex side of the bone. The change from cartilage into osteoid tissue progresses gradually from above and below toward the seat of fracture, and is slower in the lower fragment and on the concave side than in the upper fragment and on the convex side. His conclusion as to treatment is that the best results are obtained by a combination of the anatomical (correct adaptation) and functional methods. The work is in the form of a monograph of forty-one pages, and is most praiseworthy. The study of bone pathology involves so much labor that it is very generally neglected.

Society Reports.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

Sixtieth Annual Meeting, Held at Pittsburg, October 3, 4, 5 and 6, 1910.

(Special Report to the MEDICAL RECORD.)

(*Concluded from page 794.*)

THEODORE B. APPEL, M. D., OF LANCASTER, PRESIDENT.

Thursday, October 6—Third Day.

Oration on Obstetrics.—Dr. H. F. TOMB of Johnstown made this oration, saying that we should endeavor to obtain better fees, to have every one of these cases as a direct patient under the guidance of a physician from the very beginning of her pregnancy, to make an effort to obtain better nursing and, by procuring the better care and nursing, to get rid of the midwife and her class. To give to our labor cases more of our time and care, both during their labor and in the lying-in period, and to never discharge a case of this kind until we had made a thorough examination of her.

The Prophylaxis of Gonorrhea.—Surgeon M. F. GATES, U. S. N., read this paper, saying that in the U. S. Navy general preventive measures such as mental and physical exercises and diversions and instruction by lectures and leaflets had been employed to the fullest extent Prophylactic treatment after exposure had been used in the last few years with excellent results. If administered within eight hours of exposure protection was almost certain, but even after forty-eight hours it was sometimes of value.

The Abortive Treatment of Gonorrhea.—Dr. MACY BROOKS of Philadelphia read this paper, saying that a case cured within two or three weeks was to be considered aborted. Abortive treatment was seldom effective later than when the discharge was just becoming mucopurulent, and there was at most a slight burning on urination. Injections too strong or too frequent were harmful. A daily injection by the surgeon was sufficient. Should abortive treatment fail, treatment could be continued as in the usual case.

Treatment of Acute Gonorrhea.—Dr. W. F. DONALDSON of Pittsburg presented this paper, saying that when acute gonorrhea was recognized and treated more as a pathologic condition and less as a social disease it would take its place among curable diseases and not rank among the leading disseminators of death and destruction. If it were true that acute gonorrhea was curable, it was time that we cease to be alarmists and rather educate the public that the unfortunate with acute gonorrhea may with early, intelligent, and diligent treatment be cured. He would urge physicians to deal with patients infected with acute gonorrhea in such a sympathetic and dignified manner that in the course of time all such would early seek medical advice and follow the same until a cure had been effected.

Diagnosis and Treatment of Chronic Gonorrhea.—Dr. T. L. DISQUE of Pittsburg read this paper, saying that for the diagnosis of chronic urethritis it was necessary to determine the character of the discharge, make a microscopic examination of the discharge, investigate the urine and make a careful local examination of the urethra itself. In the treatment if gonococci were present disinfection by lavage with potassium permanganate was carried out until the discharge was stopped, then followed by instillations of silver nitrate. If there was infiltration of the submucosa dilatation and massage must be practised. Of internal remedies, the balsams and disinfectants are of value when the urine was turbid and the diluents when there was concentration and acidity.

Dr. H. M. CHRISTIAN of Philadelphia said that in the early stages of gonorrhea as a local treatment there was nothing better than permanganate of potash. Permanganate of potash would never cure a case of gonorrhea. To cure a case of gonorrhea something was required that acted upon the mucous membrane of the urethra like an astringent, to repair the damage done by the gonococcus to the mucous membrane. Personally he felt that all chronic gonorrhea was found in the prostate. He was coming more and more to let the anterior urethra almost out of the question, unless, of course, there was present in the anterior urethra a stricture or some involvement, but he believed that in 75 or 80 per cent. of chronic urethral discharge there was a prostatic involvement.

Dr. S. W. MOORHEAD of Philadelphia said that he had reluctantly come to the conclusion that the microscopical examination was in itself insufficient to establish whether gonococci were present in a discharge and that recourse should be had to cultures. This necessitates a large amount of laboratory work and equipment, but it was a work which ought to be done and which would have to be done in very many cases.

Dr. W. C. BRYANT of Pittsburg said that there was no doubt that acute inflammation was a beneficent process and while it might not last very long there was a time in treating some cases of gonorrhea, at least, when the urethra was better left alone. Permanganate should never be stronger than 1-5000.

Dr. DISQUE, in closing, stated that what Dr. Christian had said in regard to the rôle of the prostate was well taken. While the prostate was a marked feature in the prolongation of chronic urethritis and probably the greatest hiding place of the gonococcus, it was not the only one and we should not neglect other portions of the urethra or the genital tract.

The Clinical Results Following the Use of Vaccines and Sera in the Treatment of Gonorrhea and Its Complications.—Dr. W. H. MACKINNEY of Philadelphia read this paper, saying that the bacterial vaccines had not demonstrated their value in the treatment of acute or chronic gonorrhea or its acute complications. In metastatic infections, chiefly arthritis, they had given good results in a few cases, but the results could not be compared to those obtained from the serum. In the treatment of metastatic gonorrhea both the serum and the vaccine were of considerable value though they were not specifics.

The Question of Marriage Following Gonorrhea.—Dr. G. A. Holliday of Pittsburg read this paper, saying that gonorrhea was the married woman's most common disease. The double standard of morality must be frowned upon. The girl should be taught that venereal infection might ruin her health and, therefore, to demand a clean bill of health from her prospective husband. Most of the sterility in women was due to gonorrhea, and 50 per cent of infected women were sterile. Men should be instructed in prophylaxis. Physicians were responsible for a large percentage of innocently infected wives because they did not thoroughly treat gonorrhea and its complications in the male.

Officers of the Section on Surgery for 1910-1911: *Chairman*, Dr. J. Mayhew Wainwright, Scranton; *Secretary*, J. B. Lowman, Johnstown.

SECTION ON EYE, EAR, NOSE, AND THROAT DISEASES.

Dr. G. HUDSON-MAKUEN, Philadelphia, Chairman, made a few preliminary remarks.

Clinical Diagnosis of Laryngeal Neoplasms.—CHAS. PREVOST GRAYSON, Philadelphia, considered the relative importance of the clinical diagnosis, the significance of the personal and clinical history, the clinical features of the more common laryngeal growth and the methods of examination.

Histological Diagnosis in Laryngeal Neoplasms.—Dr. Braden Kyle, Philadelphia, said that a careful examination of the microscopic appearance should be made. The presence or absence of inflammatory tissue should be noted, and the patient should be kept under observation, so that all the clinical phenomena could be carefully observed. Portions of tissue should be removed for examination and diagnosis, and other conditions should be eliminated by time and the therapeutic test.

Systematic Tests in Cases of Laryngeal Neoplasms.—John W. Boyce, Pittsburg, said that these had but a limited field of usefulness. He thought that the therapeutic tests for syphilis were not rendered obsolete by Wasserman.

Treatment of Laryngeal Neoplasms.—Chevalier Jackson, Pittsburg, considered the medical treatment and treatment with the therapeutic ray and radium; also the surgical treatment, which he divided into the endolaryngeal method and external surgery.

Dr. Klotz, Pittsburg, was impressed with the doubtful diagnosis occasionally obtained. He said that the pathologist was at a decided disadvantage when trying to make a diagnosis in the case of an individual that he had not seen and knew nothing about, if he received only a small bit of the growth. He thought that there was a type of papillomatous growth that had malignant qualities. In his experience all laryngeal lesions of syphilis had given a positive Wasserman reaction.

Dr. Boyce said that he had had seventy-seven positive results from the Wasserman reaction in the late lesions of syphilis, and that the lesion of this disease that was confused with malignancy was always a late lesion.

Dr. Jackson said that the medical profession were prone to lean too heavily on the laboratory. They did not want to know the structure or arrangement of the cells, but wanted their specimens to come back positive or negative. No conscientious pathologist, however, could give a positive answer in every case. The clinicians were the ones that were responsible for the diagnosis.

Total Blindness from Toxic Action of Wood Alcohol, with Recovery of Vision Under Electricity.—Dr. S. Lewis Ziegler, Philadelphia, said that the patient had suffered total loss of vision suddenly, with blanching of the disks, about a month before treatment was begun. Negative galvanism stimulated the revascularization of the disks, and brought light perception at the end of the second month. The vision had steadily improved until it became two-sevenths of the normal, and the fields were gradually growing wider.

Dr. Samuel D. Risley, Philadelphia, said that the fact that the case had improved under the application of negative galvanism held out a ray of hope in regard to the treatment of some of these cases. Personally, however, he had never seen a case of this sort recover. The drug was so dangerous that he thought that the community should be protected more thoroughly against it than at the present time. He had never seen a case of wood-alcohol blindness in which there was not present atrophy of the optic nerve, except the case mentioned by Dr. Ziegler, in which galvanism produced benefit.

Dr. E. L. Jones, Cumberland, Md., related the case of a man who had been blinded by drinking ginger extract; negative galvanism was used, and when the vision had been considerably improved, the infection did not make any further progress. Dr. Jones did not at that time think it was the galvanism that had improved the patient's vision, but he had become convinced that it probably was the lucky accident of his having used galvanism that had prevented complete loss of sight.

Dr. Geo. B. Jobson, Jr., Franklin, said that he had not been so fortunate, as his patient had retrogressed after he had been using electricity for a certain length of time. He thought that in this case there was undoubtedly complete degeneration of the nerve fibers, and was inclined to think that it had commenced in the ganglionic centers and had spread to the nerve fibers by ascension.

Dr. W. H. Tassell, Coudersport, said that he had lived in a section of the State where 150 people worked in the manufacture of wood alcohol. During a period of five years he had seen no case of poisoning from that drug, either by inhalation or by local application. He thought, therefore, that the danger of the absorption of wood alcohol had been rather overestimated.

Dr. Ziegler said that those who worked in the products of wood alcohol got used to it and had no bad effects from it, unless the room in which they were working was closed. He did not think that any cases yielded to galvanism, except those in which there had not been total destruction of the nerve fibers.

Arterial Hypertension and Its Relation to Morbid Changes in the Eye.—Dr. Luther C. Peter, Philadelphia, said that a study of chronic interstitial nephritis and arteriosclerosis showed that in all cases in which eye changes were present arterial hypertension existed. Within certain limits hypertension bore a more or less definite relation to the severity of the eye changes. They were not due to toxemia, except in so far as toxemia increases blood pressure, but were direct outgrowths of arterial hypertension. Hypertension was one of the most frequent causes of subconjunctival hemorrhage and an active factor in the production of glaucoma.

Dr. Wendell Reber, Philadelphia, did not think that Dr. Peter had sufficiently emphasized the fact that beginning lesions in the retinal vessels were not so rare, and might often be among the earliest signs. He thought that the mechanical theorists had some basis for their belief, although autotoxemia was present in most cases.

Dr. S. D. Risley, Philadelphia, remarked that there was a growing recognition of the importance of a study of the tension of the blood stream, not only in ophthalmology, but also in other branches of medicine. He felt sure that within the last two months the lives of two patients had been saved in this way. He thought that the relation of blood pressure to glaucoma depended upon the kind of glaucoma, the age of the patient, and many other circumstances. In a large number of cases of glaucoma the ocular disease was but one of the local expressions of the symptom complex of arteriosclerosis.

Dr. Peter added that the same patient would show marked variation in blood pressure at different times. He said that toxemia intensified the blood pressure and that this was the cause of these changes.

Varix or Angioma Venosum of the Orbit.—J. Ferdinand Klinedinst, York, said that the tumor was of five years' duration; it was not perceptible when the patient was standing or sitting erect, but only when stooping or bending forward. There was no hereditary tendency to similar growths, no exophthalmos or impairment of vision. Nose, throat, and nasopharynx were normal. Cure was produced by injections of alcohol within the orbit.

Dr. M. V. Ball, Warren, said that he would be loath to follow Dr. Klinedinst's example in the treatment of a similar case, because he believed that there was considerable danger of causing cellulitis or trouble in the cavernous sinus.

Dr. Wendell Reber, Philadelphia, did not exactly share Dr. Ball's views, as he would be tempted to use alcohol, first warning the patient of the danger.

Dr. Klinedinst said that the patient was willing to undergo the operation, and that the treatment had been explained to him. So far as cellulitis was concerned, Dr. Klinedinst said that alcohol was a strong antiseptic solution, and that sterile instruments were used; he could, therefore, see very little danger of cellulitis.

Modern Advances in Syphilis.—Dr. ALEXANDER A. UHLE, Philadelphia, said that the discovery of the *Spirocheta pallida* was the greatest achievement. The inoculation of syphilis into apes and monkeys was of great value in determining a prophylaxis by the use of calomel ointment. He considered a positive Wassermann reaction a valuable aid in the early diagnosis of active or latent syphilis. A negative reaction was not so reliable. Repeated negative reactions in the absence of mercurial treatment were of value in determining a cure.

The Early Ocular Signs of Syphilis.—Dr. WENDELL REBER, Philadelphia, said that a primary sore may occur on the lid margin or conjunctiva, the only site where an initial sclerosis was found in ocular tissues. Secondary syphilis was most likely to reveal itself in ocular tissues as an iritis, choroiditis, keratitis punctata (descemetitis), or all three combined (uveitis). The vitreous frequently participated in the process. The optic nerve was said by some to be the most frequent seat of secondary syphilitic involvement.

Ocular Affections in Congenital Syphilis.—SAMUEL D. RISLEY, Philadelphia, made a study of the more usually occurring forms of eye disease in children of syphilitic parentage, paying especial attention to the association of ocular affections with other manifestations of impaired general nutrition, and their similarity to other specific dyscrasias.

Aural Manifestations in Syphilitic Disease.—Dr. S. MACCUEN SMITH, Philadelphia, said that primary syphilis of the ear was rare. The auricle was subject to the usual secondary eruptions, condylomata and ulceration. In the middle ear syphilitic inflammations occurred in connection with nasopharyngeal involvement. Strictures of the tube frequently resulted from ulcerations, causing marked deafness. Suppurative otitis media was common in congenital syphilis. Syphilitic involvement of the labyrinth caused nerve deafness, and was the most serious aural complication.

Syphilis of the Nose and Throat.—Dr. GEORGE C. STOUT, Philadelphia, considered this condition under the three headings of congenital, hereditary, and contracted; and each of these in the primary, secondary, and tertiary stages. He then took up the course, duration, pathology, diagnosis, prognosis, and treatment of the condition.

Dr. ALEXANDER A. UHLE, Philadelphia, said that mucous patches that will not respond to treatment with mercury alone might be made to do so by the addition of a few drops of potassium iodide early in the disease, probably by causing destruction of the nucleus of the round cell. From his personal experience he was convinced that the Wassermann reaction was one of the greatest advances that had yet been made in the study of syphilis. In a hundred and one reactions taken in the Philadelphia Hospital, but one case had been found in which the clinical and Wassermann diagnosis did not correspond. They employed the reaction as described by Wassermann himself and not any of the various modifications. The result can usually be relied upon, unless the patient has been taking mercury before the reaction is made.

Dr. WM. CAMPBELL POSEY, Philadelphia, said that he knew of no case of recent iritis that he could recognize as being due to gonorrhea or secondary syphilis by merely looking at the eye. He wished to ask Dr. Reber whether syphilitic inflammation of the iris was met with more frequently in patients with a gouty or rheumatic diathesis. He believed that most cases of pseudoglioma were due to inherited syphilis. He had seen a number of uveitis due to this disease, but had seen marked inflammation of the iris but rarely.

Dr. EDWARD STIEREN, Pittsburg, said that he had reported cases of presenile syphilitic cataract in which endarteritis was a causal factor. He thought that the deleterious influence on the center of the eye was occasioned by the obliteration of the caliber in the blood vessels.

Dr. WENDELL REBER, Philadelphia, thought it natural to look for a greater prevalence of iritis in those whose resistance was lowered by the gouty diathesis. He then related a case in which, while the patient presented none but the laboratory evidences of tuberculosis, he thought that there was late tuberculous interstitial keratitis. Ten years ago this case would have been diagnosed as syphilis.

Dr. JAY F. SCHAMBERG, Philadelphia, considered the remarks of Dr. Stout concerning the widespread prevalence of syphilis fully corroborated by the statistics. He also agreed with Dr. Stout regarding the greater prevalence of innocent infections than was usually believed, and said that there were likewise more professional infections. Physicians generally did not take sufficient precaution to protect themselves and their patients from possible syphilitic infection. Concerning the Ehrlich remedy conveniently known as 606, Dr. Schamberg said that judging from the opinions of the most competent syphilographers of Europe the medical profession was facing the announcement of the discovery of a remedy that had no equal in therapeutics.

Dr. S. D. RISLEY said that in his opinion Dr. Reber's case was not necessarily a tuberculous keratitis, but was one of that group referred to by him as due to impaired nutrition, the result of dyscrasia. This condition of affairs existed in the class of people formerly called scrofulous.

A Method of Preserving the Eye Usually Removed. EMMETT L. JONES, Cumberland, Md., described a treatment by massive subconjunctival injections of cyanide of mercury, plus varying drugs, to suit individual cases or conditions. These procedures were of value in preventing loss of vision in a wide variety of grave conditions, and in getting results not otherwise obtainable.

Dr. L. WEBSTER FOX, Philadelphia, said that he had been using sugar or salt in a good many cases, and had been encouraged by the results. A certain percentage of vitreous opacities had cleared up and the course of the disease had been shortened. He did not know what action it had other than a stimulating effect on the lymphatics of the eye, accelerating the absorption of inflammatory products, and thus preventing what might lead on to sympathetic ophthalmia.

Dr. JONES said that the cyanide of mercury facilitated the process of rapid healing. Conditions that would otherwise have taken days and even weeks to heal got through in a strikingly short period of time.

Pennsylvania State Pilots.—WM. CAMPBELL POSEY said that vessels coming from foreign ports are compelled to take on board a State pilot to guide them into the harbor. These pilots are often paid more for this service than is the captain of the vessel for bringing it over from Europe. He related the case of a Pennsylvania pilot who had frequently been tested and found color blind, but who was still retained in the service by the Board of Commissioners of Navigation. He then offered a resolution to be passed by the section, as follows: "Be it resolved, that the section request the House of Delegates to sanction the following—In the light of our present knowledge, the Holmgren and lantern tests are the best means to detect color blindness; and persons failing to pass these tests should be debarred from all forms of public service in which the recognition of color in signaling is an essential."

Dr. L. WEBSTER FOX, Philadelphia, seconded the resolution, and related his experience in examining this particular pilot.

Dr. E. B. HECKEL, Pittsburg, said that this case showed that the color blind may educate themselves to recognize colors by means of their intensities; yet that, when put to the test, their deficiency would become evident.

Dr. S. D. Risley thought that there was great danger inherent in such a case as this, more than in that of a man

who was obviously color blind. The latter would be turned down without trouble.

Temperature in Enlarged Tonsils and Adenoids.—Dr. J. Homer McCready, Pittsburg, gave a report of the temperature in two hundred operated cases of hypertrophoid tonsils and adenoids. Cases with temperatures of over 100 degrees were considered nonoperative. About 30 per cent. of the cases ran an afternoon temperature varying from 98.8 to 100 degrees. The temperature in most cases was due to slight tubercular involvement of the lungs, chronic bronchitis, gastrointestinal disturbances, etc. These conditions were caused primarily by diseased tonsils and adenoids.

The Indications for Removal of the Faucial Tonsils and the Dangers Connected with This Procedure.—Dr. Christopher C. Sandels, Pittsburg, said that the indications were simple hypertrophy interfering with normal respiration; local and general systemic infection due to diseased tonsils; glandular enlargement of the neck; recurrent tonsilitis, and tuberculosis of the tonsils. The dangers of the operation were from shock, traumatism and postoperative hemorrhage.

A Method of Removing the Faucial Tonsil Using a Soft Silver-Wire Snare.—Archibald A. MacLachlan, Pittsburg, described the use of the vacuum pump, operated by water pressure, to remove blood and secretions from the throat by suction during throat operations. The pillars were separated by scissors and blunt dissection. The base of the tonsil was snared outside its capsule with a soft silver-wire snare, threaded through a perforated shot, which does not cut, but compresses the blood vessels and tissue posterior to the capsule, as would a ligature. The shot was then compressed, the tonsillar tissue was compressed, the tissue was cut off with scissors at the median side of the compressed silver wire and shot. The wire was left on for a few minutes, and then cut loose, or, if much bleeding is expected, it was left on until it separates, about three days afterward. A smooth scar is left, unlike the usual scar when the wound heals by granulation.

The Tonsil and the Singer.—Dr. M. Delmar Ritchie, Pittsburg, called particular attention to the clinical aspect of a few of the more interesting questions that daily devolve upon the laryngologist. His conclusions were as follows: (1) Local measures have a larger field in the treatment of tonsillar disturbances in singers than in other classes of patients; (2) the small, submerged tonsil is frequently more disastrous to the vocalist than a larger one; (3) ordinarily a singer must be in good health to be in good voice; (4) the erroneous lay position that removal of the tonsils causes deterioration in vocal or auditory powers must be ascribed to the incomplete operation as done until within the last few years; (5) the voice is improved in essential qualities and range, if the pillars and adjacent muscles are uninjured by the complete operation of tonsilectomy.

Dr. J. S. Hegeman, Pittsburg, said that he had been able to follow up some of the cases which Dr. Sandels had operated on, particularly in children at the age of pubescence, and had found that the effect of the operation was almost magical. It had occurred to him that if a little preparatory treatment were undertaken a day or two before operation, the tendency to hemorrhage might be obviated. He thought that the necessity for complete tonsillectomy, instead of tansillotomy, could not be too often reiterated.

Dr. Victor Laurent, Pittsburg, thought that most of the benefit would come from removal of the adenoids, and not necessarily from removal of the tonsils, which are normally large in children. He admitted, however, that in diseased tonsils, tonsillectomy was the only thing to be done. One should be careful in operating upon professional singers. The additional space might make the voice larger, but it would also make it lower; and the surgeon would scarcely receive thanks for changing a high soprano, for instance, into a mezzo.

Dr. E. L. Jones, Cumberland, Md., thought that removal of the tonsils from adult singers, especially where there was disease of the tonsils or adhesions preventing the free action of the palate, was a good thing.

Dr. C. M. Harris, Johnstown, said that many of his professional brethren had no modern ideas regarding tonsil work. The operation they thought of was usually tonsillotomy. Too much stress could not be laid upon the proper separation of the pillars. He had no infectious symptoms beyond a slight rise of temperature in the first twenty-four hours, and he had grown to regard traumatism as a potent cause of infection.

Dr. G. Arthur Dillinger, Pittsburg, said that the majority of cases in which there is hemorrhage following operations on the tonsils were due to tearing of the tissues through lack of sufficient care. He used chloroform for these operations, except in cases in which there were very large adenoids. He could not see how removal of the tonsils could affect the voice, except to improve it, provided the pillars were not injured.

Dr. Joseph H. Hoffman, Pittsburg, said that the operation for adenoids improved the voices of children, but he could not say what the effect would be in adults.

Dr. F. Victor Laurent, Pittsburg, said that the changes in the voice came from injuries to the pillars and other anatomical structures. If the enlarged tonsil was merely causing a defect to the voice, all that was necessary was to clip the tonsil enough to remedy this defect.

Dr. G. Hudson Makuen, Philadelphia, said that he supposed it was a little radical to assert that every diseased tonsil should be removed, because the diseased tonsil might be serving as a protective agent. He asked whether Dr. MacLachlan was not afraid to leave the wire and clamp shot to be cut off afterward, lest the patient should swallow it.

Dr. McCready said that after excluding all other causes for a high temperature except the focus in the tonsil this would be an indication for its removal.

Dr. MacLachlan stated that the wire was not more than an eighth of an inch in diameter, and that after the shot was compressed it was cut off at the base of the shot, so that there was no sharp point. He did not think that even if the patient swallowed it there would be much danger, as it would be encased in fibrin.

Dr. Ritchie thought that there was a large field for the treatment of tonsils that were not diseased, but that they were in the way of professional singers, and said that if the voice was not improved by removal of the tonsils, it was because they were not entirely taken out with the capsule.

Herpes Zoster Ophthalmicus.—Dr. Elmer E. Wible, Pittsburg, said that this condition was characterized by a peculiar and beautiful unilateral distribution. Its etiology remains problematical. It simulates erysipelas and simple herpes febrilis in appearance. The serious sequelæ occurring occasionally, and protracted recovery, prompt the oculist to give a guarded prognosis. Its early recognition is important that prompt and proper treatment may be given.

Dr. Stanley S. Smith, Pittsburg, had had only two cases of this disease in fourteen years, one resulting in practical blindness, and the other in mechanically complete recovery.

Dr. E. B. Heckel, Pittsburg, said that as these cases were rather classic in appearance, there should be no trouble in making a diagnosis. He was then treating a case with cauterization by means of phenol and carbolic acid, with apparently good results.

Trachoma and Some Facts Concerning Its Existence in Western Pennsylvania.—Dr. Clarence M. Harris,

Johnstown, gave some historical data concerning trachoma and information about its geographical distribution, its existence and progress in the United States, its prevalence among the alien population, the lack of control of all cases, the economic loss occasioned by the disease, the influence of sanitary living upon it, and the question of a remedy.

The Progress of the Trachoma Campaign in Pennsylvania.—Dr. CLARENCE P. FRANKLIN, Philadelphia, emphasized the difficulties in obtaining reliable statistics, and the inertia of mind of ophthalmologists upon what they considered a non-vital subject. He then spoke of the investigations being conducted by the Bureau of Municipal Research of Philadelphia. He considered the outlook for the future of trachoma work in Pennsylvania more encouraging than it was two years ago.

Dr. E. B. HECKEL, Pittsburg, said that trachoma was a reportable disease in Pennsylvania, and that a person affected with it might be sent back to his own country at any time within two years if it could be proved that he had it before reaching the United States.

Dr. JOHN B. CORSER, Scranton, said that many persons with trachoma get into the United States by way of Canada.

Dr. JAMES THORINGTON, Philadelphia, said that the Committee on Trachoma had made a big step in the right direction in attempting to isolate these cases.

Mr. C. F. CAMPBELL, General Secretary of the Pennsylvania School for the Blind, said that if the voters could be made to realize how much each case of the disease cost the public to maintain they would insist upon proper efforts to stamp it out. He and others were trying to get the laymen to back the physicians up.

Dr. FRANKLIN said that another way in which persons with trachoma got into the United States was by shipping as sailors on vessels bound for Jamaica, and then deserting when these fruit steamers reached the United States. Any physician failing to report the disease was, he stated, subject to a fine of fifty dollars.

A Case of Detachment of the Retina Successfully Treated.—Dr. GEORGE B. JOBSON, JR., Franklin, said that the retina was detached in its lower and anterior part. Sclerotomy with puncture of the retina was performed. The patient was then put to bed, and received normal salt solution hypodermically once a day, and dionin locally three times a day, alternately for three weeks. The retina was then found reattached.

Dr. E. B. HECKEL, Pittsburg, spoke of the fact that this patient had been treated by an optician first, her glasses being changed without benefit, when she should have been referred at once to the oculist. He thought that one should remember that in this condition there may be a neoplasm behind the retina, shoving it forward. The fact that some cases of spontaneous reattachment had occurred would lead him to be careful about thinking that cure was the result of any particular method of treatment.

Dr. JOBSON said that he had used normal salt solution for the injections because he thought that a stronger solution might cause severe pain. He thought that it might act by endosmosis, increasing the vitreous tension, and in that way keeping the retina in its place by pressure.

Critical Observations on the Ehrlich-Hata Treatment.—The laity are demanding treatment for all forms and stages of syphilis as a result of the newspaper notoriety of the treatment but the physician must apply it only upon strictest indication, viz., cases of severe type, especially those refractory to mercurials; cases with mercurial intolerance; cases which relapse after or during mercury cure; incipient cases, before the roseola appears, and cases never treated with mercurials, etc. The arsenobenzol remedy may be used in combination with other specific treatment in suitable cases. Finally, the use of the remedy in parasyphilis must be made a matter of careful experiment.—*Berliner klinische Wochenschrift.*

AMERICAN ELECTROTHERAPEUTIC ASSOCIATION.

Twentieth Annual Convention, Held at Saratoga Springs, September 13, 14 and 15, 1910.

THOMAS D. CROTHERS, M.D., OF HARTFORD, CONN., PRESIDENT.

Report on Direct Continuous Currents, Including Electrolysis, Electrochemical Surgery, Ionization, and All Apparatus Connected Therewith.—Dr. G. BETTON MASSEY of Philadelphia said that the question of the value of zinc-mercury ions or copper-mercury ions in the treatment of obstinate sinuses had arisen in connection with three cases in his hands during the past year. In one case temporary benefit was shown, but the condition later proved to be malignant. In a case of sinus of the abdominal wall the treatment was moderately effective, but the patient did not persist in the treatment and was later operated upon. Better results were obtained in treating a case of rectal fistula.

Report on Phototherapy and Apparatus. — Dr. CHARLES R. DICKSON of Toronto, Canada, said that further observations served to confirm the theory which was now a well-established fact that light rays do penetrate the skin and underlying tissues and exert their influence not alone locally, as when concentrated in the treatment of local lesions even to the point of desiccation and cauterization, but were also taken up by the circulation and induced systemic changes which were not equaled by any other physical agent.

Report on Mechanical Vibration Therapy, Exercise Therapy, and Apparatus.—Dr. FRED H. MORSE of Melrose, Mass., said the committee had found nothing to report this year in the way of new designs of apparatus. A slight canvass made among physicians had shown that vibratory apparatus in use five years ago was still in use.

Report on Hydrotherapy, Thermotherapy, and Apparatus.—Dr. FRANCIS H. MUNROE of Newark, N. J., referred to the detailed report made by this committee in 1908. The report also dealt with the use of hot air currents in certain diseased conditions.

Report on Dietetics.—Dr. BYRON S. PRICE of New York read this report, which gave the present day opinion of authorities in experimental work with regard to foods and their effects when taken into the body, their relation to autointoxication, especially having in view the prevention of arteriosclerosis and allied conditions. The report considered in this relation the physical, chemical, physiological, and pathological conditions of food and of digestion and elimination. Also the scientific explanation why milk, farinaceous, and other foods acted unlike in different conditions, the very important part played by the lactose contained in farinaceous articles, and in milk, differences, etc.

Report on Standardization of Therapeutic Measures.—Dr. WILLIAM B. SNOW of New York said that a survey of the year's progress in physical therapeutics marked a movement toward a more general tendency to the adaptation of rational standardization, away from irrationalism and empiricism. The report discussed the various physical therapeutic measures in detail.

Report of X-Ray Treatment of Splenomyeloid and Lymphoid Leukemia, with Blood Findings in Each.—Dr. J. W. TORBETT of Marlin, Texas, reported two cases, one of each variety, in order to emphasize the importance of observing Pancoast's and Stengel's precautions in treating each class of cases. In the first case the patient died sixteen days after taking the first *x*-ray treatment. It would have been better to treat the arms and legs alone as Pancoast had advised. The second case showed some improvement under *x*-ray treatment.

Psoriasis.—Dr. Herbert McIntosh of Boston read this paper. He reported several cases of psoriasis in which the characteristic eruptions were removed by a combination of physical methods of treatment. In his practice he had usually associated the *x*-ray with the light treatment, in a desire to hasten the cure, though the *x*-ray could probably be dispensed with. One should not fail to counsel hygienic living, proper exercise, and regulation of the diet, excluding meat as being unfavorable to the progress of the cure.

Report on High Frequency Currents.—Dr. Frederic deKraft of New York read this report. He called particular attention to the bipolar utilization of the D'Arsonval current. This could be used in the cavities of the body, for instance, for destroying a papilloma of the bladder; in the nasopharynx, and also for its sterilizing effect on infected tissues, abscesses, pustular acne, etc. As a part of this report Dr. Frederic M. Law of New York detailed experiments that he had conducted to show the bactericidal effect of high-frequency currents.

The Treatment of Inflammation Not Complicated or Caused by Infection.—Dr. William B. Snow of New York read this paper. The systematic proper application of the static current, in the case of a sprained knee, for instance, at the first administration softened the exudation, relieved the pressure and consequently the pain, relaxed muscular tension, and restored motility and utility to the joint. The best means for relieving local inflammations in which infection did not enter as a factor were the application of the static wave current, the static sparks, the static brush discharge, or the direct vacuum-tube static current, singly or conjointly. In prostatitis and seminal vesiculitis the results had been most striking. Also in dysmenorrhea and subinvolution and urethral carruncles Neuritis, herpes zoster, intercostal neuritis, tic douloureux, and Bell's palsy had been successfully treated in the same manner. Other conditions treated in this way were anterior poliomyelitis, rheumatoid arthritis, traumatic arthritis, and phlebitis.

Electricity in the Treatment of Gout.—Dr. Frederic deKraft of New York read this paper. Treatment by drugs had been unsatisfactory. He recommended autocondensation with sufficient D'Arsonval current to produce perspiration. In his experience the pain and stiffness in the muscles were the last to disappear under the usual mode of treatment. The use of a powerful and thoroughly concentrated resonator effleuve accomplished a most valuable purpose by reason of its deep contracting effect on the tissues and the blood vessels. As improvement took place the static brush discharge might be substituted with benefit. Concentrated light was also of benefit. Diet and gentle exercise should not be neglected.

Some Laboratory Findings in Diseases of Metabolism Which Question That These Are Primarily of Metabolic Origin.—Dr. Anthony Bassler of New York discussed the etiology and symptoms of chronic intestinal putrefaction and its treatment. After emphasizing the importance of regulation of the diet, he mentioned his new method of treating such cases by the instillation of live bacteria, grown from the patient's or others' stools, and delivered in billions and trillions into the rectum at intervals of a few days. At the present time he had cases that were being successfully treated with different strains of bacteria.

The Etiology and Treatment of Eczema. — Dr. Herbert F. Pitcher of Haverhill, Mass., read this paper. He believed that the majority of cases were due to some metabolic or vasomotor disturbance, and the most prominent cause of that disturbance was overeating. The hygienic and dietetic treatment should be attended to. The internal treatment was symptomatic. The external treatment of acute eczema should be soothing and protective. The blue light should be used in the early stages, later the *x*-ray and the static brush discharge. The *x*-ray was the most important. It was the most valuable remedy for the relief of the intense pruritus which accompanied the disease. It was the last court of appeal in many cases of the chronic form, and it seldom failed if properly used. In the subacute form and in the vesicular and seborrheic varieties a very low tube should be used, the treatments lasting from ten to fifteen minutes. Where there was much induration the static brush discharge would hasten toward a more rapid resolution. The effleuve from the high frequency currents or from the vacuum tubes was also beneficial in this type.

Osteoarthritis of the Spine.—Dr. Frank E. Peckham of Providence, R. I., described this condition in detail. He emphasized the importance of finding the focus of the trouble and the cause before beginning treatment. Autointoxication was the cause of most such cases. In the treatment of this condition there must be produced elimination of toxic material from the tissues locally and a stimulation of the physiological processes to perform their duties in a more nearly normal manner. This might be accomplished by physiotherapeutic measures, no one modality alone usually giving as much benefit as a combination.

Report of a Case of Splenic Leukemia Successfully Treated by Modern Methods.—Dr. G. W. Strobell of Rutland, Vt., reported this case. Fowler's solution, Blaud's iron mass, and blue mass were used. *X*-ray treatments were made over the spleen, alternating with chlorine cataphoresis, the treatments each day concluding with static insulation. By the end of the fourth week the patient declared she had not felt so well for twenty years. The myelocytes were reduced from 50 to 15 per cent., and the size of the spleen was reduced two-thirds. At the end of the second month the spleen, which had been the size of a man's head, was scarcely to be felt.

Lumbago.—Dr. F. Howard Humphris of London, England, read this paper. Lumbago should be distinguished from the neurotic spine, from sacroiliac disease, from cancer of the spine, cancer of the sarcoiliac notch, from the pain from an enlarged prostate, from the backache which ushered in dengue, influenza, and other conditions of toxic origin, from Pott's disease, and from sacroiliac relaxation. The ideal treatment was to see that the bowels moved freely with mercury and a saline. Sodium salicylate and sodium citrate, of each 20 grains, should be given in a glass of hot water every four, five, or six hours. The 500-candle power light should be applied for fifteen or twenty minutes, followed by the static wave current for the same length of time.

The Treatment of Chronic Metritis with Descent or Displacement.—Dr. G. Betton Massey of Philadelphia read this paper. The form of treatment that he preferred in these cases, when not accompanied by inflammation of the adnexa, was the intrauterine employment of twenty to sixty milliamperes, positive, of the constant current, diffusing copper-mercury ions from the amalgamated electrode for four minutes about twice a week, each application being followed by a strongly contracting induction current from a coarse wire secondary.

The Treatment of Cataract by Electricity. — Dr. Samuel J. Harris of Boston discussed the history of cataract, the anatomy of the lens, the different varieties of cataract, their etiology, and treatment in detail. He reported a number of cases of cataract successfully treated by the direct or galvanic current, a special form of electrode being used over the eye. Mature cataracts were not suitable for this treatment, and he preferred to operate in such cases. But he had had experience in a large number of incipient cases, and many of these he had been able to cure. The subject was still in its infancy, but the rapid

progress so far made encouraged him to continue investigation along this line.

Oscillatory Desiccation in the Treatment of Accessible Malignant Growths and Minor Surgical Conditions.—Dr. William L. Clark of Philadelphia read this paper, drawing the following conclusions: A current from a static machine of large output with properly adjusted accessories is capable of producing desiccation in morbid tissue. We are able to destroy malignant growths without opening up blood or lymph channels. It is possible to get every gradation of current, from the most attenuated to the most intense, producing simple stimulation, desiccation or cauterization. It is obviously a styptic intense in effect, and a sterilizing agent in infected wounds, or following an extensive surgical operation where there is a suspicion of infection or malignancy it would appear to be ideal in instantly sealing up blood and lymph channels. In cancer of the breast where the axillary glands are involved a surgical procedure is indicated, but on the first appearance of recurrence it might be used in arresting further recurrence. It might be used in cancer of the cervix to supersede the curette and cautery as a palliative measure. We can apparently accomplish as much in a few seconds by this method in malignant growths as by the *x*-ray in weeks or months. In disfiguring neoplastic blemishes of the skin we have a potent weapon.

Reactions in Physical Treatments.—Dr. F. H. Morse of Melrose, Mass., read this paper. Physicians doing this work were often confronted with the statement from their patients that they felt worse the next day after treatment, but that they felt much better the second or third day than before treatment. This disturbance was unquestionably due to a sudden liberation of toxins, the lymphatics becoming overloaded before the emunctories could take care of the extra work suddenly thrown upon them.

Remarks on the Electrical Treatment of Interstitial and Hemorrhagic Fibroids of the Uterus.—Dr. G. Betten Massey of Philadelphia read this paper. He said it was our duty to use this method if possible in those patients whom it might save from the risks of an operation. Most important, particularly in the hemorrhagic cases, was the association with the Apostoli treatment proper of the *x*-ray applied through the abdominal wall. From an experience in a number of cases he was convinced that it was a valuable adjunct in large tumors. Its use filled in the time between the all-important intrauterine treatments, shortening the total time required for the treatment.

X-Ray and Light in Infections.—Dr. F. C. Tice of Roanoke, Va., read this paper. He reported a number of cases of hay fever treated with bland oil atomization and an insulated low vacuum high frequency tube to each nostril, with prompt cures, and cases of acute infection treated with the light and *x*-ray.

Infantile Paralysis.—Dr. Almerin W. Baer of Chicago, Ill., drew attention to the prevalence of the disease and to the many cases of deformity and paralysis that continued unrelieved in spite of all treatment commonly employed. He found that contractions and deformity could be relieved and that the muscles would regain their tone and function, even after many years, by the use of the direct current applied to the spine, followed by the static breeze and sparks, treatment being given three times a week for a number of weeks.

Modern Malpractice in Gynecology.—Dr. Arthur W. Yale of Philadelphia, Pa., presented a plea for greater conservatism in gynecological surgery. A few years ago tubes and ovaries were removed indiscriminately where now removal would not be contemplated nor tolerated, but the conservative movement had not yet gone far enough, and such operations were not to be attempted in cases curable by electrical and physical methods of treatment. That much pelvic disease was readily curable by such means was not well appreciated by many surgeons.

Electric Anesthesia in Human Surgery; Electric Sleep by Unipolar and Wireless Currents; Displacement Currents.—Dr. Louise G. Robinovitch of New York gave an account of painless amputation of the toes under local anesthesia due solely to passing through the leg a constant current of low amperage and low voltage interrupted 10,000 times per minute. The patient had no uncomfortable sensation. The speaker described experiments in which she could at will cause strong contraction in specimens of muscle from a frog placed at a distance and without any connection with the instrument. Again, by wireless methods animals were caused to continue asleep for several hours and as long as the wireless current was being generated.

A Noteworthy Case of Sciatica.—Dr. J. Willard Travell of New York gave the full history of a case of sciatica of nine months' duration, which during the last three months received constant and thorough treatment in one of the large hospitals along the usual lines without appreciable improvement. Sedatives were given regularly at night and the patient could not sleep. Treatment was begun with light, the static wave current, and static sparks on the third day after leaving the hospital, and all medication was stopped. The patient was able to sleep in bed after the third treatment and was entirely and permanently relieved of all pain after the seventh treatment, treatments being given daily.

The Physics of Light Therapy.—Dr. Thomas D. Crothers of Hartford, Conn., gave an exhaustive study of the theories of light, of the many forms and modifications of light, and of the diverse ways in which light was utilized in the treatment of disease.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON SURGERY.

Regular Meeting, Held October 7, 1910.

Dr. Willy Meyer, Chairman pro tem.

Aneurysm of the Common Carotid.—Dr. J. C. A. Gerster presented a woman, sixty years old, who had been in this country but a few years and from whom it was difficult to get a good history. She was married and had had several children, a number of them dying of tuberculosis. It was not possible to get anything suggestive of any specific trouble. The patient had suffered no inconvenience from her aneurysm and came to the dispensary because of scabies. An interesting feature of the case was the presence of a complete heart block, the number of beats falling to 50 and lower.

Diverticulum of the Esophagus Cured by Operation.—Dr. Edward W. Peterson presented a man, forty-eight years old, a Russian. His family history was negative. His trouble began eleven years ago when he had slight dysphagia and regurgitation of food. His trouble in swallowing became worse and, about five years ago, he was admitted to the Massachusetts General Hospital where a diagnosis of stricture of the esophagus was made and a gastrostomy proposed but refused. Last July he found difficulty even in swallowing water, and he applied for admission to the Post-Graduate Hospital. A fullness was found in the upper end of the sternum and he regurgitated food that had been taken several days before. He regurgitated more during the night than during the day. When the esophagus was examined with a bougie an obstruction was found about nine inches from the incisor teeth. After giving the patient bismuth and apple sauce he was fluroscoped. A pouch was found which contained about four ounces; when the patient regurgitated, less difficulty was found in getting some of the fluid into the stomach. An

operation was proposed and performed. The patient was out of bed on the second day following, and left the hospital on the eleventh day. Before operation he weighed 147 pounds; on the day out of bed he weighed 139 pounds; he now weighed 173 pounds.

Dr. De Witt Stetten said that in May, 1909, he operated upon a similar case and had presented the patient before the Section one year ago. The diverticulum was exposed and removed and the patient was in perfect health to-day, free of all bad symptoms. When he first published this case he said he advocated doing a preliminary gastrostomy as being a safe method of attacking these sacs; but since he learned of Dr. Peterson's case, and had read of Dr. Charles Mayo's cases, he was not now so keen about gastrostomy.

Dr. A. V. Moschcowitz referred to the technique in operations upon the esophagus, especially when the operations were done for the removal of foreign bodies. There was great danger of leakage and he warned against the use of gauze in the wound for drainage.

Dr. R. H. M. Dawbarn advocated closing the esophageal wound and then feeding the patient by rectum and skin; he did not even allow water to be swallowed. When there was such a complete rest to the parts he did not believe that leakage could occur.

Dr. Edward W. Peterson said that he used the cigarette drain but did not introduce it so that it would touch the line of sutures. He gave his patients nothing by the mouth until the third day; they were fed entirely by rectum. Semi-solid food was given about the fifth day.

Cases of Inguinal Hernia.—Dr. A. V. Moschcowitz presented three cases of inguinal hernia that had been cured by operation. The interesting feature in these patients was that all were old men with very large hernias, the hernial opening in each instance permitting the entrance of the closed fist. One man had such an enormous hernia that he could only be made comfortable at night by using a sheet which he used as a sling to support his hernial contents, the bed post acting as the base for support.

Case of Stricture of the Esophagus.—Dr. Willy Meyer presented a boy upon whom he had operated six years ago. The child had swallowed lye and was brought to the hospital and admitted. The introduction of silk thread by way of the mouth was comparatively easy in adults, but very difficult in young children. In this instance, however, he succeeded in passing the filiform. It was much easier to catch the filiform with forceps when the stomach was filled with water than with air. The child made a complete recovery. He was now nine years of age, and was operated on when he was but three. To-day he could swallow nicely. In such work Dr. Meyer said that one should use care and not injure the mucosa of the mouth or stomach. Continuous swallowing on the part of the patient did not permit the stricture to recur.

Result After Eight Years Implantation of Silver Filigree for Large Ventral Hernia.—Dr. Willy Meyer presented a woman, fifty-three years old, upon whom he had operated March 1, 1900. In 1894, a vaginal hysterectomy was performed for myoma. Five weeks later, bilateral oophorectomy. After another month, extirpation of the left kidney on account of ureterovaginal fistula. Soon after being out of bed, a ventral hernia appeared at the site of the median incision. A radical operation was performed with a good result. When she came under Dr. Meyer's care in 1900 she weighed 250 pounds and had an enormous irreducible omento-intestinal hernia, with the aperture about midway between the symphysis and the umbilicus. Surgical help was demanded. This hernia had been pronounced by several surgeons as being inoperable. With the patient in the Trendelenburg position reduction of the hernia was accomplished with difficulty. The aperture was found to be round and larger than the palm of the hand. Autoplasty was out of the question. In order to shut out the peritoneal cavity, the omentum was drawn down tautly and stitched to the peritoneum near the border of the gap. The parictal peritoneum was then closed on top of the omentum. There was primary union throughout. Five months later, however, she vomited severely and felt something give away at the hernial orifice. On June 29, 1901, an operation was performed. The omentum had torn loose from the right lower circumference of the aperature. Reduction of the intestines was done and the omentum was again stitched to the border. After sufficient undermining of the subcutaneous fat layer, a ready-made silver filigree pad, four by six inches, was placed upon the defect. It rested upon the omentum and adjoining abdominal wall, where it was stitched to the underlying fascia. The wound soon closed and had remained so up to date. In view of her weight (250 pounds) it was thought best to keep her on her back for eight weeks. The rupture had been radically cured. The wire pad caused her little discomfort. A little over three months after this operation, while washing dishes, she struck the region of the protected hernial opening against the corner of the sink. A sudden, intense pain almost made her faint. She must have torn the continuous suture at the time, causing one of the corners of the well fastened filigree pad to come loose. Now there could be felt a slight omental protrusion. Nevertheless, the patient felt well and experienced little discomfort from this cause. Dr. Meyer intended to reopen the scar and repair the defect.

Silver Wire and Linen Thread for the Cure of Hernia.—Dr. Joseph Wiener said that to Goepel belonged the credit of having first made use of the ready-made filigree. The filigree should be so pliable that it would bend with respiratory movements. The meshes should not be too close and the wire should not be too heavy. Why there should be a sentimental objection to putting a so-called foreign body into the wound, in the shape of silver sutures or a filigree, he had never been able to understand. And why some men preferred to do most extensive plastic operations for the cure of herniæ, which often failed to give a permanent cure, in place of the simple and reliable procedure of using a filigree, it was hard to understand. If the proper wire was used, if the filigree was properly made, and if it was properly introduced, it would very seldom become necessary to remove it. During the past eighteen months chromic catgut for use in hernia cases had been entirely discarded. Catgut, no matter how prepared, was not safe to use. He called attention to a material which was easily prepared, which was always sterile, which was never quickly absorbed, and with which the knots never opened spontaneously, namely, Pagenstecher linen. He had used this in over one hundred operations, most of them herniotomies, without a recurrence. The linen was wound on glass spools, boiled for fifteen or twenty minutes, and preserved in 95 per cent. alcohol. Hernias formed so large a proportion of the surgical cases, and yet it seemed that they did not receive as much thought and study as they deserved. Dr. Wiener asked if it was not time to call a halt on the promiscuous use of chromic gut in herniotomies. Had they not been worshipping a fetich too long? The startling number of immediate recurrences after the Bassini operation with chromic gut were surely worthy of consideration. They could not be argued away. The following conclusions were offered: (1) Chromic catgut was an unreliable suture material. (2) Pagenstecher linen was an excellent suture material. (3) Silver wire, in some form, was a very desirable suture material in many recurrent cases; and at primary operations where the tissues were poorly developed. (4) Immediate re-

currence, in uninfected cases, was usually due to chromic gut. (5) There would occur fewer recurrences if chromic gut was entirely discarded.

Dr. R. H. M. Dawbarn said that in the large hernias there was trouble in reducing the contents, and when reduced the patient was very uncomfortable as a rule.

Dr. Charles Goodman disagreed with the statement that linen thread was the best material in these cases.

Dr. Franz J. A. Torek said that he operated upon patients with inguinal hernia by a method of his own. The introduction of the silver wire was not such an important point, but merely a side issue. He had been using it for seven years and was convinced that its use was not objectionable. He had not used the filigree in any case; his experience made him believe that the use of the filigree was not desirable; he had already removed three ready made filigrees. In one instance there had occurred a break in the ready made filigree and a point stuck through the skin; in the other two cases there had occurred a recurrence of the hernia through the middle of the filigree. In all three cases attempts at reduction of the hernia were accompanied with much pain. With regard to the cause of the rupture of the filigree he said it should be remembered that the filigree was not pliable, and that it was introduced into a body which changed in shape a great deal and, therefore, it seemed that it must sooner or later break. An important part of a well constructed filigree was that it should be made of thin wire and be very pliable.

Dr. A. V. Moschcowitz limited his remarks to inguinal hernia, the use of linen thread and the silver cable. He said that he was very orthodox regarding the use of, and continuing the use of chromicized catgut. Personally he had operated upon a large number of cases of hernia and was perfectly well satisfied with his results in the cases that he had been able to follow. On the contrary he was heretic enough to say that the Bassini operation was not at all satisfactory. Kocher did not employ the Bassini method at all. After studying the results of this operation here and abroad one would find a large number of recurrences. Kocher did his own operation, merely tying off the sac. It was a mere ligation of the sac.

Dr. Robert T. Morris asked what the result would be in those cases in which linen thread was used if an infection happened. He said he had used the silver filigree and he had seen two or three cases in which it became necessary to close sinuses. Some of them did close after injecting pure carbolic acid followed by alcohol. Nevertheless this represented one of the undesirable features of an unabsorbable suture material. He asked what became of the linen thread in those cases in which infection occurred. Concerning the chromicized catgut, he said he would like to feel that it was a reliable suture material but he agreed with the reader of the paper that it was better to turn to the kangaroo tendon or its substitute. This material lasted a long time in the tissues, was remarkably benign, and seemed to possess no irritating qualities.

Dr. Willy Meyer said that the case he showed was the second of its kind on this side of the Atlantic. He had little occasion now to make use of the filigree or other foreign material. Silver wire he thought to be preferable to the filigree. He preferred the autoplastic operation in cases in which it could be used. The method used in the case presented was for the inoperable cases only.

Dr. Joseph Wiener said that the filigree he made would give and would never break when properly made. He had one patient who was performing severe physical labor and had worn the filigree without inconvenience five or six years. It took him about ten minutes to construct the filigree. It should not have any rim. One should be careful in suturing not to draw the sutures too tight, and simply make an approximation of the edges. He did not believe that silk was as good a suture material as linen; he had seen a great many instances in which the silk thread had to be removed, and in only one case did he have to remove linen thread. He believed that the published reports regarding the number of recurrences following the Bassini operation had been underestimated. It was not right to compare the results of operations done on children with those done on adults. In the former the recurrences were not more than two per cent. while in the latter they were about eight per cent. As time went on he believed that chromic catgut would have to give way to linen thread. With regard to what occurred when infection took place, in one hundred cases in which the linen thread was used this occurred in but one case; here there was a fat necrosis and he was compelled to remove the linen thread, which was done with eucaine as the local anesthetic. He had so little experience with infections when linen thread was used that he could not answer the question raised by Dr. Morris. When kangaroo tendon or its substitute was used, vomiting or coughing might open the knots; this would not happen if linen thread was employed as a suture material.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

South Carolina State Board of Medical Examiners.

June 14, 15, *and* 16, 1910.

ANATOMY.

1. Name the bones of the lower extremity.
2. Name the muscles that rotate the eye.
3. Give origin and distribution of the pneumogastric nerve.
4. Locate the liver, with its relations.
5. Give the divisions and termination of brachial artery.

SURGICAL ANATOMY.

1. Name the various boney prominences or landmarks which are easily felt and recognized in the head and face which afford the means of mapping out the important structures comprised in this region.
2. Of what importance would ossification in the epiphyseal end of the femur be if found in a dead child? Why should we preserve the epiphysis in excision of the knee?
3. Where is congenital dislocation most often found? Name location of displacement. How recognized?
4. Which is the most common form of strabismus? What muscle requiring division?
5. Why is thecal (or sheath) abscess of the thumb and little finger usually followed by abscess of the forearm? What precaution should be taken in amputation of the fingers?
6. Of what importance is the fibrous septum between the two halves of the tongue?
7. In fracture of the neck of the femur internal to the capsular ligament, what produces eversion? What produces shortening?
8. Where is the subclavian artery best compressed? Where best ligated, and line of incision?
9. What condition found in paralysis of ulnar nerve?
10. What marked symptom do you have in paralysis of the musculospiral nerve?
11. What regions of the eye are called filtration area and dangerous area, and why?
12. Why do we use the Trendelenburg position (head and body lowered)? Why do we use the Fowler position (head and body elevated)?

PHYSIOLOGY.

1. Name the uses of the blood.
2. Causes of the first and second sounds of the heart.
3. What result would follow extirpation of the thyroid gland?
4. What is ptyalin, and describe its action.
5. What are the functions of the skin?

HYGIENE AND STATE MEDICINE.

1. State what constitutes a good drinking water, and state the diseases transmitted by drinking water.
2. What effect has alcohol on the temperature?
3. What are the injurious effects of the excessive use of tobacco?

4. Give amount of air space that should be allowed per head in sleeping apartments.
5. Period of incubation of smallpox, yellow fever, and parotitis.
6. What hygienic and sanitary precautions should be taken to control spread of uncinariasis?
7. (*a*) Plague (bubonic plague); period of incubation and general measures to be taken for prevention of same. (*b*) Cholera; incubation, etiology, and means of prevention.
8. Under what conditions have beriberi developed, and what hygienic measures should be taken to control same?
9. What effect has altitude on respiration?
10. Define a disinfectant. Name three, and give a recognized method of fumigating a room.

MATERIA MEDICA.

1. What would be a cathartic dose of calomel, and its physiological effect?
2. Dose of sulphate of morphine, with physiological effect.
3. Dose of elaterium, and physiological effect.
4. Name two vasodilators, with dose of each to effect.
5. Name two vasoconstrictors, with dose of each to effect.

THERAPEUTICS.

In treating the following diseases, give dose and frequency of drugs used, with their physiological effect. If other methods than drugs are used, mode and physiological effect.

1. Typhoid fever. 2. Scarlet fever. 3. Chronic malaria. 4. Erysipelas. 5. Dysentery, acute catarrhal. 6. Rheumatic fever. 7. Peptic ulcer. 8. Enterocolitis of infants. 9. Cholera infantum. 10. Acute nephritis.

CHEMISTRY.

1. Define physical change and chemical change. Give familiar example of each.
2. What is the chemical relation between animals and plants? Which performs the office of reduction? Which of oxidation?
3. What is a chemical formula? What part of a compound does a formula represent? Give formula for the following: Hydrogen peroxide, common table salt, lunar caustic, aqua fortis, oil of vitriol.
4. In what two ways can electricity be produced? Give illustration of each.
5. What is the difference between galvanic and faradic electricity?

PRACTICAL URINALYSIS, MICROSCOPY, AND TOXICOLOGY.

1. What is the specific gravity of normal urine? What condition would continued low specific gravity indicate? What continued high specific gravity?
2. What is the average amount of urine voided in twenty-four hours? What conditions may vary this amount?
3. How would you make a chemical analysis of the urine for life insurance?
4. How would you make a microscopical examination of the urine?
5. What is the difference between a simple and a compound microscope?
6. How does the knowledge of microscopy aid in practical diagnosis?
7. Under what two heads may poisons be classed? Give an example of each.
8. Give symptoms and chemical antidote for opium poisoning.
9. Give symptoms and chemical antidote for acute silver nitrate poisoning.
10. Name and describe the condition which the continued use of silver nitrate as a drug is liable to produce.

BACTERIOLOGY AND PATHOLOGY.

1. Describe briefly the bacillus of tetanus; modes of infection, and best methods of prevention.
2. Describe briefly the bacillus typhosus. Name sources of infection, sources of elimination, and what is meant by typhoid carrier.
3. Give pathology of lobular pneumonia.
4. Describe the pathology of interstitial nephritis, and give the most common accompanying pathological conditions.
5. Give the symptoms, pathology, and termination of inflammation.

MEDICAL JURISPRUDENCE.

1. Give the symptoms of chronic cocainism.
2. Give dose of bichloride of mercury and symptoms of acute poisoning by same.
3. Describe post-mortem findings in acute poisoning by Paris green.
4. Define illusion, hallucination, and delusion, and what is meant by delusion of persecution.
5. In a case of suspected infanticide, how would you determine whether infant was born alive?
6. What conditions influence time of appearance and disappearance of rigor mortis, and what is meant by cadaveric spasm?
7. How would you determine whether a wound was received before or after death?
8. Give the usual causes of death in cases of burns.
9. What conditions simulate death, and what are the most important certain signs of death?
10. What precautions would you observe in submitting stomach and contents for analysis?

PRACTICE OF MEDICINE.

1. Give a description of herpes zoster, mentioning the diseases with which it may be confounded and their diagnostic differences, and give the treatment of an acute case of the affection.
2. What are the causes, signs, and symptoms of a dilated right heart? Describe the remedial measures you would recommend.
3. Discuss the clinical significance of pain at the epigastrium.
4. In what diseases may pus occur in the urine? What treatment would you recommend in diseases mentioned?
5. Describe a case of Bell's paralysis.
6. Mrs. A., aged 30, has had a temperature for ten days ranging from 100° in A.M. to 103° in P.M. There are no clinical symptoms or signs of disease except the continuous temperature. What diseases would you consider in making a diagnosis? Give briefly these diagnostic differences.
7. What are the causes, symptoms, and treatment of ptomaine poisoning?
8. Describe an ordinary case of measles.
9. Discuss the clinical significance of a convulsion occurring in a child under two years old.
10. (*a*) At what age would you expect an infant to commence to cut teeth? What are the causes of delayed dentition? (*b*) A child two and a half years old has never walked. How would you investigate this case to find out the reason for his not walking?

OBSTETRICS AND GYNECOLOGY.

1. Give the signs of pregnancy and the differential diagnosis of pregnancy.
2. Define podalic version, give indications for, and describe technique.
3. Give symptoms of toxemia of pregnancy, prophylaxis of, and treatment of.
4. Give symptoms of threatened abortion and of inevitable abortion, and treatment of each. Also treatment of incomplete abortion.
5. Give the diagnosis, symptoms, and treatment of placenta prævia before labor and after labor had commenced.
6. Give the diagnosis of L. O. A. and L. O. P. presentations.
7. Give the diagnosis of face presentations and varieties and prognosis.
8. Give and explain the methods of examining the uterus.
9. Name and describe the various displacements of the uterus and the common symptoms produced by each.
10. Mention the causes of cystitis in a woman and the treatment.

SURGERY.

1. What are the indications for trephining? Describe the operation.
2. Describe ligation of the brachial artery in the middle of the arm.
3. How would you treat a compound fracture of the lower third of radius and ulnar when one or more tendons are severed?
4. Empyema: Diagnosis and operative treatment.
5. Carbuncle: Definition, progress, and treatment.
6. Inguinal hernia: Differentiate between oblique and direct; describe radical cure of oblique variety.
7. Stone in the bladder: Diagnosis and operative treatment.
8. Shock: Definition, symptoms. How would you prevent shock in operations?
9. Gangrene: Definition, cause, and treatment.
10. Give the several steps in the operation of amputation of the thigh at the junction of upper and middle third.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

SOUTH CAROLINA STATE BOARD OF MEDICAL EXAMINERS.

June 14, 15, *and* 16, 1910.

ANATOMY.

1. Os innominatum (ilium, ischium, and os pubis), femur, patella, tibia, fibula, os calcis, astragalus, cuboid, scaphoid, external cuneiform, middle cuneiform, internal cuneiform, five metatarsals, and fourteen phalanges.

2. Rectus superior, rectus inferior, rectus internus, rectus externus, obliquus superior, and obliquus inferior.

3. PNEUMOGASTRIC NERVE. *Superficial origin:* Groove between restiform and olivary bodies. *Deep origin:* Nuclei in floor of fourth ventricle. *Distribution* is shown by the names of the branches: Meningeal, auricular, pharyngeal, superior and inferior laryngeal, cardiac, pulmonary, esophageal, and gastric.

4. See Cunningham's "Anatomy" (1909), page 1109; or Gray's "Anatomy" (1908), page 1334.

5. See Cunningham's "Anatomy" (1909), page 830; or Gray's "Anatomy" (1908), pages 655 and 657.

SURGICAL ANATOMY.

1. Nasion, glabella, inion, lambda, external angular process, parietal eminence, external auditory meatus, zygoma, mastoid process.

2. The importance of ossification of the epiphyseal end of the femur is that by it we can be aided in determining the age of the child. In excision of the knee it should be preserved, because it is here that the greatest amount of growth in the length of the bone occurs.

3. Congenital dislocation occurs most often in the hip joint. The displacement is usually on to the dorsum of the ilium. It is recognized by the waddling gait and extreme lordosis.

4. Convergent strabismus is the most common. The internal rectus muscle should be divided.

5. See Gray's "Anatomy" (1908), pages 494 and 486.

6. The fibrous septum often limits an acute inflammation or abscess to one-half of the tongue; in the anterior half of the tongue the lymphatics do not communicate across the septum, and so in malignant disease of the tongue, when not extensive and when confined to one side of the anterior half of the tongue, may be removed by a hemisection of the tongue.

7. In fracture of the neck of the femur, internal to the capsular ligament, "the *shortening* is brought about by the glutei, the hamstrings, the tensor vaginæ femoris, the rectus, sartorius, and iliopsoas, the adductors, gracilis, and pectineus. The *eversion* is mainly due to two causes: (1) The weight of the limb, which causes it to roll outwards, as is seen in persons insensible or asleep, the line of gravity passing through the outer part of the thigh; (2) the fact that the compact tissue on the posterior aspect of the neck is much more fragile than that on the anterior aspect. Thus the cervix is often more extensively fractured behind than in front, or the fracture may be impacted behind but not in front, and in either case the limb will tend to become everted. As a third cause may be mentioned the action of the iliopsoas, the adductor and pectineus muscles, and of the small rotator muscles, all of which tend to roll the femur outwards."—(Treves' *Surgical Applied Anatomy.*)

8. The subclavian artery is *best compressed* where it passes across the upper surface of the first rib; pressure is to be made at the outer border of the sternomastoid and just above the clavicle. It is *best ligated* in its third portion. The *line of incision* is transversely over the clavicle, from the anterior border of the trapezius to the posterior border of the sternomastoid, and with its center about one inch internal to the center of the superior border of the clavicle.

9. In *paralysis of the ulnar nerve* "there is loss of power of flexion in the ring and little fingers; there is impaired power of ulnar flexion and adduction of the hand; there is inability to spread out the fingers from paralysis of the interossei; and there is inability to adduct the thumb. The fingers cannot be flexed at the first joints, and cannot be extended at the other joints. A *claw-hand* develops, the first phalanges being overextended and the others flexed. Sensation is lost or impaired in the skin of the ulnar side of the hand anteriorly and posteriorly, involving the little finger, the ring finger, and the ulnar half of the middle finger posteriorly, and anteriorly involving the little finger and the ulnar half of the ring finger."—(Gray.)

10. The marked symptom in paralysis of the musculospiral nerve is *wrist-drop* (the hand is flexed at the wrist, and lies flaccid).

11. "The *filtration area* is the circumcorneal zone immediately in front of the iris. Here are situated the cavernous spaces of Fontana, which communicate with the canal of Schlemm, through which the chief transudation of fluid from the eye is now believed to take place. The *dangerous area of the eye* is the region in the neighborhood of the ciliary body, and wounds or injuries in this situation are peculiarly dangerous; for inflammation of the ciliary body is liable to spread to many of the other structures of the eye, especially to the iris and choroid, which are intimately connected by nervous and vascular supplies. Moreover, wounds which involve the ciliary region are especially liable to be followed by sympathetic ophthalmia, in which destructive inflammation of one eye is excited by some irritation in the other."—(Gray.)

12. In the lymphatics of the peritoneum those of the diaphragm are more rapid in absorption than those of the pelvis. Hence to stimulate, the patient should have the foot of his bed raised (Trendelenburg position), so that the fluid (salt solution) may be conveyed more readily to the diaphragm, where absorption is more rapid. To retard the too rapid absorption of pus in the abdominal cavity, the head of the bed should be raised so that drainage may be directed toward the pelvis, where absorption is slower (Fowler's position).

PHYSIOLOGY.

1. USES OF THE BLOOD. The *red corpuscles* carry oxygen from the lungs to the tissues.

The *white corpuscles* (1) serve as a protection to the body from the incursions of pathogenic microorganisms; (2) they take some part in the process of the coagulation of the blood; (3) they aid in the absorption of fats and peptones from the intestine, and (4) they help to maintain the proper proteid content of the blood plasma.

The *plasma* conveys nutriment to the tissue; it holds in solution the carbon dioxide and water which it receives from the tissues, and takes them to be eliminated by the lungs, kidneys, and skin; it also holds in solution urea and other nitrogenous substances that are taken to and excreted by the liver or kidneys.

2. The *causes* producing the *first* sound of the heart are not definitely ascertained; the following are supposed to be causatory factors: (1) The vibration and closure of the auriculoventricular valves, (2) the muscular sound produced by the contraction of the ventricles, and (3) the cardiac impulse against the chest wall.

The *second* sound is caused by the vibration due to the closure of the semilunar valves.

3. *After extirpation of the thyroid gland:* The face becomes white, puffy, and loses all expression; the mental and intellectual faculties become dulled, and may terminate in idiocy; the heart becomes slowed, blood pressure lowered; body temperature may be subnormal; albuminuria and dyspnea may be present; the puffiness of the face extends to the neck and supraclavicular fossæ; the tongue is enlarged, and speech is slow and measured; the extremities become enlarged and movements are slow, labored, and clumsy.

4. *Ptyalin* is a ferment found in the saliva. Its action is to convert starches into dextrin and sugar in an alkaline medicine.

5. The *functions of the skin* are: Protection, excretion, secretion, regulation of the body temperature, absorption, sensation, special sense of touch, respiration.

HYGIENE AND STATE MEDICINE.

1. *Characteristics of a good drinking water:* (1) It should be clear and limpid. Cloudy and muddy waters should be avoided. (2) It should be colorless. A greenish or yellowish color is usually due to vegetable or animal matter in solution or to organisms. (3) It should be odorless; especially free from sulphuretted hydrogen or putrefactive animal matter. (4) It should not be too cold, but should have a temperature of from 46° F. to 60° F. (5) It should have an agreeable taste; neither flat, salty, nor sweetish. A certain amount of hardness and dissolved gases give a sparkling taste. It should contain from 25 to 50 c.c. of gases per liter, of which 8 to 10 per cent. is carbon dioxide and the rest oxygen and nitrogen. (6) It should be as free as possible from dissolved organic matter, especially of animal origin. (7) It should not contain too great an amount of hardness. A certain quantity of saline matter is necessary, however, to give it a good taste. It should not contain over three or four parts of chlorine in 100,000 parts of water.—(From Bartley's *Chemistry.*)

Diseases which may be transmitted by drinking water:

Typhoid, cholera, dysentery, diarrhea, indigestion, goiter, vesical calculi, intestinal worms, lead poisoning.

2. *Alcohol* if applied to the skin, evaporates quickly and cools the surface. Taken internally, it first slightly raises the body temperature and later on it lowers it.

3. "The continued use of tobacco, by smoking or chewing it to *excess*, produces granular inflammation of the fauces and pharynx, atrophy of the retina, dyspepsia, lowered sexual power, sudden faints, nervous depression, cardiac irritability, and occasionally angina pectoris. Used by the young, it hinders the development of the higher nerve centers and impairs the nutrition of the body by interfering with processes of digestion and assimilation."—(Potter's *Materia Medica*, etc.)

4. One thousand cubic feet of space should be allowed each adult, with provision for ventilation.

5. Period of incubation of *smallpox* is about twelve days; of *yellow fever*, about two to five days; of *parotitis*, about fourteen days.

6. *Prophylaxis of uncinariasis* consists in: (1) Boiling the drinking water; (2) washing of the hands before meals; (3) not going barefooted; (4) disinfection of the stools of all infected persons.

7. See French's "Practice of Medicine" (1907), (*a*) pages 284 and 287; (*b*) pages 292, 289, and 295; or Osler's "Practice of Medicine" (1909), (*a*) page 242; (*b*) pages 230, 228, and 232.

8. See French's "Practice of Medicine" (1907), pages 412 and 416.

9. *At an altitude*, inspiration becomes deeper, owing to the need for air, which cannot be satisfied with normal inspiration; inspiration is also more difficult; expiration is easier and quicker; the number of respirations per minute increases; the percentage of CO_2 in expired air is increased.

10. *Disinfectants* are agents which restrain infectious diseases by destroying or removing their specific poisons. *Three:* Sulphur dioxide, chlorine, and formaldehyde.

To *fumigate by sulphur dioxide:* For each 1,000 cubic feet of space, three pounds of sulphur are burned, care being taken to prevent accidents. In all cases all apertures and crevices of the room should be closed, all closets, drawers, or other receptacles opened; and after the fumigation the room should be well ventilated and thoroughly cleansed with a solution of corrosive sublimate.

MATERIA MEDICA.

1. Cathartic dose of calomel is about five grains. *Physiological effect* is increased peristalsis, increased secretion of intestinal glands, and stimulation of the liver.

2. Dose of sulphate of morphine is gr. 1/8 to 1/6. *Physiological effect* is analgesic, hypnotic, diaphoretic, narcotic; at first it stimulates brain, heart, and respiration; afterwards it depresses them.

3. Dose of elaterium is 1/10 grain of *elaterin*. *Physiological effect* is the production of profuse, watery stools; also much prostration, and nausea, and gastrointestinal irritation.

4. *Two vasodilators:* Nitroglycerin, dose (of spirit), ♏j; and amyl nitrite, dose (by inhalation), ♏iij.

5. *Two vasoconstrictors:* Ergot, dose (of fluid extract), ♏iv; adrenalin chloride, dose (of solution), ♏vij.

THERAPEUTICS.

1. See French's "Practice of Medicine" (1907), page 112; or Osler's "Practice of Medicine" (1909), page 90.

2. See French's "Practice of Medicine" (1907), page 324; or Osler's "Practice of Medicine" (1909), page 138.

3. See French's "Practice of Medicine" (1907), page 248; or "Osler's "Practice of Medicine" (1909), page 24.

4. See French's "Practice of Medicine" (1907), page 221; or Osler's "Practice of Medicine" (1907), page 213.

5. See French's "Practice of Medicine" (1907), page 258; or Osler's "Practice of Medicine" (1907), pages 6 and 246.

6. See French's "Practice of Medicine" (1907), page 230; or Osler's "Practice of Medicine" (1907), page 226.

7. See French's "Practice of Medicine" (1907), page 751; or Osler's "Practice of Medicine" (1909), page 477.

8. See French's "Practice of Medicine" (1907), page 785; or Osler's "Practice of Medicine" (1909), page 500.

9. See French's "Practice of Medicine" (1907), page 783; or Osler's "Practice of Medicine" (1909), page 511.

10. See French's "Practice of Medicine" (1907), page 895; or Osler's "Practice of Medicine" (1909), page 600.

CHEMISTRY.

1. A *physical change* is such a change as does not alter the composition of a substance; a *chemical change* does alter its composition.

"A bar of soft iron may be made to emit light when heated, or sound when caused to vibrate, or magnetism when under the influence of an electric current. Under the influences of these *physical forces* the iron suffers no change in composition, and, on cessation of the action of the inciting force, the iron returns to its original condition. But if the iron be heated in an atmosphere of oxygen both the iron and a part of the oxygen disappear, and a new substance, a new chemical species, is produced, having properties of its own, different from those of either the iron or the oxygen. In this case there has been *chemical action*, causing change of composition, as the new substance contains both iron and oxygen. The result of such action is, moreover, permanent, and the new product continues to exist, until modified by some new manifestation of chemical action."—(Witthaus' *Manual of Chemistry*.)

2. In *vegetable life* the metabolic changes are chiefly synthetic; the plant absorbs water and carbon dioxide, liberates oxygen, and builds up complex substances.

In *animal life* the metabolic changes are chiefly analytic; the animal takes as food complex substances and splits them into simpler substances.

Plants perform the office of oxidation; animals, that of reduction.

3. A chemical formula is a collection of symbols (and figures) used to denote one molecule of a chemical compound. Hydrogen peroxide. H_2O_2; common table salt, NaCl; lunar caustic, $AgNO_3$; Aqua fortis, HNO_3; oil of vitriol, H_2SO_4.

4. *Static electricity* is produced by friction; *galvanic electricity* is produced by chemical action in a galvanic cell.

"*Static* or *frictional electricity* is generated for practical purposes by an electric machine, consisting essentially of a plate or wheel of glass, or some similar substance, revolved by a mechanical contrivance against some material capable of producing positive electricity on the plate. This positive charge is carried from the plate by metal combs or rods to the prime conductor; the negative generated on the rubbing cushions may be collected on a conductor, but is generally carried to the ground by a chain."

Galvanic electricity: "Zinc placed in a vessel containing dilute sulphuric acid is gradually dissolved, evolving hydrogen gas. Platinum is not acted on by dilute sulphuric acid. If plates of both metals be placed in sulphuric acid and water, and connected by a piece of wire as a conductor no bubbles of gas are evolved on the zinc, but escape from the platinum plate. If the wire be placed near a magnetic needle this will be turned from its course (deflected); when the ends of the divided wire touch the tongue a tingling and metallic taste are perceived. All these phenomena disappear if the connection between the plates is broken, and reappear when restored, and are manifestations of electricity generated by the action of the acid on the metals, traveling through the wire to which it imparts its properties. The zinc, platinum, and sulphuric acid may be replaced by many other materials. Electricity will be generated whenever two solid conductors, usually in plate or cylinder form, are connected by a conductor, and placed in a liquid having the power of acting chemically on one of them. Such an arrangement is called a voltaic or galvanic cell; the liquid the electrolytic or exciting agent; and the solids the electrodes; and all are called the elements of the cell. In a galvanic cell the electrolytic agent is split into two parts, called ions; and these ions, charged with + and — electricity, respectively, unload the charges on the plates. The conductor restores the electrical equilibrium. In the zinc, platinum and sulphuric acid cell the acid is split up into hydrogen and SO_4, the H_2 escapes from the platinum plate while the SO_4 combines with the zinc, forming zinc sulphate, which dissolves in the water."—(McGlannan's *Epitome of Chemistry*.)

5. The galvanic current is constant and continuous; it always flows in the same direction; it has pronounced chemical and thermal effects.

The faradic current is a rapid succession of momentary impulses; the direction is not constant: the chemical and thermal effects are almost imperceptible.

PRACTICAL URINALYSIS, MICROSCOPY, AND TOXICOLOGY.

1. The specific gravity of normal urine is about 1015 to 1025. Continued low specific gravity might indicate: Diabetes insipidus, chronic interstitial nephritis, or contracted kidney. Continued high specific gravity might indicate: Diabetes mellitus, fevers, or chronic parenchymatous nephritis.

2. The average amount of urine voided in twenty-four hours is about forty to fifty ounces. This amount may be *increased* by ingestion of large amount of liquids, in diabetes mellitus, diabetes insipidus, in granular atrophy

of the kidneys, in hysteria, chorea, or epilepsy. It is *decreased* when the amount of perspiration is increased, in fevers, acute nephritis, chronic parenchymatous nephritis, shock, cardiac disease, after hemorrhages or diarrhea.

3. *An analysis of urine* includes: Estimation of total quantity passed in twenty-four hours, color, odor, reaction, specific gravity, total solids (by aid of Haeser's coefficient). Then examine for albumin by Heller's test, or by heat and nitric acid; then for glucose, by Moore's test, with potassium hydroxide, or with Fehling's solution, which contains copper sulphate, sodium hydroxide, and Rochelle salt; then for blood with potassium hydroxide solution; then for bile pigments by Gmelin's test; then for indican, using lead acetate, hydrochloric acid, ferric chloride, and chloroform. Then quantitatively for urea, using solution of sodium hypobromite; for chlorides, with silver nitrate solution; for sulphates, with barium chloride solution. Microscopical examination should then be made for casts, cylindroids, crystals, and tubercle bacilli.

4. See French's "Practice of Medicine" (1907), page 1202.

5. *A simple microscope:* "With this an enlarged, erect image of an object may be seen. It always consists of one or more converging lenses or lens-systems, and the object must be placed within the principal focus. The simple microscope may be held in the hand or it may be mounted."

A *compound microscope:* "This enables one to see an enlarged, inverted image. It always consists of two optical parts, an *objective*, to produce an enlarged, inverted, real image of the object, and an *ocular*, acting in general like a simple microscope to magnify this real image. There is also usually present a mirror, or both a mirror and some form of condenser or illuminator for lighting the object. The stand of the microscope consists of certain mechanical arrangements for holding the optical parts and for the more satisfactory use of them."—(Gage's *The Microscope.*)

6. A knowledge of microscopy aids in diagnosis: In blood examinations in anemias, chlorosis, leukemias, and malaria; in urinary examinations in nephritis; in Widal's test for typhoid; in examining sputum or urinary sediment for tuberculosis; discharges for tuberculosis, gonococcus, or diphtheria bacillus; cerebrospinal fluid for meningococcus.

7. Poisons may be classed as: (1) True poisons, as strychnine; (2) corrosives, as nitric acid.

8. *Opium poisoning. Symptoms:* In opium poisoning there may be three stages: (1) a period of excitement, in which the patient is active, talkative, and has hallucinations; (2) a period of drowsiness, in which the patient is sleepy, but may be aroused; his face is pale, lips livid, pupils contracted; this passes into (3) the stage of coma, from which the patient cannot be aroused, the reflexes are abolished, the pupils are very contracted, the pulse is slow and irregular, and the respirations are infrequent and shallow.

Treatment consists in washing out the stomach, preferably with a dilute solution of potassium permanganate; ambulatory treatment, to keep the patient awake; artificial respiration is indicated, and strong coffee should be administered by the mouth or rectum; the bladder should be emptied by the catheter.

There is no antidote.

9. SILVER NITRATE POISONING. *Symptoms:* Pain; vomiting of white, cheesy matter, which becomes black in the sunlight; cramps; purging; depression; convulsions; coma or collapse. *Antidote:* Solution of sodium chloride.

10. The condition is known as *Argyria.* It is characterized by a blue or black discoloration of the skin and mucous membranes; it is due to deposits of silver in the rete, sweat glands, and about the hair follicles, where it becomes black on exposure to sunlight. The pigmentation is permanent.

BACTERIOLOGY AND PATHOLOGY.

1. The bacillus of tetanus is characterized by its peculiar spore, formed at one end of the bacillus, and giving it the appearance of a pin; it is purely anaërobic, and cannot be developed at all in the presence of oxygen. It generally comes from the soil, and is found in penetrating wounds. It appears in two forms, the spore-bearing form, as described above, and the vegetative form, which is a short bacillus with rounded ends, and which may occur singly or in pairs, or may form long filaments. It grows in gelatin stab cultures in the middle of the medium, and the colonies look something like a fir tree; its growth is slow, and a disagreeable odor is at the same time emitted. In bouillon, it grows near the bottom of the tube, and produces gases.

Modes of infection: By wounds and abrasions (often slight), and in compound fractures; also by punctured wounds of hands or feet, and wounds in which earth or other foreign matter is driven into the tissues. *Prophyloxis* consists in thorough opening and cleansing of all wounds soiled with earth, or in which foreign bodies are present; also all "Fourth of July wounds."

2. *Bacillus typhosus* is a rod-shaped organism, with rounded ends, is from 2 to 4 microns in length, and about three-fourths of a micron in breadth; it does not stain by Gram's method, but stains with all the anilin dyes; it has flagella, no spores, is aërobic and facultative anaërobic, and is motile.

Sources of infection: Food, water, flies, fingers. *Sources of elimination:* Feces, urine, skin (in rose spots), and sputum. A *typhoid carrier* is a person who, not having typhoid fever at the time, retains the typhoid bacilli in his system, and excretes it in feces and urine, and so "carries" the disease.

3. See French's "Practice of Medicine" (1907), page 671; or Osler's "Practice of Medicine" (1909), page 622.

4. See French's "Practice of Medicine," page 902; or Osler's "Practice of Medicine," page 695.

5. See Rose and Carless's "Surgery" (1908), pages 37, 31, 34; or Da Costa's "Surgery" (1908), pages 84, 73, and 83.

MEDICAL JURISPRUDENCE.

1. *Symptoms of chronic cocainism:* "In chronic cases there is much disturbance of digestion, emaciation, insomnia, hallucinations, enfeeblement of mind and general ill health. The symptoms much resemble chronic opium poisoning in many respects. As cocain is sometimes used in a vain effort to cure the morphin habit, it often happens that the symptoms of the two merge into each other so gradually as scarcely to be distinguished. A common symptom during the later stages of cocain poisoning is a sensation as of insects crawling over the surface of the body. Occasionally these cases end in dementia or some form of mania."—(Riley's *Toxicology.*)

2. BICHLORIDE OF MERCURY. *Dose:* Gr. 1-20. *Symptoms of acute poisoning:* "The nauseous, metallic taste is experienced during the act of swallowing. Within a few moments this is followed by an intense, burning pain in the mouth, throat and stomach. The mouth and tongue are whitened and shriveled. There are vomitings of a white material, containing shreds of mucous membrane, and tinged with blood, and bloody stools. Salivation occurs if life be sufficiently prolonged. Death sometimes occurs early from collapse, accompanied by convulsions, or in deep coma; but in most fatal cases life is prolonged for from three to six days."—(Witthaus's *Essentials of Chemistry and Toxicology.*)

3. *Postmortem findings in acute poisoning by Paris green:* "They are confined to the stomach and intestines. The stomach is inflamed, whether As has been taken by the mouth or by other channels of absorption. The mucous surface is coated with a layer of mucus, tinged with blood or bile, and sometimes containing white crystals of As_2O_3 or green particles of Paris green. The color of the mucous membrane is brownish red, interspersed with darker streaks or patches between the rugæ. The small intestines are sometimes inflamed throughout their length, but more usually the inflammation is limited to the duodenum."—(Witthaus's *Essentials of Chemistry and Toxicology.*)

4. A *delusion* is a belief in something which has no real existence, but is purely imaginary; and out of which the person cannot be reasoned. An *illusion* is a false or perverted impression, received through one of the senses. An *hallucination* is the same as an illusion, but without any material basis.

If an individual believes himself to be made of glass, and is afraid of being touched lest he be broken, he is suffering from a *delusion.* If the whistling of the wind is mistaken for a voice telling a person to do a certain thing—that would be an *illusion.* If a person fancied he heard a voice when there was nothing at all to be heard, that would be an *hallucination.*

A *delusion of persecution* is such a *delusion* in which the patient believes himself to be constantly pursued or tormented.

5. If respiration has taken place, its lungs will float on being put into water; if respiration has not taken place, the lungs will sink. Further, the lungs before respiration are situated at the back of the thorax and do not fill the cavity; whereas, after respiration, they fill the whole cavity.

6. The onset and duration of rigor mortis depend upon the previous degree of exhaustion. In death from exhausting diseases, there is an early onset, while in those dying suddenly, as from accident, it may be delayed for

twelve hours or more. Its duration is very variable; it is shortened by heat, and prolonged by cold; it generally lasts about twelve to twenty-four hours; in death by lightning or electrocution it may only last a few hours; in other cases, several days.

Cadaveric spasm is a violent muscular contraction often observed in persons who have died violent deaths; it is found in suicides, who have a weapon grasped in their hands; or in drowned persons, with grass or weeds in their hands.

7. A *wound inflicted during life* is generally characterized by hemorrhage, coagulation of the blood, eversion of the edges, and retraction of its sides. It may also be inferred that the wound was inflicted during life if any of the following are noticed: The presence of inflammation, swelling, pus, or gangrene on the edges of the wound, or if there is any sign of beginning cicatrization.

8. *The usual causes of death in cases of burns* are: Shock, asphyxia, inhalation of flame, and fright.

9. *Death may be simulated* by: Coma, epilepsy, trance. *Signs of death:* Cessation of respiration, absence of heartbeats, insensibility, loss of power to move, change in the eyes, pallor, loss of body heat, rigor mortis, putrefaction, and adipocere formation.

10. The contents should be enclosed by ligatures at the esophagus and duodenum. All is then placed in a *clean* and *new* glass jar, closed with glass or cork cover or stopper. Jars with metallic caps should never be used. Tapes or cords should be tied about the jar and cap, to which they should be attached by sealing wax bearing impressions of a seal, in such a manner that access can be had to the interior only after breaking the seals or cutting the tapes or cords. Great care must be exercised that no sealing-wax gets into the jars.

PRACTICE OF MEDICINE.

1. See French's "Practice of Medicine" (1907), page 994.

2. See French's "Practice of Medicine (1907), page 599; or Osler's "Practice of Medicine" (1909), page 820.

3. *Pain at the epigastrium* may denote: Neuroses, ulcer, cancer, erosions, or catarrh of the stomach; duodenal ulcer; gastralgia; appendicitis; pancreatic disease; diseases of the vertebræ; pleurisy or pneumonia; and the morphine habit.

4. "Pus in the urine (*pyuria*) is generally due to some acute or chronic inflammatory process present in the urinary tract, such as pyelitis, renal abscesses, cystitis, prostatitis, urethritis (gonorrhœal or simple), and genito-urinary tuberculosis, or it may come from some extraneous source, as the discharge into the urinary canal of the peri-nephritic, pelvic or other origin, or from the bursting of a vulvo-vaginal abscess. Cancer of the bladder or other urinary organs is also a frequent source of pyuria."

For *treatment* see Rose and Carless' "Surgery" (1908); or Da Costa's "Surgery" (1908), in Index, under disease mentioned.

5. See French's "Practice of Medicine" (1907), page 1008; or Osler's "Practice of Medicine" (1908), page 1019.

6. Tuberculosis, and simple continued fever; and see French's "Practice of Medicine" (1907), pages 441, 386, and 368.

7. See French's "Practice of Medicine" (1907), page 965; or Osler's "Practice of Medicine" (1909), page 380.

8. See French's "Practice of Medicine" (1907), page 326; or Osler's "Practice of Medicine" (1909), page 141.

9. See French's "Practice of Medicine" (1907), page 1123; or Osler's "Practice of Medicine (1909), page 1056.

10. (*a*) An infant may be expected to commence to cut teeth at about the sixth month. The *causes of delayed dentrition* are: Rickets, malnutrition, idiocy, and cretinism. (*b*) Possible causes are: Rickets, Pott's disease, cretinism, infantile paralysis, birth palsy, muscular atrophy, hydrocephalus, congenital dislocation of hip. See these diseases in French's or Osler's "Practice of Medicine."

OBSTETRICS AND GYNECOLOGY.

1. *Positive signs of pregnancy:* (1) Hearing the fetal heart sound; (2) active movement of the fetus; (3) ballottement; (4) outlining the fetus in whole or part by palpation; and (5) the umbilical or funic souffle.

Doubtful signs of pregnancy: (1) Progressive enlargement of the uterus; (2) Hegar's sign; (3) Braxton Hick's sign; (4) uterine murmur; (5) cessation of menstruation; (6) changes in the breasts; (7) discoloration of the vagina and cervix; (8) pigmentation and striæ; (9) morning sickness.

Subjective signs of pregnancy, in the order of their appearance, are: Cessation of menstruation, morning sickness, increased frequency of urination, active fetal movements.

Objective signs of pregnancy, in the order of their appearance, are: Softening of the cervix, changes in the mammary glands, discoloration of the vulva and vagina, pulsation in the vaginal vault, Hegar's sign, active fetal movements, ballottement, palpation of the fetus, intermittent uterine contractions, hearing the fetal heartbeat, rate of growth of the uterine tumor.

For *differential diagnosis of pregnancy,* see Williams' "Obstetrics" (1909), page 190; or Hirst's "Obstetrics" (1909), page 204.

2. The *indications for podalic version* are: (1) In transverse presentations; (2) in placenta prævia; (3) in malpresentations of the head; (4) in simple flattened pelvis, and in minor degrees of pelvic contraction; (5) in prolapsed funis; (6) in sudden death of the mother; and (7) in any case where speedy delivery is imperative. And see Williams' "Obstetrics" (1909), pages 432 and 437; or Hirst's "Obstetrics" (1909), page 830.

3. TOXEMIA OF PREGNANCY. The symptoms are: "Headache, nausea, and vomiting, epigastric pain, vertigo, ringing in the ears, flashes of light or darkness, double vision, blindness, deafness, mental disturbance, defective memory, somnolence; symptoms easily explained by the circulation of toxic blood through the nerve centers. These may be preceded by lassitude, and accompanied by constipation, or by diarrhea. Headache is perhaps the most significant and common warning symptoms. In bad cases the urine is reduced in quantity (almost suppressed), very dark in color, its albumin greatly increased, so that it becomes solid on boiling. Next comes the final catastrophe of convulsions. The convulsive fit begins with twitching of the facial muscles, rolling and fixation of the eyeballs, puckering of the lips, fixation of the jaws, protrusion of the tongue, etc., soon followed by violent spasms of the muscles of the trunk and limbs, including those of respiration; hence lividity of the face and stertorous breathing, biting of the tongue, opisthotonus, etc. The fit lasts fifteen or twenty seconds, ending in partial or complete coma, possibly death; or consciousness may return, to be followed by other convulsions."—(King's *Manual of Obstetrics.*)

"*The prophylactic treatment* consists in frequent and regular examination of the urine. After the first appearance of albumin, daily quantitative examination of the urine should be made. The diet should be milk; the bowels should be kept freely open by means of calomel and salines; the skin should be kept active by hot baths, followed by vigorous rubbing. Diuretics, such as Basham's mixture, digitalis, and caffein, should be administered. During pregnancy, if the percentage of albumin increases in spite of the treatment, abortion or induction of labor is indicated.

"*The treatment of the attack* consists of the administration of chloroform by inhalation, chloral hydrate (gr. 60) by enema, and the fluid extract of veratrum viride hypodermically (gtt. 15 followed by gtt. 5, repeated frequently enough to keep the pulse at about 60 beats a minute), to control the convulsions, and free purgation by croton oil (gtt. 2 or 3 in sweet oil or glycerin), free sweating by the hot pack and sometimes depletion by venesection to eliminate the poison. The after-treatment consists of free purgation by the salines, restriction of diet, and later the administration of tonics and stimulants. The obstetric treatment is usually noninterference."—(Gould and Pyle's *Pocket Cyclopedia.*)

4. See Williams' "Obstetrics" (1909), page 617; or Hirst's "Obstetrics" (1909), page 276.

5. See Williams' "Obstetrics" (1909), page 813; or Hirst's "Obstetrics" (1909), page 577.

6. See Williams' "Obstetrics" (1909), pages 254 and 266; or Hirst's "Obstetrics" (1909), pages 395 and 404.

7. See Williams' "Obstetrics" (1909), page 274; or Hirst's "Obstetrics" (1909), page 409.

8. The patient should be free from corsets and constricting bands; the bladder and rectum should be empty. *External palpation:* The patient should be in the lithotomy position, on a suitable table or bed. The examiner stands on one side, and palpates the lower abdomen to determine any enlargement of the uterus. *Vaginal touch:* The examiner separates the labia with the thumb and finger of one hand; and two fingers of the other hand well lubricated are introduced into the vagina. Pressure is made on the perineum until the posterior fornix is reached, when the palmar surfaces are turned forward and the size, position, and condition of the cervix are determined. Then with the palmar surface of the external hand gentle pressure is made on the abdomen and the two hands are approximated. Thus the size, consistency, and position of the uterus are determined. *Rectal examination:* In virgins and in some cases of extreme retroversion one finger

is introduced into the rectum and with the other hand on the abdomen a more satisfactory bi-manuel examination can be made. *Intrumental examination:* In the lithotomy position, by the use of a bi-valve, a tubular or Ferguson speculum, the condition of the cervix can be inspected. This is best accomplished in some cases by use of the Sims position and the Sims speculum. At the same time in rare and selected cases by steadying the anterior lip of the cervix with a bullet forceps the uterine sound may be passed to determine the size and position of the uterus.

9. *The common displacements of the uterus are:* Retroversion, retroflexion, anteflexion, and descent or prolapse. The following symptoms may follow displacements of the uterus: Backache, bearing-down pains, a feeling of pressure in the pelvis, constipation, hemorrhoids, frequent or painful urination, leucorrhea, menstrual disturbances, as dysmenorrhea or menorrhagia, sterility; there may also be *general symptoms,* as headache, indigestion, nausea, anorexia, neurasthenia, and general malaise.

10. Cystitis. *Causes:* Retention of urine, tumors, foreign bodies, calculus, ammoniacal urine, gonorrhea, tuberculosis of genito-urinary tract, pus in the urine.

Treatment: Rest in bed; the imbibition of plenty of milk and water, and the avoidance of all highly seasoned food; laxatives; diuretics; sitz-bath; irrigation of the bladder with an antiseptic solution; hot fomentation and vaginal douches are often helpful; sometimes intravesical medication is necessary.

SURGERY.

1. See Rose and Carless' "Surgery" (1908), page 758; or Da Costa's "Surgery" (1908), page 734.

Indications for trephining: "Intracranial hemorrhage; abscess; fracture; foreign body; evacuation of cerebrospinal fluid through the lateral ventricle; as a preliminary step to osteoplastic resection and to linear craniectomy; epilepsy; bullet and other wounds; small tumors; drainage of frontal sinus; drainage of mastoid antrum and cells; thrombosis of venous sinuses."—(Bickham's *Operative Surgery.*)

2. See Rose and Carless' "Surgery" (1908), page 335; or Da Costa's "Surgery" (1908), page 407.

3. See Rose and Carless' "Surgery" (1908), pages 526 and 481; or Da Costa's "Surgery" (1908), pages 505 and 464.

4. See Rose and Carless' "Surgery" (1908), pages 926 and 928; or Da Costa's "Surgery" (1908), pages 773 and 774.

5. See Rose and Carless' "Surgery" (1908), page 399; or Da Costa's "Surgery" (1908), page 1057.

6. See Rose and Carless' "Surgery" (1908), pages 1073, 1075 and 1080; or Da Costa's "Surgery" (1908), pages 999 and 978.

7. See Rose and Carless' "Surgery" (1908), pages 1213 and 1215; or Da Costa's "Surgery" (1908), pages 1132 and 1142.

8. See Rose and Carless' "Surgery" (1908), pages 257, 258 and 261; or Da Costa's "Surgery" (1908), pages 230, 240 and 241.

9. See Rose and Carless' "Surgery" (1908), pages 98, 102, 104, etc.; or Da Costa's "Surgery" (1908), pages 168, etc.

10. See Rose and Carless' "Surgery" (1908), page 1314; or Da Costa's "Surgery" (1908), page 1222.

The Treatment of Leprosy.—R. García Rijo reviews the different treatments of leprosy. In his practice he has employed the oil of chaulmoogra (*Gynocardia odorata*) in capsules and in frictions without good results. The drug has also a very bad taste. The red mangrove in extract has also been extensively employed by García Rijo, and although it has advantage over chaulmoogra oil in that it is easily taken, the results are far from satisfactory. He has also employed ichthyol and eucalyptus, but with no results. The arsenical preparations have been used in several cases, especially the arsenate, cacodylate, and metarsinate of sodium, and he has obtained satisfactory results, even to the extent of claiming to have cured one case. He has been using atoxyl lately, and he gives the histories of five cases cured or greatly improved by the injections of this drug. He concludes that in spite of the small number of cases he thinks himself right to believe that this drug has a very marked influence on leprosy, especially on the nodular forms. He knows the dangers connected with the drug, and therefore recommends great caution in using it.—*Crónica Médico-Quirúrgica de la Habaña.*

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of October 29, 1910.

	Cases	Deaths
Tuberculosis Pulmonalis	456	142
Diphtheria	245	18
Measles	85	1
Scarlet Fever	85	2
Smallpox	—	—
Varicella	39	—
Typhoid Fever	113	14
Whooping Cough	41	3
Cerebrospinal Meningitis	5	7
Malarial Fever	—	—
Totals	1,069	187

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, during the week ended October 28, 1910.

CHOLERA.

PLACE.	DATE.	CASES	DEATHS.
Arabia: Maskat	Sept. 21	a12	10
Austria-Hungary	Sept. 23-Oct. 5	12	5
Hungary, general	Sept. 25-Oct. 5	56	26
Budapest	Sept. 25-Oct. 1	2	4
Trieste	Oct. 16	1	..
Vienna	Sept. 18-24	2	..
Denmark: Copenhagen	Sept. 27	1	..
On a steamer from Holland.	a		
France: Marseille	Oct. 5	1	..
From S. S. *Bosphore* from Piraeus.			
Germany: Marienburg	Sept. 19-Oct. 2	7	3
Sommerau	Sept. 22	1	1
India: Bombay	Sept. 14-20	..	3
Madras	Sept. 9-16	..	26
Italy	Oct. 17-22	139	100
Outside of Naples.			
Girgenti	Oct. 21	1	..
Naples	Oct. 17-22	29	9
Palermo	Oct. 21	4	..
Trapani	Oct. 21	1	..
Japan: Kobe	Sept. 19-25	36	19
Java: Batavia	Sept. 4-10	12	7
Persia: Ardabil	July 31-Aug. 21	..	50
Chudja	Sept. 4	2	1
Enzeli	Aug. 19-21	3	3
Khorassan Province—			
Badjuirian	Aug. 1-Sept. 4	2	1
Nir	Sept. 4	..	Present
Serab	Aug. 4-27	..	Present
Russia, general	Sept. 4-10	7,559	3,557
City of St. Petersburg	Sept. 4-10	369	115
City of Cronstadt	Sept. 4-10	3	6
Governments:			
St. Petersburg	Sept. 4-10	52	31
Vologda	Sept. 4-10	20	15
Olenetz	Sept. 4-10	9	4
Pskow	Sept. 4-10	2	..
Novgorod	Sept. 4-10	28	24
Livonia	Sept. 4-10	7	3
Turkey: Bagdad	Oct. 2	..	Present
Prakil	Sept. 25-Oct. 1	1	1
Trebizond	Sept. 25-Oct. 1	166	98

a From the Veröffentlichungen des Kaiserlichen Gesundheitsamtes, Oct. 5, 1910.

YELLOW FEVER.

Brazil: Bahia	Aug. 20-26	14	10
Manaos	Sept. 11-24	5	5
Ecuador: Duran	Sept. 16-30	1	..
Guayaquil	Sept. 16-30	2	2
Mexico: Campeche	Oct. 9-15	2	..

PLAGUE

Brazil: Bahia	Aug. 20-26	3	3
Ecuador: Babahoyo	Sept. 16-30	4	1
Duran	Sept. 16-30	1	..
Guayaquil	Sept. 16-30	61	22
Great Britain: London	Oct. 18	1	..
From S. S. *Oceana,* from Bombay.			
	Oct. 19	1	1
From S. S. *Hindle,* from Bombay.			
India: Bombay	Sept. 14-20	..	11
Kurrachee	Sept. 3-17	27	24
Rangoon	Sept. 4-10	..	11
Russia: Odessa	Sept. 24-Oct. 1	8	4
Venezuela: Caracas	Oct. 20	1	1
Zanzibar	Sept. 1-14	..	1

SMALLPOX.

Belgium: Antwerp	Sept. 25-Oct. 1	..	1
Germany, general	Oct. 1	1	..
India: Madras	Sept. 9-16	..	7
Mexico: Aguascalientes	Sept. 13-Oct. 8	..	12
Mexico	Sept. 4-24	..	7
San Luis Potosi	Sept. 1-Oct. 8	1	3
Persia: Teheran	June 21-Aug. 24	..	130
Russia: Riga	Sept. 19-Oct. 1	15	..
St. Petersburg	Sept. 18-24	16	3
Spain: Barcelona	Sept. 26-Oct. 2	..	1
Seville	Sept. 1-30	..	1
Switzerland: Zurich, canton	Sept. 25-Oct. 1	4	..
Zanzibar	Aug. 25-Sept. 14	..	8

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Original Articles.

THE RELATION OF THE ACID-FAST TUBERCLE BACILLUS TO OTHER FORMS OF BACTERIAL LIFE.*

BY STEPHEN J. MAHER, M.D.,

NEW HAVEN, CONN.

THREE years ago at the International Conference, von Behring and Much reported that they found in all young tubercle, prebacillary coccal forms of the causative agent of tuberculosis. Their findings have been confirmed by several workers. Some years previously Auclair, and Calmette, and Arloing, and Courmont grew non-acid-fast bacilli from old growths of tubercle bacilli; and the author reported the growing of non-acid-fast cocci from the spleens of guinea pigs injected with an almost avirulent strain of human tubercle bacilli. These announcements aroused only a perfunctory interest. The teachers and the text-books continued to assert that the cause of tuberculosis is the acid-fast tubercle bacillus, and that the acid-fast tubercle bacillus is always derived from an acid-fast tubercle bacillus, and that only acid-fast tubercle bacilli can be developed from acid-fast tubercle bacilli.

For the purpose of again showing the inaccuracy of these assertions, and in the hope of inducing the Conference to take a livelier interest in the whole matter, and perhaps of inducing the Inner Council to recommend "The Relation of the Acid-Fast Tubercle Bacillus to Other Forms of Bacterial Life" as a subject for general discussion at the next meeting, I wish to report some observations which, though often incomplete, seem to me important and illuminating.

The young growths of tubercle bacilli, human, bovine, or avian, on glycerin-broth, glycerin-agar or glycerin-broth-potato, are consistently acid-fast and stain entire, and are of a uniform size. As the bacillary scum on the surface of the glycerin-broth in air-tight flasks grows old and heavy, and perhaps a shade darker, smears will disclose the fact that many individual bacilli have become abnormally long, and have taken on a filamentous appearance. Later, say at the end of six months, some bacilli will disclose a beaded or granular content, and some will have lost in part or entirely their resistance to the acid. With the ordinary Ziehl-Neilsen staining, or the Gabbett modification of it, many bacilli will appear blue or unstained. But these changes in the bacilli composing the scum will be slight as compared with those undergone by the bacilli that from time to time have fallen or have been shaken to the bottom of the flask. No change will be noticed in the gross appearance of these heaps, but the microscope will promptly show that they contain a large proportion of bacilli that have lost their acid resistance. Many fields will be blue, but sprinkled with short red rods, and these short red rods will be single, surrounded by a large blue linear halo, or they will be in small nests separated by slender, often broken, actinomycotic blue lines.

Growths of tubercle bacilli on blood serum and glycerin-agar cannot be kept alive so long as the growths in flasks of glycerin-broth because both the medium and the bacilli dry up. But if one examines a good four-weeks' growth of tubercle bacilli on glycerin-agar, one will find already a few non-acid-fast or poorly acid-fast individuals; and at the end of eight or ten weeks, if the culture is not dead, one or two c.c. of plain bouillon poured into the tube, will, after forty-eight hours in the thermostat, cause a remarkable change in the microscopic picture. Many short well-stained acid-fast bacilli will be seen, but they will be single or in pairs, and with Ziehl staining they will stand out in strong contrast to the pale pink or blue matrix in which they lie.

I have found glycerin-potato a very satisfactory medium for the study of the old tubercle bacilli. The growths of most strains of the tubercle bacillus are more luxuriant on this medium than on glycerin-agar or blood serum, and they do not dry up so soon. The bacilli in the scum that form on the surface of the liquid, and the bacilli that grow on the surface of the potato, preserve well their integrity and their normal staining characteristics, even after the potato has lost half its bulk by evaporation. Many of the bacilli that fall to the bottom of the fluid soon lose wholly or in part their resistance to acid, and after some weeks' immersion, often do not crackle in the flame.

Sterile water or plain broth poured into these old tubes will cause a swelling of the potato and of the growth, and in forty-eight hours the growth will be found to contain: (1) Comparatively few acid-fast rods imbedded in a non-acid-fast matrix made up of lines, granular and non-granular, arranged in ovoidal masses suggesting naked yeast cells; or, (2) Comparatively few tubercle bacilli of recognizable shape in a matrix that is made up of amorphous acid-fast granules of varying size, some suggesting acid-fast yeast shapes, and others, acid-fast cocci. In spite of these changes in the microscopic picture, the bacterial heaps on the potato will retain their gross appearance of pure cultures of tubercle bacilli.

These changes in moistened old growths of tubercle bacilli are easily demonstrated. Are these changes in appearance merely post-mortem or antemortem changes? Are these acid-fast and non-acid-fast coccal shapes and yeast shapes and slender streptothrical vines that make up the various matrices, alive or dead, and, if alive, are they capable of development into something different from tu-

*Read before the IX International Antituberculosis Conference, held in Brussels, October 5-8, 1910.

bercle bacilli? And, if the answer to the last question is in the affirmative, what relation to the tubercle bacillus does this "something different" bear, friendly or inimical?

I would answer that these new bacterial forms are alive and are capable of independent growth in their new forms, and that some of them at least bear a friendly and adjuvant relation to the tubercle bacillus, and that as to the others, I have not yet sufficient evidence to justify an opinion. I have reached these conclusions as the result of many scattered laboratory experiments during the last ten years. Let me hurriedly describe one or two late ones:

January 26 to a dozen ripe cultures of typical and virulent tubercle bacilli, six to ten weeks old in milk and on glycerin-agar, and on glycerin-broth-potato, I added 3 c.c. of 5 per cent. glycerin-broth, or 2 per cent. sugar-broth. On February 17 I found that the growths of tubercle bacilli in the milk had undergone no change. They were still growing in great acid-fast strands. In the glycerin-agar and the glycerin-broth-potato tubes there were left a few t.b. of good shape and staining, but the growth consisted mostly of granular clumps, some acid-fast and some non-acid-fast, but which in many places were of perfect yeast shapes. The suggestion of yeast cells was strongest in the tubes into which the glycerin-broth had been poured. Grossly there was not the slightest sign of any other kind of organism than tubercle bacilli, yet every loopful from the crumbling bacterial mass was found to be made up chiefly of the granular round masses that bore no longer any resemblance to tubercle bacilli. Some weeks later I added to each of twenty-five glycerin-broth-potato cultures of two strains of tubercle bacilli aged from four weeks to eight weeks, enough plain broth to immerse half of the potato. The younger cultures underwent very slight change. The tubercle bacilli in ninety-six hours were still almost all acid-fast and continued afterwards to display the characteristics of normal tubercle bacilli. All of the eight-weeks old cultures underwent very striking metamorphoses; the bacterial masses were found in ninety-six hours to be largely non-acid-fast and often unstained bacillary and coccal and yeastoid and filamentous shapes.

Sub-cultures on glycerin-broth-potato from the four-weeks'-old cultures to which the broth had been added, gave pure cultures of acid-fast tubercle bacilli. Sub-cultures from the eight-weeks'-old cultures to which broth had been added resulted in seven cases in a growth of pure acid-fast tubercle bacilli, with an entire disappearance of the non-acid-fast matrix; in four cases in a persistence of the non-acid-fast linear-matrix and its development into a weak growth of a granular non-acid-fast rod of the size and shape of tubercle bacillus; in two cases in a weak development of acid-fast and non-acid-fast bacilli in the same tube; in three cases in no growth of any kind. In no case did the yeastoid or coccal shapes in the original moistened matrices persist in sub-cultures.

Five years ago to a flask of not very virulent tubercle bacilli in glycerin-broth, and five-months'-old, I added twice at a week's interval, 25 per cent. of 2 per cent. sugar-broth. In four days the bacterial scum had become reddish in hue and contained many swollen tubercle bacilli, and many bacilli of the shape and size of tubercle bacilli that were only very slightly resistant to acid. Sub-culture on glycerinized or sweetened media gave good red growths in forty-eight hours of an acid-fast rod that looked like the acid-fast bacillus that Moeller grew from timothy grass. At present, when grown at room temperature, it loses much of its acid-fast property, although still crackling sharply in the flame, and still preserving its chromogenic powers. Its acid resistance may be even now restored almost entirely by cultivating it at 37° in milk, or in a less degree by cultivating it at 37° in glycerin-broth or on Loeffler's serum.

Some years later in studying old glycerin-broth cultures of this same slightly virulent strain of tubercle bacilli, I found that if they were planted in milk and grown for three weeks in the milk, and the resulting rather filamentous and granular but perfectly acid-fast bacilli, were planted on glycerin-broth-potato, the result was a very weak growth with a swelling of the contained coccal granules, and that a further sub-culture resulted frequently in a yellowish soft growth about the planted crumbs, made up of coccal forms, acid-fast, partly acid-fast, and not acid-fast, and identical in appearance with the coccal granules in the remaining swollen tubercle bacilli. These cocci were readily sub-cultured. They lost their partial acid resistance when grown at room temperature; but retained it if kept at 37°. They did not change milk. They crackled in the flame. They caused the formation of tiny nodes in injected guinea pigs from which the animal quickly recovered. They did not vaccinate the injected animals against subsequent injections of tubercle bacilli. Cultures killed by heat caused mild reactions in injected tuberculous patients.

I thought at first that the explanation of these phenomena lay in the fact that this strain of almost non-pathogenic tubercle bacilli had been cultivated so long—nearly twenty years—that it had retrogressed towards its saphrophitic form, and that therefore its behavior was not a fair indication of what the virulent tubercle bacillus would do under similar circumstances. In these last years I have pursued the subject somewhat, and although I have failed with a good many strains of virulent tubercle bacilli to break down the old granular tubercle bacilli into partly acid-fast cocci, and have frequently failed to develop chromogenic quick-growing cultures of acid-fast bacilli from old glycerin-broth cultures of tubercle bacilli, I have been entirely successful with three different virulent strains, one isolated by the late Dr. Leonard Pearson of the University of Pennsylvania, one isolated by Dr. Nathan Raw of Liverpool, and one isolated by the writer, from cases of human pulmonary tuberculosis.*

Avian tubercle bacilli, which at the ordinary ages of three to six weeks' stain solid, and are of normal size and shape, will appear in ten-months'-old glycerin broth cultures to have lengthened out into acid-fast filamentous forms, punctuated with less acid-fast coccal forms. After many trials, I succeeded three years ago in growing these granular filamentous forms of avian tubercle bacilli, in a

*A technique which has been suggested for securing the quick-growing acid-fast rods is that the tubes containing luxuriant four-weeks'-old growths of human tubercle bacilli on glycerin-broth-potato be put at room temperature for a few days—not less than two days—and that then there be made generous plants in tubes of glycerin-broth or preferably lactose- or glucose-broth, that the tubes be shaken for a few minutes every day for a few days after the third day, and finally that sub-cultures be made on any of the ordinary glycerinized or sweetened media.

series of half a dozen sub-cultures. When these filamentous tubercle bacilli were planted in glycerin-broth and permitted to sink to the bottom of the flask, the resulting growth and sub-cultures were red and of a partly acid-fast coccus, which in fluid media grew in small clumps of rosaries.

Bovine tubercle bacilli in my hands have acted somewhat differently. In old pure glycerin-broth cultures they swelled at one end or in the middle. In the swollen parts a less acid-fast coccal granule developed. Planted in plain or sweetened broth, these granules became free and grew as cocci, which were readily sub-cultured, but except in old sub-cultures showed not even a partial acid resistance.

Concerning the several bacterial forms that I have derived from old cultures of tubercle bacilli, it is to be noted that none of them digests milk or changes its reactions to litmus, and that most of them preserve some of the acid-fast property of the tubercle bacillus, and that so far as my incomplete investigation has disclosed, all of them have a power to cause slight reactions, that have many of the characteristics of tuberculin reactions.

I realize thoroughly that when I claim that culturable bacterial forms other than tubercle bacilli can grow from old tubercle bacilli, I will be met with a first cry of "contamination." That is a charge that is usually hard to refute, but it is not so difficult here:

1.—Because of the appearance and development of the coccal granules in the old bacillary forms before their extra-bacillary appearance and development;

2.—Because of the convincing pictures of the relationship between the free and contained cocci shown in the second and third sub-culture on hard glycerinized or sweetened media;

3.—Because of the ease with which the transition from the acid-fast slow-growing tubercle bacillus to the chromogenic quick growing purely acid-fast or not acid-fast bacillus can be followed on smears;

4.—Because of the slight viability of the non-acid-fast rods and cocci derived from the old or moistened cultures of tubercle bacilli. It was only by quick and frequent sub-culturings that they could at first be kept alive. They could not have lived forty-eight hours in the media on which the tubercle bacilli were growing.

5.—Because every culture of tubercle bacilli that gave me these strange coccal and bacillary growths was capable before sophistication and when planted on favorable media, of growing pure sub-cultures of acid-fast tubercle bacilli.

A second criticism of such results as are outlined in this paper is, "Their improbability. The facts within our knowledge of tuberculosis and bacteriology do not warrant a belief in them." For the present, a sufficient answer to this criticism is: Our knowledge of the causation of tuberculosis is limited to the two facts, (1) That the acid-fast tubercle bacillus is found in most cases of tuberculosis, and (2) That the acid-fast tubercle bacillus can cause tuberculosis in susceptible animals. Neither of these facts is impugned by the findings related in this paper.

On the other hand, in support of the probability of these findings are the following:

I. Much's well-confirmed claims that pre-bacillary and pre-acid-fast stages of Koch's organism are recognizable by special staining method, in all young tubercle.

II. The work of Arloing and Courmont, Auclair and their associates in deriving homogeneous liquid cultures of non-acid-fast or poorly acid-fast tubercle bacilli from old growths of acid-fast tubercle bacilli.

III. The remarkably persistent similarity in the so-called "secondary" bacterial flora in any given case of breaking down tubercle.

IV. The fact that the non-acid-fast "secondary" organisms, whether isolated from the wall of a pulmonary cavity or from tuberculous bone, or any other tuberculous area, and whether they have the cultural and tinctorial characteristics of the streptococcus or the diphtheria bacillus or whatever their form may be, have no pathogenic effect on healthy animals. (Ravenel.)

V. By the fact that the new tuberculin tests, particularly the von Pirquet skin test, frequently give positive reactions, when careful autopsies disclose no sign whatever of tuberculosis, as the word is at present understood.

VI. By the fact that caseous material and effused pleural fluid that reveal no tubercle bacilli to the most diligent examination, so frequently produce prompt and severe tuberculosis when injected into guinea pigs.

VII. By the behavior of the non-pathogenic acid-fast bacilli when subjected to the influence of somewhat unfavorable or unaccustomed environment. Cantacuzene of Bucharest has shown that Moeller's timothy bacilli, when injected intraperitoneally into rabbits, lose for the first generations their waxy capsule, and that it is only after some days or weeks that they become acid-fast again. The Grassberger bacillus, at least the strain I have of it, grows entirely acid-fast in milk, and almost entirely non-acid-fast in glycerin-broth or in glycerin-agar.

VIII. By the suggestive frequency with which quick growing acid-fast bacilli are found in the nasal secretions of lepers, and inhabitants of leprous districts (Karlinski); and by the number of observers who when trying to cultivate the slender slow-growing leprosy bacillus from leprous nodes, have instead secured only growths of a quick-growing acid-fast bacillus which has been discarded because it does not produce leprosy. (Levy, Czaplewski, Bordonni-Uffreduzzi, Bornet, Spronck, and others.)

IX. By the fact that in spite of the comparative harmlessness of the ordinary acid-fast organisms isolated from grass and hay and butter, etc., most of the experiments have shown that the blood of the animal injected with these acid-fasts agglutinates tubercle bacilli, and vice-versa.

X. By the findings of A. Moeller, who reported as long as 1900, that from all the ripe tuberculous nodes of affected cattle and hogs he was able to isolate besides the tubercle bacillus an acid-fast bacillus, that was thicker than the bovine tubercle bacillus and that grew in orange red colonies at room temperature as well as at 37° and that in fact closely corresponded to the acid-fast quick-growing bacillus that I have derived from old cultures of human tubercle bacilli.

XI. By the following disjunct facts of my own observations:

1.—Acid-fast bacilli, often closely simulating tubercle bacilli in appearance, can be developed in difficult media from the acid-fast spores of such ordinary non-acid-fast bacilli as *Bacillus mycoides*, and *Bacillus subtilis*.

2.—When *Bacilli typhosi* are grown at room temperature for a month in plain broth and sub-cultured in weakly nutrient but normally saline broth

(equal parts of physiological salt solution and plain broth), a large proportion—sometimes one-half—will be acid-fast. A similar striking development of acid resistance will be shown by many strains of Klebs-Loeffler bacilli when grown at room temperature for two weeks in equal parts of sugar-broth and salt solution.

3.—Glycerin-broth cultures killed by heat, or filtered, of cocci or streptococci or yeast cells isolated from tuberculous pus, have the power to induce in tuberculous patients, a mild reaction closely simulating the tuberculin reaction.

4.—From the blood of a hospital patient suffering from acute endocarditis, I isolated a bacillus that grew in chains, of which one link of three was acid-fast. There was no history of rheumatism or other infection. At autopsy, the only finding was of a small, old but caseous tuberculous area in the right apex. This bacillus did not cause tuberculosis in injected guinea pigs.

5.—From the effused fluid of three cases of tuberculous pleurisy kept at room temperature for four days, I have found a bacillus that was sometimes acid-fast, and sometimes not; that is, in every field stained by Ziehl, individuals uniform in shape and size would be, some red, some partly red and partly blue, and some entirely blue. Sub-cultures on various media resulted in growths of an entirely non-acid-fast bacillus.

6.—M. T., a bright girl of ten years, after a prodromal period of lassitude and depression and aversion to study, and of slight fevers, began to cough. The first specimens of sputum showed no acid-fast organisms. Two weeks later there appeared an occasional thick, weakly acid-fast rod, in clumps or lines of rods of similar size, but not acid-fast. In frequent examinations of sputum, these acid-fast rods were seen to increase in number, actually and relatively, and to become more and more slender and soon to be indistinguishable from the classical tubercle bacillus. Both lungs became rapidly involved and the patient died with all the symptoms of an acute pulmonary tuberculosis.

7.—M. M., a nun, who had been under treatment for several months for apical and laryngeal tuberculosis, and who had had characteristic tubercle bacilli in her sputum, showed suddenly marked amelioration of symptoms and coincidently the tubercle bacilli in her sputum became very thick and few. The next specimen of sputum and dozens of specimens since contained no acid-fast organisms, but were almost pure cultures of a non-acid-fast granular bacillus, that both with the Neiser stain and with alkaline methylene blue, appeared to be perfect diphtheria bacilli. It is now six years since her improvement began. She has been teaching school for five years, and has had from sixty to eighty pupils in her class. Twice during that time, at the close of the school year, she has had return of cough and laryngeal distress, and a return of a few acid-fest bacilli in her sputum.

8.—H. S., a consumptive, with an afternoon temperature which for months ranged from 102° to 104°, and in whose sputum there are ordinarily a dozen or more orthodox tubercle bacilli in every field, has three times given me sputa which contained no perfect tubercle bacilli, but did contain thicker poorly acid-fast bacilli, in small clumps or strings of non-acid-fast bacilli of similar shape and size. The specimens that contained the normal tubercle bacilli contained none or few of the unusual acid-fast rods.

9.—K. A., a tall, athletic girl of twenty years, skylarking with her brother, had the rug on which she stood pulled with such unexpected force that she fell at full length, striking the right side of her head violently on the hardwood floor. No bones were broken, but within a week she was conscious of queer trouble about the hurt temporal area. There was no evidence of inflammation of the bone, but she had spells of pain and tinnitus and dizziness. In spite of a great variety of treatments, none of them operative, she grew worse slowly for weeks, then the whole side of her head took to aching, and she developed a very irritating cough. That lasted without any expectoration for several weeks. As the cough increased, the pain in the head and all the ear symptoms grew better, and she regained her lost weight. The cough was very annoying. Finally she had a small hemoptysis, and ever since has been able to raise small amounts of sputum which almost invariably contained clumps of slender filamentous bacilli that, stained with Ziehl, varied in color in most clumps from a bright red to a pale pink, and sometimes to a pale blue, and sometimes to unstained forms. Clinically, she is suffering from a mild pulmonary tuberculosis. She reacts promptly to tuberculin.

10.—K. H., a young woman in whose ear-wax were the ordinary acid-fast cerumen bacilli, used an ear spoon so vigorously as to start an inflammatory process in one ear. When that healed the glands under the angle of the jaw swelled and one suppurated. The pus contained short, straight, acid-fast bacilli, but injected into a guinea pig caused no tubercle. She did not react to the von Pirquet tuberculin test. Plants of the pus on plain agar or plain broth gave no growths, but plants of the pus on glycerinized media gave a pure, soft growth of a short, slow-growing granular bacillus that crackled in the flame, and of which one of the contained granules, was frequently distinctly acid-fast. A vaccine made from this organism caused local reaction, but had no curative effect. The glands remained swollen for several months, but they melted away very quickly with small doses of old tuberculin.

11.—I have tried for many years to get a pure culture of acid-fast bacilli from the smegma of a patient on whom they often grew in apparently pure culture. I have always failed, but I have repeatedly convinced myself from closely observing the changes undergone by very generous plants of these bacilli on various media, that the planted bacilli grew, but grew non-acid-fast. The resultant growths were granular, gram-positive bacilli, that did not change milk; that throve only on glycerinized or sweetened media, and that developed some slight acid resistance when grown on human blood agar.

12.—Aspirated creamy pus from the swollen cervical gland of a young woman of tuberculous family, repeatedly digested milk, but revealed no bacterial forms, either intracellular or extracellular. Sub-cultures, made from the milk gave invariably a slow, red growth of a partly acid-fast coccus arranged in chains, which was morphologically and tinctorially identical with the coccus derived from old avian human tubercle bacilli. This organism had no power to digest or otherwise change milk.

13.—The tubercle bacilli, when in great numbers in sputum, preserve well their shape and acid resistance after many months at room temperature, if

protected from the air. But in specimens to which equal parts of milk have been added, the tubercle bacilli in a short time at room temperature lose their outline in more or less acid-fast granular clumps that strongly suggest the matrices described in the moistened old growths of the pure culture of tubercle bacilli. And in the clumps there develops a larger granular non-acid-fast streptothrical rod.

14.—From the very tuberculous livers of six guinea pigs, dead six to ten weeks after injection with pure human tubercle bacilli, I have recently isolated pure cultures of very feeble yeast cells by crushing the liver substance and planting on plain potato. These yeasts did not grow at all on other media that was not sweetened or glycerinized, and gave only very faint growths on any media. The livers of an equal number of control guinea pigs gave no growth when subjected to the same technique.

15.—Several times in the last few years I have found in the little cheesy nodes of guinea pigs that had been injected with coccal acid-fasts, bacilli of perfect t.b. shape. Yet plants of these crushed nodes, on various glycerinized media, gave only pure cultures of the coccal forms that had been injected.

Perhaps the tentative deductions from such a paper as this may be best put in the form of questions:

1. Is not the acid-fast tubercle bacillus simply a most highly specialized acid-fast bacillus that has acquired the faculty of resisting the lytic power of the animal cell? And like all other acid-fast bacilli, was it not derived originally from a non-acid-fast bacillus?

2. Does not the hope for the infected animal lie, not in killing the invader outright, but in depriving him of his acid-fast armor and weapons?

3. Does not the great sensitiveness of the tubercle bacillus to change of environment *in vitro*, afford a key to the solution of nature's cures of tuberculous animals?

4. When the infected animal is cured by change and fresh air, is it not because in the new environment the tubercle bacillus has difficulty in perfecting its acid-fast development and therefore grows non-acid-fast or poorly acid-fast, or breaks up into cocci, which may or may not win the next battle with the cells? (If the cells win, the patient recovers. If the cells lose, the coccal and rod forms quickly break down surrounding tissue entrenchments; then slowly, as *in vitro*, begins again the victorious progress of the acid-fast tubercle bacilli.)

5. Is not all the literature concerning the organisms of the secondary invasion or of mixed infection in tuberculous areas a huge blunder because of its failure to recognize the fact that the so-called secondary invaders are practically always derivatives of the struggling acid-fast tubercle bacillus?

6. Do not the facts here related of the devolution of the acid-fast tubercle bacillus into culturable cocci and non-acid-fast bacilli, harmonize with and complete the theory involved in the important communications of Much and his followers, and Foulerton and others, and make the further and thorough study of the points at issue, altogether the greatest need in the present tuberculosis problem?

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THE DIAGNOSTIC AND THERAPEUTIC VALUE OF LUMBAR PUNCTURE.*

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When, in 1891, Quincke of Kiel introduced the practice of lumbar puncture, he little dreamed of the extensive possibilities and developments which this simple surgical procedure would acquire. At first regarded as a startling mode of invasion of one of the most vulnerable parts of the body, it has, through its widespread application, become one of the easiest resources in the hands of the general practitioner. Indeed, the latter may now perform lumbar puncture with as little hesitation as a simple paracentesis of the pleural cavity, and with even greater and richer rewards in diagnosis and treatment.

It is my purpose in this paper to review the recent advances made in the theory and practice of lumbar puncture, to indicate its increasing sphere of usefulness in a wide range of diseases, and to report a few examples of my own experience with this diagnostic and therapeutic measure.

It is quite natural that the subarachnoid space should be the last of the great body cavities to yield its secrets to the prying needle. One need only recall a few of the simple anatomical relationships of the cerebrospinal axis and of its enveloping membranes to appreciate the fact that the cerebrospinal fluid may undergo a host of changes in response to the multitude of pathological conditions to which the brain and spinal cord may be subject—changes that are nutritive, toxic, vascular, traumatic, or inflammatory—and even in response to similar conditions affecting remoter parts of the organism.

The cerebrospinal fluid possesses not only the lubricating function which is similar to that of the pleural and pericardial fluids, but, unlike the latter, it forms a substantial water jacket whose elasticity amply protects the cerebrospinal axis from the injurious effects of sudden jars. In addition, it fills the ventricles of the brain, and serves the important hydrostatic function of permitting such changes in the volume of the brain and spinal cord as result from a varying blood supply. The cerebrospinal fluid thus plays a happy physiological rôle: the brain, enclosed within an unyielding bony box, is capable of receiving a richer blood supply only by virtue of the fact that part of the cerebrospinal fluid within its ventricles may readily be shifted into the subarachnoid space of the spinal cord.

Access to this space is most easily accomplished by the introduction of a hollow needle, four to ten cm. long, and having a lumen one to one and a half mm. in diameter, between the spinous processes of the third and fourth or fourth and fifth lumbar vertebræ, or, preferably, between that of the fifth lumbar vertebræ and the sacrum. The site of puncture is usually on the level of an imaginary line joining the crests of the ilia. The needle is inserted in the interspinous space just below this level, in children in the median line, and in adults a few millimeters to one side of the median line; in children to a depth of two cm., in a horizontal direction, and in adults to a depth of four to six cm., slightly inward and upward. The operation is performed under strictest aseptic precautions, under local anesthesia with

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ethyl chloride, and sometimes, in extremely neurotic individuals, under general anesthesia. The patient should preferably lie on his left side with his knees drawn up and his back strongly arched. The sitting posture is recommended for children by Pfaundler[1], but this position has the disadvantage and danger of permitting occasionally a sudden change in the pressure of the cerebrospinal fluid. As soon as the needle reaches the subarachnoid space, as evidenced by a diminished resistance to its passage, and by the issuance of the cerebrospinal fluid usually drop by drop from its free end, the latter is attached by means of a piece of rubber tubing twenty to forty cm. long to one of the several forms of apparatus for recording the pressure of the fluid. The simplest of these, originally introduced by Quincke, consists of an upright glass tube, ten to fifteen cm. long, and two mm. in diameter, with its upper end bent into an inverted U; in this tube the height of the cerebrospinal fluid, and hence its pressure, is measured in terms of millimeters of water by means of a scale. More accurate than this device is the use of a mercurial manometer, such as that recommended by Pfaundler. This consists of a Sahli mercurial manometer connected with the needle by means of rubber tubing and disconnected after the pressure is read. This device has recently been modified by G. E. Erbright[2], who, by means of the interposition of a T-shaped nickel-plated tube, with a suitable arrangement of valves between the needle and the manometer, is able to record the pressure, collect the fluid, and regulate its speed of outflow, without removing the manometer. Still more recently W. Kausch[3] has invented an instrument by means of which lumbar puncture, the injection of fluids into the subarachnoid space, and the estimation of the pressure of the fluid may all be accomplished without the escape of any of the latter from its containing membrane.

A "dry tap" is an indication that the needle has not reached its proper destination, or that its lumen is occluded (to avoid this contingency a stylet is used with the larger needles), or that the exudate is too thick to flow, or that the pressure of the cerebrospinal fluid is negative, as may occur when the cerebral portion of the subarachnoid space is shut off from the spinal portion by means of inflammatory adhesions or a new growth. The needle may wound the plexus of veins beneath the dura, in which event a few drops of blood will succeed the puncture, to be followed by the clearer cerebrospinal fluid. This event is to be differentiated from a true hemorrhagic condition of the cerebrospinal fluid by the fact that in the latter the blood is evenly distributed throughout the fluid. When the flow of the fluid is sluggish Curschmann[4] recommends the application of ice to the extremities as a means of promoting the flow. Not more than thirty c.c. of fluid should be removed at any one time, nor should the pressure of the fluid be allowed to fall below the normal.

In health the cerebrospinal fluid is colorless like water, of alkaline reaction, and of low specific gravity (1005 to 1007). It is continually under a tension consisting of two components, namely, hydrostatic and elastic pressures, the former depending upon the perpendicular position of the cerebrospinal axis, and the latter upon the elastic tension of the fluid within the body. The normal pressure is from 60 to 100 mm. of water (10 to 35 mm. of mercury). Chemically this fluid contains a small amount of albumin in the form of globulin (.02 to .05 per cent.), glucose and a trace of another copper-reducing substance, probably pyrocatechin, fat, cholesterin, chlorides, sulphates, phosphates, sodium lactate, traces of cholin, and occasionally urea. There is a larger amount of potassium as compared to sodium. The freezing point is — 60° to — 65° C. Microscopically the fluid shows an average of five cells per millimeter, chiefly leucocytes and endothelial cells. The amount of cerebrospinal fluid present in the body has not been determined.

The pathological conditions that cause variations in the appearance and composition of the cerebrospinal fluid are so numerous that one cannot make a comprehensive survey of them without an attempt at classification, as follows:

1. Diseases of the meninges; (a) acute inflammatory or infective meningitis, meningococcic, tuberculous, pneumococcic, streptococcic, staphylococcic, influenzal, typhoid, colon bacillus, etc.; (b) chronic inflammatory, tuberculous, or secondary to trauma, toxemia, or intoxications (alcoholic); (c) syphilitic meningitis; (d) acute traumatic meningitis, serous, or hemorrhagic, epidural, and subdural hematomata, pachymeningitis externa hemorrhagica; (e) malignant disease of the meninges; (f) epidural and subdural abscess; (g) meningismus (infections, intoxications, and reflex irritations).

2. Diseases of the brain and cord; (a) acute inflammatory, acute encephalitis, acute poliomyelitis, acute myelitis, abscess of the brain or cord, sinus thrombosis; (b) chronic productive, paresis, tabes; (c) malignant disease of the brain or cord; (d) cerebrospinal syphilis; (e) hemorrhage into the brain or cord; (f) functional neurosis, epilepsy, tetany, chorea.

3. Pressure upon the brain or cord by fracture, hemorrhage or new growth.

4. Ependymitis, acute or chronic, resulting in hydrocephalus.

5. Constitutional diseases: (a) chlorosis, (b) uremia, including eclampsia of pregnancy; (c) cutaneous affections.

A clear conception of the changes wrought in the cerebrospinal fluid by any of the above conditions is rendered possible by the consideration of a few general principles.

The pressure of this fluid is increased by all causes that add to its volume. These may be enumerated as follows: Ependymitis, congenital or acquired, causing hydrocephalus; the various inflammatory diseases of the cerebrospinal axis or its membranes; tumors of, or hemorrhage into, the brain, or fracture of the skull, that by pressure interfere with the proper drainage and consequent absorption of the cerebrospinal fluid; hydremic conditions of the blood, such as exist in chlorosis, in which there is an increased transudation into the ventricles and subarachnoid space; toxic conditions of the entire organism, such as uremia and lead encephalopathy, causing an irritation of the meninges and an increased secretion of fluid. Dependent upon the kind and severity of the disease, the pressure of the spinal fluid varies all the way from 200 to 800 mm. water (15 to 60 mm. Hg.)

The accompanying table, adapted from Pfaundler and Schlossman,[5] shows some of the marked differences of pressure in children as measured in millimeters of mercury:

	mm. Hg.
Normal infants	10 to 20.
" older children	15 to 25.

	mm. Hg.
Tuberculous meningitis—	
State of irritation and pressure	50 to 100.
State of paralysis	Not increased.
Meningococcic meningitis	Up to 50.
Suppurative "	Up to 40.
Serous "	Increased.
Chronic internal hydrocephalus	Up to 60.
Cerebral tumor	Sometimes increased.
Meningismus	Slight increase, maximum 45.
Functional neuroses	Usually increased
Sinus thrombosis	Often increased.

The cerebrospinal fluid is clear and transparent in acute and chronic serous meningitis, in syphilitic meningitis, often in meningococcic meningitis, and in paresis, tabes, hydrocephalus, uremia and chlorosis; and in tuberculous meningitis, clear, with a faint, cloudy coagulum that forms on standing. It may be slightly blood-tinged in hemorrhagic meningitis, malignant disease of the meninges, or of the brain or cord, and in fracture of the skull, or it may contain an abundant admixture of blood, in hemorrhage into the brain or cord. It may be slightly opalescent from a slight admixture of cellular elements, or may contain a considerable amount of pus, as in the various forms of infective meningitis, meningococcic, pneumococcic, staphylococcic, influenzal, etc.

On chemical examination the cerebrospinal fluid presents striking and characteristic changes in various pathological conditions. The copper-reducing substances, sugar and pyrocatechin, which are normally present to the extent of from .002 to .006 per cent., are completely absent in inflammatory conditions of the meninges, and gradually return as these conditions improve. Even in serous meningitis sugar and its accompaniment may be absent. The absence of these copper-reducing substances goes hand in hand with the process of exudation.

The estimation of the amount of albumin, which is normally present in the form of globulin to the extent of .02 to .05 per cent., is of diagnostic value in various morbid conditions. The following table, adapted from Simon,[6] shows the wide range of variations in the content of albumin:

Chronic hydrocephalus	Traces.
Serous meningitis	.05 to .075 per cent.
Tumors of the brain	Traces to .08 per cent.
Chronic hydrocephalus the result of hyperemia	.1 to .7 per cent.
Tuberculous meningitis	.1 to .3 per cent.

Mott and Halliburton[7] found that in paralytics the amount of albumin is increased threefold, and that nucleo-albumin, which is absent in health, is present in small amount. Two recent tests have been devised for the easy determination of this excess of globulin, namely, the Noguchi reaction and the ammonium sulphate ring test. The Noguchi reaction consists in boiling two parts of spinal fluid with five parts of a 10 per cent. solution of butyric acid in saline solution for a few seconds, and then adding one part of a normal sodium hydrate solution, and again boiling briefly. A granular or flocculent precipitate is obtained on standing. The ammonium sulphate ring test[8] is performed as follows: Two c.c. of a saturated solution of ammonium sulphate are placed in a test tube and 1 c.c. of cerebrospinal fluid is superimposed upon its surface as in the Heller test for albumin. A positive reaction consists in the formation of a thin, clear-cut grayish white ring between the two liquids, like a thin sheet of paper. This ring should form within three minutes and within half an hour its surface should show a delicate mesh appearance resembling a fine cobweb.

According to L. Merzbacher,[9] in paresis there is a marked increase in the amount of globulin, which increase is not found in tabes or in the other syphilitic or parasyphilitic conditions. This chemical difference is of diagnostic importance, for in all of these conditions a lymphocytosis is the rule. J. Billström[10] found this globulin increase in 100 per cent. of thirty-four cases of general paralysis, employing the technique of Nonne and Apelt for the fractional precipitation of albumin. This increase was also found in five out of seven cases of congenital syphilis in which the cerebrospinal fluid was examined by Tobler.[11] In suppurative and hemorrhagic conditions of the meninges there is also an increase in the globulin content of the cerebrospinal fluid. The following table constructed from figures given in Pfaundler and Schlossman[12] shows the differences in the content of globulin in children:

Normal finding	.02 to .05 per cent.
Tuberculous meningitis—	
State of Irrita'n and Pressure	.1 to 7 (aver. 2) per cent.
State of paralysis	Average 4 per cent.
Meningococcus meningitis	Increased up to 1 per cent.
Acute serous meningitis	1 per cent.
Chronic internal hydrocephalus	Normal.
Cerebral tumor	Often increased, exceptionally to 8 per cent.
Meningismus	Rarely slightly increased to 1 per cent.
Functional neuroses	
Sinus thrombosis	Oft'n somewhat increas'd

In tuberculous meningitis there is a gradual increase in the amount of globulin in the course of the entire process. It is to be noted that the globulin content is greater than 1 per cent. in exudations or tumors, and greater than 5 per cent. only in tuberculous and suppurative meningitis.

Within recent years some significance has been attached to the investigation, in various diseased conditions of the nervous system, of the amount of cholin which is normally present in traces. This has been detected in larger amounts by Donath[13] in cases of epilepsy, paresis, tabes, cerebral abscess, and other diseases. Coriat[14] found that the largest amounts of cholin are present in paresis.

From the diagnostic viewpoint, the cytological examination of the cerebrospinal fluid reveals the most important changes. In the acute infective forms of meningitis there is a polynucleosis of varying degree. This is strikingly seen in epidemic meningococcic, pneumococcic, staphylococcic and influenzal meningitis. In the tuberculous form lymphocytosis is the rule. In the later stages of the acute infective forms, where recovery occurs, there is a progressive increase of the lymphocytes together with a progressive diminution of the polynuclear leucocytes,[15] while in the tuberculous variety, if there is a mixed infection, polynucleosis occurs. A lymphocytosis is of eminent diagnostic significance in differentiating cerebrospinal syphilis and paresis, in which it is an almost constant accompaniment, from other diseases of the nervous system, chiefly functional, that may otherwise closely resemble them. In twelve out of fourteen cases of congenital syphilis, Tobler[16] found pronounced lymphocytosis. The importance of this lymphocytosis is emphasized by Waterman[17] in differentiating paresis from other psychoses, and in differentiating cerebral tumors from gummatous growths. An increase of lymphocytes is also found in multiple sclerosis, mumps, and herpes zoster. In a very small proportion of the cases of malignant disease

of the brain and cord, cancer cells may be isolated from the cerebrospinal fluid. Thus Sicard and Gy[18] report the finding of sarcomatous cells.

The bacteriology of the cerebrospinal fluid, while more difficult of investigation than the cytology, gives precision in the diagnosis of tuberculous meningitis, in which the tubercle bacillus is found in the spinal fluid in from 50 to 75 per cent. of the cases, and also renders possible the differentiation of the various acute infective forms from one another. The isolation of typhoid and influenza bacilli from the cerebrospinal fluid enables one to regard, as the result of a true meningitis, a set of symptoms that might otherwise have been regarded as a mere expression of meningismus. The diphtheria, and the colon bacilli, the streptococcus, staphylococcus, and the Bacillus pyocyaneus, have all been demonstrated, though rarely, in the spinal fluid. The tubercle bacilli are usually found by examining a portion of the fine fibrinous network that forms near the surface of the cerebrospinal fluid. This examination is facilitated by the process of inoscopy,[19] or the preliminary digestion of the fibrinous network by means of pepsin. Fürbringer[20] found tubercle bacilli in 70 per cent. of his cases.

The important diagnostic applications of lumbar puncture find a lesser rival in the therapeutic uses of this procedure. Although there are some observers who still cherish a sceptic attitude toward the therapeutic efficiency of lumbar puncture, yet the accumulating experiences of the last few years are sufficient to prove that tapping of the subarachnoid space may be distinctly curative, may serve to prolong life, or may relieve distressing symptoms. These effects may be attributed to one or more of the following agencies: (1) drainage, (2) diminution of the abnormally increased pressure upon the brain and cord (decompression), (3) the production of passive hyperemia of the brain or cord, and (4) as a preliminary step in the process of injecting antitoxic sera into the subarachnoid space.

There can be no doubt that in the acute infective forms of meningitis the drainage of the purulent fluid, loaded with microorganisms and toxins, is at any rate justified upon the ground of general surgical expediency. Unfortunately, in most of these cases, this procedure alone is insufficient to prevent a fatal outcome. Nevertheless, beginning with Lenharz in 1905, a number of clinicians have extolled the curative value of repeated lumbar punctures in meningococcic meningitis. J. v. Bokay[21] reports ten recoveries out of seventeen cases in children from this procedure, and attributes the happy result not only to the mechanical reduction of the cerebrospinal pressure, but also to the removal of bacteria and toxic substances from the body. He emphasizes the importance of repeated punctures, and states that in children no more than 30 c.c. of fluid should be withdrawn at any one time. As a step preliminary to the injection of antitoxic sera, lumbar puncture is indispensable. The Flexner serum has already amply proved its efficiency in meningococcic meningitis. It is quite possible that drainage of the infected fluid may account for those recoveries, unfortunately too few, that have been reported of influenzal meningitis. According to E. Schlesinger,[22] when tubercle bacilli of comparatively attenuated virulence are found in the cerebrospinal fluid the outcome following lumbar puncture may possibly prove favorable. He cites five cases that have been published in which recovery occurred. Sokoloff[23] reported in 1897 that a primary tuberculosis of the meninges may be cured by lumbar puncture. Similarly, Freyahn[24] reported cures. Stewart observed at least one case of ultimate recovery in which the tubercle bacillus had been demonstrated in the cerebrospinal fluid. There is one type of meningitis that is without question cured by lumbar puncture, namely, serous meningitis.

Drainage of the cerebrospinal fluid, if not curative, may, at any rate, serve to prolong life. This is true of the above forms of infective meningitis and hydrocephalus. In the latter condition the beneficial effects in diminishing the size of the skull and improving the mental condition have been plainly evident in a case reported by A. Gasparini.[25] In meningitis, the relief of the distressing symptoms, as accomplished by the process of decompression, furnishes one of the happiest services that lumbar puncture is called upon to perform. The severe headaches, vomiting, stiffness and pain in the back, the convulsions and other manifestations of increased intracranial pressure, are distinctly relieved by the removal of even a small quantity of cerebrospinal fluid. There can be little question that lumbar puncture has decided value in relieving the symptom-complex known as meningismus, which frequently accompanies the acute infectious diseases. This condition is often the manifestation of a true serous meningitis, caused by the bacteria or toxins of the primary disorder. The value of lumbar puncture in relieving the meningeal symptoms of typhoid fever has been frequently demonstrated, and it is now generally recognized that a serous meningitis is frequently responsible for the marked nervous manifestations of this disease. An excellent recent contribution to this subject is that made by R. Stein,[26] who reports three of his own cases of serous meningitis complicating typhoid, and also reviews the extensive literature. He believes that in typhoid fever spinal puncture has not been performed as frequently as its application seemed to warrant. Rocaz and Carles[27] extol the value of this procedure in the meningeal forms of typhoid fever in children, on the basis of eight favorable cases that they report. They also suggest that spinal puncture might be of service in the treatment of severe and prolonged headaches occurring during adult life. There is abundant evidence that the relief afforded by lumbar puncture is pronounced in the headaches and insomnia caused by syphilitic disease of the meninges, in the cerebral manifestations of uremia, and in the headaches of chlorosis.

During the past nine years many observers have reported the beneficial effects following lumbar puncture in cerebral uremia. A. E. Russell[28] states that there is evidence to show that the cerebral manifestations of uremia are dependent upon cerebral anemia produced by an increase in intracranial tension resulting from cerebral edema. The symptom-complex of cerebral uremia is almost identical with that of cerebral compression, namely, headache, vomiting, drowsiness, coma, convulsions, optic neuritis, *etc.* One of the first cases reported was that of a nephritic, in whom severe headache of one year's duration was completely relieved within two hours by lumbar puncture.[29] The frequency of cerebral symptoms in the course of chronic nephritis, and the discovery at autopsy of organic inflammatory changes in the meninges, have led R. Lépine[30] to discuss the possibility of the existence of a true uremic meningitis. In a case of uremia

with marked meningeal symptoms, M. A. Chauffard[31] has observed a distinct polynucleosis in the spinal fluid. Although this was only transient and therefore not a valid indication of the existence of a uremic meningitis, nevertheless it is an interesting contribution to our incomplete but growing knowledge of the meningeal states of uremia.

The opinions as to the value of lumbar puncture in the treatment of eclampsia of pregnancy have been varying. Audebert and Fournier[32] collected forty-four cases of the latter treated by spinal puncture and found that it undoubtedly benefits the cerebral factor of the fits. They state that lumbar puncture, which should be combined with the other more recognized measures, should be employed even when the coma is profound, but should not be delayed until too late. Thiess[33] states that seven of his fifteen patients treated by lumbar puncture died, a mortality of over 42 per cent. The pressure of the cerebrospinal fluid was unusually high in all but one case. The prognosis seemed to be better in the cases with lowest pressure. An effect from the lumbar puncture was evident in only a few of the cases. Profound coma was apparently relieved in some instances.

According to F. C. Eve,[34] the efficacy of lumbar puncture as a curative agent in certain obscure diseases of the brain has been suggested by the beneficial results that follow this procedure in a case of tetany. He states that the removal of spinal fluid, even when its pressure is normal, causes cerebral hyperemia, which in a variety of acute and subacute cerebral affections that have resisted other treatment, or have tended to become chronic, may have the same therapeutic efficiency as Bier's passive hyperemia in other parts of the body. Narbut[35] also reports a case of tetany cured by the removal of 50 c.c. of a sterile spinal fluid.

P. Savy[36] advises lumbar puncture in all cases of nervous disturbances possibly to be attributed to trauma of the skull, even if a long interval has elapsed since the primary injury. He attributes the good effects that he has observed in one case to the removal of decomposing blood, that accounted for the symptoms by its toxic effects rather than by its compression. R. Malatesta[37] similarly reports marked relief in nine cases of trauma of the head, and states that in all cases of such injury, in which expectant treatment is justified, lumbar puncture will permit the diagnosis of intracranial hemorrhage, and by repeated puncture the course of the latter will be determined. The puncture permits the escape of decomposing extravasated blood that produces toxins causing stupor, fever, and delirium, and at the same time relieves the compression. Babinsky and Charkow[38] report eight cases of optic neuritis of intracranial origin treated by spinal puncture with success in nearly all. They also recommend this procedure in post-traumatic and inflammatory intracranial effusions. When tumor is present, lumbar puncture is only palliative and alternative to trephining. L. Stephenson[39] also reports the good effect of lumbar puncture in optic neuritis. L. C. Ager[40] states that lumbar puncture is fully as useful in infantile spinal paralysis as in meningitis, and believes that by means of this procedure the improvement may be accelerated in the later stages.

As a means of relieving the severe and persistent headaches occurring in chlorosis, lumbar puncture was first advocated by Lenharz.[41] In the severe forms of this condition there is an increase in the amount and pressure of the cerebrospinal fluid, the pressure amounting to from 200 to 400 mm. of water. Lenharz reports that lumbar puncture relieved the headaches in one-half of his cases. Pruritus is another condition that has apparently responded to the therapeutic application of spinal puncture. P. Ravaut[42] states that a number of patients suffering from pruritus were cured by the withdrawal of from 6 to 8 c.c. of fluid. He ascribes the results observed to the modification of the blood-supply in the cord due to the withdrawal of the cerebrospinal fluid, with a consequent influence on the peripheral nervous system, thus confirming the theory of the angioneurotic origin of certain dermatoses and of pruritus.

It is hardly necessary to discuss *in extenso* the subject of the marked reduction in mortality that has followed the use of Flexner's serum[43] after a preliminary lumbar puncture in the treatment of meningococcic meningitis. It may not be amiss to allude to the fact that the use of antitetanic serum by injection into the subarachnoid space of the cord has not been found any more efficacious than hypodermatic injection of this serum.[44] The production of spinal anesthesia by means of cocaine and stovaine has demonstrated its practical utility in selected cases, and one need only refer for detailed information on this subject to Kroner's[45] recent admirable review of the literature.

There are very few fatalities that have been recorded as the result of lumbar puncture. In fact, so safe is this procedure generally considered that Waterman[46] performs lumbar puncture even in the out-patient clinic and in the office. It is desirable, however, that the patient be kept in bed for at least twenty-four hours following this operation. In spite of a faultless technique one may expect occasional disagreeable effects. In a large series of lumbar punctures, Klein[47] has observed no more serious results than occasional headache and slight nausea. Other writers have reported transient by-effects such as hemorrhage into the cord, lesions of the nerves, vertigo, headache, vomiting, irregular pulse, and pains in the limbs. H. Wolff[48] describes a case in which, five days after a lumbar puncture, abducent paralysis developed, and this he attributes either to the formation of an intracranial hematoma, or possibly to the entrance of blood into the spinal canal. Giarré reports a transitory unconsciousness that occurred in a case of hydrocephalus as the result of a too rapid drawing off of the fluid. Gumprecht reports two cases of death from respiratory paralysis occurring in children following lumbar puncture, in which the symptoms had pointed to brain tumor. The same author reported a case of the breaking of the needle owing to the sudden movement of the patient. The latter had pain and partial paralysis for a time, but no permanent ill effects.

According to W. Kaupe,[49] exceptional caution is necessary on suspicion of a tumor of the brain, on account of danger of hemorrhage into the tumor tissue, of variations in the intracranial pressure, and of the shutting off of the fluid in the ventricles from the rest of the cerebrospinal fluid. While as a rule harmless in tuberculous meningitis, lumbar puncture has been known to hasten the fatal termination. In cases of hydrocephalus it may do harm if the foramen of Magendie is occluded. It is important to note that in no case of lumbar puncture should too large an amount of fluid be allowed to escape, nor should the fluid ever be aspirated. According to Siemerling, a sharp fall of pressure and sudden

severe headaches are danger signals in brain tumor.

In reviewing the records of the Jewish Hospital of Brooklyn, of the eighty cases in which we have employed lumbar puncture for diagnostic or therapeutic purposes, I have selected a few whose brief histories here appended strikingly illustrate our own success with this measure in the diagnosis and treatment of many of the conditions mentioned in his paper.

Case I.—Acute serous meningitis secondary to autointoxication. M. H., male, age 16, admitted April 7, 1909. He was sick for ten days, with severe headache, fever, general malaise, and diarrhea. On admission he was very drowsy and apathetic and slow to answer questions. The head was retracted, the pupils were equal and contracted, the reflexes exaggerated, and the Kernig and Babinsky reflexes were present. The temperature was 102°; pulse, 100; respiration, 26. Between April 7 and April 9 the temperature ranged from 102° to 103.2.° and the pulse from 100 to 120. On April 9, lumbar puncture was performed and 15 c.c. of clear fluid were withdrawn under high pressure. The fluid was sterile. After that date the temperature gradually subsided, reaching normal April 10 and remaining normal, with a marked improvement of the patient's condition until his discharge from the hospital on April 14. In this case the beneficial effect of the lumbar puncture was quite apparent.

Case II.—Acute serous meningitis. A. M., 11 years old, was admitted August 15, 1909, with history of headache, fever, and vomiting, and presenting some rigidity of neck and Kernig's symptom. Two lumbar punctures were performed, 10 c.c. and 20 c.c. of cerebrospinal fluid, respectively, being removed. No bacteria were present. There were a large number of endothelial cells, indicating an irritative exfoliation. August 19, four days after admission, all the meningeal symptoms disappeared, thus attesting the curative effect of the lumbar punctures.

Case III.—Nephritis, uremia, hemorrhagic meningitis. R. S., female, age 55 years, was admitted with normal temperature, pulse, and respiration, with Kernig's sign, retraction of the head, and tenderness about the cervical vertebræ. She was at times apathetic and complained of severe headache and nausea. Although the kidneys responded to treatment the headache persisted. Two lumbar punctures were performed and cerebrospinal fluid was removed. The first contained blood. Both fluids were otherwise normal, except for increased quantity and high pressure. Immediate improvement followed.

Case IV.—Uremia. C. F., female, age 39 years, was admitted to my service on July 3, 1909. She was semiconscious and responded to questions. The cheeks were puffed and there was puffiness of lower eyelids. Pupils were equal and reacted equally to light. The reflexes were present and not exaggerated. On July 3 there were severe headache and nausea; on July 4, slight drooping of left upper eyelid. On July 6 there was involuntary micturition. On the same day there occurred convulsive twitchings of the extremities, lasting for seven minutes, and associated with unconsciousness. July 7, patient was in a stuporous condition, irrational at times and with loss of control of the bladder and rectum. On the same day lumbar puncture was performed, and there were removed 33 c.c. of a slightly flocculent fluid, which contained 100 per cent. lymphocytes, albumin 2 mm., and no sugar. There were no tubercle bacilli found and cultures were sterile. July 8, patient was much brighter. There were internal strabismus and conjunctivitis of the left eye. Eyegrounds examined by Dr. W. S. Simmons showed extensive recent hemorrhages in the right retina; left retina was normal. Lumbar puncture was again performed and 35 c.c. of a reddish and cloudy fluid were removed. This contained albumin, 4 mm. ring, no sugar, and traces of blood. Cultures were sterile and the cytology was pus. Prompt improvement followed both lumbar punctures. This case was undoubtedly one of a true meningitis complicating uremia, and strikingly exemplifies the form recognized by the French clinicians as uremic meningitis.

Case V.—Syphilitic meningitis. E. W., female, age 35, admitted with frontal headache, double facial neuralgia, pain and rigidity of the neck, projectile vomiting, and Kernig's symptom. On the date of admission lumbar puncture was performed and 30 c.c. of clear fluid under high pressure were removed. The fluid was sterile and lymphocytes were present. There were an immediate and marked improvement and relief of the symptoms. Two days later, 25 c.c. of fluid under high pressure were again removed with a slight relief of symptoms. The Wasserman reaction proved to be negative. An examination of the eyes showed choked discs and retinal hemorrhages, which were clear evidence of increased intracranial pressure. The history of acquired lues was absolutely denied but hereditary syphilis was suggested by the presence of insanity in one brother and imbecility in the child of another. The diagnosis in this case could only be based with some probability upon the cytology of the cerebrospinal fluid: the excess of lymphocytes in the otherwise normal fluid was presumptive evidence of specific meningitis. She was accordingly given mercury and iodides and responded promptly to the treatment. The physical examination and the clinical history of this patient had been such that without the lumbar puncture no diagnosis could have been made with any degree of plausibility.

Case VI.—Traumatic serous meningitis. L. R., 16 years old, admitted March 28, 1909. Three days before admission, while playing baseball, he was struck by a ball on the left temple, was unconscious for a few minutes, was soon able to walk, and was brought home. Since the injury he complained of dizziness, was apathetic, had severe headaches, and vomited at frequent intervals. Soon after admission a lumbar puncture was performed and 45 c.c. of clear and sterile fluid were removed under high pressure. The effect was prompt: his dizziness began to clear up, the headaches diminished, and otherwise general improvement was evident.

Case VII.—Serous meningitis. R. F., 56 years old, admitted to the hospital March 27. I saw her for the first time on the morning of the same day. She was in a semicomatose condition, her face was puffed and bluish, her temperature 100.2°, pulse 110, respiration 26. Pulse was of high tension. She would answer questions quite rationally, but while talking would fall back in a heavy sleep from which she could, however, be aroused. Immediately upon admission a lumbar puncture was performed and about 50 c.c. of clear fluid obtained under high pressure. The pathological report was as follows: Fluid is clear with a few fine fibrin flakes. Albumen light with one mm. ring. Sugar pseudo reaction. Cytology revealed lymphocytes. No bacteria. Cul-

ture sterile. Following the puncture, improvement was quite marked, cyanosis less pronounced, respiration less labored, pulse stronger, patient less drowsy and otherwise more comfortable.

Case VIII.—Acute traumatic myelitis. S. W., male, three years old, was admitted August 2, 1907, with the history that on the evening of July 27 he had been kicked by a boy in the neck. For the next two days he had fever, was restless, could not walk, and had severe headache. The head was retracted. On admission he was in a condition of extreme opisthotonos. A slight Kernig's sign was present. Lumbar puncture was performed and 22 c.c. of a sterile fluid were obtained, showing 2 mm. ring of albumen, and a slight reduction of Fehling's solution. The diagnosis of this case was traumatic myelitis, and improvement promptly followed spinal puncture.

I have cited the above eight cases out of a large number in which lumbar puncture was performed in the various services of the Jewish Hospital. I have not referred to the cases of cerebrospinal and tuberculous meningitis in which the application of lumbar puncture is a routine procedure. My object has been to call attention to the employment of Quincke's method in cases presenting meningeal or cortical irritation, cases in which the withdrawal of cerebrospinal fluid not only had a decided therapeutic value, but also rendered possible the interpretation of many symptoms in the course of different diseases.

In concluding this modest sketch, I shall be content if I have succeeded in showing the valuable rôle that lumbar puncture is called upon to play.

From the survey of the literature and from my own experience, I believe I may be justified in drawing the following conclusions:

1. Lumbar puncture is a simple operation, practically devoid of danger if performed with due aseptic precautions.

2. Quincke's needles ought to be added to the armamentarium of every general practitioner.

3. The latter should not hesitate to perform lumbar puncture in any case in which symptoms point to meningeal or cortical irritation.

4. The cytological and chemical examination of the cerebrospinal fluid can be performed by the physician himself or in any well equipped laboratory.

5. An early application of lumbar puncture will clinch the diagnosis in many cases, in some will bring decided relief, and in a few will even effect a cure.

Finally, I must express sincere gratitude to my associates in the medical service, to the pathologist and his assistants, and to the past and present internes of the Jewish Hospital for their cooperation in the clinical investigations.

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INSUFFICIENTIA PYLORI.

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Anatomically speaking the stomach represents an inverted, tapering bag with the widest part up and the narrowest part down. The narrowest part, the pylorus, is the lowest part of the stomach and this fact plays the chief role in the genesis of insufficientia pylori. The chief anatomical structures of the stomach are the muscular and mucous coats. The function of each of these differs from the other. The muscularis does the muscular work, this is the dynamic function, and the mucous membrane does the chemical work of the stomach. Both functions are equally necessary and there is a supposition, not founded upon truth, that the muscular function is the more necessary. The dynamic function is effected by the contracting muscle fibers; this and the following relaxation of such fibers is termed peristalsis. Although different ef-

fects are produced by such contraction, the force itself is elicited from the self-same source, viz., the contraction and relaxation of the muscularis of the stomach. The closing of the pylorus, the grinding up of the food and the propulsion of the food into the intestines is caused by the same agency, viz., the alternate contraction and relaxation of the muscular fibers. The introduction into the stomach of certain chemical agencies excites the mucosa which again excites the muscular layer. The excitement invariably causes contraction of the muscularis and the duration of the contraction depends upon the degree of the irritation. The contraction of the muscularis is, therefore, the answer to an irritation of the mucosa. Contraction is the active response to irritation; relaxation of the muscle is not an active process. Contraction of a muscle fiber, and the shorter the contracted muscle fiber is arranged in a circle the contraction, the shortening, of such a fiber will produce a shortening of the diameter of the space formed by the circular arrangement of the muscle. Hence a contraction of the circular fibers will cause a shortening of the diameter of the space formed by the circular arrangement of the fibers of the muscle of the stomach, which means that the caliber of the stomach cavity will be diminished at the point where the muscle contracts. The stronger the irritation the stronger the contraction; the stronger the contraction the shorter becomes the contracted muscle fiber, and the shorter the contracted muscle fiber the shorter the diameter if the muscle fiber is arranged circularly. Since one layer of the muscle fibers of the stomach is arranged circularly, hence, the diameter of the stomach aperture—the caliber—of the stomach will be diminished in direct relation to the irritation. Thus an irritation of the stomach produces a diminished caliber of the stomach cavity. Save, possibly in very violent irritations, the contraction of the circular fibers of the entire stomach does not happen all at once, *en masse*, but the contraction proceeds upon successive bundles of the muscle fibers. We speak of the wormlike contractions. The contractions are rhythmical and travel towards the pylorus and, when the contracting cause and impulse have reached the pylorus, this also contracts in identically the same manner, *i.e.* the caliber of the pylorus is diminished. But, as the normal aperture of the pylorus is only about ¼ inch, the contraction produced here causes the entire aperture to disappear; it has the effect of an annular contraction which is spoken of as the closure of the pylorus. This should be well remembered. The closure of the pylorus is caused by the peristaltic contraction of the stomach reaching the pylorus, *no other agency closes the pylorus.* What causes peristalsis of the stomach causes closure of the pylorus, the peristaltic wave having reached that section of the stomach called the pylorus. The relaxation of the contraction causes the pyloric aperture again to reappear. It is absolutely wrong to speak of an "opening of the pylorus"; there cannot be an opening, there is a relaxation, a recoil, when the contraction ceases. The relaxation, the reopening, of the pylorus is of a passive nature and ensues when the force of the contraction is spent. Let us not speak of an "opening" of the pylorus, but of a "relaxation" of the pylorus: the pylorus does not open, the pylorus relaxes. The thorough understanding of that distinction has its clinical significance. The relaxation results as a matter of course after a contraction. The contraction of a muscle constricts the vessels which run between the muscle fibers or hems the onward flow of their blood, thus damming back the blood and dilating the vessel beyond the constriction. The stronger the contraction, or the more persistent the contraction, the greater will be the interference with the circulation. The very small vessels will occasionally not be able to stand the pressure and stretching occasioned by the constriction just mentioned, and will burst, causing appreciable hemorrhage. It would seem that the varicose veins of the stomach owe their presence to the strong contractions and consequent constrictions produced thereby. The contractions are caused by irritation of the mucosa and the intensity of the irritation determines the degree of the contraction. Such irritation may be present already the first day of our life, produced by fermentation of the mother's milk and which may be due to only overfeeding. If we reflect over such condition we can easily deduce that prolonged pyloric contraction in an infant a few days old may cause agglutination and this give the so-called congenital stenosis.

When food or drink is introduced into the stomach peristalsis ensues. The peristalsis drives the food toward the pylorus, also it closes the pylorus. The force and the duration of the closure of the pylorus depend upon the irritation produced by the ingested matter. The stronger the irritation and the longer its duration the firmer is the closure of the pylorus. The effect is that the ingested matter is thrown against the closed pylorus, but it recoils back into the stomach cavity with the relaxation of the gastric muscularis. This constant throwing back and forth of the chyme causes its maceration, and the longer this continues the greater and the finer will be the grinding up of the food. This might be termed gastric mastication. This gastric mastication goes on in every healthy individual to a greater or lesser extent and is best illustrated in birds. Birds eat grains for the breaking up of which they have no other means than their stomachs and when we look at a bird's stomach we see the immense thickness of the muscular layer, whilst the mucous layer compares with the human. Here we have an illustration teaching that the stomach is capable of grinding up of the food as well as an illustration of the fact that such work depends on dynamic power, wherefore the muscular coat is so much thicker than the muscular layer of the human stomach. The grinding, the cutting up of the food is begun by the teeth and completed by the muscularis of the stomach. The more thorough the dental mastication the less masticating work will be exacted from the stomach. Here it will be necessary to dwell on the fact that the grinding up of the food represents solely mechanical work of the muscularis of the stomach and that such grinding up of the food is not produced by the chemical action of the juices of the mucosa. This I have repeatedly and invariably found in experiments with artificial digestion. Although the anticipated chemical results took place, the artificial chyme was never finely divided. But a very fine subdivision of the artificial chyme did result after I had stirred it up with a glass rod. In two cases I was able to demonstate that the very fine subdivision of the chyme was not due to chemical action. In these cases I aspirated a large quantity after the test breakfast: the solids settled on the bottom of the beaker as a

fine "floury layer," yet these contents were absolutely neutral (no mucus was present).

The discussion so far is intended to impress that the distinct layers which make up the body of the stomach have distinct functions, that the chemical function is performed by the mucosa and the mechanical, the dynamical, is performed by the muscular layer. Any changes of a chemical nature must be located in the mucosa, any changes of a dynamic nature must originate in the muscularis. Those acquainted with the physical appearance of chyme do know that the healthy chyme is very finely divided and ground up. This is a fact and no philosophical theory. Another fact is that we, as a rule, do not cut up the food so finely with our teeth. Therefore this fine subdivision must have taken place somewhere between the teeth and the pylorus, and, as the food does not remain long enough between the mouth and the stomach, hence, the grinding up could not take place between the mouth and the stomach. Nothing else remains but to acknowledge that the grinding up of the food into that fine floury condition occurs in the stomach. Having thus reasoned out something everyone knows we have to answer the question how does that grinding up take place. The answer must be that the grinding up is effected by the food being acted on mechanically before it can escape from the stomach. Therefore, we must assume that there must be some means which stop the escape of the food and that during such time the chyme is grasped by two surfaces between which the grinding is done. If the food could escape at every contraction of the stomach we could never have the finely divided chyme. The fact that such chyme is present evidences the presence of something which stops the escape into the intestine and this something is the pylorus. Grain is ground up by the bird and this proves that the stomach can do it provided the muscle is strongly enough developed, as we find it in the bird. We must imagine that the grinding up is effected by the food being thrown against a closed pylorus by the contracting muscle and, as the pylorus is still contracted when the stomach recoils, the food drops back into the cavity of the stomach, only to be acted on again by the contracting peristalsis of the stomach. The elements which enter into producing that grinding up are the stomach walls and the pylorus. The fineness of the chyme will depend on the power of the grindstone and the duration of the grinding. The stronger they contract the finer the product and, *vice versa*, the lesser the power of contraction the coarser the chyme. Conversely, the finer the aspirated chyme the greater was the peristalsis and the coarser the chyme the less active was the peristalsis. We thus must judge the mechanical, the dynamical ability of the stomach by the state of the subdivision of the chyme. A chyme finely divided proves greater peristaltic action than a coarse chyme. Also, the finer the subdivision the oftener must the same particles have been subjected to the grinding action of the contracting muscles of the stomach wall. In order that this prolonged action could be exercised the chyme must have remained within the stomach, which means that an effective barrier must have presented itself at the outlet of the stomach which should prevent the escape of the ingested food from the stomach into the bowel. In other words, in order to finely grind up the food the pylorus had to remain contracted whilst the food was being thrown back and forth. The natural inference is that in order to produce the floury looking subdivision of the chyme the chyme must not escape from the stomach, it must be kept back in the stomach and this results when the pylorus remains tightly closed for a sufficiently long time. Conversely, the fine floury subdivision does show that the pylorus remained closed for a long period, during which the peristalsis of the stomach continued unabated. Clinical experience also teaches that finely divided chyme and large quantities thereof go together. And the explanation is that the same agency that causes the fine subdivision of the chyme is also responsible for the largeness of the quantity, namely, the pylorus remaining closed longer than is usual. The prolonged contraction of the pylorus retains a larger quantity of chyme in a given time. Also, through and because of the prolonged throwing of the food back and forth the chyme is finely ground up into the floury condition. Clinically the condition of the subdivision of the chyme must be taken to be the expression of the muscular activity and, *vice versa*, the coarser the chyme the less active was the muscularis. It also stands to reason that the longer the pylorus remains closed the less chyme will pass through it in a given time and therefore the greater will be the quantity left in the stomach the longer the pyloric contraction lasts. It must needs follow that the relation between the contracted pylorus and the quantity aspirated from the stomach is that the longer the contraction of the pylorus lasts the more chyme will be aspirated. But as the duration of the pyloric contraction depends upon the irritation we must conclude that the stronger the irritation the longer the closure of the pylorus, the greater the quantity of chyme in a given time; the quantity of the chyme depends upon the state of the closure of the pylorus. This reasoning leads us to the conclusion that the larger the quantity we aspirate the longer was the pylorus contracted and, inasmuch as the closing of the pylorus is effected by peristaltic motion and as a prolonged closure would mean a more protracted, stronger and severer irritation of the pylorus, therefore, the larger the quantity we aspirate the stronger was the pyloric contraction, the stronger was the peristalsis. Therefore the quantity within the stomach depends upon the peristalsis, the motility of the stomach. The more irritating the ingesta or the more readily the mucosa responds to irritation, the quicker, the more prolonged will be the closure of the pylorus. The longer the pylorus remains closed, the less chyme can be emptied beyond the pylorus, the more chyme will remain in the stomach in a given time. Consequently, the quantity of the chyme depends entirely on the relative state of the pylorus. *Whenever a large quantity of chyme is aspirated and the solids settle on the bottom in a layer of very fine subdivision, the "floury layer," we are dealing with increased peristalsis and a prolonged, spastic contraction of the pylorus and the pylorus is then in the condition of "stenosis pylori ab irritatione."* This last mentioned condition is the one which, in the first days of our life, may result in the coalescence of the spastically apposed and inflamed mucous surfaces, thus producing total occlusion of the pylorus. The greater the peristalsis, the motility, the stronger the contraction of the pylorus and the larger is the quantity aspirated. *When after a test breakfast we aspirate a large quantity such fact shows not only that there is no atony but proves the presence*

of the very contrary condition, the presence of hypertony.

Having come to the conclusion that a large quantity of chyme depends on an increased peristalsis the inference therefrom necessarily is that the negative of this proposition will be the cause of negative results. That is that diminished peristalsis will be the cause of a diminished quantity. When the increased irritations of the pylorus, when the repeated spastic contractions finally begin to weaken the pylorus, then a gradual relaxation of the pylorus sets in. This weakening and relaxation progresses until the stage has been reached when stomach and duodenum form one continuous canal, showing no line of demarcation and the ingested food passes from the stomach into the bowel by mere gravity. The transition period from the just setting in of pyloric relaxation until the supervening of absolute relaxation may occupy years in its formation, so that between the stenosis pylori ab irritatione and the complete insufficiency of the pylorus all the intervening gradations are seen. We must not assume that a complete insufficiency takes place over night. Accordingly, we find gradations as to quality and quantity of chyme corresponding with the degree of the insufficiency; the chyme gets coarser and the quantity gets less. A chyme which looks "spongy," "mushy," after being aspirated shows the early stage of the beginning of insufficiency and the quantity of such spongy chyme gives a guide in the estimation of the progress of the insufficiency. A spongy appearance of the aspirated chyme shows that the weakening of the pylorus has already begun.

We have accepted the Ewald-Boas test breakfast as the standard of comparison and, accordingly, wait one hour after the ingestion of the roll and water. The presence of chyme after one hour is interpreted one way and the absence of such chyme is interpreted a different way. Einhorn called attention to this last-named condition and introduced a distinct type of a gastric pathological condition based upon the absence of chyme after one hour and termed such condition achylia gastrica. Einhorn teaches not only that there are no contents or a scarcely appreciable quantity one hour after the test meal, but adds that such stomachs have no secretions at all and also adopts the synonyms of anadenia gastrica and atrophy for his achylia. Such teaching is erroneous. Those cases in which, according to Einhorn, the diagnosis achylia should be made because of the assumption of the absence of all glandular secretions show mostly good digestion and the presence of the expected chemical changes, if we aspirate the stomach sooner than one hour after the eating of the test breakfast. Such being the fact, we cannot call a stomach atrophic or suffering from anadenia if we find good digestion at an earlier period. If it is achylia gastrica or anadenia gastrica one hour after the test breakfast it is so at all times.

The existence of insufficiency of the pylorus is now recognized by others besides me, viz., Boardman Reed, A. L. Benedict, Palier, and others, but these still cleave to the achylia gastrica as well. Now, achylia gastrica and insufficiency of the pylorus are absolutely incompatible; there is no room for both; either the one or the other must go. I do not deny the existence of atrophy of the mucous membrane of the stomach, but I do deny the existence of achylia gastrica. Of course, I do not claim to have discovered insufficiency as such and in my first article I mention Ebstein as the real discoverer. But Ebstein is wedded to the idea that insufficiency is either due, as in his case, to retrogressive changes after cancer or to the mystery of all medical ignorance, to nervousness. What I claim is that insufficiency is the natural sequence of a previous pyloritis, that insufficiency follows the previous stenotic condition of the pylorus, that insufficiency of the pylorus is one of the most frequent causes of what so indefinitely and with bad grace is called indigestion, that insufficiency of the pylorus is hitherto the most baffling cause of many of the otherwise inexplicable phenomena of man's misery. It was my dissatisfaction with the result of the orthodox treatment of achylia gastrica that caused me to inquire into the conditions of the stomach. Had my patients recovered under the treatment advised for the achylia I am almost sure I would still be an ardent supporter of achylia. But, unfortunately, there is no cure for achylia.

Diagnosis.—When, one hour after the test meal has been eaten, the aspiration yields either no contents at all or one or two cc. of coarse pieces imbedded in mucus the diagnosis of insufficientia pylori is to be made. If no contents at all are aspirated it becomes our duty to search further, and this with double purpose. First we must ascertain the degree of the relaxation of the pylorus, and, secondly, we must make sure whether there is no glandular activity left in the stomach. This is accomplished by giving the patient repeated test meals, one day after the other and shortening the time of waiting between the eating of the test meal and the aspiration by 15 minutes. If we can aspirate no contents even 15 minutes after the eating of the test meal we have the patient come the following morning and, after the test meal, have the patient lie down on his left side for 15 minutes. Very often the stomach, which had no contents the previous day, after 15 minutes, will yield some contents now, when the posture of the patient is changed from the upright to the horizontal. But also this may prove unsuccessful and the patient is made to come again the following day and is now given a coffee test meal, which consists of 200 c.c. of a black infusion of coffee (the coffee should be made strong) and 35 gm. of plain, unbuttered, fresh roll (the roll should be only of flour and water). After this coffee breakfast the patient again lies down, as on the previous day, for 15 minutes. If there is no complete insufficiency, if the pylorus is still capable of answering to stimulation, the coffee will do it. I will here insist that the test meal shall be of nothing else than roll and water and that the test meal shall be eaten in the office of the physician. The roll should be exactly weighed and the water, 300 c.c., shall be exactly measured by the physician. Under no circumstance, if the physician expects to get good results, satisfactory to himself and patient, should the patient be allowed to have a slice of bread and a glass of water or tea at home and come thus prepared for the examination. Such a procedure is a fraud upon the patient and upon the general practitioner who seeks the advice of the specialist. First of all it is the duty of the specialist to positively ascertain whether or not the stomach is actually empty after the prescribed fast of 14 hours. The stomach may or may not be empty; the stomach may have food from the day or even days before; it may be a case of gastroxynsis; the stomach may contain a quantity of mucus; it may

contain quantities of mold. The patient is entitled to get all this information, he pays for it. So is his physician entitled and both the patient and the physician are deceived if they do not get such information. Again, a slice of bread in one case need not necessarily be of the same weight as the slice of bread in another case. The same holds good with respect to the quantity of water. Under no condition should the patient get anything else than water; the black tea, which a good many allow, does cause contractions of the stomach and, besides, already introduces organic acids. Absolute exactitude should be demanded of the specialist; guesswork can be done by the general practitioner himself without the aid of the specialist and without paying for it. One must not expect exact results from inexact methods, unless he intends to palm off on the patient or general practitioner the famous diagnosis, "nervous dyspepsia." Furthermore the very exercise of the walk or ride from the patient's house to the physician has its influence upon the action of the stomach.

The fact that I could aspirate some contents, if the patient lay on his left side, when there had been no contents the day before when the patient was in the usual sitting posture shows that the posture had a decided influence. One surely would not dare assert that the "hypermotility" which is made to explain the absence of the chyme in the stomach, operated only in certain positions of the body. My intention in changing the position of the body is to change the lowest point of the stomach. In the sitting or standing posture the pylorus is the lowest, but when one lies down on the left side the lowest point of the stomach is shifted to the fundus. Therefore, the ingesta gravitate to the fundus in the last-mentioned position, but they do gravitate past an open pylorus in the normal sitting or standing position. We have in this change of position a positive proof of the operation of the purely physical principle of gravitation in an open pylorus. This fact must be impressed on the physician, that the mere change in the posture produces a vital change in the gastric manifestations. Sitting or standing, the picture of achylia; lying down and there is evidence of digestion. It is hardly conceivable that the gastric mucosa, atrophic in one position of the body, magically regains the lost glands if the posture of the patient be changed. To counteract gravity is why I place the patient on his left side. To find chyme then when there was none when the patient was sitting sufficiently testifies to the correctness of the view that the escape of the ingested matter through the pylorus was not due to anything else but gravity. If nothing else, this test alone is sufficient to prove the existence of the insufficiency of the relaxed condition of the pylorus. Another test for the diagnosis of the insufficiency is the inflation of the stomach by carbon dioxid or ordinary air. The first is done by giving the patient half a teaspoonful each of tartaric acid and bicarbonate of soda; each chemical is given in half a glass of water separately, and each is drunk separately, one after the other. Ordinarily the gas evolved will distend the stomach. But if there is insufficiency the gas escapes beyond the stomach and fails to distend the stomach. The same result is obtained by inflating the stomach by means of the double rubber bulb.

Insufficientia pylori has had to stand the test of time and until the appearance of Moullin's article ("Pyloric Stenosis and the Conditions of the Pylorus During Life," *Lancet*, Jan. 19, 1907), five years after my first publication. Moullin tells us that he has made it a practice to examine the condition of the pylorus whenever the opportunity presented itself during laparotomies. He writes: "For some time past, whenever I had occasion to open the abdomen for the purpose of operating upon the stomach, I have made it a practice to examine the pylorus as thoroughly as I could. I found that the size of the pylorus varied from that of a channel, which could easily admit three fingers, to that of a tiny orifice. The former was in a patient of whom the pylorus was so indefinite that it was difficult to find. The sphincter could scarcely be felt, and the stomach and intestine seemed to form one continuous canal without a break." Moullin, apparently, was not interested in insufficiency, but he says: "Between these two (the channel wide pylorus and the pylorus in which the orifice could scarcely be felt) I have met with every grade." In other words, based on actual experience of laparotomies and autopsies, and therefore based on indisputable evidence of facts, not theories, Moullin asserts exactly what I had repeatedly stated, that there is a channel wide pylorus, hence there is the actual presence of the insufficiency which I have been preaching since 1902, and that there are several stages of insufficiency, at which conclusion I arrived not from autopsies, but from reasoning and deductions from clinical facts.

As to the etiology of this disease we need think only of that: what will cause a pyloritis will subsequently if not checked terminate in an insufficiency. The chief causes are: 1. Organacidia gastrica; 2, Chronic alcoholism, and 3, deficiency of teeth. In a recent article "Does zymosia gastrica solve the problem of tuberculosis?" (*N. Y. Med Jour.*, Aug. 7, 1909), I have found in a series of 100 unselected cases that came to the Tuberculosis Clinic of the New York Board of Health 78 patients to have insufficiency of the pylorus. Whether tuberculosis enters as an etiological factor is as yet hard to say. But it is surely worthy of note that 78 per cent. did have such a condition and therefore, in a case of pulmonary tuberculosis complicated by digestive disturbances, insufficiency of the pylorus might be presumed to be present. Anything which will cause an irritation of the pylorus will, if long continued, produce an insufficiency.

The symptoms of this condition can be summarized under two headings:

1. Symptoms which arise from causes within the alimentary canal and, 2, causes from without the alimentary tract. The causes operating within the alimentary canal may be of either a chemical or a physical nature or of both. The causes which operate outside the gastrointestinal canal are of a physical nature and due, mostly, to pressure exercised upon the neighboring organs. It is to be observed that the insufficiency per se gives no symptoms whatsoever. The symptoms are elicited from the fact that the relaxed pylorus permits of the passage of food from the stomach into the intestines in a condition entirely not contemplated in the anatomical make up of the body. True, medicine borrows from the charms of poetry and assumes that the bowel will assume "vicariously" the office of the stomach. But such assumptions have no basis of facts to support them. A little meditation over facts, as they are, will preclude such violence to be pepetrated against the laws of chemistry. The stomach digestion is acid, the intestinal

digestion is alkaline. Foods, being in their last analysis only chemical compounds must need be acted on differently by acids than by alkalis. The component chemicals of what makes up food and which are acted on by acids could not possibly yield the same result as when acted on by alkalis. The rudimentary laws of chemistry are set against such familiarity as exchange of courtesies. Neither has anyone yet been able to prove the existence of an alliance between the stomach and the bowel. If the food now enters the bowels without having been properly prepared certain changes must occur in the food for the very reason that such food elements which require the acid or pepsin digestion cannot be acted on by the alkaline digestive juices of the bowel without deleterious manifestations. This so-called intestinal indigestion is manifested because of the formation within the bowels of noxious chemicals of a solid, liquid or gaseous nature. Their effect is irritation of various degrees of the mucous membranes and distension of the bowels.

In accordance with the severity of the irritation the symptoms will vary from a slight and undefined uneasiness to rawness, burning, severe pains, spasms and colics. The overproduction of gases within the bowel gives the sensation of hollowness and sinking, if the quantity be moderate, and the sensation of painful stretching, fullness, dead weight, if the quantity of the gas is large. The causes for the symptoms which operate outside the intestinal canal are due to the laws of physics and are produced by pressure upon adjacent structures or by pulling. This latter condition obtains when the bowels, due to their being overdistended, pull away from their moorings and in so doing pull taut the mesenteric attachment to the spine, producing pain in this region which is referred by the patient to the loins.

Summarizing, the symptoms usually are as follows: Headache, vertigo, anorexia, nausea, dryness in the throat, burning in the mouth, bitter taste, especially in the morning, eructation, singultus, a choking sensation in the throat, weight, pressure, weakness or pain in the region of the stomach, shaking or running around in the bowels, flashes of heat and cold, constipation or diarrhea, painful breathing, palpitation, fainting or fainting sensation, sharp pains above the heart, tenesmus, pain in the sacral region. Of all these symptoms I wish to explain in detail the cause of the diarrhea, fainting, sharp pain in the region of the heart, and the tenesmus. These symptoms are complained of most frequently and have been so variously and erroneously interpreted. It is usually assumed to be due to "nervousness." But the true cause for the diarrheas, which in one of my cases had lasted for over 8 years and gave the patient admonitions of the presence of his bowels of from 10 to 20 times a day, is the presence and formation within the bowel of organic acids, which acids also produce the tenesmus and the pain in the sacral region. The palpitation, fainting, the sharp pain over the region of the heart, are due to pressure against the heart by a strongly inflated bowel or stomach or of both through the diaphragm. The heart is somewhat pyramidal in shape with the apex down and rests upon the dome-shaped diaphragm. A distension of the bowels or stomach pressing upward against the diaphragm will and does produce the pressing of the heart against the unyielding chest: the heart is squeezed, like in a vise, and the heartbeats now become perceptible both subjectively to the patient and objectively upon the abdomen. The sharp pain in the heart is due to the compression of the coronary artery produced by its being pressed against the chest wall; just as soon as the pressure ceases after copious eructations the pain in the heart also ceases. The fainting and faintness are likewise due to compression of the heart by the gases just mentioned. There is one more symptom, very frequently present in insufficiency of the pylorus, that is the excitability, the "nervousness" of the patient. My explanation to my patients, which has always satisfied them, is this: We must realize that the nervous system is not a special and separate organ and that it does not get its nourishment from outside the body, but, on the contrary, is part and parcel of our own bodies, deriving its nourishment from the same sources as the rest of the body. If now, the nourishment is bad, because of the insufficiency, how could we expect the nervous system to make an exception and not suffer with the rest of the body? Why, it stands to reason, without delving into the many occult mysteries that the nervous system suffers equally with the rest of the body, because of getting no better nourishment. It is not a case of "nervousness" but of the suffering of the nervous system together with the rest of the body.

The prognosis is very favorable. Once the disease is recognized and the proper medication instituted there is no failure. Indeed, betterment occurs too soon, often within 36 to 48 hours without the use of any of the so-called symptomatic treatment. My experience has proven that getting better too soon is not good for the patient. But I could not possibly or conscientiously do otherwise. I always warn my patients not to overbear and not to get "fresh," to use a select expression. Patients who had suffered for a great many years, in one case over 40 years, and who had to go on a starving diet or suffer the consequences after an inroad of a meat diet, began to feel well very shortly. Pain and distress begin to disappear almost at once; but absolute recovery, *i.e.* the return of the contractility of the pylorus, takes several months. The younger the person the sooner the recovery.

Treatment.—I believe that a little of the history of my treatment will be appreciated. When one examines the stomach contents, if there be any left, and finds the absence of free HCl., one is at once tempted to supply that deficiency. Such also is the teaching of achylia which I had faithfully followed. Somehow or another I found that patients did not care to recover under such treatment. Finding myself baffled and the patients gone to seek other advice I resolved to try a novel trick. I argued that, if the stomachs are so refractious and do not care for my ministrations, I shall disregard them altogether and see what I can accomplish by catering to the bowels. I had no distinct idea what might follow; my wish was to help my patient, indirectly if not directly. Lest I forget it I wish to state here that this reasoning took place before I evolved the presence of the condition of insufficiency. Of course, my treatment now had to change from acid to alkaline, agreeably to the dictates of physiology. Such is the history of the alakaline treatment of insufficiency of the pylorus which has given me most excellent results.

The treament for the insufficiency of the pylorus is alkaline. The most prominent of all alkalis is our

old standby, bicarbonate of sodium. Next is magnesia and, in conjunction with these, rhubarb and pancreatin. Ammonium chloride might be tried, so also asafetida. Bismuth and bicarbonate of sodium, of each ten grains, can be used occasionally. With the so-called intestinal antiseptics I have no experience; I get along excellently well without them. If we find that the insufficiency is not very far gone, if there is good digestion about half an hour after the test meal, we might find it work well to prescribe some bitters with HCl. before meals: Cinchona, condurango, gentian, nux vomica. But, if the insufficiency is far advanced, if even 15 minutes after the test meal no contents are found in the stomach, then the bitters, especially the nux vomica, should be given before meals without the HCl. It is absolutely necessary to be sure when to administer the alkalis and this can be ascertained only after repeated test meals. We certainly do not want to interfere with what stomach digestion is still present by giving the alkalis too soon and thus destroy the gastric acidity. But if the occasion warrants the alkalis should be given right or soon after meals. The same drugs, and the same doses act differently if administered at an improper time. I do not wish to give the doses of these drugs, as the dose will vary with the individual and with special condition under which the individual patient may live; every physician should find this out for himself. Different environments, different races, different physical conditions, different altitudes, different climates require different dosage, nay, and different drugs for the same pathological condition. There are two drugs which are not always fully understood and appreciated by the profession. These are atropine and strychnine; both should be pushed to their physiological limits. The usefulness of each drug is well defined. Atropine, in gas distension, and strychnine in insufficiency without gas distension. A less reliable guide is to use atropine when HCl is present and strychnine when HCl is absent. In the chronic diarrheas which I have mentioned before, strychnine acts as a specific. I seldom begin with less than a twentieth of a grain of strychnine and increase up to the point of tolerance. In the chronic diarrheas I try to reach a very large dose as soon as possible, and I have given in such case one-sixth of a grain three times daily; I try to reach that dose at about the end of the second week. I have always cured the chronic diarrheas, of years' standing, in less than four weeks. I proceed at once with the following old mixture: Fluid extract of hematoxyl, eight drams; aromatic sulphuric acid, two drams; paregoric, an ounce and a third, and syrup of ginger, up to six ounces. Of this a tablespoonful is to be given every two or three hours until the diarrhea has stopped, which usually happens after a few doses.

The question of diet is of great importance and whilst the diet which is permitted is quite liberal, certain restrictions are absolutely essential. The principle underlying the diet is to avoid ingestion of irritating food or of food which easily becomes irritating when within the alimentary canal and also to avoid such food and drink which contain or form gases. Therefore the prohibited list should contain all spices and seasoning, sour pickles, sourkraut, dishes which are prepared sour, all sorts of salad, tea, coffee, chocolate, cocoa, too much salt, meats fried in animal fat, bread baked with the bran, as Graham bread, whole grain bread, beans, peas, cabbages, barley, oatmeal, hominy, all fruits in whatever style they may be prepared and served. I must also warn against the use of much milk. My objection, verified clinically, to whole grain bread, cabbages, and other cereals which are eaten with the cellulose, is that the cellulose ferments and forms irritating gases. Milk also forms gases. Fermented liquors as beers and wines must be forbidden. Distilled liquors do not ferment and therefore do not form gases; they can be taken well diluted. I do not mean to advise it, but occasionally, when the patient does crave it it may be allowed. Where the patient has defective teeth, this must be remedied artificially. If the patient is too poor then he should have his cereals and vegetables cooked, well done, in the form of puree and the meat should be chopped very fine either with an ordinary knife or with the food chopper. I usually have the patient prepare the meat the way he likes it, then have it chopped fine and then mix it with the gravy. Objection is met with when stewed fruits are forbidden, because of the fact that we have grown up in the belief that such fruits are good for the bowels. This comes from the fact that we had not stopped to inquire into the modus operandi. The fruits do act on the bowels, because of the acids which they contain and form. It is these acids which whip the already overworked bowels into forced activity.

After eating the patient should lie down either flat on his back or somewhat inclined on his left side; not on his right side. The object of this is to keep the food away, by gravity, from the pylorus. On lying down the food gravitates toward the fundus, especially so if the patient lie on his left side. Neither in this nor in the ordinary condition should the person, if he can help it, walk after a meal; everyone should, if he can, lie down and rest after a meal; the animal does it instinctively.

Extragastric faradization and cautious massage may prove of benefit in many cases. Where there is much mucus, lavage should be practiced until the stomach is clean.

If one follows the instructions here given as to diagnosis and treatment, which are based upon a scrutinizing experience of some ten years and upon hundreds of successful cases, one will soon find an ever more restricting number of neurasthenics, hysterics, and nervous dyspepsias.

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SOME PECULIAR RESULTS OF EYE-STRAIN.

By WILLIAM MARTIN RICHARDS, M.D.,

NEW YORK.

The first time a fellow practitioner suggested to me the possible ocular origin of some constitutional disturbances I told him he was crazy, but have since come to the unflattering conclusion that I was speaking of the wrong man, as the results in the following cases are unquestionable and the names and addresses of the patients at the disposal of any doubting Thomas who may still hold opinions similar to those I once held.

Disorders of Sleep.—Whenever my patients complain of sleepiness or sleeplessness I make it a rule to examine their eyes, and the correction of any refractive errors almost invariably relieves such symptoms.

Case I.—My own. My entire family will sleep

ten hours if allowed. Several months before my term of service expired at Bellevue Hospital I had to leave the staff, as I had become so run down as to contract typhoid fever. Up to the time I put on glasses unless I went to bed at 10 P. M. I could do no intellectual work the following day, and on attempting to read or study anything at all difficult would become mentally confused, feel tired, and have to cease work. I do not remember having any headaches or pain in the eyes, and considered my eyes extremely good for I could see every bullet hole on a target at sixty-five yards. At my request the assistant professor of eye diseases in the medical college which I attended examined my eyes by means of test letters without a mydriatic and informed me that I might be a little far-sighted, but that he would not advise glasses. All through the medical school I would occasionally get to a point where I could not work any longer, and, unable to sleep, would finally cure myself by spending a day in the open air riding a bicycle. On leaving the medical school I entirely ceased all studying, and practically never resumed it until I put on glasses. I slept nine hours every night if possible, and unless at work, would take an hour's nap in the afternoon. These periods of sleepiness were frequently replaced by fits of insomnia, particularly if doing much work, so that on retiring there was always the haunting apprehension that I might lie awake the greater part of the night. Often I woke up at one o'clock in the night and was unable to sleep again, although I was apparently in the best of health. After beginning the use of a mydriatic the results were so surprisingly different and better than without it that, in spite of the fact that I had 20/10 vision with either eye without glasses, it seemed best to take a dose of my own medicine, and on testing my eyes with a mydriatic, which had never been done before, I was surprised to find that, under the mydriatic my best vision was O.D. + .75 + .37 cyl. axis 75, O.S. + .75 + .25 cyl. axis 90. On wearing the cylinders I not only could study all day, but actually wanted to study all day, and now I sleep on an average seven hours and a half out of the twenty-four, with no inclination to sleep during the day.

Case II.—Man. Age thirty-four. Bookkeeper. He telephoned me on September 9 that he was drinking heavily and for the first time in his life was unable to stop. He also said he had been unable to sleep for two nights. I emptied the stomach with a hypodermic of apomorphine, and within the next thirty hours he took 960 grains of bromide of ammonia, 2½ drachms of antipyrin, and 1 pint of liq. ammon. acetat., during which time he was still unable to sleep. As he wished me to fit him with glasses, and I intended doing so the following day, I determined to try the effect of paralyzing his muscle of accommodation, and instructed the nurse to instil in his eyes every seven minutes for one hour one drop of the solution which I use for mydriatic tests. This was done from 8:45 P.M. till 9:45 P.M. At 11:15 he dropped asleep and slept till 9 A.M. the following day. His correct refraction was: O.D. —1.37 +1.87 cyl. 100, O.S. —.87 +1.50 cyl. 87½. A letter from him a few days ago says that he has had no trouble since.

Case III.—Man, twenty-five years old. University instructor. All his life a long sleeper. He consulted me in November, 1908, for a small posterior polar cataract, slightly on one side of the center and not interfering with his vision at all. He was wearing: O.D. —5.0 —.50 cyl. 180, O.S. —.50 —.50 cyl. 180; on being fitted with: O.D. —6.0 — 6.2 cyl. 180, O.S. —.75 cyl. 175, he has ever since slept but eight hours each night instead of nine and a half or ten hours as formerly.

Many other cases could be mentioned, but the above seemed to me to indicate the possibility that one of the principal functions of sleep may be the resting of the muscle of accommodation of the eye.

Posterior Nasal Catarrh. For several years after graduation I saw so many unsuccessful results in the treatment of catarrh that I came to the conclusion that it was incurable, until I sent several cases to a specialist who cured them with a double inferior turbinectomy. Four years ago I began to do this operation myself. Most cases of posterior and anterior catarrh recovered, but occasionally a case would be quite relieved in every way, but would still have considerable discharge in the posterior nares, and accumulation of mucus in the nasopharynx in the morning, which no treatment seemed to relieve. In all cases of this kind in which I have tried it, correction of existing ametropia entirely relieved these symptoms. Following are the histories of three cases:

Case I.—Man, age thirty-two. Foreman in phonograph factory. Was brought to me by his dentist to remove his nasal stoppage, in order to relieve the lateral crowding of the teeth, caused by mouth breathing, as free nasal breathing was necessary to ensure the permanency of the dental work. Two months afterwards the dentist telephoned me that the nasal stoppage was entirely relieved, but that the patient had considerable postnasal catarrh. I examined his eyes and prescribed: O.D. +.12 +.37 cyl. 70, O.S. —.12 +.50 cyl. 78. In one week the postnasal catarrh disappeared. It invariably returns if he breaks a lens and lasts until the lens is replaced.

Case II.—Woman, age thirty-seven. Came to me for catarrhal deafness. I performed a double inferior turbinectomy, and fitted her with glasses. She recovered her hearing entirely, but she had 6° esophoria. I put 3° prisms, base out, in each eye. This gave her an immense amount of postnasal catarrh, which returned to normal on removing the prisms.

Case III.—Woman, age thirty-one. I performed double inferior turbinectomy on her in February, 1907. For the past year she has been wearing glasses for compound myopic astigmatism. She says she always knows when her glasses need changing because she then has postnasal catarrh, which disappears as soon as the correct change is made in her glasses.

Hoarseness.—Case I.—A girl of thirteen consulted me on July 29, 1908, with the following history: She had been quite well up to five years before when, while reading, she suddenly felt short of breath. She always had to sit in the front row at school to see the blackboard. These symptoms continued until the previous April, when she became very hoarse, and this condition remained unchanged in spite of all attempts to relieve it. With test letters she could see 20/100 with the right eye and 20/200 with the left eye. As well as I could ascertain on account of her amblyopia her refraction with a mydriatic was: O.D. —1.75 —.50 cyl. 170, O.S. —2.50 cyl. I ordered this correction. She objected to glasses unless they had gold frames, which she was then unable to buy. On the 11th of August, as she had

considerable nasal catarrh, I advised that double inferior turbinectomy should be performed, feeling sure that the reestablishment of nasal breathing would correct the congestion which I found in the vocal cords. I was greatly surprised that the voice did not improve, as she had perfect health and no signs of tuberculosis of the lungs. In the following October her hoarseness was as bad as ever, and she finally bought glasses. Shortly afterwards her sister informed me that the girl's voice became as clear as ever within a week after wearing the glasses. Her voice remained clear and was still so to date of writing (January, 1910), in spite of the fact that her refraction had changed slightly.

Case II.—Woman, age twenty-two. Vaudeville actress. Came to me in June, 1909. Her family for four generations gives a history of migraine. The mother at sixty-one years of age began to lose her vision from cataract, and at the same time her voice, previously very good, became so husky that she was unable to sing at all. The patient's voice, a soprano, had been perfect up to six months before coming to me when she noticed that it was not as good as usual, and three months later on singing a high note, previously very easy to her, she felt she did so with difficulty. Two or three days after that her voice became husky and it remained so up to June 10, when she consulted me. On account of this she and her husband had been obliged to cancel their engagements. I found that she had very large inferior turbinates, the left one entirely occluding the nostril. I performed double inferior turbinectomy, and because of my experience with Case 1, told her she must wear glasses when not on the stage, although her visual acuity was 20/15 in either eye. The day following the operation she was able to sing as well as ever. I then made a mydriatic examination of her eyes and informed her that unless she wore glasses she would soon lose her voice again. She came back for the postmydriatic test June 14, when I gave her the following prescription for spectacles: O.D. —.37 cyl. 10, O.S. —.37 —.25 cyl. 180, which, however, she did not have filled. The following Monday she and her husband took another vaudeville engagement, and her voice was as good as ever for the first two days. Soon, however, it began to grow husky again, and by the third day she was unable to sing at all. The next day she bought the spectacles and at the end of the week her voice was again as good as ever. She wears her glasses constantly when off the stage and has never again lost her voice. This year the vaudeville manager who sent her to me informed me that she and her husband were now earning $700 a week, instead of $450, which they received the year before.

Case III.—Woman, age forty-six. Singer and vaudeville performer. Soprano. She consulted me on the 25th of June, 1909, complaining of headaches and catarrh. The headaches she had had ever since she was a child, and at one time, when teaching school, she had had every Thursday an attack of bronchitis. Five years before she had been fitted with O.D. + 1.0, O.S. + 1.12 for reading, and was wearing them when she came to me. I performed double inferior turbinectomy and gave her the following prescription for glasses: O.D. —1.0 —.25 cyl. 20, O.S. —.37 —.12 cyl. 165, B.E. —1.87 added for reading. Her health, which had been very poor, improved and she has had no trouble since in getting engagements; but whenever she stops wearing her glasses for any length of time her upper notes begin to break and catarrh returns. These symptoms immediately disappear when her spectacles are straightened and she wears them always except when on the stage.

Asthma. Case I.—Woman, age twenty-two. Dressmaker. Consulted me on March 19, 1909. She never remembers injuring her nose. Ever since she can remember she has had what she calls a cold and difficulty in breathing, which has kept her awake most of the night for the greater part of the last seven years. Seven months before she had a spur removed from the septum on the right side and since then she has breathed a little more easily through that side. I removed two-thirds of the inferior turbinates, and the portions removed were the largest I have ever seen, that on the left side being as large as two-thirds of my ring finger, with enormous cauliflower excresences on the posterior end. She returned to me on the 28th, up to which time there was no improvement in the asthma, and her breath was exceedingly foul. At this visit she informed me of continual headaches, which she had had for years. This I got through her interpreter as she does not speak English well. I told her to come back and let me examine her eyes under a mydriatic, which I did the following day, and on April 10 I prescribed: O.D. + .37 + .37 cyl., axis 100, O.S. +.87 +.12 cyl., axis 105. The same day she bought her glasses and returned to me for their examination. At this time her asthma and breath were as bad as ever. She came again on April 18, at which time the breath was normal, and the asthma had entirely ceased. She sent me another patient on September 12, who informed me that she has had no asthma since wearing the glasses. On June 7, 1910, she returned with the old symptoms. On examining the glasses I found that the frame of her glasses was bent in such a way as to entirely change the axis. I straightened the glasses and up to date she is perfectly well again, and her symptoms only appear when the axis is wrong. She informed me to-day that she only wears the glasses when she is at work or is reading.

Case II.—Woman, age thirty-three. Height, 5 feet 6 inches; weight, 130. Miniature painter. Father suffered from asthma from the time he was seven years old until his death at fifty-two from kidney trouble. All of the family have had more or less trouble with their eyes. Patient's asthma came on after an attack of chicken-pox at seven and has continued ever since. Up to a few years ago she had it both day and night. Since that time she has had it only at night. Has tried various climates and had been treated by more than fifty doctors without relief. Has tried every variety of "cure" from starvation to Christian Science. For twenty-six years has had an attack of asthma immediately on retiring which would last until she used an inhalation. Three or four hours afterwards she has another attack, for which she has to use a second inhalation, and still another at daylight when she must either use the inhalation again or get up for the day. Consulted me not for asthma, but for red eyes, from which she suffers after any prolonged near work. Her mydriatic examination the 4th of December, 1909, was: O.D. +1.75 +.62 cyl. 95, O.S. +1.87 +.62 cyl. 85. That night she had no asthma for the first time in months. At the postmydriatic test she could accept nothing stronger than a cylinder in the right eye and a +.12 and cylinder in the left eye. During the succeeding week she accepted O.D. +1.0 +.62 cyl. 95, O.S. +1.12 +.62 cyl. 85. Since that time she has had

only a few mild attacks of asthma, once when her refraction changed and several times when the frame of her spectacles became crooked; thus changing the axis of her astigmatic lenses. In the first instance the asthma disappeared with the proper change of glasses and on the other occasions merely straightening the frame brought complete relief. Incidentally this result was as great a surprise to me as it was to the patient.

Case III.—Man, age thirty-four. Court clerk. Has had attacks of asthma ever since he was ten years old. While on a visit to New York City he noticed that during his stay he was entirely free from this disease. His father, who had had asthma for forty years, had been relieved by my performing a double inferior turbinectomy on him, and without correction of the errors of refraction. The patient, however, was unwilling to be operated on. He was offered a good position in a hotel near his former home, but as he invariably has asthma on returning there, he was compelled to refuse it. He brought a friend to me to be fitted with glasses and remarked that with the glasses he himself was wearing he could see only very few of the test letters at twenty feet. I found that the glasses were: B.E. +.50 cyl. 90. with which he had vision R. 20/200 L. 20/100. Under a mydriatic I prescribed O.D. —.37 —3.25 cyl. 180, O.S. —.50 —2.12 cyl. 5, and since that time he has spent four months at his former home, and the rest of the time in the West, without suffering from asthma. This I learned from a letter written from Montana, January 16, 1910.

Indigestion. My experience the last few months has convinced me that many digestive troubles, especially in children, are due to ametropia.

Case I.—Male, age eight. From the time he was born he has always suffered from sour stomach and abdominal cramps, which sometimes became so severe that his family often thought they would eventuate in his death, and which were entirely uninfluenced by the efforts of the family practitioners who attended him. On correcting his compound far-sighted astigmatism with: O.D. +.25 +.37 cyl. 90, O.S. +1.0, his indigestion entirely disappeared and his breath became normal in odor.

Case II.—Female, age twenty. Bookkeeper. At the time she was a schoolgirl of thirteen she began to have pain in the eyes and indigestion. She was fitted with glasses without a mydriatic, which did not benefit her at all. At fifteen she began to have attacks of what was apparently gastritis, with nausea and vomiting, and these attacks she has had at frequent intervals ever since. She was wearing far-sighted glasses when she came to me and on correcting her compound near-sighted astigmatism with: O.D. —.50 —.12 cyl. 150, O.S. —.12 —.25 cyl. 30, every disagreeable symptom disappeared.

Case III.—Female, age seventy. Housewife. Consulted me in February, 1909, for headaches and frequent attacks of acute indigestion, in several of which she and her family expected her to die. On fitting her with bifocal spectacles containing O.D. +1.25 +.25 cyl. 102, O.S. +1.37 +.62 cyl. 60, B.E. +2.87 for reading, all her symptoms disappeared except the indigestion, which recurred about every three weeks. I persuaded her to return to me in July and found that her spectacle frame was bent in such a way as to entirely change the axis of the cylinders. On straightening this she has since had no indigestion up to this date (June, 1910).

Conclusion. We have all had cases that seemed to be somewhat relieved for the time being by whatever therapeutics we employed, but that never were really cured by any treatment. As I look back on my years of general practice, before becoming a specialist, I realize how many patients I might have permanently cured had I then known as much of the constitutional effects of eyestrain as I do now—patients the cause of whose trouble I could never find. Where every other treatment has failed in such cases, would it not be well to try the effect of correcting any existing errors of refraction under cycloplegia? The cases above quoted seem to me very suggestive and I submit them in the hope that perhaps they may help some fellow practitioner to find the cause of, and cure for, such chronic and obscure maladies as we have all met in our practices.

Broadway and Ninety-seventh Street.

TECHNIQUE OF EXAMINATION OF THE DUODENAL CONTENTS.*

By MAURICE GROSS, M.D.,
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AND
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NEW YORK.

The examinations were made with the duodenal tube devised by Gross, published in the *Journal of the American Medical Association* for April 23, 1910. All the chemical examinations were made in the laboratory of Dr. v. Oefele.

Preliminaries.—(1) Record name, anamnesis, or clinical diagnosis, and journal number of the test sample. (2) For all examinations, note day and hour when the intestinal juice is taken, recording the time of the beginning and of the completion of the aspiration as well. (3) Record the distance, in centimeters, at which the intestinal juice is taken—as indicated by the length of the duodenal tube measured from the line of the teeth. (4) Note the time of the ingestion of the last meal and the nature of the meal.

Physical Examination.—(5) The total quantity is measured in a graduated tube of 100 c.c. capacity. (6) When pouring out the fluid, attention should be paid to the consistency of the juice; whether it be fluid, slightly or markedly viscous or ropy. (7) Also note whether a special kind of smell can be detected. (8) The degree of permeability to light should be noted, as to whether the juice is transparent, cloudy, diaphanous or impenetrable. (9) The color of the diluted juice should be stated. (10) In view of the fact that bile pigment has the peculiarity of staining very intensely, even when strongly diluted, it is important to note the color of a fourfold dilution with water.

(11) The specific gravity should be determined. This is of great importance and more difficult than with other substances. The specific gravity varies only in narrow limits, between about 1000 and a little over 1010. The quantities obtained are often only small, so that it may be necessary to work with about 15 c.c. or slightly more. Furthermore, the fluid being generally very viscous, the instrument registers slowly. We were unable to find a suitable areometer in the market and, therefore, had to have special instruments made; these will be described in a later communication. We wish, however, to state particularly that Saxe's areopicnometer is not suited for examining intestinal juice.

(12) The next point calls for the recording of the quantity and appearance of the centrifugalized sediment. Intestinal juice which is no longer

*From the Laboratory of the Har Moriah Hospital.

quite fresh furnishes considerable sediment. If the intestinal juice has been kept in a room at ordinary temperature, the sediment results from processes of decomposition; in addition the normally appearing ferments are rapidly destroyed. If the intestinal juice is kept on ice, the solubility of many of its components is diminished, a sediment resulting that brings down part of the ferments in their *active* state.

Qualitative Chemical Analysis.—(13) Reaction.—The reaction may be tested with litmus paper, aqueous litmus solution or phenolphthalein. At this time it is impossible to state the reasons why, frequently, a given intestinal juice may react alkaline to litmus paper, neutral to litmus solution, and acid to phenolphthalein. This fact explains why it is necessary to state the method employed in the test.

(14) Bile Pigment.—In a test tube containing about 1 c.c. of fuming nitric acid and 1 c.c. of intestinal juice, Gmelin's reaction is carried out. If there is a sufficient quantity of bile, the intestinal juice sometimes turns green, which color may last for some time; sometimes, however, the green color may rapidly turn to dirty violet. In the first case one may speak of biliverdin production, in the second case, of bilicyanine production.

(15) Carbohydrate Test. (*a*) Since amylopsin has always been found to be active, it is generally unnecessary to institute an iodine test for unchanged starch, but for exceptional cases this should nevertheless be kept in view. (*b*) Tests for amylodextrin, erythrodextrin, and arthrodextrin may likewise be made with corresponding iodine solutions. (*c*) Tests for sugar are made with Fehling's method. They are called positive only when red copper hemioxide is formed. (*d*) Other reducing substances may produce a green sediment with Fehling's test.

(16) Fat Tests.—Fat tests cannot here be briefly described. Furthermore, as the result of the experience thus far gained, they appear to be of secondary importance.

(17) Qualitative Test for Albumin.—This test is of the highest importance for obtaining a correct picture of the intestinal juice, and should, therefore, never be omitted. The best method is the well known biuret test. With a little experience, it is possible to clearly distinguish, and to estimate the density of the various color rings formed. This enables us to obtain indications as to the presence of (*a*) nuclecalbumin, (*b*) seralalbumin, (*c*) albumoses and (*d*) peptones.

Quantitative Chemical Analysis.—(18) Mucin.—The consistency of the intestinal juice, judged from the viewpoint of viscosity, gives no indication as to the mucin contents, inasmuch as dextrins, pentose derivatives, and some albumoses are just as glutinous as true mucin and may be present in the intestinal juice in the shape of products of digestion. To prove the presence of mucin, 2 c.c. of nonsedimented intestinal juice, 8 c.c. of distilled water, and 1 c.c. of glacial acetic acid are mixed in a Purdy's centrifugal tube. After centrifugalizing, the volume percentage of the precipitated mucus can be read off. It is also useful to note the color of this sediment.

(19) Albumins.—The supernatant fluid used for the determination of mucin is then mixed with 3 c.c. of a 10 per cent. solution of potassium ferrocyanide; subsequently the procedure is that employed to determine the mucin contents, subject to correction due to diminished amount.

(20) Further Determination of Albumin.—Two c.c. of previously sedimented intestinal juice are mixed with 8 c.c. of distilled water and 5 c.c. of Esbach solution, centrifugalized; the volume percentage is then read off. In view of the fact that the proteids precipitated by potassium ferrocyanide and by picrin do not agree, these two precipitates will nearly always differ widely. But it is just this difference which permits of further conclusions which, however, cannot be entered into on this occasion.

(21) Total Solids.—In a weighed porcelain dish we dry up 10 c.c. of intestinal juice at 100° C. and afterwards for a few hours, at a temperature of 55° C. The percentage of dry residue is established by weight.

(22) Ashes.—To the total solids about 2 grams of ammonium nitrate and a few drops of fuming sulphuric acid are added. These are to be nearly dried up at a temperature of 55° C., then burnt up and turned into almost white ash by the glowing process, after which the weight of the ash is determined. These ashes generally contain a large quantity of iron which can be demonstrated by the addition of hydrochloric acid solution.

(23) Iodine Discoloration.—For several of the above qualitative reactions the color of the intestinal juice is disturbing. To eliminate this disturbing factor, the juice is readily discolored with an aqueous iodine solution, containing equivalent parts of iodine, sodium iodide, potassium iodide, and ammonium iodide. Titration should be employed until discoloration results. The quantity of iodine solution used should be stated.

(24) Determination of Chloride.—The determination of chloride is established by titration with a solution of silver nitrate and a few drops of potassium chromate solution as indicator. The other organic acids are present in considerably smaller quantities and do not appear to be of much importance for the purposes of the analysis.

Examination for Active Ferments.—In the examinations thus far made, it was possible to employ methods for the most part well known, and to adapt the same to the special properties of the intestinal juice; for this reason there was no need of describing these methods in detail. For the duodenal examination, however, the most important ferments occupy the foreground of our attention. The chief point in the examination of the intestinal juice will probably be assigned to the determination of the ferments by the clinical investigation. The gall ferments are here of less importance, since the gall-pigment furnishes sufficient indications. The presence of these gall-pigments has already been noted. Methods for the determination of cholalic acid and its derivatives have been found too complicated for clinical purposes, although it is hoped that it will become possible at a future time to establish simple methods for the determination of sodium chloride and baryum. The three pancreas ferments are of the greatest importance and for these, we believe, we have worked out clinically satisfactory methods.

(25) Amylopsin.—A liberal quantity of a 1 per cent. aqueous solution of Kahlbaum's soluble starch is heated in the incubator to 55° C., also a number of empty test tubes. Five c.c. of this heated solution is put into the heated test tube, four drops of duodenal juice are added, the tube being shaken vigorously for a minute. Thereupon ½ c.c. of a 250th normal iodine solution is added as above de-

scribed. (*a*) If no amylopsin is present, the solution will become sky-blue, or green when gall is present; if traces are present, it will turn blue-violet; if large traces are present, it will turn red-violet; if the quantity is normal, it will turn pale pink, and if there is an excess, it will be colorless. (*b*) If, to this solution a sufficient quantity of Fehling's alkaline be added, it will always become colorless. Upon a further addition of Fehling's copper and subsequent boiling, it can be demonstrated whether the starch digestion has at least partly taken place up to the point of sugar formation.

(26) Steapsin.—Some fresh butter is melted and the clear, pure fat abstracted. This is mixed with a little 0.1 per cent. aqueous potassium carbonate solution and phenolphthalein, then shaken and titrated with liquor sodæ until there remains a distinct red coloration. This solution is likewise heated in the incubator to 55° C. and 5 c.c. of the same is shaken with 5 drops of intestinal juice in a heated test tube. If there are normal quantities of steapsin, the red color will disappear in from 2 to 5 minutes. According to the rapidity of this decoloration, the quantity of active steapsin can be estimated.

(27) Trypsin.—A solution of 0.07 per cent. copper sulphate and 0.1 per cent. sodium carbonate is mixed with a few drops of Fehling's alkaline and ½ per thousand of casein. This solution is heated in the incubator at 55° C. In a heated test tube again 5 c.c. are shaken up with 5 drops. At first the color is distinctly blue or, if there is gall present, it will turn green. Dependent upon the quantity of trypsin present, this color will become more or less red-violet or, after a few minutes, even pink.

For the practical purposes of clinical investigation it will be sufficient to examine duodenal juice by means of the methods above described, these being much more complete than the clinical routine examinations of the gastric juice.

A CASE OF DEATH UNDER GAS AND OXYGEN ANESTHESIA.

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ACCIDENTS in surgical practice, more particularly accidents from anesthetics, are unpleasant experiences. Still more unpleasant is the duty of recording them for the benefit of the profession at large. The experience of surgeons in general has shown that, up to date, a perfectly safe anesthetic has not been discovered. It is my humble opinion that the mechanism of anesthesia, involving, as it does, experience, varying skill and caution on the part of the surgeon and his anesthetist, and varying conditions upon the part of the person anesthetized, to say nothing of varying quality of the anesthetic, has too many cogs for safety. Sooner or later something is bound to slip, with disastrous results.

Notwithstanding what would seem to be the hopelessness of the task, the profession goes on in the attempt to discover a perfectly safe anesthetic. From time to time one thing or another is advanced as the ideal anesthetic only to go the way of all other "safe" drugs for anesthesia. One of the latest aspirants for the crown of safety is the gas and oxygen combination. It is not my intention to attack this method, but merely to relate a disastrous experience which shows that death upon the operating table under gas and oxygen may occur under what seem to be conditions favorable to its use as compared with other anesthetics. It was my ill fortune to lose the only case in which I had ever used the gas and oxygen, and incidentally the only case I have ever lost under anesthesia. I make the latter statement with due respect to certain very "close calls" I have had and with some dread of what may happen at my next operation.

CASE.—X., aged sixty-five. Had always been a free liver and addicted to the excessive use of alcoholics. Consulted me for a tight, at first impermeable, bulbo-membranous stricture with several false passages and a severe chronic cystitis. The kidneys were apparently in excellent condition. I began treatment by dilatation, but after some weeks of careful study and treatment of the case, found that the stricture was so irritable and resilient that further dilatations seemed worse than useless. I therefore suggested perineal urethrotomy and bladder drainage. The heart and kidneys being in excellent condition, I did not particularly fear anesthesia, although a slight asthma suggested the advisability of extra caution in its administration.

The patient being a relative of a prominent Chicago physician who had referred the case to me, I was exceptionally interested in avoiding unpleasant accidents. I therefore asked the doctor to be present at the operation and requested that a specialist in anesthesia be employed. The doctor and myself eventually agreed upon one of the most experienced and capable men of our acquaintance.

As is true of many cases of anesthesia, no matter what anesthetic is used, the blood escaping from the operation wound was at first dark, showing imperfect oxygenation. The color of the blood speedily turned to the usual color of arterial blood, and remained normal for perhaps five minutes, when, just as I had entered the deep urethra and divided the stricture, the blood suddenly again became of a venous hue. I immediately rose, glanced at the patient's face, and, simultaneously with the anesthetist, discovered that we were in trouble, the patient being deeply cyanosed and respiration having ceased. The heart was still beating, but laboredly, and continued to beat for some minutes. We worked manfully over the patient for more than an hour, using all the ordinary and some extraordinary methods of resuscitation, but to no purpose. No autopsy was permitted, but from the data at command the cause of death was apparently respiratory paralysis and consequent asphyxiation.

815 RELIANCE BUILDING.

Action of Homogeneous Products of Autolysis of Fetal Tissues in Malignant Tumors in Man.—G. Fichera, in the course of experiments on vaccines, has noted that spontaneous malignant tumors in young rats were extremely rare, that resistance was conferred upon rats with reference to neoplasms by inoculation with embryonal and fetal tissues, and that embryonal and fetal tissues treated by autolysis when injected under the skin caused involution of neoplastic grafts. He experimented on the injection of homogeneous products of fetal autolysis upon victims of malignant disease of the human race, the results of which he gives. Eighteen cases are included in his report; the tumors varied in nature and location; in eight there was no improvement; in ten there were beneficial results, and in five the tumors completely disappeared. Excision showed that substitution of sclerotic connective tissue for the neoplastic tissues had taken place. Hemorrhagic, necrobiotic, or necrotic zones were caused by general infections. The author thinks that persons afflicted with inoperable malignant diseases may undergo these injections without any danger of absorption of poisonous substances, especially of neoplastic origin. This treatment is contraindicated in cachectic cases. The author made use of tissues of fetuses from two to six months of intrauterine life.—*Il Policlinico*

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HEALTH PROBLEMS OF THE PHILIPPINE ISLANDS.

It goes without saying that there are many health problems of the Philippine Islands and it is equally obvious that most of these are unsolved. When the white man takes up his burden in tropical countries he invariably finds it a burden indeed. He has not only to contend with obstacles of climate and of a physical nature, but he has to overcome the ignorance, prejudices, and superstitions of the natives. These are the most difficult to combat successfully. The Asian peoples, generally speaking, at any rate those of a lower grade, are fatalists and do not wish to be assisted to lead a more healthy life. In many cases, as in India, their religion stands in the way of sanitation and hygiene. However, American medical men have entered upon their self-imposed task of rescuing the sons of the tropical soil from the degradation of unsanitation and ill health with enthusiasm, and have been greatly stimulated to fresh efforts by their success in Cuba and more recently in Panama.

Victor G. Heiser, of the Public Health and Marine Hospital Service, Director of Health for the Philippine Islands, read a paper entitled "Unsolved Health Problems Peculiar to the Philippines" at the first meeting of the Far Eastern Association of Tropical Medicine held at Baguio, P. I., March 14, 1910, and published in the *Philippine Journal of Science* July, 1910. Heiser states that in the first instance the work of sanitation in the Philippines has been considerably handicaped by the meager funds at the disposal of the health department, so that discrimination must be used as to the employment of their resources. Up to the present time the policy has been to do a little toward solving each problem and not to concentrate on any one. Naturally malaria is one of the most important questions. The difficulties in the way of eradicating mosquitos from Manila alone are well-nigh insuperable. It would cost an immense sum to drain Manila and neighborhood, and Heiser is of the opinion that it would be unwise to recommend such an undertaking. The water supply is another question of prime importance in the Philippines, as all surface waters, except the thermal waters, or those heavily charged with certain minerals, are infected with amebæ. Artesian wells, however, are being drilled as quickly as possible. The health department has won a great triumph over smallpox in the Philippines. The disease was formerly a terrible scourge but owing to the energy of the members of the Bureau of Health over 6,000,000 have been vaccinated within the past five years and now smallpox is a negligible quantity. The results of vaccination in eradicating smallpox in the Philippines may be recommended to the earnest consideration of antivaccinationists in the United States or elsewhere.

Tuberculosis is prevalent and the superstitions and habits of the people, especially the habit of betel nut chewing, render the task of fighting the disease peculiarly difficult. Cholera, again, is a disease with which it is not easy to cope, and it is constantly appearing in sporadic form in widely separated sections of the islands. Some years ago Heiser drew attention to the fact that logical deduction indicated that there was a morphological change in the cholera organism, which made it difficult to recognize at certain stages. Research work seems to have strengthened this view. Possibly, also, cholera carriers may be responsible for some outbreaks. At the present time plague is nonexistent in the islands, but rigid inspection of incoming vessels and destruction of rats are being continually carried on. Typhoid fever exists the greater part of the year in some of the islands in the archipelago, but is by no means prevalent.

Of course, infant mortality is very large; about one-half the total number of deaths occurs in children under one year of age. Improper nourishment plays the leading part in this deplorable state of affairs. Cow's milk either fresh or canned is beyond the means of the native mothers. The raising of goats for the sake of their milk is suggested and already experiments in breeding a hardy variety of milk goats have been initiated. A very conspicuous cause of ill health in the tropics is the rapid putrefactive changes which take place in nitrogenous foods. As Heiser very wisely remarks, "the problem is either to provide ways properly to preserve such foods or to find suitable substitutes which will enable us to eliminate them from our tropical dietary."

So far as the natives are concerned the habit of eating from their fingers is a fruitful cause of disease. It is known to be the most prominent factor in the transmission of cholera and intestinal diseases. The custom is deeply rooted and consequently hard to break. Education is the sole mode by which customs and habits the products of ages can be successfully dislodged and this again is a matter which time must bring about. The impossibility of procuring accurate statistics is another spoke in the wheel of progressive sanitation and health laws in the Philippines. The medical profession of the United States is comparatively new to tropical health problems. Nevertheless, the work already done by its members in this direction is a happy augury for the future. In the case of the Philippine Islands slow but sure must be the motto of the Bureau of Health, for it is not possible to move rapidly or cover at once a large extent of territory with a more or less depleted treasury.

SUDDEN CHANGE OF CONSTITUTION.

This subject, although continually in evidence in the isolated example, has been much neglected by scientific writers, largely, of course, because "constitution" is an empirical expression. Much information under this head appears in the form of the change in the bactericidal power of the blood, in the variations in the opsonic index, and in several other fashions. The late Dr. Heitzmann believed that he could recognize the degree of vitality of the organism, including its resistance to disease, by the amount of protoplasm in the leucocytes and tissue cells, this amount being readily determinable by the refractive index of the cells in question—always provided that the refraction was natural, or, in other words, not due to fatty or amyloid change. He believed that this condition of the cell varied greatly in the individual at different times. In fact, he built up an entire superstructure of "constitution" in man and animals upon this seemingly slender foundation.

According to Heim (*Berliner klinische Wochenschrift,* Sept. 26), the late Dr. Rosenbach, who was not only a medical man of commonly good repute, but also a medical individualist, traded extensively upon a theory of the instability of constitution. It appears to be well founded that our ancestors could withstand more bleeding, purging, salivation, and the like than the present generation. Some mineral drugs were administered several centuries ago in doses that would now be termed toxic. The present generation cannot profit by routine bleeding. The history of syphilis and tuberculosis shows that at certain periods and localities resistance to infection must have been either lessened or heightened. Heim cites the common example of a foundling suckled by a series of wet nurses. At first all disagree. Finally one is found who suckles the child successfully. This is not due to any quality of the nurse, but to the fact that the infant's constitution undergoes some slight change which makes it take naturally to breast milk. Another familiar example is that of the scarlet fever nurse, who is exposed year in and out, but who finally contracts the disease. Lues and gonorrhea appear to be contracted at times after indefinite exposure with negative results.

Heim, although a Budapest practitioner, seems inclined to let go scientific dogmata of any sort and to put faith in the old French diathetic theory. He bears witness to an exudative diathesis and an exudative constitution. Children of such constitution are believed to correspond to certain factors in the newly born. The original purport of Heim's article was to show that certain children who succumbed to scarlatina had already been subjected to the exudative diathesis and neuropathic constitution. According to the author certain children foredoomed to this death exhibit premonitory signs, which comprise meteorism, restlessness, insomnia, etc. The main value is placed upon the animal vigor of these infants under particular circumstances. Aside from this general connection the subject of constitutional changes has not been completely elaborated.

The Phosphorus Metabolism in Rachitis.

Among the diseases of metabolism rickets is one whose pathogenesis has for a long time baffled clinical observation and laboratory investigation. Apart from a realization that all the vague nutritional errors associated with a poor environment are to a certain extent responsible for this condition, no tangible factors have yet been gleaned to which one could point as the main causes in its evolution. In a most exhaustive series of investigations undertaken with a view of determining the significance of calcium in the pathogenesis of rickets, J. A. Schabad, in his sixth contribution on this subject in the *Archiv für Kinderheilkunde,* Vol. 54, Nos. 1 to 3, has come to the conclusion that the pivotal point in the morbid mechanism of this disease is the metabolism of phosphorus and not calcium. In the evolution of rachitis there is an increased elimination of both of these substances. The increased excretion of phosphorus is greater than can be accounted for by the amount of this substance and the equivalent amount of calcium contained in the bones, so that it is probable that the nervous tissues share in the pathological process. The increased phosphorus elimination is in the feces, while that in the urine is really less than the normal (hypophosphaturia). The ratio between the phosphorus content of the urine and that of the feces is changed. The normal ratio in nursing infants, 80:20, becomes in rickets 65:35, while in artificially fed infants and in older children the normal ratio of 60:40 is practically reversed to 40:60. In the convalescent period this disturbed ratio of phosphorus elimination is gradually restored to normal, while the total excretion of phosphorus reaches the subnormal. At the same time there is a relatively great increase in the urinary phosphorus, the ratio becoming 75:25. There is a close relationship between the calcium and phosphorus content of the feces; increase in the intestinal elimination of calcium goes hand in hand with a phosphorus retention and vice versa. The interpretation of these results brings out the important fact that, inasmuch as in rickets there is excreted more phosphorus in proportion to calcium, the possibility is excluded that the augmented phosphorus elimination is to be attributed to the increased excretion of calcium. The conclusion is obvious that the primary factor in the metabolic disturbances underlying rickets is to be sought in the increased elimination of phosphorus. These experimental results apparently explain the good effects that have for a long time been observed from the empirical administration of phosphorus in this disease.

Criticism of a Hospital.

The Flower Hospital of this city was recently very severely criticised in the *New York Times* because of its treatment of a man who had been murderously stabbed by the striking expressmen. The man was taken to the Flower Hospital, which institution has received most of the victims of the strikers, and there died of pulmonary hemorrhage, the result of one of his stab wounds. A friend and employee of the murdered man was dissatisfied with the treatment the patient had received and brought charges against the hospital in the columns of the newspaper. Those charges, as printed in the *Times,* sound very bad, as bad as did the accusation of cruelty to animals which the *Herald* brought some time ago against Carrel and other workers in the

Rockefeller Institute—and to a medical man they have just as little foundation. One of the complaints of neglect, for instance, was based on the fact that the man's wounds were dressed only twice between Monday, the day he was received in the hospital, and Thursday, the day he died. To the layman, of course, who thinks a wound should be dressed as a fastidious man washes his hands, this sounds like neglect of the most criminal sort; to the physician who knows that the less done to an aseptic wound, the better the chance of healing, the only thought is that it might have been dressed once more than was really necessary. An analysis of the other charges shows clearly enough their origin: A well-meaning layman, unused to hospital sights and to the necessary institutional discipline, distracted with anxiety and grief, seizes on what appears to him to be abuses, and in his anger and distress brings them to the notice of a reporter, who makes a good "story" and gets it displayed on the front page of his journal, thereby injuring, in the minds of many, the good name of a hosital of standing, one whose ambulance service covers a large district, and one which does an immense amount of good in the community. The good name of a hospital, the support of which is largely from contributions by the charitably disposed, is its most valuable asset, and it is a pity that a large and influential journal of the "read," not yellow, sort, one too which is usually so eminently fair and intelligent in its discussion of medical matters, should have accepted such charges, brought in evident ignorance of the true conditions, and given them to the world with its authority as being "news fit to print."

The Practical Applications of Blood-Vessel Surgery at the Present Time.

In the Quarterly Bulletin of Northwestern University Medical School, September, 1910, V. D. Lespinasse points out the indications for blood-vessel surgery in the operation of transfusion, in cases of shock, acute hemorrhage, hemophilia, purpura hæmorrhagica, melena neonatorum, carbon monoxide poisoning. Especially, according to the writer, are the effects of transfusion in melena neonatorum marvelous, but technically, the transfusion is very difficult, as the veins of a newborn babe are quite small. Transfusion should be done in all cases of this condition and as early as possible. Lespinasse recommends that transfusion should be done in the treatment of pellagra, typhoid fever, and smallpox with the blood of patients recently recovered from these diseases. Permanent anastomoses should be performed in wounds of all the large vessels, brachial, femoral, aorta, renal, etc., in aneurysms of all types, in cirrhosis of the liver to replace omentopexy and relieve ascites, in order to save crushed extremities by repair of the crushed vessels, and for the removal of emboli from their point of lodgment. It may be noted that, although surgery has advanced with rapid strides during the past two or three decades, surgery of the blood-vessels up to a recent date has been at a standstill. J. B. Murphy was among the first to inaugurate a movement in the direction of blood-vessel surgery, and since his early experiments in suture of the arteries numerous other surgeons have successfully made experiments in the same field. The operations of Matas for the cure of aneurysm are especially noteworthy.

News of the Week.

Accidents in New York.—During the month of October seventeen persons were killed and 151 injured on the streets of New York, according to the figures compiled by the National Highways Protective Association. Seven of those killed were children. Automobiles were responsible for the death of eight persons, trolley cars for the death of six. The total number of persons killed on the streets of New York during the ten months ending October 31 was 138, and the total number of injured 811.

Births Increase in France.—It is officially announced that during the first half of the year 1910 the births throughout France exceeded the deaths by 21,189. During the year 1909 the deaths were said to have exceeded the births by 28,205.

Hospital Dedicated.—The new Holy Family Hospital on Dean street, Brooklyn, formerly known as St. Mary's Female Hospital, was dedicated on October 2 by Bishop McDonnell. The building has been equipped with all the appliances of a general hospital.

Water Contaminated.—The Board of Health of Milburn, N. J., has notified all the residents of the town that the drinking water has been found to be infected and must be boiled before using. The water is obtained from driven wells and an investigation will be made to find out how the contamination occurred.

Red Cross Endowment Fund.—Efforts to raise an endowment fund for the National Red Cross will be begun shortly by a committee of prominent men appointed by President Taft. Among the members of the committee are Robert Bacon, Lloyd C. Griscom, Charles H. Keep, Felix Warburg, H. P. Davison, Charles P. Taft, John Hays Hammond and former Vice-President Charles W. Fairbanks.

Tuberculosis Sanatorium.—The Metropolitan Life Insurance Company of New York has changed the proposed location of the tuberculosis pavilion, which it plans to build for its employees, from Sullivan to Saratoga County. The company has filed an application with State Health Commissioner Porter for permission to erect a sanatorium near Mt. McGregor.

A Year's Accidents.—The Interstate Commerce Commission has recently issued a bulletin which completes the publication of accident records for the past nine years. During the year ending June 30, 1910, 3,804 persons were killed and 82,374 were injured in train accidents, an increase over the figures for the previous year of 1,013 and 18,454 respectively. Collisions caused the death of 433 persons, an increase of 91; the total number of collisions being 1,450 more than the previous year. The total number of derailments was 5,910, with an increase of 79 deaths and 676 injured from this cause.

Birth Statistics.—The new Statistical Advisory Board of the Department of Health of New York City, of which mention was made last week, has suggested means to secure complete returns and registration of all births in the city. Upon the thorough registration of births depends, as the Health Commissioner points out, the accuracy of estimates of population and the value of comparative statistics in relation to disease and other social problems, insofar as they refer to the total population. Hereafter the law providing a penalty for failure to record a

birth will be strictly enforced, and the Board urges that on the death of any infant under one year of age the registration of its birth be verified in order to detect omissions.

Red Cross Seals.—A million dollars from the sale of the Red Cross seals for the stamping out of tuberculosis is the object of the campaign for this Christmas. Forty million of the seals have already been printed and distributed, the Red Cross and the National Association for the Study and Prevention of Tuberculosis cooperating in handling them.

Special Milk Order.—The Secretary of Agriculture has recently issued a special order to the chiefs of bureaus, offices and independent divisions of the Department of Agriculture in Washington, prohibiting the sale in any building occupied by the Department of Milk which is not equal to the classification as defined in the Bureau of Animal Industry Circular 114. The determinations as to the standards of milk are to be made by the Dairy Division of the Bureau. In this way the sale of milk containing extraneous matter, raw milk from cows not known to be free of tuberculosis, and milk of unknown origin will be prevented in the buildings under the control of the department, and such a step will probably have a great influence on the improvement of conditions throughout the city.

Cholera in Italy.—Following the optimistic statements of October 31 that the epidemic of cholera in Italy might be considered at an end, came the announcement of the occurrence of six new cases on November 1, with two deaths, both in the asylum for the insane at Aversa, and of ten new cases on November 2, with two deaths. Naples has, however, been officially declared free of cholera, and the trans-Atlantic steamship lines have been notified that clean bills of health will be granted. As a result of the report of the Italian Board of Health, which says that the epidemic in the Apulia region may have been caused by the poor water supply, the Government will ask an extraordinary credit amounting to $60,000,000 for the construction of dams, aqueducts and artesian wells to provide the cities and villages of Apulia with a properly protected watershed.

Ambulance in Collision.—An electric ambulance belonging to the New York Hospital while going north along Madison Square in answer to a call on October 30, collided with an automobile. Although both vehicles were badly damaged none of the passengers was hurt.

Prize to Insane Patient.—An insane woman, a patient in the State Hospital for the Insane at Anoka, Minn., recently was awarded a prize for the best literary contribution submitted to a certain magazine. Under the circumstances the award, a trip to Europe, was of but little value to the winner, who was, therefore, given a cash prize.

Measles on Steamship.—Fifty passengers on board the steamship *Ultonia*, which reached New York on November 3 from various Mediterranean ports, were found to be suffering from measles when the vessel was inspected at Quarantine, and were removed to Hoffman Island.

Mt. Vernon Water Supply.—The Board of Health of Mt. Vernon, N. Y., has sent out photographers and engineers to inspect and obtain evidence of the condition of the watershed of the company furnishing the water supply of that city. It is possible that a bill may be introduced into the next Legislature providing for the purchase of the company's plant by the municipality.

Fall River Death Rate.—In spite of protests on the part of its citizens, the town of Fall River, Mass., is still rated by the Census Bureau as having a death rate of 19.1 per 1,000 of population, the highest rate recorded among American cities. Census Director Durand attributes the high total rate to the unusual proportion of deaths among children.

Typhoid Fever Investigation.—Because of the prevalence of cases of typhoid fever in certain sections of New York City, Commissioner Lederle recently appointed a committee to investigate and report. The results were announced on November 4. In the Nineteenth Ward a six weeks' investigation was begun on September 3. Fifty-six cases were found, of which 17 were considered to be due to out-of-town infection, 4 to impure water, 19 to artificial ice, 14 to natural ice, and 2 to infection from a typhoid patient. In the Ninth Ward the investigation also covered six weeks, beginning on July 26. In that time 88 cases were reported, 4 of which were due to out-of-town infection, and 4 to direct exposure, other members of the family being sufferers from the disease.

Academy of Medicine.—The Finance Committee of the New York Academy of Medicine announces that for the fund to be applied in payment for the properties recently purchased subscriptions have already been received of $1,000 each from thirty Fellows of the Academy, to be paid in five annual installments of $200.

Dr. C. D. Spivak, editor and publisher of *Medical Libraries*, a bimonthly magazine which appeared first in 1898 and was discontinued in 1902, announces that he will furnish, as long as the supply lasts, complete sets of volumes II, III, and IV, and incomplete sets of volumes I to V, free of charge, to any medical librarian making a request for them. Dr. Spivak's address is the Metropolitan Building, 1421 Court place, Denver, Col.

Dr. Charles Hitchcock of New York announces his removal to 61 East 65th street.

Dr. James Morrison Bodine, Dean and President of the University of Louisville Medical Department, will be given a testimonial dinner at the Seelbach Hotel in Louisville on December 16, 1910. Those friends whom the committee has not been able to reach by personal note are cordially asked to signify their intention to attend.

Dr. John W. Goodsell of New Kensington, Pa., who accompanied Commander Peary on his successful expedition to the North Pole, has received, rather tardily it would seem, a letter from the Peary Arctic Club commending the physician for his work. The party numbered twenty-five, in addition to fifty Eskimos who joined the expedition at Etah, and all returned in good health.

An Historical Portrait.—The New York Historical Society has recently received as a gift a copy of a portrait of David Hosack, M.D., who was president of the society from 1820 to 1827. The original portrait was painted by Thomas Sully. Dr. Hosack was a well-known New York physician and a member of the staff of the New York Hospital.

The American Cancer Research Society.—The semiannual meeting of this society was held in Chicago on October 26. The following officers were elected: *President*, Dr. L. D. Rogers of Chicago; *Secretary*, Dr. William A. Guild, Des Moines, Ia.;

Treasurer, Dr. E. Mather, Detroit, Mich. The annual meeting of the society will be held in Chicago on June 6 and 7, 1911, and every physician is invited to take part by attending or by sending reports of cases. The society has authorized the establishment of a cancer clinic and research laboratory at the Cancer Hospital, Chicago, and the publication of a bulletin giving the latest information concerning the disease.

Sanitary Officers.—The tenth annual conference of the sanitary officers of the State of New York will be held in the Y. M. C. A. auditorium at Buffalo,, N. Y., on November 16, 17, and 18, 1910. The program for the first day includes a number of papers on the relations of public health to the school, to the dental profession, to the medical profession, to the press, to the municipal authorities, and to the conservation movement. On the same evening a public meeting will be held, the subjects being "The Health Department: Its Supreme Value to the People" and "Public Health and the Public Purse." On the second day subjects of interest to city health officers will be considered, and on the third there will be a symposium on communicable diseases. Arrangements for securing reduced railroad fares for those attending the conference have been made.

The New York and New England Association of Railway Surgeons at its twentieth annual meeting held at the Hotel Astor, New York, on November 3 and 4 elected the following officers for the ensuing year: *President*, Dr. F. A. Goodwin of Binghamton, N. Y.; *First Vice-President*, Dr. Walter Lathrop of Hazelton, Pa.; *Second Vice-President*, Dr. J. W. Le Seur of Batavia, N. Y.; *Corresponding Secretary*, Dr. George Chaffee of Brooklyn; *Recording Secretary*, Dr. C. A. Pease of Burlington, Vt.; *Treasurer*, Dr. J. K. Stockwell of Oswego, N. Y.

The Miami Valley Homeopathic Medical Society held its one hundredth semi-annual convention at Dayton, O., on October 28. The following officers were elected: *President*, Dr. Webster Ensey of Dayton; *Vice-President*, Dr. J. E. Studebaker of Springfield; *Secretary*, Dr. R. M. Webster of Dayton; *Treasurer*, Dr. W. H. Dickinson of Dayton.

The Texas State Homeopathic Medical Association held its annual convention at Dallas on October 25 and 26. Officers were elected as follows: *President*, Dr. T. J. Crowe of Dallas; *First Vice-President*, Dr. F. L. Davis of Dallas; *Second Vice-President*, Dr. Bowes of Greenville; *Secretary*, Dr. J. H. Bass of Austin; *Treasurer*, Dr. F. L. Griffith of Austin. The society adopted resolutions opposing the Owen bill.

The Western Illinois Medical Society held its annual meeting at Alton on October 28. The following officers were elected: *President*, Dr. G. Taphorn of Alton; *Vice-Presidents*, Drs. L. H. A. Nickerson of Quincy, and E. L. Grouch of Jacksonville; *Secretary and Treasurer*, Dr. W. Duncan of Jacksonville.

Obituary Notes.—Dr. Michael B. Van Buskirk, formerly of Aurora, N. Y., a graduate of the Medical Department of the University of Pennsylvania in 1866, a member of the New York State and Cayuga County Medical societies, died at his home in New York on October 30, after a long illness, aged 96 years.

Dr. James Baynes Walker of Philadelphia, a graduate of the Medical Department of the University of Pennsylvania in the class of 1872; visiting physician to the Philadelphia Hospital from 1876 to 1893; professor of the practice of medicine in the Woman's Medical College of Pennsylvania, and physician to the Woman's Hospital from 1879 to 1890, a member of the Pennsylvania State Board of Medical Examiners, a fellow of the College of Physicians of Philadelphia; a member of the Pennsylvania State and Philadelphia County Medical Societies, and formerly president of the latter; a member of the American Medical Association, the Northern Medical Association, the Philadelphia Medical Club, the American Climatological Association, and the American Academy of Medicine, died at his home, on October 19, aged 64 years.

Dr. N. Pendleton Dandridge of Cincinnati died on Monday of this week at the age of 64 years. He was born in Cincinnati in 1846 and received his arts degree from Kenyon College in 1866. He then entered the Medical College of Ohio, but after a year of study went to Vienna and Paris, and finally obtained his medical degree from the College of Physicians and Surgeon, New York, in 1870. He early turned his attention to surgery and was for many years one of the leading surgeons of the Middle West. He was for several years professor of surgery in the Miami Medical College, and was surgeon to two of the Cincinnati hospitals. He was a prominent member of the American Surgical Association, and was also a member of his State Society and of the national associations.

Dr. Edward Holman Hamill of Chatham, N. J., a graduate of the Medical Department of New York University in 1868; consulting medical director of the Prudential Insurance Company, formerly president of the Association of Life Insurance Directors of America, and a member of the American Medical Association, the New Jersey State and Morris County Medical Societies, and the Practitioners' Society of Jersey City, died at his home, after a long illness, on October 29, aged 67 years.

Dr. Charles H. Shepard of Brooklyn, N. Y., a graduate of the New York Medical College in 1859, and a member of the American Medical Association, and of the New York State and Kings County Medical Societies, died at his home, on October 29, aged 85 years.

Dr. John H. Nesbitt of New York, a graduate of the College of Physicians and Surgeons, New York, in 1875, a member of the New York State and County Medical Societies, of the Greater New York Medical Association, and of the Physicians' Mutual Aid Association, the senior surgeon in point of service in the New York Police Department, with which he had been connected since March 11, 1884, died on the steamer *Arabic*, bound from New York to Queenstown on October 29, it is feared from self-inflicted wounds. Dr. Nesbitt, who was 55 years of age, had been in ill health for some time and was taking an ocean voyage in the hope of improving his condition.

Dr. W. S. Searle of Brooklyn, N. Y., a graduate of the Department of Medicine of the University of Pennsylvania in 1859, a member of the Homeopathic Society of the State of New York, for many years vice-president of the State Board of Medical Examiners, and consulting physician to the Cumberland Street Hospital, of which he was one of the founders, died at his home on October 30, aged 76 years.

Dr. George Austin Bowen of Woodstock, Conn., a graduate of the Medical Department of the University of New York in 1863, formerly surgeon-general on the staff of Governor Coffin of Connecticut and a member of the Connecticut State Legislature, died at his home on October 30, aged 68 years.

Dr. Norman McLeod Carter of New York, a graduate of Princeton University in 1899, and of the College of Physicians and Surgeons, New York, in 1902, died at Saranac Lake, N. Y., on October 2, aged 32 years.

Dr. Lewis William Krieger of Peoria, Ill., a graduate of the Jefferson Medical College, Philadelphia, in 1892, died in St. Francis Hospital, Peoria, on October 23, aged 51 years.

Dr. Paul Thomas Kimball of Lakewood, N. J., a graduate of the College of Physicians and Surgeons, New York, in 1887, a member of the New Jersey State and Ocean County Medical Societies, died at his home on November 3, aged 48 years.

Dr. William F. Scott of Somerset, Ky., a graduate of the Kentucky School of Medicine, Louisville, in 1850, at one time superintendent of the Eastern Asylum for the Insane at Lexington, died at his home after a brief illness on October 26.

Correspondence.

LODGE PRACTICE.

To the Editor of the Medical Record:

Sir: In a recent issue of the Medical Record Dr. Wolf has criticized my attitude on "The Lodge Practice Evil of the Lower East Side" which I described in the October 22 issue. I am taken to task for merely setting forth an existing evil without outlining an adequate remedy for the condition. In justice to myself I might say that the diagnosis of a disease is often of vast importance even though specific treatment cannot be immediately instituted against that disease. Although I cannot claim total originality in my diagnosis of the Lodge Practice Evil, yet my article again calls attention to a condition of affairs among the East Side medical fraternity that has become wellnigh intolerable socially, financially, and ethically.

Dr. Wolf forgets that it would have been almost a presumption on my part had I attempted to suggest a suitable remedy for this existing evil. To do that requires more than the work of one man. Indeed it can be accomplished only by the East Side physicians zealously and earnestly uniting to discuss ways and means for the abolishment, or, if that is not immediately feasible, for the amelioration of the lodge practice degradation.

I might further add that not long ago the Eastern Medical Society on several occasions undertook to thresh out the lodge question from every standpoint. Papers were read upon the subject, statistics were cited, and considerable eloquence was wasted, but naught was accomplished.

To-day I believe it is no exaggeration to say that at least 85 per cent. of all the East Side practitioners have one or more lodges. Parenthetically I might say that this evil is gradually spreading out its tentacles toward other sections of Greater New York.

A practical and complete discussion of the subject with a spirit of sincerity by all the physicians concerned should be the first step in the betterment of the Lodge Practice Evil.

Morris Joseph Clurman, M.D.
142 Rivington Street.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

HARVEIAN ORATION ON HEREDITY AND MIND—HEALTH ASSOCIATIONS, THEIR WORK, AMALGAMATION OF TWO—CHRONIC ABSCESSES OF BONE—RADIUM SEPARATED IN ENGLAND—CALENDAR OF R. C. S.—OBITUARY.

London, October 21, 1910.

The Harveian Oration at the Royal College of Physicians was delivered on Tuesday by Dr. H. B. Donkin. As he is one of H. M. Commissioners of Prisons he has been much concerned with questions relating to crime and heredity. It was therefore natural for him to take as his subject "Some Aspects of Heredity in Relation to Mind." There was no evidence, he said, that mental capacity had increased in historical times and natural selection was the best explanation of the development and inheritance of cerebromental functions. Criminology, mental defect, and eugenics might illustrate the influence of acquired conceptions, but there were no special qualities, mental or physical, common to all criminals. The only important link between crime and heredity was that a larger proportion of mental defectives were found among criminals than in the total population. Those defectives were found among criminals of all classes. Unable to acquire the complex characters necessary for the average civilized man they followed the path of least resistance, which was often the path of unsocial or criminal action. This he believed would be confirmed by a report of a nearly completed inquiry by the managers of our convict prisons. Referring to the loose talk about degeneracy by speakers, novelists and other writers, Dr. Donkin said that no really rational hypothesis of hereditary criminality had been even formulated.

The object of eugenics was to discover the change in racial qualities which might be anticipated and what would improve them. That depended on the assumption that the qualities are really innate and transmissible; but were they? Is ability or probity acquired? Defined in one way the reply as to ability might be that it is germinal; in another that it is acquired. As to probity it is certainly acquired.

Some characters were handed down by teaching and example from one generation to another and so might appear to be inherited. Negative eugenics might make some progress, but not positive. As to the human mind, whether nurture or nature had most influence on its development was a meaningless question. For its development the brain required its appropriate stimulus. The mental and physical maturity of a normal human being largely depended on acquirements. Some biologists seemed to think most moral and intellectual characters inherited instincts which could be improved by selective breeding. Others hold that the innate characters were few in comparison with those acquired and demonstrably non-transmissible. The orator concluded that the human mind was both born and made and so the object of education was to fit for social life and make good citizens and afford any one with gifts above the average the opportunity of developing them. Education emphasized and largely made the individual, but not the race. The progress and efficiency of man were not mere questions of breeding.

The Countess of Aberdeen, presiding at the last meeting of the Irish Women's Health Association, described the good work already accomplished, re-

ferring especially to the opening of the hospital named after Mr. Allan Ryan of New York, who is giving $1,000 a year for five years to establish it. It is intended for consumptives in the middle stages in whom arrest may be hoped for and is the most necessary, as the society has already "preventoriums" for those in the incipient or threatening stages. The Countess instanced the Sutton preventorium, formerly a coast guard station, at the first annual meeting of which they had been able to report improvement in all the 124 residents. Those admitted had to be certified as run down in health and in danger of becoming victims, but not actually suffering from any form of tuberculosis, and such homes she believed could stop an immense amount of illness. They had also in process of erection the P. F. Collier dispensary, for which they were indebted to Messrs. Collier of New York, as a memorial to their father, a great friend of Ireland. Their Pasteurized milk depot was doing good work, and their caravan had carried on its useful educational tour in Limerick and Kerry. It was encouraging that England had appealed to them for help, and the Imperial Health Association had started two caravans on the Irish plan. They had been invited to assist in the tuberculosis exhibition and had received another invitation for next year from Allahabad. They proposed to give lectures to women in the prisons; in fact, they had made a beginning in Mountjoy Prison.

Two societies concerned with sanitation, viz., the Mansion House Council on the dwellings of the poor and the London Council of Health Societies, have come to the conclusion that their amalgamation is desirable, as it would economize the co-ordination of many voluntary workers and assist them in a determined effort to improve the health conditions of the metropolis. So fusion has been effected. The Mansion House Council is the older body, dating from 1883, an outcome of conferences held in connection with the "Healtheries" exhibition. This council carried out unofficial inspection of poor houses to the number of 200,000, took an active share in promoting sanitary legislation and in numerous congresses and conferences, local, national and international. They also formed sanitary aid committees which led to many societies growing up during the last ten years, which concerned themselves with personal hygiene as well as the sanitary environment.

In 1905 there was a conference which eventuated three years later in the London Council, with representatives of more than twenty societies engaged in health work. It has done in these two years some useful work in the way of discussion of methods and bringing together active workers in the promotion of personal health. The fusion of these two bodies is a step further in co-ordination. The amalgamated societies take the name of the "Mansion House Council on Health and Housing."

The annual meeting of the Society of Medical Officers of Health was held on the 14th inst., when Dr. Willoughby, M. O. H. for Eastbourne, was elected president and spoke of the recent legislation adding to their duties, especially the new Housing Act, which he approved, for unsanitary housing was a constant accompaniment of ill health. He could not agree with a statement in the Minority Report on the Poor Law, to the effect that four-fifths of their work was wrapped up in the casual laborer and his home. In his own district he found many other causes of the trouble and often several were so combined that it was difficult to disentangle them or to say which was cause and which effect. One interesting observation he had made was that mentally defective children were found in undue proportion in unsanitary houses. Here the cause was obscure. Often such children had similar defective parents, and the neglect of home and children was sometimes due to weak-mindedness rather than viciousness or neglect. Experience had shown him that in bad home conditions feeble-mindedness produced some of the worst results from a public health point of view. Feeble-minded parents produced offspring and were oftener than imagined the cause of a disgraceful house. They must do their best for such children, though it sometimes seemed hopeless. Unfortunately this sometimes only carried the imperfect into the marriage market with disastrous results for the next generation. The care of the feeble-minded was too great a responsibility for a local official, but the sooner the State took charge of them and directed their career the better it would be for the country.

Hospital surgeons are interested in the treatment of chronic abscesses in bone by metal drains as described by Mr. Symonds in his address at the Medical Society of London and mentioned in my last letter. He did not treat of the acute or chronic osteitis by operative measures, but of the after treatment—the effect of the central osteitis about which medical literature is scanty. A metal drain did not irritate like rubber or gauze. It could be retained during the long period of absorption and reconstruction and the patient could attend to the cleaning and management of the tube. Most of the cases referred to seemed due to a late mild infection which might have been dormant for years. Some were likely to be mistaken for tuberculosis. Probably during acute osteitis foci of infection were deposited. They were quiescent as to symptoms, but a painless osteitis was going on all the time, and some day when the surface was reached there would be pain. The protective layer of dense bone forming the wall of those old abscesses proved the chronicity.

Sir Watson Cheyne said the main thing and a difficult one was to render the cavities aseptic. He was impressed with the plan of metal tubes, for rubber tubes did not answer. If he could not cut away and level down the bone he would certainly try Mr. Symonds's plan.

Mr. Barker advocated bismuth paste, which could reach the farthest ramifications of the cavity and acted as a germicide and a framework for the granulations.

Mr. A. Pearce Gould held the ideal plan to be by an extremely patient operation to eradicate the whole affected area and if possible flatten the dense wall of the abscess and so get sound healing from the bottom. If prolonged drainage was needed the metal tubes used by Mr. Symonds would certainly be best. But it was to be hoped that none would suppose drainage by metal tubes for a long time was sufficient, for the one thing needed was to get rid of the disease by a thorough primary operation.

The calendar of the R. C. S. for 1910-11 has been issued. The fellows number 1,487, the members, 17,030; dental licentiates, 2,263; the diplomates in public health, 674. The figures given point to the discontent that only the few fellows have a vote.

Prof. A. Keith begins a series of demonstrations on specimens in the museum this afternoon.

Sir William Ramsay announced on Wednesday that radium had been produced for the first time in

Great Britain from British ore by a new method which extracts it in a couple of months instead of the other processes which require a year. The supply of radium is now assured, for there is plenty of pitchblende in Cornwall. Today the St. Ives Consolidated Mines, Limited, announce that they have a quantity of bromide of radium in an advanced state of manufacture for sale.

The death is announced of Dr. Sydney Ringer, F. R. S. His "Handbook of Therapeutics" will be well known to you, for it was one of the most successful manuals and has passed through a dozen or more editions. He was professor of the subject at University College (his old school) for a number of years and later became Holme professor of clinical medicine, being all the time physician to the University College Hospital.

William P. J. Fagan, F. R. C. S. I., surgeon to St. Vincent's Hospital, Dublin, and a professor in the Catholic University there, died suddenly on October 10 of angina pectoris. He was only 46 years of age, but his talents and skill had established him in an excellent position in Dublin.

Dr. Surg.-Gen. John Martin Hyde has died in his eighty-first year. He qualified in 1854 and joined the Army Medical Service that year. The next year he was in the Crimea and present at Sebastopol. He was awarded the medal with clasp and also the Turkish medal. He retired in 1879.

The death is announced of Surgeon Lieut.-Col. Henry Hyde, late I. M. S., at the age of 77. He was a King's College student, qualified M. R. C. S. 1865, and L. R. C. P. I. the next year, when he entered the Madras Army Service. He was appointed district surgeon at Tinnevelly in 1878 and afterward transferred to Trichinopoly.

The death has also occurred in London of Dr. Alfred Earnshaw Hewer, surgeon to Blackall Hospital, Queenstown, and Government medical officer there. He was only 45 years old. He graduated at Cambridge in 1889 and took the two Royal College diplomas the previous year.

Progress of Medical Science.

Boston Medical and Surgical Journal.

October 27, 1910.

Cholelithiasis. R. F. Chase.
Further Observations on the Wassermann Reaction for Syphilis. W. P. Boardman.
The Technique of Arthrotomy. A Report Upon and Discussion of One Hundred and Ninety-eight Cases. C. F. Painter and A. P. Cornwall.
The Extreme Blood Picture in a Case of Pernicious Anemia. W. C. Speidel.

Cholelithiasis.—R. F. Chase has come to the conclusion that this condition is more often mistaken for primary digestive diseases by the general physician than is the case with any other organic disease. As in peptic ulcer it is usually hemorrhage that is wanting, so in gallstone disease it is usually jaundice. This has been observed in less than 5 per cent. of the cases. Gallstones are found in 7 per cent. of all autopsies, while in autopsies of persons over sixty years of age they are encountered in 25 per cent. The symptoms of cholelithiasis are mainly those of indigestion. Colic is the most prominent symptom. Pain frequently and tenderness of the liver almost always follow the colic. There is a tender area on the right side behind, on a level with the twelfth dorsal vertebra, and extending at times to the posterior axillary line. This is a sign of great value. Jaundice when present usually occurs only after one to several days from the beginning of the colic. Immediately following an attack of biliary colic there is impairment of both the secretory and motor functions of the stomach, as evidenced by a diminution or absence of HCl. Lavage of the stomach is one of the best methods by which to overcome recurrent vomiting. In the treatment the foremost fact to be impressed is that stones in the gall-bladder probably cannot be dissolved by the administration of medicine. Confinement to bed after an attack of colic until inflammatory conditions have subsided should be insisted upon. As medicinal agents for the gall-bladder conditions and the usual digestive disturbances, the following combination has been recommended by Billings: Sodii salicylatis, 1.0; sodii phosphatis, 2.0; sodii sulphatis exsic.; 6.0; of this from one-half to one dram is to be taken in a glass of hot water thirty minutes before meals. The general attitude of both physicians and surgeons regarding operative procedure in most cases is too well fixed to warrant much discussion. In some cases Richardson advises operation the moment the first symptom of impaction appears, unless this impaction should be of the briefest and most trivial character.

Further Observations on the Wassermann Reaction for Syphilis.—W. P. Boardman states that the theory upon which this reaction is based is still obscure. As regards the Noguchi modification enough has already been done with this to show that it, like the many other modifications, gives a higher percentage of positive results in syphilitics, but like the others (though not nearly as often) it gives occasional positive results in non-syphilitics. It is concluded from an analysis of 500 cases examined with the original Wassermann technique, except that an alcoholic extract of normal liver was used as antigen, that a positive reaction is obtained in a large number of syphilitic cases, and if one adheres to the original Wassermann technic a positive reaction in a suspected case means syphilis almost without exception. A negative reaction in a suspected secondary or tertiary or congenital case means that it is probably not syphilis, but the finding should be used with caution and only in conjunction with clinical evidence and not by itself alone. A negative reaction in a suspected primary case, except one of long duration, and in an early case of general paresis, has very little value. In treated cases it has very little value except some months after treatment has ceased. To sum up, one may say that in the Wassermann reaction we have a definite aid to diagnosis, but its value in treatment and prognosis has not yet been carefully worked out.

The Technique of Arthrotomy.—C. F. Painter and A. P. Cornwall continue their contribution on this subject, referring in particular to the second largest group of cases for which arthrotomies have been performed at their clinic for tuberculous disease, and they describe the technique of the two procedures by which this is ordinarily accomplished, namely, excision and erasion.

Extreme Blood Picture in a Case of Pernicious Anemia.—W. C. Speidel reports a case in which the erythrocyte count dropped to 100,000 per cubic millimeter two hours before death, being the lowest count yet reported. The hemoglobin was 9 per cent. (Sahli).

New York Medical Journal.

October 29, 1910.

Report of Two Cases of Revolver Shot Wound of the Brain. J. C. Da Costa.
Demonstration of a Simplified Technique for X-Ray Localization of Bullets in the Thicker Parts of the Body. S. Tousey.
A Scientific Interpretation of *Asatsu*, or the Japanese Method of Restoring Life. By A. Abrams.
Some Circinate Syphilides. J. Kingsbury.
The Fulguration Treatment of Papillomata of the Bladder. L. Buerger and A. L. Walharst.
The Surgical Treatment of Chronic Gastric and Duodenal Ulcer and of Cancer of the Stomach. W. D. Hamilton.
Observations on the Variability of the Gastric Juice. E. L. Eggleston.
Shakespeare's Knowledge of Medicine. M. Kahn.

Shot Wound of Brain.—J. C. Da Costa states that the lead pistol bullet is septic. If the patient does not die

quickly of shock or hemorrhage, the bullet, if allowed to remain, will usually soon induce septic leptomeningitis, encephalitis, thrombosis, or abscess. It may be responsible for some such complication at a much later period. Even if the patient escapes septic complications and the bullet becomes encysted it will sooner or later, in almost all cases, cause irritation or destruction of brain matter, and be responsible for death after a prelude of epilepsy, paralysis, amnesia, deafness, blindness, cerebral softening, or insanity. Therefore, though a man may carry a bullet in his brain for a long period without apparent harm, such cases are very rare, and a lodged ball is practically always a deadly menace. A lodged ball will almost certainly some day, and probably very soon, cause grave disaster and eventually kill the victim; hence, if at all possible, it should be removed. The Röntgen rays enable one to be certain as to the situation of the bullet. The Mackenzie-Davidson localizer, an apparatus made entirely of metal, can be applied to the head during the operation, and used to indicate the depth of the ball from a chosen point on the surface without the necessity of mathematical calculations. The old conservative view of *laissez faire* is an error. In cases of lodged bullets radical surgery is usually the safest and the wisest. Having decided that a bullet is accessible one must study out how it may be reached most easily, most safely, and with the least injury to function. In some cases it is best reached by following the course of the ball from the entrance wound, in others from the opposite side, in some cases from the front, in others posteriorly. The author reports two cases of lodged revolver bullets. The first was that of a No. .22 bullet lodged in the brain for eight months, which had produced amnesia and convulsions. The bullet was successfully removed, the convulsions were arrested, but the amnesia was not improved. The second case was that of a .32 calibre bullet that had lodged in the brain for over four weeks, causing violent headaches; the bullet was successfully removed with complete recovery.

X-Ray Localization of Bullets.—S. Tousey describes a simplified method for localizing bullets in the thicker portions of the body, without the aid of elaborate apparatus.

Japanese Method of Restoring Life.—A. Abrams states that *kuatsu*, an integral part of *jiu jitsu*, is the method resorted to by the Japanese for the restoration of those who have been "knocked out." It was also found to be effective in instances of sunstroke, drowning, and injuries from other causes. The method is performed as follows: The subject is placed in the prone posture with arms extended sideways and the operator with his wrist lands severely upon the seventh cervical vertebra with the regularity of a carpenter striking with a hammer. As soon as the patient recovers consciousness, he is placed in a sitting posture, his arms are rotated, and he is aided in walking. The latter injunction is regarded as mandatory in the application of *kuatsu*, the object being to completely restore the functions of the circulation and respiration, otherwise, it is said, the patient relapses into unconsciousness. According to the author, the essential feature of this method is concussion of the seventh cervical spine. This is one of the means by which the heart reflex may be elicited. The most effective instrument for this purpose is a pneumatic hammer. The author states that he has had an opportunity of gauging the efficacy of vertebral concussion in many acute infectious diseases implicating the heart and he has noted the almost miraculous action of the method in question.

Circinate Syphilides.—J. Kingsbury describes seven cases that belong to this category.

Fulguration of Papillomata.—L. Buerger and A. L. Walbarst conclude that the de Keating-Hart method of fulguration of tissues when applied to bladder papillomata in the manner suggested by Beer offers an easy and reliable mode of treatment. Local anesthesia applied to the bladder is sufficient to eliminate pain. Three cases of bladder papilloma responded excellently to this method of treatment. Apparently a cure has followed in each case. Although the exact *modus operandi* of the high frequency current is not thoroughly understood in practice, one may regard this type of fulguration as a method of cauterization which easily surpasses the electrocautery in the facility with which it can be employed in the bladder.

Surgery of the Stomach.—W. D. Hamilton states that pain after food is a common symptom of chronic gastric or duodenal ulcer. When it occurs in from an hour and a half to two hours after meals, and if it persists, one may suspect that the ulcers may be at or near the pylorus. If the pain occurs four or five hours after food the duodenum may be the seat of the ulcer. The ingestion of food may relieve, at least for a short time, the pain of duodenal ulcer, while in the case of gastric ulcer it may enhance the patient's discomfort. Pain, nausea, vomiting, hematemesis, attacks of peritonitis, with or without crippling adhesions, or cicatricial distortion, emaciation, anemia, invalidism, phthisis, or even cancer and death, are a few of the incidents or results of chronic gastric ulcer without going more into the numerous pathological complications besetting ulcer of the stomach. That duodenal ulcer, too, is liable to mark its presence by many of those symptoms is undoubtedly true. The diagnosis of gastric or duodenal ulcer is presumptive until the abdomen has been opened. The precipitate opening of the abdomen for diagnostic purposes is to be deprecated. All kinds of evidence which may be pertinent to the case should be used and recorded before operation is done. Mr. Moynihan has called attention to the anamnesis, the patient's own written account of his disability up to the time of his admission. Test meals with their associated investigations, while of some value, should not be relied upon too implicitly. In a similar category are examinations of the feces for occult blood. While it is desirable beforehand to get all such contributory or negative evidence, and all such pertinent information in each case, each method derives its value very largely by association with other evidence.

The Variability of the Gastric Juice.—E. L. Eggleston, as the result of experimental studies, draws the following conclusions: With the same food materials there may be quite a marked variation in the percentage of composition of the gastric juice which may result from psychic influences. Iced foods or beverages have only a slight inhibitory action on gastric secretions. Foods containing free fats in any quantity when taken either at ordinary temperature or frozen have a decided inhibitory effect on gastric secretions. Fruit juices either frozen or at ordinary temperature quite markedly increase the secretion. Compound tincture of gentian seems to have but little effect as a gastric stimulant.

Shakespeare's Knowledge of Medicine.—M. Kahn states that the many references that the poet has in his works to the various medical sciences and arts would convince one that he had read books on medicine and that he had studied the writings of the ancient Greeks and Romans.

Journal of American Medical Association.

October 29, 1910.

Recent Progress in Microscopic Anatomy and Differentiation of Cancer. F. B. Mallory.
Mechanical Ileus Complicating Pregnancy. P. S. Doane.
Colon Bacillus Infection of Operative Wound. E. A. Babler.
The Tuberculous Tonsil. R. Levy.
Conditions Demanding Enucleation of the Faucial Tonsils. J. C. Beck.
Enucleation of the Faucial Tonsils, its Difficulties and Contraindications. B. R. Shurley.
Recent Progress and Present Status of Experimental Research in Cancer. L. Loeb.

Biochemical Investigation of Malignant Tumors and Its Diagnostic Application. R. Weil.
Relation of Heredity to Cancer. E. E. Tyzzer.
Recent Progress in Surgical Treatment of Malignant Growths. J. C. Bloodgood.
Cardiospasm with Dilatation of the Esophagus. J. S. Myer.
Strangulated Congenital Umbilical Hernia. I. R. Maercklein.
A Uvula Forceps and a Combined Tonsil Scissors and Separator. H. R. Boettcher.
Note on Treatment of Typhoid. L. M. Warfield.
Medicine-Dropper Clip. P. R. Wood.
Cultivation of Sarcoma Outside of the Body.

Histopathology of Cancer.—F. B. Mallory defines cancer from a pathologist's point of view as an epithelial tumor which infiltrates and which may give rise to metastases. To understand the full significance of this definition it is necessary to study in groups by themselves all the tumors which arise from each variety of normal epithelial cells and which tend to differentiate like them. Each group has its own peculiarities. There is a tendency to group together for study all tumors built up from the multiplication of single type cells which tend to differentiate alike. As examples of type cells he mentions the fibroblast, the smooth muscle cell, and the neuroglia cell. Two or more varieties of the type cell often exist, however. The newer classification recognizes that every simple tumor is due to the proliferation of one of the type cells which give the name to the tumor.

Mechanical Ileus Complicating Pregnancy.—P. S. Doane reports a case of this condition in which there had been a history of some intestinal inflammation seven years previous to the formation of the ileus, the inflammation at that time having been severe enough to produce adhesions which undoubtedly existed for a number of years.

Colon Bacillus Infection of Operative Wound.—E. A. Babler reports a fatal case of this condition following an operation for subphrenic abscess. The true origin of the subphrenic abscess was not clearly determined. The fact that a large portion of the diaphragm was destroyed by the bacterial invasion is interesting. The main feature of the case centered in the action of the colon bacilli on the postoperative wound. The author has not been able to find a similar report in the available literature. In his opinion the patient's lowered vitality, combined with the extensive distribution of the organisms, permitted but feeble opposition to the invasion into the skin and subcutaneous tissue.

The Tuberculous Tonsil.—R. Levy concludes that tuberculosis of the tonsils occurs more frequently than previously recognized, owing to newer methods of investigation. Clinically, tuberculosis of the pharynx, with or without tonsillar involvement, must still be looked on as among the rarer manifestations of tuberculosis. Clinical tuberculosis of the tonsils and that determined by histologic examination present marked differences. They are differentiated by the absence of symptoms in the latter and definite subjective and objective manifestations in the former. Many of the histologic findings attributed to tuberculous changes occur in other pathologic conditions. The diagnosis of true tuberculosis of the tonsils is more satisfactory when based on definite physical signs corroborated by typical histologic findings. The clinical form must be looked on as very grave, its curability being extremely doubtful. Extirpation of the tonsils is rarely indicated in clinical tonsillar tuberculosis. In the presence of cervical adenitis, lowered resistance, and evidences of malnutrition the best interests of the patient will be subserved by radical tonsillectomy even though other well-recognized indications for the operation be absent.

Tonsillar Enucleation.—J. C. Beck calls attention especially to the influence of the removal of the tonsils on enlarged glands of the neck and the cardiac complications of the rheumatic affections. Acute infectious diseases have been prevented or rendered mild by the operation, and in the diphtheria hospital in Chicago enucleation is performed on patients as soon as their cultures are negative. He has observed distinct improvement in several cases of tubal catarrh and ear disease. Apical tuberculosis of the lung was markedly improved in some patients by tonsillar removal, and he says that chronic bronchitis in children, not yielding to ordinary treatment, invariably yields to enucleation of tonsils and adenoids. A number of rheumatic conditions enumerated greatly improved under the operation, and he especially mentions 20 cases of rheumatism and cardiac complications giving a history of repeated attacks of tonsillitis, the cardiac disorder, as a rule, consisting of loss of compensation following such attacks, which had remained in good health since the operation. Other cases which yield to this treatment are mentioned, such as chronic septicemia with secondary anemia, certain gastrointestinal disturbances, nephritis, hepatitis, and pancreatitis resistant to other methods; also, certain eye troubles which have been permanently cured. In closing he presents a theory as to the raising of the opsonic index of the blood in all infections when the tonsils are enucleated.

Tonsillectomy.—B. R. Shurley states that the normal tonsil should not be disturbed, particularly in early infancy. Simple hypertrophied tonsils may be removed satisfactorily with the tonsillotome. Pathologic tonsils, especially those of the submerged type that produce well-defined local or general symptoms, should be completely removed within the capsule. In children tonsillectomy requires a general anesthetic, preferably ether. This should be a hospital operation when possible. Tonsillectomy is an operation that should be restricted to those who are specially qualified. The removal of the velar lobe and the complete separation of the pillars are the most important parts of the tonsil operation. Tonsillectomy is not indicated in all cases of so-called rheumatism. Complete enucleation is usually attended by more pain, a longer period of convalescence and greater danger of infection than tonsillotomy. When tonsillectomy is skillfully performed the hemorrhage is less than when the average tonsillotomy is done. Tonsils which have been involved in recent acute inflammation should not be operated on until all evidence of the acute condition has subsided. Many tonsils seen by the general practitioner, with every appearance of serious pathological condition, never develop local or systemic symptoms.

Progress in Cancer Research.—L. Loeb enumerates the important facts that have been elicited by cancer research in the past ten years as follows: Tumor cells in many cases can be propagated in other individuals of the same species and on the whole preserve their specific character as cancer cells. This proves definitely that tumor cells are not merely regenerating tissue cells and their activities cannot be merely due to the peculiarities present in the individual organism in which the tumor originated. In accordance with this fact is the other that the ferments of tumor cells differ quantitatively and probably also qualitatively from those of ordinary cells. The propagation of tumor cells is amenable to variations that can be experimentally produced, and the experimentally produced changes may be transmitted to a succession of generations of cancer cells. New and unsuspected properties of cancer cells have been discovered, among these their great capacity for recovering from external injurious influences. By selecting very well-growing tumor cells, it is possible to produce more rapidly growing tumors. Some important facts have been learned which may appeal to the physician. The transplantability of the tumor depends first on the character of this particular tumor, and second, on the character of the host. The majority of tumors, so far as one can at present say, can be transplanted in the same individual in which the tumor originated; others can be transplanted into individuals nearly related, while a certain number grow on a large number of individuals of the

same species, and a few grow even in different though in nearly related species. Some individuals of the same species are found immune and others can be rendered artificially immune. A very potent immunity can be produced by inoculating living tumor material, the vitality of which has been lowered by previous heating, and an active immunity has been produced in animals by the use of material from retrogressed tumors. The first positive results have been obtained in experimental immunization against tumor growth, a fact of great theoretical and practical significance. Experimental cancer research has also stimulated the experimental study of general tissue growth, and *vice versa*. It has also exerted a stimulating effect on some other apparently unrelated fields of science.

Biochemistry of Tumors.—R. Weil states that two agents have been identified in tumors which might be accused of a toxic influence on the somatic cell, namely, a hemolytic substance and a proteolytic ferment. The simple hemolysins are chiefly present in necrotic, and the complex hemolysins in the non-necrotic tumors. There is ample evidence that they pass into the circulation and may be regarded as active agents in tissue destruction. It has been shown to be a fact that anemia of marked grade with normoblasts in circulation and the development of a race of resistent erythrocytes, can be induced experimentally only by the repeated injection of hemolytic substances. The fact that a hemolysin can be extracted from cancerous material and that in a considerable proportion of cancer cases a hemolysin is found in the circulating blood strengthens the evidence that the anemia of the disease is caused by this hemolysin; but it cannot be considered of diagnostic importance; a positive reaction does occur in cancer cases with greater frequency than in non-cancer cases and it may therefore be cautiously considered in connection with other symptoms as an auxiliary to the diagnosis. The antitryptic reaction is also recognized as a striking symptom of cancer; it occurs also in other conditions, but the general consensus of opinion in England and Germany seems to be that it furnishes a very valuable aid in the diagnosis of cancer, especially if certain complicating factors such as tuberculosis can be excluded. It cannot be considered specific but that does not destroy its value as a clinical adjunct. The other so-called diagnostic reactions for cancer which have developed on the analogy of the well-known specific reaction, from immunology, such as the precipitin reaction, the complement deflection test and the anaphylactic method, have not proved to be of value. While the early reports of Ascoli's meiostagmin reaction, based on the diminution of surface tension when antigen and antiserum are brought together, are encouraging, it is too soon to decide as to its merits.

Heredity of Cancer.—E. E. Tyzzer concludes that heredity plays a rôle in the general incidence of cancer with regard to species, as is indicated by the frequency of mammary tumors in mice, while they are rare in cattle, which, however, develop primary tumors of the liver and adrenal. Although much of the evidence collected tends to indicate that heredity is not an important factor in the development of cancer, it would appear that this question cannot be definitely settled without the use of more accurate methods than have heretofore been employed. For this work the importance of the experimental breeding of animals cannot be overestimated, for here it is possible not only to obtain accurate data, but to shape the course of the experiment.

Surgery of Malignant Growths.—J. C. Bloodgood believes that one has come to a better conception of the pathologic varieties and also of their local growth and tendency to metastasis. Surgeons are learning better which kinds of tumors need extensive operation and which can be treated with less mutilation. Benign forms of tumors may become malignant and scars may give rise to sarcoma. The physician should constantly bear in mind the late effects of trauma. One of the important things in recent progress is the better knowledge and opportunities to anticipate malignant growths before they become really malignant. Bloodgood emphasizes the importance of diagnosis and states that one should try to become skilled in the clinical diagnosis. Surgeons with the largest experience find themselves frequently unable to decide whether a restricted or extensive operation is needed unless by pathologic as well as clinical examination. The experience to-day, he says, reverses the old rule of amputation for sarcoma of bone unless the resection of malignant disease would leave a limb without function. If spindle-celled or round-celled sarcoma of bone has grown to such a size as to require amputation metastasis has already taken place and the patient should not be subjected to the mutilation of an amputation for the few months they have to live, unless the tumor is giving so much pain or discomfort as to call for it. On the other hand, if the tumor belongs to the less malignant type, amputation should be performed, since in the majority of cases it will accomplish a cure. He concludes that until one has found some other method of treating malignant growths future progress must proceed along the lines followed at present.

Cardiospasm.—J. S. Myer states that an experience in ten cases leads him to the belief that there is a congenital basis for the development of the sacculation and that is the same that is the basis of the enteroptotic condition, a sort of general asthenic condition, the type of individuals being similar. While it is generally believed that cardiospasm is of nervous origin, how or why it develops in certain individuals has never been satisfactorily explained. He is inclined to attribute it to the neuropathic predisposition which accompanies the general neurasthenic predisposition. He doubts whether any complete relief can be obtained after sacculation exists, and the earlier a case can be recognized the more complete will be the cure.

Strangulated Congenital Umbilical Hernia.—I. R. Maercklein reports a case of this condition successfully operated upon, in an infant twelve hours old.

Uvula Forceps and Tonsil Separator.—H. R. Boettcher describes a new uvula forceps and a combined tonsil separator and scissors.

Treatment of Typhoid.—L. M. Warfield states that a life-saving procedure in the treatment of typhoid fever is the elevation of the foot of the bed.

Medicine Dropper Clip.—P. R. Wood describes a blued steel clip, which springs securely over the sides of the bottle and at the same time holds firmly a common rubber pipette, which, after using, is readily returned, to be at hand when wanted, and, which being cheap, is easily replaced.

Cultivation of Sarcoma Outside of the Body.—A. Carrel and M. T. Burrows state that their results show that sarcomatous tissue grows luxuriantly outside of the organism, that a second generation can be produced by the cells grown in a first culture and that the whole process can be observed with ease at every instant of its evolution. It is probable that the malignant tumors of the human organism can, in a similar manner, be caused to grow outside of the body. The method, therefore, will be a valuable addition to one's means of studying the problem of cancer.

The Lancet.

October 22, 1910.

Some Aspects of Heredity in Relation to Mind. H. B. Donkin.
The Royal Navy Medical Service. Admiral Sir John Durnford.
Scientific Observation. H. A. Miers.
Teaching of Insanity to the Medical Student and Practitioner in Relation to the Prevention of Mental Diseases. R. Jones.
Specialism in Medicine. D. W. C. Hood.
Specialists and Specialism. P. S. Abraham.
Further Experiences with 606. J. E. R. McDonagh.

A Case of Benign Cyst of the Humerus. H. Lett.
Anaphylaxia in Hay Fever, Nettlerash and Asthma. G. Billard.
Three Cases of Thrombosis of the Lateral Sinus. W. Wood.
The Treatment of Cholera Asiatica with an Anti-Endotoxic Serum. R. T. Hewlett.
The Action of Chlorine upon Water Contaning the Cholera Vibrio. H. W. Harding.

Heredity in Relation to Mind.—H. B. Donkin states that the only important link between the study of crime and that of heredity is the fact that a considerably larger minority of persons with clearly appreciable mental defect, apparently of congenital nature, is found among convicted criminals than among the population at large. But no really rational hypothesis of hereditary criminality has been formulated. As to the physical character of the brain of imbeciles, no absolutely positive statement can yet be made from the anatomical point of view as to how far true retrogression or how far arrest of fetal development can be said to contribute toward the solution of this problem. Touching the mental and moral characters of man, there is massive evidence which shows that many even of the most importantly adaptive among them are the result of modifications developed in each individual under the stimulus of actual use and training alone. Such characters are mainly and clearly traditional; they are handed down by each generation to the next through teaching and example, not through real inheritance; but their constant acquirement by every generation gives them the appearance of naturally inherited qualities. The doctrine of the leading biologists of the present day who recognize the truth of the principles of evolution as established by Darwin and who hold, in substitution of Darwin's supposition of the transmissibility of some acquired characters, that it is "educability" or the organic capacity of making such acquirements, not the acquirements themselves, which is innate and transmitted, seems to form the only synthesis which covers the known facts of heredity, is contradicted by none, and tends in consequence to be of further interpretative value. "The mind of the adult is mainly a social product, and can be understood only in relation to the special environment in which it develops and with which it is in perpetual interaction."

The Royal Navy Medical Service.—Admiral Sir John Durnford states that though there are some difficulties in a naval career there is much to recommend it. One cannot fail to appreciate the associations, the work, and the opportunities and advantages incidental to a life of travel. One may not obtain the reward a Harley street reputation sometimes carries with it, but perseverance will obtain the most satisfactory recognition a naval officer can aspire to, the good opinion of the great silent sea service which, when merit is deserved, communicates its appreciation in no uncertain voice. This and the gratitude of the officers and men served, and sailors are not ungrateful, will stimulate zeal in what one will find a satisfactory career.

Further Experiences with 606.—J. E. R. McDonagh states that in the treatment of syphilis with 606 a much bigger dose is required to heal an early chancre than to cure completely a case of extensive gummatous ulceration, for instance, in a congenital syphilitic; therefore one is justified in assuming that the cure is largely due to the amount of antitoxin formed. He concludes that much has yet to be learned before the final word on this wonderful remedy is given; one can say that the dangers have been extremely exaggerated, since only twelve deaths have occurred in 12,000 cases, and in many of these the injection was given as a last resource. This being the case, and there not having occurred an instance of visual disturbance, the drug will not fail to achieve the object which its talented discoverer had hoped for it.

Benign Cyst of the Humerus.—H. Lett reports a case of this condition in a boy of thirteen years, the result of traumatism, and successfully removed. It is stated that the formation of the cyst is associated with a local process which is of the nature of an inflammation. This process has led to fibrosis of the marrow with destruction of old bone and the formation of recent osteoid tissue, membrane, and lamellar bone. The process is of long duration. The process has also led to the formation of hyaline cartilage, or possibly the pseudoinflammatory condition may have been provoked by the degeneration of an abnormal deposit of cartilage.

Anaphylaxia in Hay Fever.—G. Billard concludes that the majority of persons attacked by hay fever or asthma are hereditarily anaphylactic or have during their life acquired anaphylaxia. He refers to a recent clinical lecture in which Professor Hutinel says "that acetonemic vomiting may be considered a sort of digestive asthma. The bilious headache represents, on the other hand, a kind of nervous asthma; eczema, a cutaneous asthma; and gout, an asthma of the joints. The common ground of arthritis brings these diverse complaints into close connection. Thus it is common to find among the ancestors of asthmatic persons nervous troubles, gout, diabetes, obesity." In the author's opinion, all these manifestations depend on anaphylaxia, another manifestation of which, ranking prominently among the neuroarthritics, is urticaria. A case is cited of a physician whose ancestors suffered from arthritis of an acute form, and in whom the eating of shellfish produced poisonous nettlerash accompanied with asthmatic paroxysms.

Thrombosis of the Lateral Sinus.—J. W. Wood reports three cases of this condition. In the first of these the main points of importance were: Cessation of discharge; sudden onset of pain behind the ear; tenderness along the internal jugular vein; shivering (rigors); Griesinger's symptom (tenderness and slight edema over the site of the emissary vein, although no tenderness or swelling over the mastoid antrum); the disks normal, and consciousness unimpaired. In the third case the principal points were the remittent temperature with free perspiration, but absence of rigors; the headache and sickness; the absence of optic neuritis; the presence of Kernig's sign, but no symptom of meningitis beyond this, and the absence of Griesinger's symptom.

Treatment of Asiatic Cholera.—R. T. Hewlett states that Macfadyen found that by the trituration of cholera cultures in the presence of liquid air the intracellular cholera juice or "cholera endotoxin" possessed decided toxic properties and by the immunization of animals an antiendotoxic serum was obtained which possessed considerable protective power as well as agglutinative and bacteriolytic properties. The author was able last year to immunize a horse by the Macfadyen method with cholera endotoxin prepared by the trituration of virulent cholera cultures obtained from India. This antiendotoxic serum experimentally possessed considerable protective and curative powers tested on guinea pigs. Thus 0.0001 c.c. and 0.5 c.c. of serum protected against 10 and 50 lethal doses respectively of living cholera culture injected simultaneously intraperitoneally into guinea pigs. Curatively 1 c.c. of the serum saved the life of a guinea pig inoculated intraperitoneally with four lethal doses of living cholera culture six and a half hours previously. A trial of this serum was made in nine cases of cholera which occurred during the epidemic of last year in Russia. The clinical reports showed that of the nine cases four died and five recovered. The number was too small to base any conclusions as to the value of the serum, but it seemed worthy of more extended trial.

Chlorine and Water Containing Cholera Vibrio.—H. W. Harding found as the result of his experiments that most waters, if treated with one part of chlorine per 1,000,000 for fifteen minutes would be free from the cholera vibrio.

British Medical Journal.

October 22, 1910.

Scientific Observation. H. A. Miers.
Certain Intracranial Diseases Associated with Nasal, Aural, and Laryngeal Symptoms. P. Stewart.
Injuries to the Eye. A. S. Percival.

Scientific Observation.—H. A. Miers refers to two possible dangers that beset investigators under modern conditions of work. First, those whose attention is too minutely fixed upon one thing will fail to perceive other things which are equally discernible and equally important; and secondly, those who look or listen too intently for a thing may actually see or hear that which they desire, even though it be not there.

Intracranial Disease Associated with Nasal, Aural, and Laryngeal Symptoms.—P. Stewart directs attention to some primarily intracranial diseases in which the aural, nasal, and laryngeal symptoms only transpire incidentally, as it were, in the course of the malady, and in which, nevertheless, the recognition of these symptoms is of the utmost importance for a correct diagnosis. The first case was that of a tumor in the region of the optic chiasma, in which the voracious appetite suggested upward extension toward the temporal lobe on one or the other side. This case exemplified the importance of recognition of the cortical center for hunger situated in close proximity to the centers for smell and taste. The second and third cases were those of extracerebellar tumors arising from the auditory nerves, in which there were cochlear or vestibular symptoms. In the fourth case, that of intracerebellar tumor, there were no symptoms referable to either division of the auditory nerve. The fifth case was that of syringomyelia with nuclear paralysis of the larynx. In the sixth case, also one of syringomyelia, the process extended upward in the medulla to the nuclei of the hypoglossus and vagus.

Injuries to the Eye.—A. S. Percival states that in removing a foreign body from the cornea one should always use a lens. If an abrasion of the cornea occurs which has not perforated Bowman's membrane no scar will result. If, however, Bowman's membrane be injured a scar or nebula will result. If the foreign body have penetrated the eye, when magnetic it should be removed by a magnet. When not magnetic it must be seized by forceps through a suitable incision. In some cases the foreign body need not be removed at once. The most important point upon which one may at any time have to give an opinion is what cases of injury should be regarded as liable to give rise to sympathetic ophthalmia, and under what circumstances the injured eye should be removed at once. In almost every case of sympathetic ophthalmia the exciting eye has been previously perforated either by injury or by ulceration. Hence, every perforating wound which is not known to be aseptic is always a source of great anxiety. The risk is extreme: 1. If the wound be in the ciliary region; this dangerous area may be defined as the zone one-quarter inch in width that surrounds the margin of the cornea. 2. If the wound be septic—often this can only be recognized by its consequences; it should, however, be noted that wounds giving rise to suppurative panophthalmitis are not liable to induce sympathetic ophthalmia. 3. If a foreign body be retained in the eye, its removal being impossible. Immediate excision of the eye is indicated by the concurrence of two of these conditions, even though some sight be retained; by the occurrence of one of them if sight be irreparably lost, provided that the vision of the other eye be good, and that it shows no sign or iridocyclitis. Under other circumstances excision of the eye may be delayed until symptoms arise without much risk, but operative interference is necessary when there is persistent severe or recurrent iritis, when the eye is tender or when it becomes soft, or when the other eye is the seat of sympathetic irritation.

Berliner klinische Wochenschrift.

October 17, 1910.

Opsonins and Their Relation to Practice.—Michaelis of Professor Wassermann's Division of the Royal Institute for Infectious Diseases, Berlin, admits at the outset that German scientists have received the teachings of Wright with much reserve. Vaccine therapy is therefore a new resource in Germany. The author has applied the method and studied it thoroughly before publishing any conclusions. He concedes that in stephylococcus disease, as well as gonorrhea and colibacillosis, active immunization is indicated. Cases of these affections which could not be made to yield to other treatment succumbed to vaccine therapy with autogenous vaccines. In streptococcus discase the indications are more restricted, and a combination of vaccines must be used. Although quite enthusiastic for the outlook of vaccine therapy, the author cautions that this resource is still in the formative stage. Of the entire range of diseases susceptible to vaccine therapy, comparatively few seem to have been tested by the author—doubtless only those which presented themselves during the period of experiment. Incidentally he treated fifty cases of local tuberculosis with Koch's new tuberculin emulsion as a vaccine; the results obtained after prolonged treatment were decidedly inferior to ordinary surgical methods.

Hay Fever as Explained by Anaphylaxis.—Hoffmann concludes that the pollen disease is due to supersensitiveness of the mucosa of the respiratory tract to a heterologous albumin which exists in certain pollens. Another factor is also required, to wit, a diminution of the excitability of the vasodilator nerves. This condition is due, in some cases at least, to hyperthyroidism. Such views naturally require something better than mere deduction to support them, and the author attempts to prove his claims from clinical facts. 1. Basedow's disease, equivalent to hyperthyroidism, shows supersensitiveness in the form of urticaria and dermographism, which conditions are also common in hay fever subjects. 2. Thyroid enlargement in hay fever has been noted since the time of Mackenzie, but the subject has never been systematically studied. Recognition of slight enlargement is difficult and it is not necessary for a gland to be enlarged in order to be hypersecretory. 3. Hay fever may disappear permanently after strumectomy, and is sometimes benefited by thyroidin. 4. In hyperthyroidism gentle stroking of the nasal mucosa with cotton shows exaggerated vascular reflexes in the trigeminus area. This is most evident in the conjunctiva. 5. Patients with Morbus Basedowi react to subcutaneous injections of pollantin. 6. There is a certain parallelism between the syndrome of iodism and that of hay fever. In theory extirpation of the thyroid should be the radical treatment of hay fever.

Culture of the Spirochaeta Pallida.—Schereschewsky possibly does not regard the discovery of Ehrlich's arsenobenzol compound as final in the treatment of syphilis. He has spent a long time in attempts to secure pure cultures of the pallida in the interest of a vaccine therapy of syphilis. Cultures thus far obtained seem to represent an admixture. It is a striking fact that numerous other forms of spirochetes are readily cultivated, while the *Spirochæta pallida* is peculiarly refractory. It is, therefore, possible that in a given culture fluid containing the pallida the latter may not survive, while other forms accidentally present may flourish. At any rate such cultures cannot be made to communicate syphilis to any of the susceptible animals. Various other explanations are available. Thus the pallida may lose its virulence in the process of culture. A bit of syphilitic tissue which includes a normal culture of the pallida is readily inoculable. As with artificially cultivated spirochaetes in inoculation experiments, so with the same in the biological reactions. No agglutination could be

obtained; the precipitin reaction was absent. When used as an antigen positive results were obtained in Wassermann's reaction, but this fact proves nothing. We must either succeed in obtaining pure virulent cultures of the pallida or there will always be a flaw in the title of this microorganism to be the actual cause of syphilis.

Deutsche medizinische Wochenschrift.

October 20, 1910.

Nature of the Trachoma Exciter.—Herzog, who claimed recently that the trachoma body is only a mutation of the gonococcus, and who has been antagonized or merely ignored by all coworkers in the realm of trachoma, continues to write in the same confident tone. He first claims that in any case the chlamydozoa theory is untenable. He regards it as quite demonstrable that the trachoma parasite represents an involutionary and degenerative form of some Gram-negative diplococcus, and that this can be no other than the gonococcus. He is forced to admit that there are gaps in his theory, *i. e.*, a fresh culture of gonococci cannot produce trachoma. But if we pass cultures from one subject to another, with considerable intervals, the gonococcus finally undergoes a mutation which represents the trachoma body and possesses the ability to convey trachoma, being too weakened in virulence to cause acute gonorrhea. The author might have cited a somewhat parallel instance from the history of vaccination. A horse was once inoculated with human smallpox, matter from the pastules of which caused typical variola instead of vaccinia, in a human subject. Thereafter the inoculation was passed along from one horse to another. The pus in the fourth or fifth generation caused vaccinia, showing that mutation of some sort had taken place, with weakening of virulence.

Unusual Location of the "Lead Line" in Plumbism.—Most students are familiar with the gray line on the gums near the teeth which was believed to be pathognomonic of lead poisoning. Few ever learned that this line can fail completely in this locality. Knierim, who has made a study of the literature from old and recent writers, shows conclusively that the lead line or area may be found anywhere in the mouth, and may even involve the entire mucosa. The deposit of lead sulphide which is responsible for the discoloration may be seen as far back as the pharynx. That it has any real predilection for the gums appears doubtful. If a person with cleanly habits who practises hygiene of the mouth chances to contract plumbism his gums near the front teeth may escape a deposit, and this is true of toothless subjects. Generally speaking, this gum localization is absent in 50 per cent. of cases. Other localities may, however, be attacked, as the inner surface of the lips, the cheeks, the gums corresponding to the back teeth, the palate, etc. The author reports a case of one of the rarer localizations, viz., at the inner surface of the lips. The deposit was in the form of macules. There was a lead line on the gums, exactly opposite the deposit on the lips. The author makes an attempt to explain the lip location through contact of the lips and gums, the latter being possibly irritated by the carious teeth present. The lead may have been directly transferred to the lip, or may have passed into the saliva and been redeposited in the abraded surface.

Local Quartan Malaria Along the North Sea.—Mühlens discusses the appearance of this affection in Northwest Germany—or rather its reappearance, for it prevailed there extensively a generation and more ago. In discussing the phenomenon the author barely mentions the mosquito, beyond the remark that the anopheles has constantly been present in the locality, yet many years elapse without a case. Quartan parasites were now and then found, but without typical behavior in relation to the attack and otherwise. The theory of parasite carriers and of imported cases from the south could both be excluded. In fact, for this particular outbreak we are as helpless to postulate a cause as were the old observers of pre-scientific days. Quinine relieved single attacks but had no power to prevent relapses. The author is careful always to separate the new quartan form from the tertian, which is always present, pursues its own course and presents its own type of parasite. To what extent the latter is imported from warmer climes or is due to carriers is uncertain.

Münchener medizinische Wochenschrift.

October 18, 1910.

Anesthesia of the Tuberculous Larynx by Alcohol Infiltration of the Superior Laryngeal Nerve.—Roth refers to the pioneer work on this subject by Hoffmann in 1908. The chief aim was relief of the dysphagia. Sturmann in the following year succeeded in so infiltrating the superior nerves that the glottis remained insensitive for three months. These alcohol infiltrations were without unpleasant consequences such as follow the similar employment of cocain. Hoffmann later reported 16 cases in which anesthesia lasted for from 6 to 40 days. Since then there has been no new literature on the subject. The author and colleagues have, however, been at work on the subject and now report a material of 33 cases. The indication for the infiltration was always dysphagia. All but three of the patients had advanced pulmonary phthisis. The laryngeal lesions exhibited their usual diversity. Besides dysphagia most of the patients suffered from hoarseness or aphonia, and lancinating pains. The dysphagia was of some two months' average duration, and a variety of local anesthetics had been used without success. The dysphagia was naturally most pronounced for solid and semisolid food. The idea of the alcohol infiltration was adapted largely from Schlösseo's method of treating neuralgia, the technique being similar. The point for injection lay between the hyoid bone and thyroid cartilage where the internal branch of the superior nerve is given off for the sensory innervation of the larynx and trachea. In but one case was this point sensitive. The technique is principally that for aseptic injections in general. The injections were painful, the pains being at the seat of puncture and radiating. About 1 gram was the regular amount of alcohol required, the largest quantity used being 2 grams. In but a single case was the result negative. Anesthesia lasted from one to twenty-one days. The method appears to be a decided advance in the treatment of the dysphagia of tuberculous laryngitis.

Post-Traumatic Heart Disease.—Beckhaus sums up a series of cases as follows: Either a severe physical shock, involving the entire body, or one merely local, involving the left side of the chest, may at times be followed by a cardiac lesion. Some doubt must coexist as to the condition of the heart before injury. The case of a young man presents the greatest interest. He sustained a fall from a signal mast, about 20 feet. No external or internal injuries apparent, save for the urinary tract (bloody urine, casts). He soon improved, but continued to suffer from pains in the back, precordium, etc. Examination of the heart showed slight enlargement, a systolic murmur, tachycardia on exertion, and arrhythmia. The condition at first became worse, but four months after injury all had become normal. Psychic shock was also in evidence, as shown by the effects of reminiscences and associations. But the author found no evidence of typical neurasthenia or hysteria. The two other recorded cases occurred in elderly men who had worked at hard labor for years, although the heart in each was believed to be intact before the injury. None of the two made a complete recovery. The author's diagnosis of the exact lesion in the three cases was myocarditis with muscular mitral insufficiency.

Book Reviews.

Le Globulin des Mammifères. Par le Docteur M. Aynaud. Preparateur à la Faculté. Ancien Interne des Hôpitaux de Paris. Paris: G. Steinheil, 1909.

In this book of over 200 pages the author gives an exhaustive review of the writings of others on the blood platelets and presents the results of his own extensive studies of the subject. He describes the technique of observing this element of the blood in the living animal, using the mesentery of young rabbits, and also in shed blood, using paraffined glass ware or citrate solution to prevent coagulation. Like Bizzozero, Eberth and Schimmelbusch he describes the platelets as occurring in two forms, an elongated spindle-shaped type which is the one always seen in unaltered and circulating blood, and a rounded form, which is the one ordinarily found in the preparations as commonly made. The older writers believed that the spindle-shaped form represented simply the lateral view of biconvex disk, but Aynaud considers that the platelet is really a disk that is exceedingly thin and has perfectly plane surfaces. Its apparent thickness when seen from the side is due to very rapid oscillations of the platelet, which are normally continuous, and possibly depend on interchanges between its substance and the surrounding medium. When the platelet undergoes changes due to fixation or an alteration in the fluid medium its motion ceases and it presents itself as a disk. Why it normally always is seen from the edge is an open question. There is an excellent bibliography and the book is of interest to all workers in this field.

Hay Fever and Paroxysmal Sneezing. By Eugene S. Yonge, M.D., Physician to the Manchester Hospital for Consumption and Diseases of the Throat. With two colored plates. 150 pp. Edinburgh and London: William Green & Sons, 1910.

For the author this title is another way of saying, "vasomotor rhinitis." He adds a section on idiopathic rhinorrhea. Each one of the sections is introduced with an interesting historical chapter. In regard to hay fever the various theories are given full consideration. The author accepts the existence of a predisposition, some intranasal peculiarity and an exciting agent especially the various pollens. The book is readable, well printed, and interesting.

Die Praxis der Ernährungstherapie der Zuckerkrankheit. Von Dr. Hermann Schall und Dr. August Heisler, früheren Assistenten der medizinischen Klinik in Marburg. Mit 1 Kurventafel. Würzburg (Curt Kabitzsch): A. Stuber's Verlag, 1910.

The difficulties attending a really rational dietetic treatment of diabetes are increasing in proportion as the conditions underlying the successful management of the disease are being better understood. The inadequacy of the dietetic regulations contained in the ordinary handbooks is evident, still but little has so far been done to supply comprehensive and thoroughly modern, yet practical, working directions for use in every-day practice. The present brochure of 150 pages is admirably adapted to fill this need, and contains all the information necessary to regulate the diet of the diabetic so as to secure a maximum of therapeutic effect and entail a minimum of discomfort.

Studies in Immunity. By Professor Paul Ehrlich, Privy Councillor and Director of the Royal Institute for Experimental Therapy, Frankfort, Germany, and his collaborators. Collected and translated by Dr. Charles Bolduan, Bacteriologist, Research Laboratory, Department of Health, City of New York. Second edition, revised and enlarged. New York: John Wiley & Sons. London: Chapman & Hall, Limited, 1910.

Dr. Bolduan is already well known as the translator and editor of much of the German literature in the field of immunity and allied subjects, and his version of the collected studies of Ehrlich and his associates has won him the especial gratitude of all English-speaking laboratory workers. In presenting a new edition of the volume he has added Ehrlich's later studies, including his Nobel lecture on the "partial-functions" of cells, as well as some of his earlier papers that were not previously translated. The usefulness of the work has been still further increased by the preparation of an ingenious index of the hemolytic and bacteriolytic reaction described in the text, an index of the authors quoted, and a very complete index of the subjects discussed. Whatever the ultimate verdict will be as to the validity of Ehrlich's theory the importance of these papers cannot be overestimated, and they will always stand as masterpieces of research brilliantly conceived and elaborated with infinite patience. The difficulties of translation have been unusually great, but have been surmounted with signal success, and Dr. Bolduan fully deserves the appreciation of his skill that has been attested by the prompt exhaustion of the first edition.

Founders' Week Memorial Volume. Containing an account of the Two Hundred and Twenty-fifth Anniversary of the Founding of the City of Philadelphia, and Histories of Its Principal Scientific Institutions, Medical Colleges, Hospitals, Etc. Edited by Frederick P. Henry, A.M., M.D., John V. Shoemaker, M.D., Chairman of the General Committee on Scientific Institutions, Medical Colleges, and Hospitals of Philadelphia, and ex-officio of the Committee on Publication. Published by the City of Philadelphia in Commemoration of the Two Hundred and Twenty-fifth Anniversary of its Founding, Philadelphia, 1909.

On December 13, 1907, Hon. John E. Reyburn, Mayor of Philadelphia, appointed a committee to determine the year of the physical and legal founding of the City of Philadelphia. As a result of the labors of the committee, the year 1683 was settled upon as being the true date of the founding of Philadelphia as a separate government. The committee recommended to his Honor, Mayor Reyburn, that the 225th anniversary of the founding of Philadelphia should be celebrated in a suitable manner by commemorative exercises, under the auspices of the city government and a committee of citizens. This celebration occupied the entire week of October 4-10, 1908. The particular object of this memorial volume is to record the history of the hospitals, medical colleges, and allied scientific institutions of the city of Philadelphia. These histories are very complete and contain much interesting reading, for with the institutions are linked the names of many eminent men, pioneers and leaders in medicine. The introduction contains the reports of the various committees having the celebration in charge, together with the programs of the commemorative exercises.

Difficult Labor. A Guide to its Management for Students and Practitioners. By G. Ernest Herman, M. B. Lond., F. R. C. P., F. R. C. S., Consulting Obstetric Physician to the London Hospital; Consulting Physician-Accoucheur to the Tower Hamlets Dispensary; late President of the Obstetrical Society of London and of the Hunterian Society; formerly Physician to the General Lying-in Hospital, and to the Eastern District of the Royal Maternity Charity, and Examiner in Midwifery to the Universities of London, Oxford, Cambridge, and Durham, the Victoria University, the Royal College of Surgeons, and the Royal College of Physicians. With 180 Illustrations. New and Enlarged Edition, with added Chapters on Retroversion of the Gravid Uterus and Puerperal Eclampsia. New York: William Wood and Company, 1910.

The appearance of a fifth edition of this work is evidence of its popularity. The whole work has been revised, new matter and illustrations have been added, including chapters on retroversion of the gravid uterus and puerperal eclampsia. The object of the author has been to give the reader more definite guidance in practice than he gets from other textbooks. His experience in difficult labor has been such as to warrant his stating what he considers the best way of dealing with each complication of labor without giving all current opinions. This gives a distinct character to the book, which may be referred to for detailed information as to the management of every phase of difficult labor. The practical value of this is heightened by the absence of theoretical and controversial matter. The teaching experience of the author is discerned on every page, in the arrangement of the text, the use of heavy-faced type and italics as paragraph headings, all of which render the work available for quick reference. The illustrations are numerous and form a helpful complement to the text. The author advises closer co-operation between physician and midwife, the latter being competent to watch the progress of labor, and to report all abnormalities to the physician. The acceptance of this attitude may be a boon to the busy practitioner. The newly added chapter on eclampsia is an admirable contribution to the subject. The question whether forcible delivery is of any value in this condition is answered in the negative. An analysis of over 2,000 cases reported in various lying-in hospitals shows that after rapid delivery there is no diminished tendency to the occurrence of convulsions. The advice is given that labor should be permitted to go on naturally, and interference resorted to only if some other condition is present that would demand interference.

Society Reports.

MEDICAL ASSOCIATION OF THE SOUTHWEST.

Fifth Annual Meeting, Held at Wichita, Kan., October 11 and 12, 1910.

THE PRESIDENT, DR. G. H. MOODY, OF SAN ANTONIO, TEX., IN THE CHAIR.

ADDRESSES of welcome were delivered by Hon. C. L. Davidson, Mayor of Wichita; Dr. O. P. Davis, President of the Kansas State Medical Society, and Dr. E. J. Oldham, of Wichita, Kan., which were responded to by Dr. Joe Becton, Greenville, Tex.

Colica Mucosa.—Dr. E. H. THRAILKILL of Kansas City, Mo., had chosen the designation colica mucosa from the long list of names that had been proposed for non-infectious diseases of the mucous membrane of the colon. It was most appropriate, for it designated the passage of mucus and the attacks of colic. Formerly this was considered a constitutional disease, owing to the lack of scientific knowledge as to the etiology and pathology, but in recent years various views and opinions had arisen and had been published. He had adopted the following classification: 1. Those cases due to a motor and sensory neurosis he designated simple colica mucosa. 2. Those due to extra-colonic conditions, causing interference with the movement of the fecal discharges, he designated colica mucosa reflexa. 3. Those due to an extension of the inflammatory process from the rectum or appendix, or when due to the retention of hardened fecal masses, foreign bodies, or to the prolonged use of cathartics, causing an inflammatory condition, he designated mucous colitis. Inasmuch as the conclusion was that each class required a different treatment surgically and medically, he could conceive of no better way in which to illustrate this classification than to report briefly a case of each class. After reporting a case of each class, the author said that in chronic cases, or those due to a mechanical interference or an inflammatory process, the mucus was thick, tenacious and attended with considerable pain, due to the strong peristalsis of the bowel in its effort to dislodge and expel it. The majority of these patients gave a history of disturbed digestion or constipation, preceding the onset of this affection. He had had patients give a history of diarrhea preceding or accompanying this trouble. As a rule, the diarrhea was due to a diet, composed of a concentrated food, and the diarrhea was due to the lodgment of fecal crumbs throughout the bowels.

DR. ARTHUR E. HERTZLER of Kansas City, Mo., said the classification given was very sensible. The great difficulty that had arisen in the conception of this disease had been due to confusing the various classes of cases. In some cases the condition was neurotic; in others it was not. They had not used as much care as they should have done in separating the different cases. It was sometimes difficult to make a satisfactory diagnosis because the neurotic condition might be secondary to some organic disease. A patient might present a history of some neurotic condition, and the natural inference was that the trouble was the result of nervous disease, and yet the disturbance might be secondary to some abdominal lesion which was obscured by the existence of the organic trouble. Unfortunately they were not in possession of sufficiently clear knowledge of the abdominal conditions which developed in these nervous states to be of much avail. Most of the cases of colica mucosa he had seen had been in neurotic subjects, and they had responded to treatment by the neurologist. There were a number of cases attended by stomach disturbance, and in others by diverticular formations, and yet there was no definite symptomatology.

Dr. G. W. ROBINSON of Kansas City, Mo., said his experience with colica mucosa had been confined chiefly to cases among the insane. This condition was more frequent among them than any other class of patients. The conditions among the insane were favorable for its development. Constipation was very common among insane patients, and they found that there was a disturbance of the function of the cells of the central nervous system, and he believed this condition was chiefly a perversion of the secretory nerves as well as the motor nerves of the intestine.

Postoperative Care and Treatment of Suprapubic Prostatectomy.—Dr. D. W. BASHAM of Wichita, Kan., said suprapubic prostatectomy offered a marked exception to the expectant plan of postoperative treatment. The fact was that the after-treatment was fully as important as the operation itself. Many cases would either die or fail to recover without full functionation of the bladder without suitable treatment during convalescence from the operation. Suprapubic prostatectomy should not be performed outside of the hospital, unless an experienced male nurse could be left with the patient to attend to the details of the after-treatment. Most of these patients were in an enfeebled condition, brought about by years of catheter life with infection of the bladder accompanied with pain and vesical tenesmus. Frequent attacks of urinary stasis might have resulted in an ascending pyelitis. These conditions might all be aggravated by prolonged and crude efforts to pass the catheter. It was possible for pyelitis to be provoked after operation, provided the drainage was not absolutely unobstructed. Drainage was indispensable in most cases of suprapubic prostatectomy. There were a few cases in which the bladder might be closed and urethral drainage depended upon, but they were not numerous, and constituted exceptions to the rule of safe practice. The rubber tube having a diameter of not less than half an inch, fenestrated toward the end and having the edges pared to a feathery thinness, constituted the best method of drainage. If the tube was even larger in caliber it was still better. Hemorrhage might be controlled and treated through a large tube. The method of placing the drainage tube was important. Neither the drainage tube nor the bladder should be stitched to the abdominal parietes. It was better for these patients to get out of bed early. This facilitated both drainage and the early passage of the urine through the urethra.

Dr. JABEZ N. JACKSON of Kansas City, Mo., said he was a strong advocate of the perineal route in removing the hypertrophied prostate rather than the suprapubic. In his early practice he resorted to the suprapubic method, but abandoned it subsequently for the perineal, as one of the great difficulties attending the former was the establishment of proper drainage through the suprapubic wound. If he were going to do suprapubic prostatectomy as a routine measure, he should be inclined to employ the method of Senn, namely, do the operation in two stages, the first stage consisting of making an incision down to and exposing the bladder wall, followed by packing until the cellular space about the bladder was closed by granulations, then making an opening through the bladder. In this way, they did away sometimes with disagreeable infection which took place in the freshly exposed cellular tissues which ultimately interfered with the healing of the wound.

Dr. BRANSFORD LEWIS of St. Louis stated he had always advocated catholicity in connection with this subject and freedom from being restricted to any one operation, still his preference was for the perineal operation in selected cases. He had never been converted to the use of a large tube, such as was used by Freyer and others, because he had not been able to see the advantage of it, particularly when drainage could be accomplished just as effectually and satisfactorily by a smaller tube which would entail a

shorter time for convalescence and granulation than a very large tube. The formation of clots could be prevented by the siphonage apparatus of Bremmerman, of Chicago.

Dr. E. G. Mark of Kansas City, Mo., stated while he favored the perineal route in most cases, yet there were instances in which the suprapubic was unquestionably one of choice. The main thing after suprapubic prostatectomy was drainage, and cases of hypertrophied prostate requiring prostatectomy practically always had cystitis. To obviate the occurrence of hemorrhage and to secure efficient drainage, to do away as far as possible with the formation of clots following cystotomy, nothing in his hands had proven so valuable as continuous irrigation for twenty-four or forty-eight hours.

Dr. J. D. Griffith of Kansas City, Mo., stated he had done more operations by the suprapubic route than by the perineal. While he admitted the advantages of the perineal route, he thought with Freyer that there were many cases in which a suprapubic cystotomy was demanded, and that efficient drainage was the thing par excellence. He believed in irrigating the bladder and in siphonage. He believed in protecting the space of Retzius with gauze

Dr. Howard Hill of Kansas City, Mo., stated with regard to the use of a tube through the incision after suprapubic prostatectomy, he favored a large one, as he believed it was more advantageous than a smaller one. After the operation continuous irrigation, with hot water, with the patient propped up well and on the side, would control the hemorrhage. Hemorrhage was one of the serious objections to suprapubic prostatectomy, because it occurred from the time the operation was begun, and hemorrhage marked the first stage in the after-treatment of the patient. In regard to suturing around the tube to prevent leakage one could secure the skin and bladder together.

Dr. C. G. Norberg of Kansas City, Mo., said his experience had been confined very largely to operating on cases of hypertrophied prostate by the perineal route, and he preferred it to the suprapubic operation.

Dr. Basham, in closing, said it was evident from the discussion that the last word on prostatectomy had not been said. Each speaker had voiced his own convictions in the matter, and that spirit was to be admired because it was in that way they advanced their knowledge. This was an operation that must be done, and it behooved them to master all the details connected with it in order that they might increase the safety of the operation.

A New Method of Cure for Pelvic Infections in Women.—Dr. J. F. Kuhn of Oklahoma City said peritoneal infections of the pelvis were easily controlled, because with the Fowler position the infectious material was confined to the pelvic cavity, where toxins were more slowly absorbed than in the upper peritoneal regions, and in consequence the system produced antibodies rapidly enough to counteract their effects. He wished to lay special stress upon the treatment through the rectum with normal saline solution. By the method he suggested, the rectum was distended at six hourly periods with from one to four pints of the solution at 105° F., increasing the quantity gradually as tolerance for a larger amount was established. Intermittent periods of hyperemia were thus produced which hastened the destruction of the infecting organisms, induced more rapid absorption of the resultant plastic lymph, and prevented the formation of dense adhesions so commonly seen in the neglected cases. It had all of the other advantages of normal saline, stimulating and aiding the emunctories in ridding the system of the products of infection; fortifying the system during its struggle to produce antihodies and finally, by the action of heat locally, relieving the patient of the distressing pain which was her chief complaint. One of his cases illustrative of its value in this infection made such a complete recovery that he mentioned it in order to encourage others to a trial. Mrs. H., with streptococcic puerperal sepsis, was delivered March 10, 1910, and five days later had a chill with high fever and exquisite tenderness throughout the whole pelvis. Patient was placed on treatment as mentioned and continued on this treatment until March 31, when the saline was withdrawn for a few days, to be continued thereafter at twelve hourly intervals. She made a complete and uninterrupted recovery.

Dr. Arthur E. Hertzler of Kansas City, Mo., stated the question of treatment of the first stage of gynecological gonorrhea had resolved itself in his hands into purely deliberate, with malice aforethought, treatment. These women were put to bed, their bowels were moved, and practically nothing more was done. The result of this line of treatment ran something like this: About two-thirds of them recovered their health; about one-quarter of these two-thirds would conceive. The remaining third would come to operation. At the end of the first few days there would be a leucocyte count of from 15,000 to 25,000 which would drop down to normal in two or three weeks, which was preceded in its course by a drop of the temperature to normal. The temperature fell to normal usually ten days before the leucocyte count did. They had obtained excellent results from the use of autogenous serum in chronic cases of gonorrhea; but their experience with the stock serum had not been satisfactory.

Dr. J. A. Walker of Shawnee, Okla., said he had not tried the method that had been outlined by the essayist, but a reasonable time to wait for inflammation of the Fallopian tubes to subside and to incarcerate itself by the adhesions of the fimbriæ, and ordinarily by the occlusion of the uterine end of the tube, would isolate the pus cavity from the general peritoneal cavity, but it did not isolate it sufficiently to prevent the formation of strong adhesions to the surrounding tissues. As long as those adhesions were present the patients were going to have trouble. If the inflammation was of a streptococcic nature, the adhesions were more liable to be dense and lasting than if they were from the Neisser coccus, and when the adhesions were so strong and dense he did not believe it was wise to be too conservative and wait too long before breaking up the adhesions and removing the foreign body, which an old collapsed occluded tube was bound to be. His practice had been to wait a reasonable time for the inflammation to subside and, perchance, for the pus after having become sterile to be reabsorbed. If he thought such a thing had not occurred he removed the tube, leaving all ovarian tissue possible.

Dr. J. D. Griffith of Kansas City, Mo., said they knew how dangerous infection was from the Neisser coccus and how frequently they met it. He had used the serum in these cases, and he had used the knife. He had resected the tubes and tried to save organs that he thought would functionate, but the treatment the essayist had outlined in the acute stage of filling up the rectum with normal salt solution, with the patient in the Fowler position, he had never tried, but when the first case presented itself he was going to do it.

Dr. Kuhn, in closing, stated that if in a community not larger than Oklahoma City he could treat a series of twenty-eight cases with the treatment he had outlined without a failure Dr. Griffith and others could certainly achieve the same results in the larger communities in which they practiced. He hoped they would try the method.

Treatment of Patients Desperately Ill in Consequence of Accident.—Dr. Charles E. Bowers of Wichita, Kan., stated these patients demanded immediate and best attention. Many of them seemed to be beyond hope; others recovered notwithstanding shock, hemorrhage, or infec-

tion might be present. In these cases it became necessary to do what they could to save lives that were thus jeopardized. What resources had they at their command to assist reaction? What kind of intervention had they recourse to and by what signs did they know that their patients were exhausted on account of shock, hemorrhage, or infection? Prompt and efficient intervention was demanded. The term shock had been applied to the clinical phenomena of pallor, lowered temperature, lowered blood pressure, diminished respiration, weak pulse, feeble heart action, and mental torpor. In treating shock the first therapeutic agent indicated was something that would raise the body temperature, and the best was dry and moist heat. Perhaps a hot bath would do the most and then the other methods of dry heat. The second thing to do was to lower the head in order that they might benefit the circulation of the brain. It was the brain circulation that had much to do with shock, and with a better brain circulation very soon the patient would recover from shock. The third thing to do was to reestablish the normal specific gravity of the blood, and that could be done by saline solutions subcutaneously, by the rectum, or by the transfusion of blood.

Dr. Howard Hill of Kansas City, Mo., stated the various manifestations of lowered blood pressure, such as anemia, could best be met by the use of normal saline solution and the application of heat externally, and the internal administration of salines constituted practically all that had to be done. The author of the paper mentioned severe shock from severe burns, and the use of morphin to control the afferent impulses. It was beneficial in many cases of shock. It cut off the afferent impulses, and the application of heat externally and the inversion of the patient and the introduction of fluids into the body, such as normal saline solution, constituted all they could do.

Dr. John Punton of Kansas City, Mo., said whatever the shock might come from, whatever the injury might be due to, the prognosis in its relation to the case was always as important as the treatment itself. Women and men got well and the question was brought up as to appropriate treatment. He had discovered that shock spent its force on the vital organs, hence they had usually a disturbance of the pulse, the temperature, and respiration. He had found that shock was attended with more or less loss of consciousness, and the question of prognosis in the presence of loss of consciouness was oftentimes a very perplexing one to the surgeon as well as to the internist There was no surgical rule that enabled the surgeon to tell with positiveness whether the prognosis was favorable or not, but he had found that a very good rule to adopt in such cases was not to lengthen the time the loss of consciousness was present. The generally accepted view was that the longer the duration of the loss of consciousness the less chance there was for recovery. As a general rule, that was true, but it was subjected to so many exceptions that it was worth while for them to remember that in the presence of shock, and in the presence of loss of consciousness coming from shock, the respiratory center played a more important role in the prognosis than did the temperature or the increased pulse, so that where there was a question as to the prognosis it was wise to remember that the disturbed respiratory center was a very much more unfavorable sign than either the increased temperature or the accelerated pulse, and if the surgeons would adopt that rule it struck him that they would give a favorable prognosis when they might otherwise be led, in the presence of loss of consciousness, to give an unfavorable prognosis.

Dr. George A. Boyle of Enid, Okla., thought the personal equation entered into every individual case of shock There were individual characteristics. There were phlegmatic persons who would stand more injury with greater shock and recover than others who were highly organized nervous individuals. After twenty-five years of experience he was unable to determine just what the prognosis in a given case of shock was going to be.

Dr. D. A. Meyers of Lawton, Okla., stated Dr. Punton referred to the prognosis in cases of shock. In cases of infection, where they found the pulse and temperature divergent, they could nearly always make up their mind that if they gave a bad prognosis they would be on the safe side. But as soon as the pulse and temperature began to harmonize, they could begin to encourage the patient. The outlook was more favorable.

Postoperative Thrombosis.—Dr. St. Cloud Cooper of Fort Smith, Ark., read a paper in which he reported a case of postoperative thrombosis complicated with neuritis.

Dr. J. D. Griffith of Kansas City, Mo., stated in his surgical work he had encountered postoperative thrombosis of the lower extremities in six cases. Two such cases he had had within the last two or three weeks, and in five of these cases the thrombosis had occurred on the left side, and in one on the right side.

Dr. Edward H. Ochsner of Chicago stated that no one to his knowledge had been able to throw any light on the cause or causes of postoperative thrombosis, nor why it occurred more frequently on the left than on the right side. A thrombosis occurred after simple cases of appendectomy, and it took place in a larger percentage of cases on the left side than on the right after operation for appendicitis.

Dr. J. E. Gilchrist of Greenville, Tex., said they knew very little about the cause or causes of postoperative thrombosis. Thrombosis not only occurred following simple surgical operations, but it sometimes followed fevers and other conditions. He had seen severe thrombosis following typhoid fever, where the patient's limb would be greatly swollen and with blisters on it, attended with great pain, and all the symptoms of a surgical thrombosis. The treatment outlined by the author of the paper was rational, and in the cases he had had he had employed the same method of treatment.

Dr. Charles H. Cargile of Bentonville, Ark., recalled a case of thrombosis following exploration of the region of the kidney for obstinate pain. The pain was relieved by the operation. In this case the thrombosis occurred on the left side.

Dr. Howard Hill of Kansas City, Mo., stated that several years ago Franklin P. Mall, of the Johns Hopkins Hospital, conducted an investigation on cadavers in which he found in a number of cases in the common iliac vein before it joined with its fellow of the opposite side a constriction ring. This constriction ring led to slowing of the current in the vein in the region below. If these observations could be confirmed by some other anatomist, it would be an inkling as to why thrombosis occurred on the left side. He did not know the reason.

Dr. Cooper, in closing, stated he did not think the blisters he spoke of were due to a poor circulation, but were attributable to some trophic disturbance such as they had in Raynaud's disease.

Methods and Material, the Secret of Success in Local Anesthesia.—Dr. Arthur E. Hertzler of Kansas City, Mo., said cocaine as an anesthetic was efficient in all situations, but its congeners were less so. Quinine, on the other hand, was quite efficient as a local anesthetic in any condition. As to safety, cocaine was a dangerous drug. It was the fear of using a sufficient amount of cocaine to secure results that made the drug inefficient. If they used enough of it it was efficient, but fear came from the use of too little of it to get the desired results. Quinine was safer in any amount for local anesthesia. It was also efficient. Cocaine did not interfere with wound healing. Quinine did under certain conditions produce some dis-

turbance in wound healing. The anesthetic effect of cocaine lasted from twenty to thirty minutes. The anesthetic effect of quinine lasted all the way from several hours to several weeks. That likewise could be controlled by the method of application. With these materials at hand, they were able to select in a general way the material which was satisfactory under all conditions. Cocaine, where a small amount was used, would produce the desired anesthesia, where it was particularly desirable that primary undisturbed wound healing should take place. This applied to small operations around the face in which the plastic results were the prime requisites. Operations about the throat, the tonsils, the rectum and anus could be performed under quinine anesthesia. Here disturbance of wound healing was a matter of slight importance because primary wound healing was impossible about the rectum and anus. Dr. Hertzler then gave reasons for using local anesthesia and said that by using certain anatomical principles in making use of local anesthesia for the purpose of surgical operations much more exact results were possible than by the old method.

Dr. E. B. Emory of Winfield, Kan., stated in operations about the face for the removal of moles he had found cocaine produced perfect anesthesia, and he thought with less scarring than any other agent he had employed.

Dr. D. W. Basham of Wichita, Kan., said that he had had considerable experience with local anesthesia in the removal of glands and lipomas, and had done laparotomies with it, but his experience had been confined to the use of cocaine, using Schleich's No. 2. He used Schleich's No. 2 solution because it contained a low percentage of cocaine, and he used it in accordance with the method described by Dr. Hertzler.

Dr. Ward of Texas stated he had not had much experience in the use of local anesthesia, but last year he saw a well-known Mexican surgeon resort to spinal anesthesia in three cases he operated on with good results. One was a case of knee-joint trouble; another a case of hip-joint disease, and another a case of prostatectomy.

Dr. J. D. Griffith of Kansas City, Mo., stated he had operated on cases of varicocele with injections of normal salt solution. He had used endermic injections of normal salt solution in the removal of lipomas. He had operated below the umbilicus under spinal anesthesia. He had done seventy-eight capital operations under spinal anesthesia, such as hysterectomies, prostatectomies, etc., and while he had had no bad results so far it would not surprise him to hear of some at any time.

Dr. George A. Boyle of Enid, Okla., said he had used weak solutions of cocaine for local anesthesia in cases in which this drug had brought about a condition of collapse, and since then he had been afraid of it. After Schleich's method was brought out he used it some and lately he had been using hyperchlorate of quinine and urea with gratifying results. His assistant had also obtained excellent results from its use.

President's Address: Fatigue.—Dr. G. H. Moody of San Antonio, Tex., selected this subject for his address. Among other things, he said that fatigue was, of course, relative in degree and followed prolonged excessive activity. The degree of fatigue which might follow a given amount of activity or strain would depend upon the nervous integrity, and the healthfulness of the individual. Also the amount of fatigue which an individual might be able to overcome promptly by rest and sleep was likewise dependent upon the recuperative capacity of the individual, and upon his opportunity and inclination for adequate rest and recuperation. The more normal and robust the individual the more easily, naturally and irresistibly would sleep and rest follow and continue until the fatigue was fully overcome. On the other hand, the more delicate and neuropathic the individual either from bad heredity or disease or prolonged strain, or from whatsoever cause, the less would be the capacity for rest and pleasurable repose, and the fatigue of each day's activities might not be fully restored from day to day, and there would result finally a chronic irritability and restlessness which rendered impossible adequate recuperation voluntarily. This tended to produce a condition simulating brilliancy in which greater efforts were encouraged in the young, until there ensued an acute breakdown or a chronic exhaustion. The forms in which these results of prolonged fatigue and exhaustion generally appeared were indigestion, malnutrition, the various fatigue neuroses, known as the occupation neuroses, insomnia, neurasthenia, psychasthenia, hysteria, the acute insanities in which the strain of the climacteric played a part; dementia and paranoia which were generally misfortunes of the developmental period of life; drug and alcohol addictions, the majority of which were developed as the result of a conscientious effort to bear the burdens of life by means of stimulating, anesthetizing, or narcotising overfatigued feelings in order to make life bearable for a while, with the hope that a change in conditions might perchance finally come; locomotor ataxia and paresis in which continued strain and fatigue played an important part together generally with a syphilitic diathesis and a neuropathic constitution. In fact, while the best authorities maintained that there was a specific constitutional basis in these cases, they seemed never to develop without the long continued fatigue and the neuropathic constitution in which adequate rest was difficult through life. These two diseases were known as parasyphilitic diseases. A degenerative process had already done permanent damage by the time the characteristic symptoms appeared, the syphilitic poison having found a favorable soil in the cerebrospinal system and its coverings, apparently because of the fatigued and neuropathic irresistiveness. Formerly these cases degenerated rapidly and dementia and death came early. In the light of recent investigations it was found that the decline should be brought to a standstill in most of these cases and that the tabetics especially should be able to have a comfortable and fairly useful life, not shortened materially by reason of the disease, and that the paretics should become able to live at home comfortably for many years, their degree of satisfaction at home depending upon the time and the course of the disease when the diagnosis was made and proper treatment instituted. A positive Wasserman reaction was found in almost every one of these cases and should be made at once in every suspected case. It was hoped that in these parasyphilitic conditions the 606 of Ehrlich would prove of great value by eliminating at once, and for all time, all syphilitic poison and at once stop the disease process, after which much improvement might follow through some degree of regeneration and through proper enforcement of rest and recuperative treatment, and through the various practical methods of reeducation, exercise and redevelopment of dormant activities and functions. Much was already being done in these directions through the proper administration of mercury and arsenical preparations, preferably hypodermically in both instances. These preparations seemed to modify favorably lowered metabolism in these and other conditions such as neurasthenia. The one precaution he would like to make most forcible in the treatment of these cases was not to give them the iodides. They regenerated the patient rapidly and did no good. From whatever standpoint these cases were considered, the important elements of fatigue must be kept always in mind. The enumeration of conditions and diseases in which fatigue played an important rôle could continue, but these would suffice. In such purely physical disorders as gastroenteroptosis and other conditions of similar origin, they more readily took into account the general condition of fatigue and the dimin-

ished general muscular tonicity of the patient and reckoned with it in whatever other medical or surgical procedure thought to be indicated. It was not too much to hope that in time there would be a universal attempt on the part of the public at a scientific estimate of the individual capacities and limitations of each child. With this estimate correctly made or even approximately so, with the aid of scientific authority, individuals would pass through the educational and developmental stages of life into maturity without so much apparent uncertainty concerning their future.

The Prevention and Treatment of Septic Infections of the Extremities.—Dr. Edward H. Ochsner of Chicago selected this subject for the oration in surgery. He said that the severer wounds that naturally came to the physician from the very first they must divide into two classes, the more superficial wounds that were likely to be infected with ordinary pyogenic microorganisms only, and those which were likely to be infected with the tetanus bacillus in addition. In the latter the same method of disinfection was used as in the former with the addition that they always gave a prophylactic dose of antitetanus serum and if the wound was deep or likely to contain foreign material they laid it wide open, removed the foreign material and left the wound gaping and to heal by granulation subsequently. In some parts of Chicago tetanus was quite prevalent, and up to seven years ago they had quite a number of cases, but since they had followed the above routine they had had only one case of tetanus develop and that in a case of severely infected compound fracture that came to them on the sixth day after the injury. All fresh wounds were treated in the following manner when they first came in: If the laceration was very extensive the patient was given a general anesthetic; if less severe the extremity was immersed in a two per cent. carbolic acid solution in tepid water, from five to ten minutes. This was an excellent local anesthetic and made it possible to thoroughly scrub the parts without causing undue pain. They now scrubbed the extremity thoroughly with soap and sterile water by the aid of a brush or pieces of sterile gauze; then washed it off with ether, scrubbed it well with turpentine, swabbed it with tincture of iodin, rinsed it with alcohol and finally put on a sterile dressing. If in spite of the above precaution or because of their neglect septic infection did develop, by instituting and rigidly adhering to a definite plan of treatment they could secure healing with practically no mortality, rarely, if ever, lost a member and usually without permanent impairment of function. Thus in a period of over fifteen years he had not lost a case, amputated even a finger or toe and had not one single clawhand to his discredit in cases which came to him before incision had been made. How could they destroy the bacteria, or, at least, materially reduce the virulence without at the same time injuring the tissues or impairing the resistance of the individual? Such remedies they had in carbolic acid, boric acid, alcohol, and tincture of iodin, and by their proper combination and judicious application one could practically always obtain the desired results. Ninety-five per cent. carbolic acid was a very powerful germicide and could be safely applied with a cotton swab over the reddened, inflamed area, until the area turned white, if it was then quickly washed off with strong alcohol. It would instantly destroy innumerable pathogenic microorganism, almost instantly relieve the pain without injuring the skin in the slightest, providing, of course, that it be properly applied. After this preliminary application the extremity was encased in a large hygroscopic elastic wet dressing. For wet dressing he used a saturated solution of boric acid in water, to which 1/16 to 1/2 of 95 per cent. alcohol was added. As to drainage, the veins and lymphatics could be drained by simply elevating the affected extremity, and this could be done so effectually that incision rarely became necessary. This drainage by elevation was assisted by the dehydrating power of the alcohol.

Colitis.—Dr. William H. Stauffer of St. Louis, Mo., stated errors of digestion as a cause of colitis had been much exaggerated. As causes of gastritis and enteritis, they easily took first rank. In most cases of colitis the important factors were how, when, and where we ate rather than what we ate. Syphilis, tuberculosis, and impairment of the nervous system were responsible for at least fifty per cent. of all the cases that had come under his observation. Most children, and not a few adults, responded to the call of nature only when compelled to do so, with the inevitable result that what in health was a pleasant duty was soon transformed into a painful pathological process. The most valuable diagnostic aid was the proper use of the sigmoidoscope. This instrument had not been sufficiently used by the general practitioner. Dr. Hanes, of Louisville, had rendered invaluable service by suggesting the inverted position in examining and treating patients with colitis. The treatment of colitis until recently had been very unsatisfactory. Tubercular ulcerations might be primary and entirely local, and as such would respond to local antiseptics and nourishing food So-called membranous colitis was generally organized retained mucus, and would respond by giving the parts rest and drainage. When possible direct application to the diseased part should be made through the sigmoidoscope, or a Walls bougie always placed in position under direct observation. Jacobi, Tuttle, and Soper had demonstrated the impossibility of passing a rectal tube into the colon unless there was some abnormality of the sigmoid. The medication depended upon the pathology and every indication must be met as it arose. Ichthyol and argyrol in various percentages were of signal service. Oil of eucalyptus or thyme in olive oil had given him excellent results. Appendicostomy or cecostomy should always be employed in amebic dysentery. Experience had shown that there should be no haste in closing the fistulæ.

Dr. L. P. Warren of Wichita, Kan., believed it was the consensus of opinion among expert proctologists that it was practically impossible to pass a tube into the descending colon. The sigmoid itself and rectum might be inspected, but it was not possible to pass the proctoscope sufficiently far to see into the descending colon.

Dr. S. N. Mayberry of Enid, Okla., said that the general practitioner was not always able to interpret correctly what he saw. He asked the essayist as to the clinical appearance of early tuberculosis of the anus before the patient complained of any symptoms to speak of. Personally, after introducing the sigmoidoscope, he was unable to tell in some cases whether there was a tubercular condition or not. He had had two cases of rectal disease in which he could not make a satisfactory diagnosis.

Dr. Stauffer, in closing, said it was not possible to pass a tube in all cases into the colon, but it could be done in fifty per cent. of them. It took great care and a great deal of cooperation on part of the patient. It could not be done the first time always any more than the practitioner could pass a stomach tube the first time. As to the clinical appearance of disease about the anus, he said the best comparison they could make of ulceration or of the various pathological conditions in this region was that they simulated very much conditions of the throat. In fifty per cent. of the cases, if one found a syphilitic ulcer in the rectum, he could look into the patient's throat and find a similar condition. Its edges and everything would compare with the one seen in the rectum.

Gastric Röntgenology.—Dr. E. H. Skinner of Kansas City, Mo., said the use of the *x*-ray in gastrointestinal diagnosis practically dated from the work of Prof. H. Rieder, of the University of Munich, in 1904 He pub-

lished his classical studies in stomach pathology by means of fluoroscoping the stomach *in vivo* after the ingestion of a wheat pudding containing 40 to 60 grams of bismuth salts. At the present day no more satisfactory bismuth meal was offered, but the improvements in fluoroscopic apparatus had been interesting. The peculiar superiority of fluoroscopy over radiography depended on the ability to study the peristalsis and surgical anatomy of the alimentary tract. Esophagus.—The patient was placed in the right-anterior oblique position and offered a small bismuth capsule. When the current was applied he was instructed to swallow. The route and rate of the capsule in the esophagus were noted until it reached and passed through the cardiac orifice of the stomach. Succeeding larger types of capsule were then offered and their course noted. By this means they were able to determine the location and lumen of the esophageal stricture. The capsule did not always find the orifice of a diverticulum; therefore, they employed the bismuth paste (about a level teaspoonful of bismuth carbonate and sac lac half and half). This was swallowed at the suggestion of the operator after the *x*-ray was turned on. The use of bismuth and water (2 drachms of bismuth to 2 or 3 ounces of water) was then employed. By carefully noting the passage of the paste and the water mixture, one could determine the presence of esophageal strictures, diverticula, abnormalities due to adhesions, cardiospasm, dilatation, pleuritic tugs, esophageo-bronchial fistulæ, carcinomatous filling defects and alterations of outline, and pressure of aneurysms or tumors upon the esophagus. The description of fluoroscopic symptomatology of each of these conditions was worthy of a separate descriptive paper. Stomach.—Succeeding the fluoroscopy of the esophagus by these simple measures, they instructed the patient to slowly eat 10 or 12 ounces of bismuth porridge. (a) Pyloric Stenosis: Fluoroscopic symptoms: 1. Dilatation of the stomach, both longitudinally and transversely. 2. Antiperistaltic waves running from the pylorus to the greater curvature. 3. Interference with the emptying of the stomach, the exit of food being delayed 18 to 48 hours. The suspicious symptoms which should be noted were: More or less degree of distention of the stomach, weakened peristalsis, food delayed in exit twelve to twenty-four hours, adhesions of the pyloric area, which produced a fixed pylorus, pyloric filling defects, absence of any peristalsis at the pylorus, the wave running only from the greater curvature to the prepyloric area. (b) Carcinoma. 1. Irregular filling defects in the outline of the stomach wall. 2. Abnormal peristalsis, there being no wave at the site of the filling defect; or, if the carcinoma involved the pylorus, antiperistaltic waves were seen. 3. Hourglass contraction where there was involvement of the middle portion of the stomach. The bismuth meal or water may be seen trickling through the narrowed lumen. 4. Adhesions of the stomach to adjacent organs, due to perigastric inflammation. 5. The lumen of the stomach was usually much smaller than normal, excepting where the carcinoma involved the pylorus, we might have a dilatation. (c) Gastric ulcer. 1. Filling defects, which were not as irregular in outline as in carcinoma, the filling defect being due more to an irritation of the muscular action than to irregular outlines of mass changes in the stomach wall. Where the ulcer involved the pylorus we had the additional symptoms previously noted when there was interference with the exit of the food. (d) Precancerous stomach. The precancerous stomach that he offered for consideration depended upon a clinical symtomatology of chronic gastritis, with loss of appetitte and weight, epigastric uneasiness and the craving of small quantities of food preferably meats. There was no hyperchlorhydria demonstrable. But the fluoroscope would reveal a stomach of lessened lumen, placed rather high in the left hypochondriac region. There was a small *magenblase*. The pylorus was frequently the lowest point of the stomach shadow, and the filling shadow of the stomach was funnel-shaped. We had here an atrophy of the stomach, dependent upon a certain degree of starvation. (e) Gastroptosia. The outlines of the stomach were so exactly recorded by the bismuth shadows that we could easily determine the relation of the lesser and greater curvature to the umbilicus and bony skeleton. It was apparent that this *x*-ray method of stomach examination offered much that could not be obtained by other means. The work must be done by those familiar with it, so that the results shall be of such value that the method cannot fall into disrepute through over-zealous workers.

Pyloric Obstruction Due to Extrinsic Causes.—Dr. Gordon A. Beedle of Kansas City, Mo., spoke of the importance of adhesions in causing pyloric obstruction, and reported several cases in which relief was afforded by separating the adhesions. One patient, very fat, and slightly jaundiced, with temperature of 102°, complained of cutting pains throughout the right hypochondrium and epigastrium extending through to the back or right side, opposite the lower thoracic vertebra; tongue coated; nausea and vomiting. The stomach was distended. No peristaltic wave could be elicited by massage. Extension upward and backward of the left arm caused an increase of pain, and tenderness was diffused over the epigastrium. A diagnosis of gall-stones complicated with adhesions involving the stomach was made, and operation advised. Incision revealed a mass at the site of the gall bladder which proved to be a reflected portion of omentum containing a hard caseous mass of tubercular deposit, wedged down on the gall-bladder, and adherent in every direction. Careful ex section revealed the pyloric half of the stomach drawn down and firmly anchored, tumor pressure, and malposition caused by adhesions, clearly defining the cause of the obstructive symptoms. There was a slight amount of fluid in the cavity, and a few scattered tubercles could be felt on the peritoneum. The gall-bladder, although slightly dilated and full, appeared normal and was not opened. This patient recovered with complete freedom from her previous symptoms, and was in good health six months after operation. In this case had the stomach analysis been made the findings no doubt would have strongly indicated obstruction with dilatation and motor insufficiency, but decision as to the actual cause could be made positively only through incision.

Psoriasis; Diagnosis and Treatment.—Dr. William Frick of Kansas City, Mo., after detailing the essential features of the diagnosis of psoriasis, said that there were no specifics in the treatment of this disease. Cases could not all be treated successfully in the same manner or with the same drug. Patients must be studied as well as the disease. The general health of the patient should be cared for when there was occasion to do so. Many patients with psoriasis appeared to be perfectly healthy in every other way. In these cases we could find sometimes deficient elimination, imperfect assimilation, or some other imperfection in metabolic processes of which the patients were not aware. When these defects were discovered and corrected they were treated with better results. He reported a case which aptly illustrated this. Of recent years it was quite remarkable to see the rapid improvement under a few treatments with the *x*-ray. This improvement was not permanent, and must necessarily be supplemented by other methods of treatment. External treatment was resorted to in nearly all cases. Relief was obtained quicker by this means than by internal treatment. He mentioned the various drugs that were used in treating this disease, and said the essential thing to do for patients was to cure the existing disease and teach them how to avoid the causes, if possible, or how to check a beginning attack.

The following papers were also read.

"Germiphobia," by Dr. A. K. West, Oklahoma City, Okla.; "Appendicitis Obliterans; A Clinical and Pathological Study," by Dr. Horace Reed, Oklahoma City, Okla.; "Cardiac Murmurs and Their Clinical Significance," by Dr. Lewis J. Moorman, Oklahoma City, Okla.: "Pathology of Insanity," by Dr. G. W. Robinson, Kansas City, Mo.

Officers.—The following officers were elected for the ensuing year: *President,* Dr. M. L. Perry, Parsons, Kan.; *Vice-President for Arkansas,* Dr. J. M. Griffin, Sulphur Springs; *Vice-President for Missouri,* Dr. W. H. Stauffer, St. Louis; *Vice-President for Oklahoma,* Dr. E. S. Lain, Oklahoma City; *Vice-President for Texas,* Dr. W. L. Allison, Ft. Worth; *Secretary-Treasurer,* Dr. F. H. Clark, El Reno, Okla.

Oklahoma City was elected as the place for holding the next meeting in 1911.

College of Physicians of Philadelphia: Section on General Medicine.

At a stated meeting held October 24 Dr. Alfred Gordon read a paper entitled "Optic Nerve Changes Associated with Cranial Malformations, apropos of a Case of Oxycephaly"; and he demonstrated the patient, a boy eight years old, with a dome-shaped head, a high-arched palate, a narrow visual field, chorioretinitis, and convulsions. On *x*-ray examination the convolutions of the brain were remarkably clear and distinct, and the skull-bones could be seen to be unusually thin. The conditions were thought to be due to changes in meninges and cerebrum, as well of nerves passing through cranial orifices in consequence of the bony malformation. Drs. T. M. Tyson and H. D. Jump presented a communication entitled "A Note on the Treatment of Ascites by Intraperitoneal Injections of Adrenalin Chloride," reporting the case of a man with chronic nephritis who had suffered from general anasarca and had been tapped on three or more occasions for the relief of ascites. Injections of from 8 minims to 2 drams of adrenalin chloride, 1:1,000 solution, were followed by increase in the amount of urine secreted and eventually by disappearance of the anasarca, including the ascites. Dr. David Riesman read a paper entitled "High Pressure Hypertrophy," referring to the observation of a series of cases in which patients complaining of dyspnea, retrosternal distress, flatulence, vertigo, lack of endurance were found on physical examination, particularly palpation and percussion, to have hypertrophy of the heart, with accentuated second sound and high blood-pressure, but without other accessible evidence of arteriosclerosis, while the urine generally was free from albumin. The condition occurs in men and women alike, but especially in those subjected to great nervous and mental strain. It is thought to represent a condition of arteriosclerosis in deep seated vessels, without obvious involvement of superficial vessels and tube-casts. At times an aortic systolic murmur is present. Angina pectoris may develop and terminate fatally. The treatment consists in adjustment of the diet and of life's activities in general and the administration of nitrites and iodides. Niemayer's pill of squill, digitalis, and calomel answer admirably in these cases for the relief of dropsy. Dr. E. J. G. Beardsley presented a communication entitled "Pulmonary Tuberculosis as Studied in a General Medical Dispensary." He dwelt on the difficulties of treating the ordinary tuberculous patient in the general medical dispensary, and he insisted on the need of a special service for this purpose in order that the patient may be instructed in the hygienic requirements of his case, drugs playing only a subordinate rôle. It is here that the services of a social worker become particularly useful.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of November 5, 1910.

	Cases	Deaths
Tuberculosis Pulmonalis	518	151
Diphtheria	315	23
Measles	97	7
Scarlet Fever	127	5
Smallpox	—	—
Varicella	43	—
Typhoid Fever	86	15
Whooping Cough	44	3
Cerebrospinal Meningitis	6	3
Malarial Fever	—	—
Totals	1,236	207

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, during the week ended November 4, 1910.

Place	Date	Cases	Deaths
CHOLERA.			
Arabia: Maskat, Including Matrah	Sept. 25–Oct. 2	8	6
Borneo: Pamangkjat, In the western part.	July 22–31	*a*20	20
Brazil: Pernambuco	Oct. 20	1	..
		On s.s. *Manaos.*	
France: Marseille	Oct. 6	..	1
India: Bombay	Sept. 21–Oct. 4	..	5
Calcutta	Sept. 4–17	..	27
Kurrachee	Sept. 18–Oct. 1	35	29
Madras	Sept. 17–30	..	40
Negapatam	Sept. 17–30	..	21
Rangoon	Sept. 18–24	..	1
Indo-China: Saigon	Aug. 29–Sept. 18	4	4
Italy, general	Oct. 23–30	53	24
Naples	Oct. 23–24	7	3
Provinces—			
Avellino	Oct. 9–15	2	1
Bari	Oct. 9–15	2	1
Campobane	Oct. 9–15	3	1
Caserta	Oct. 9–15	76	29
Foggia	Oct. 9–15	1	1
Naples	Oct. 9–15	67	13
Salerno	Oct. 9–15	14	5
Japan: Kobe	Sept. 26–Oct. 2	58	33
			Present.
Ehime	Oct. 1	..	..
Hieroshima	Oct. 1	..	..
Osaka	Sept. 19–24	40	..
Java: Batavia	Sept. 11–17	10	6
Roumania: Tulcea	Oct. 5	*a*1	1
Russia: Odessa	Sept. 30–Oct. 7	3	2
Riga	Oct. 8	1	..
Siam: Bangkok	Aug. 14–Sept. 10	95	95
Straits Settlements: Singapore	Sept. 4–10	3	6
Tripoli: Tripoli	Oct. 4–7	3	3
Turkey: Constantinople	Sept. 27–Oct. 10	62	37
Turkey in Asia: Erzerum, vilayet	Sept. 23–Oct. 6	206	139
Trebizond	Oct. 1–9	130	70
YELLOW FEVER			
Brazil: Manaos	Sept. 25–Oct. 1	6	6
Para	Sept. 18–Oct. 8	39	24
Mexico: Campeche	Oct. 16–22	..	3
PLAGUE			
Chile: Iquique	Sept. 4	1	1
Egypt: Alexandria	Sept. 7–29	5	4
Port Said	Aug. 28–Sept. 24	2	2
Provinces—			
Assiout	Sept. 8–Oct. 6	8	2
Galioubeeh	July 30–Sept. 9	1	1
Garbieh	Aug. 28–Oct. 5	21	6
Menouf	July 23–Oct. 3	1	1
Minieh	Aug. 20–Sept. 12	3	2
India: Bombay	Sept. 21–Oct. 4	..	29
Calcutta	Sept. 4–17	..	13
Kurrachee	Sept. 18–Oct. 1	14	14
Rangoon	Sept. 11–24	—	12
Indo-China: Saigon	Aug. 19–Sept. 18	3	1
Peru: Mollendo	Sept. 7	..	Present
Russia: Odessa	Oct. 1–8	3	2
Siam: Bangkok	Aug. 14–Sept. 10	4	4
SMALLPOX			
Arabia: Aden	Sept. 19–26	..	1
Argentina: Buenos Aires	July 1–31	..	46
Brazil: Para	Sept. 18–Oct. 8	19	3
Rio de Janeiro	Sept. 12–25	14	..
Santos	Aug. 3–16	1	1
Ceylon: Colombo	Sept. 11–17	1	1
Chile: Valparaiso	Sept. 11–24	80	..
China: Shanghai	Sept. 19–25	..	1
France: Paris	Sept. 25–Oct. 1	2	..
Germany, general	Oct. 9–15	1	..
Gibraltar	Oct 2–9	1	..
Great Britain: West Hartlepool	Oct. 2–8	1	..
India: Bombay	Sept. 22–Oct. 2	..	3
Madras	Sept. 17–30	..	6
Indo-China: Saigon	Aug. 28–Sept. 18	21	7
Italy: Cosenza	Aug. 30–Oct. 8	39	..
Palermo	Sept. 25–Oct. 1	1	..

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Original Articles.

CHEMICAL PROBLEMS IN DIABETES.*

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GLYCONEOGENESIS.

By glyconeogenesis is understood a formation of carbohydrates, and especially of grape sugar, from molecules which are not themselves carbohydrates, for instance, from protein or fat.

All the experimental procedures for the recognition of glyconeogenesis in the animal body involve the same suppositions and may be traced back to a simple algebraic equation. We must know in the first place, the total mass of carbohydrates present in the body, and secondly, the quantity of carbohydrates introduced during the experiment. Let us call the first A and the second B. If the total mass of carbohydrates found, at the end of the experiment, which we call C, be greater than A plus B, then the formation of sugar from non-carbohydrate substances is proved, and the greater this difference, the more conclusive the proof. The principal difficulties are, or rather were, that the quantities of carbohydrate present at the beginning, and added during the experiment could not be determined in most cases with sufficient accuracy.

Methods.—Five different procedures have been employed for the recognition of glyconeogenesis. Two of these, employed principally by Seegen, are absolutely worthless. These methods are, firstly the digestion of liver extract with peptone or fat, and the measurement of the increase of the carbohydrate content. The second procedure consisted is estimating the metabolic changes in the liver of the living animal by a comparison of the sugar content of the portal and of the hepatic blood. Seegen thought that finding an excess of sugar in the blood of the liver veins, compared to that of the portal blood, would prove a formation of sugar from protein. This assumption, however, does not hold good. I deem it unnecessary to enter into a criticism of these two methods, both of which are to-day recognized as worthless.

The third method, the oldest of all, consists in measuring the glycogen accumulation in the living animal, especially in the liver and muscles, after feeding with suitable food. However good service this method may have rendered for the study of glycogen formation from carbohydrates, it is impracticable for the proof of the formation of that substance from proteid or fat. Just as Külz considered the experiments of his predecessors to be inconclusive, so Pflüger has shown Külz's own experiments to be unconvincing. The reason for the insufficiency of this experimental method is to be found in the fact that not only is it impossible to determine with certainty the carbohydrate store of a single animal, but also that in spite of the greatest care in the choice of albuminous foods, the addition of carbohydrates could hardly ever be absolutely avoided, at least in the older experiments. And even if, as we can to-day say with certainty, glycogen really was formed from protein in most experiments of this kind, the greater part of this was again decomposed in the course of the experiment. At the end, only a very small part of the newly formed sugar was found as glycogen in the body of the animal; and this quantity was very seldom outside the limits of error existing in biochemical investigations. It is only recently that Pflüger has improved this method, so that it may be applied satisfactorily to problems of this kind.

The classical method for the recognition of glyconeogenesis is the fourth method: the examination of diabetic subjects. In this case, in contrast to the glycogen experiments on healthy beings, the new formed sugar is removed from the sphere of combustion and appears in the urine in a form easily determined. The urine sugar that can be obtained in a single day is much greater in amount than the glycogen that has ever been found stored up in the body after weeks of feeding with carbohydrates.

Besides this classical method there is still a fifth to be mentioned, viz., the examination of the artificially transfused liver. Although the procedure is in principle less valuable than the classical diabetic method, still it may furnish important material for the solution of certain problems, which cannot be decided by experiments on living animals.

As an example of the recognition of glyconeogenesis, I may refer you to Pflüger's well known experiments. These were the most recent of all experiments of this kind and were carried out on the largest scale.

A partly depancreatized dog, 12 kilos in weight, produced on being fed exclusively on codfish and nutrose, 3.1 kilos of sugar in the course of three months. Even if we accept the highest values for the original glycogen content of the animal and for the carbohydrate in the food at least 2.5 kilos of new sugar were produced.

The existence of glyconeogenesis is to-day no longer doubtful and needs no further discussion.

The Mother-Substances of Glyconeogenesis, Protein, Glycerin, Fatty Acids.—Is it the proteins that are the mother-substances of this newly formed sugar, or is it the *fat?* This is the important question which has been on the tongues of scientists for many decades. At the present time by far the greater majority accept the formation of sugar from protein as proved. A minority also assume in addition a sugar formation from fat. This

*The Cartwright Lectures of the Alumni Association of the College of Physicians and Surgeons, Columbia University, New York, for 1910.

question has not yet been decided with absolute certainty. I should like to lay before you the salient points of this problem.

A direct, if I may say so a mathematical, proof for the production of sugar from protein would be furnished, if we could prove that a diabetic animal had decomposed only protein and no fat at all. This experiment has, however, its difficulties. It is almost impossible to ingest enough protein to cover the needs of a diabetic dog, which loses by its output of sugar a third part of the energy content of the decomposed protein. However, such a possibility seemed to have been realized in an experiment of Lüthje's. A depancreatized dog, only 5 kilos in weight, decomposed daily 164 grams of protein and produced about 70 grams of sugar. After deducting about 252 sugar calories, 430 calories derived from the decomposed protein were still at the disposal of the animal, that is, almost 90 calories per kilo. I am of the opinion that the animal could have made up its loss of energy almost exclusively by the oxidized protein, and that thus no fat had been decomposed. If this be correct, then the formation of sugar from protein would be irrefutably established. But the proof would require to be supplemented by a direct determination of the actual metabolism of energy by means of the respiration calorimeter. It would have to be proved that the total carbon output in the respired air, in the urine, and in the excrement, amounted to no more than corresponded to the nitrogen eliminated from the decomposed protein. With the magnificent appliances which you have here in America at your disposal, it would be easy to give this decisive proof.

As long as this proof is not given the view that protein is the mother substance of sugar rests, for the present, on the fact that in severely diabetic subjects the output of sugar and the decomposition of protein run parallel. Every increase in the combustion of protein is followed by an increase in sugar elimination. The first and most admirable experiments are connected with the name of Külz. The precision of his experimental conditions has never again been attained with diabetic patients. On being fed exclusively on casein, a severely diabetic man yielded the following quantities of sugar:

200 gm. casein	66 gm. sugar
240 gm. casein	66 gm. sugar
300 gm. casein	97 gm. sugar
500 gm. casein	127 gm. sugar
240 gm. casein	87 gm. sugar

Many years later Lüthje performed a similar experiment on a depancreatized dog. His results resemble those of Külz. The observations of Lusk and others on diabetic patients lead to the same results.

The increase of the sugar output with increasing protein decomposition is well known to every doctor who has had to deal with diabetic patients. This fact plays a great part in the therapeutics of to-day.

V. Mehring was the first to point out a certain proportion between protein decomposition and sugar output. Minkowski calculated the numerical value for this proportion. He found that in pancreas diabetes for every 100 grams of protein decomposed, 45 grams of sugar were eliminated, or, calculated for the nitrogen in the protein, that the D : N ratio was 2.8. However important and valuable this calculation was, still this quotient has in a way become a stumbling block for later investigations.

What Minkowski put forward only as a *possibility* was accepted as a fact, namely, that 45 grams of sugar was the maximum that could be obtained from 100 grams of protein. This, however, has never been proved. In any case the existence of a parallelism between nitrogen and sugar elimination is unmistakable, and this parallelism is the principal, or, we may say, the only, support of the doctrine that protein is the mother substance of sugar.

Pflüger, who for a certain time attributed the sugar formation to fat, and would not acknowledge the formation from protein, gave a somewhat complicated explanation of the undeniable parallelism between protein decomposition and sugar output. He was of the opinion that the aminogroup of the protein, on being separated from the carbon nucleus, transferred a certain energy to a carbon complex of the fatty acids. He conceived that by every splitting off of an amino group, one atom of oxygen was transferred to a carbon radical of the fat, and that this then condensed to grape sugar. The sugar would then really be formed from the material of the fatty acids, but this would have been made possible even then by the splitting off of the amino group, that is to say by the breaking down of protein, and the quantity of sugar formed would be controlled by the quantity of protein decomposed. Consequently we can recognize the formation of sugar from protein as extremely probable, even though it has not been proved with mathematical certainty.

Pflüger has quite recently become converted and now acknowledges sugar formation from protein. Strangely enough he has again used the old method of glycogen accummulation for his experiments, although he himself once designated it as incapable of furnishing proofs. Certainly he has perfected this method in an admirable manner. I can not give you the details of the work of this remarkable man who, still active in his eightieth year, carried out excellent experiments a few weeks before his death.

While Pflüger finally denied, in opposition to his earlier view, that a sugar formation from fat occurs in the animal kingdom, because *he* had not observed it in his experiments, still this is by no means decisive.

In most cases an increase in the fat given to a diabetic subject does not cause an increase in the sugar eliminated. I will mention only an example by Hübner: On being fed with 176 grams of albumin and 150 grams of fat a diabetic patient eliminated 51 grams of sugar, whereas on adding 160 grams of fat he yielded 50.

176 gm. albumin + 150 gm. fat	= 51 gm. sugar
176 gm. albumin + 319 gm. fat	= 50 gm. sugar
98 gm. albumin + 315 gm. fat	= 7 gm. sugar

The fact that the addition of fat does not increase the sugar elimination cannot be doubted and is amply confirmed by experiment and daily experience. However, the previously deduced conclusion that no sugar is formed from fat is completely fallacious. The 170 grams of fat introduced in surplus are not really catabolized, like the 150 grams of casein added in the above experiment of Külz, but are stored up in the body as reserve material. They have taken no part in the metabolism.

The fat combustion has in no way been increased by them. And, however much fat be added to the food, it has no power to expel other food materials from the metabolism and to take their place in contrast to protein, which is able to do so. Consequently the negative results of the experiments of Hübner and of other authors afford no evidence against the possibility of sugar formation from fat.

Neutral fat is composed of two quite different components whose relations to sugar must be sharply distinguished: *Glycerin* and *fatty acids*. The formation of sugar from glycerin has been proved with even more certainty than that of sugar from protein. Also in this case the proof has been furnished by experiments on diabetic patients. Of all the materials that have been examined in a similar manner, glycerin has the advantage that it can be introduced in enormous quantities and that the sugar output consequently also rises enormously. The sources of error are here much smaller than with other materials. A patient of Külz's eliminated in ten days, after a total introduction of 1,450 grams of glycerin, 760 grams of sugar over and above the average output. A dog of Lüthje's 12 kilos in weight, after being given 400 grams of glycerin, brought its sugar output up to 160 grams in the course of twenty-four hours. From a chemical standpoint also, as I will show later, the formation of sugar from glycerin is very easily understood.

Accordingly two sources already come into consideration for the formation of new sugar, namely: protein (A) and glycerin, (B). Hence it will be difficult, to recognize a third substance, the fatty acids, (C), as being also a mother substance of sugar. That will be possible only when the sugar output (D) has become so high, that the "preformed" sugar of the body and of the food (E), the protein (A), and the glycerin (B), are insufficient for its production. Experiments must bring forward this proof, since no direct proof is possible. And in fact, all efforts tend toward this direction. Here, too, just as in the general problem of glyconeogenesis, we have to do principally with a simple mathematical equation. (D >A+B+E). This equation is, however, difficult to solve for the reason that not enough is known about several of its components. The supposition, that we knew the maximum formation of sugar from protein is, indeed, not true. In the case of glycerin it is highly probable, from its chemical constitution and from the results of experiments *in vitro*, that it can yield the theoretical quantity, that is to say, 100 per cent. of sugar. For protein Minkowski's famous quotient was adhered to, and accordingly it was accepted that 100 grams of protein could yield only 45 grams of sugar. There is no real proof, however, that this is the case.

The first experiment for the recognition of a sugar formation from fat in men was carried out by Rosenquist. With animals a particularly good experiment was made by Hartogh and Schumm. Still a critical anaylsis of all experiments of this sort shows, that in the first place the carbohydrate content of the food has been estimated much too low, that formation of sugar from glycerin, which with a high combustion of fat reaches 20 grams and more, has not been taken into consideration, and many other things as well. The doubters are right in claiming that the formation of sugar from fat is still completely unproved.

They bring forward as a reason, that sugar formation from protein was underestimated. Theoretically 100 grams of protein could, if all the carbon of protein were transformed into sugar carbon, yield 135 grams of sugar. This is certainly not the case; but so long as the maximal sugar formation from protein is unknown, a sugar formation from fat will be recognized as proved only when the above value of protein sugar was employed in the calculation of an experiment. The prospects of being able to obtain definite proof, either in this or another way, are not very great. Personally, however, the majority of the experiments brought forward, as well as general biochemical considerations, make me incline in favor of a sugar formation from fat. Only, I am of the opinion that this process, both for chemical and other reasons, generally takes place on a far smaller scale than the formation of sugar from protein.

We may now inquire concerning the sequence of the sugar formation from the three above sources. When the transition from moderate to severe diabetes is taking place, when the patient is just beginning to yield sugar that does not arise from carbohydrates (a point which naturally can never be sharply recognized), it may be asked: are these first grams of newly formed sugar derived from protein, or from glycerin, or from fat? Looked at from a purely chemical standpoint the formation of sugar from glycerin seems the simplest process. For this reason one might be inclined to place this process first in point of time. However, it is not possible to-day to deduce either a quantitative or a chronological precedence in the formation of sugar from protein or glycerin. But that the sugar formation from protein precedes that from fat is borne out by the unmistakable dependence of the sugar output on the mass of the decomposed protein, even in moderately severe cases of diabetes.

As to alcohol, no experiments so far show that it is a source of sugar. This possibility may therefore for the present, be left unconsidered.

Glyconeogenesis in Normal Life.—This question is of the very highest biological importance. In another form it runs thus: Is life possible without carbohydrates? Does a carnivorous animal differ fundamentally and in principle in its metabolism from an herbivorous animal?

However probable it may be that the healthy organism can, in case of need, carry out the process which takes place in a diabetic subject, still I agree with Pflüger in that the results of all the former so-called glycogen experiments do not hold good, so that the glyconeogenesis in normal life was not then established beyond question. Zuntz with a procedure of quite another sort, which I have not yet mentioned, has furnished a proof for sugar formation in healthy fasting men. This method is that of respiration experiments, the decisive criterion is the behavior of the respiratory quotient.

This amounts, as is well known, to 1.0 for exclusive carbohydrate combustion, to about 0.8 for exclusive metabolism of protein, and to about 0.7 for fat. If, in a starving animal, after the using up of the glycogen reserve, the metabolism be performed at the cost of fat and protein exclusively, it must be about 0.71. Zuntz and Lehmann saw that with fasting men in a state of rest, the value sank to 0.66-0.64. With muscular work it rose appreciably over 0.71. So in this case oxygen had been retained by the body. Now, thanks to Durig's

decisive experiments, we know that elementary oxygen is not stored up by the body. Accordingly the retained oxygen in Zuntz's experiments was used for the oxidation of bodies poorer in oxygen, and produced thereby bodies richer in oxygen. This is the case when sugar, which contains 54 per cent. of oxygen, is formed from protein or fat, whose oxygen content amounts to only 12-20 per cent. Other similar processes are known, for instance, the formation of oxybutyric acid, a body rich in oxygen, from protein and fat. Therefore and also for other reasons a disappearance of oxygen, a sinking respiratory quotient, give no absolute proof that the stored up oxygen was employed for sugar formation. Moreover, even in the most technically accurate experiments, certain sources of error have also to be reckoned with. A proof deduced by this method is, in spite of all probability, always only indirect and requires to be supplemented by a direct proof. Pflüger has furnished this by means of the method of glycogen accumulation. He was able to show that, in the case of fasting frogs, the glycogen content of the whole body rose distinctly from week to week. He employed for each of these experiments dozens of animals and in this way was able to overcome objections on the ground of chance and of inequality in the glycogen content of single animals.

A proof of the formation of new sugar in the normal body having been given with this distinctness, the conclusions which Zuntz drew from his experiments, are also confirmed. They show once more the special preference of the carbohydrate molecule for the yielding of mechanical energy in the body. In times of rest the body forms glycogen from protein, so as to have this most easily combustible material at its disposal at the beginning of muscular work, at least in certain quantities.

The constant presence of grape sugar in the blood of fasting animals must not be understood in the sense that the fasting body is not able to make use of this last carbohydrate reserve. It shows rather that the body replaces every using up of sugar by constant new formation. No life without carbohydrates! This principle seems just as certain to us as, *omnis cellula e cellula*. But certainly this transformation of protein or fat into sugar takes place only when there is a *need* for it, that is to say, when no or insufficient carbohydrates are introduced with the food. Seegen's view that with simultaneous carbohydrate ingestion all the protein and all the fat must first be converted to sugar in order to impart chemical and mechanical energy to the body, is absolutely unproved and improbable. This view is certainly just as wrong as the opposite one of Pavy, who stated that a direct use of grape sugar in the body was impossible, and was of the opinion that all the sugar must first be transformed into fat.

Glycocoll = C_2 =
Alanin = C_3 =
Cystein = C_3 =
Leucin = C_6 =
Phenyl-alanin = C_9 =
Lysin = C_6 = $CH_2 \cdot NH_2 - C_5H_9 - CH \cdot NH_2 - COOH = R_4$ "
Glucosamin = C_6 = $C_4H_9O_4 - CH \cdot NH_2 - CHO = R_4$ Glycin*aldehyde*

The Chemical Aspect of the Formation of New Sugar.—How are we to understand the chemical process of new sugar formation: We are to-day no longer satisfied with the establishment of a new sugar formation; we want to know the exact way in which this transformation takes place. In the case of glycerin the chemical process is the simplest and most easily understood. Glycerin, $C_3H_8O_3 = CH_2OH - CHOH - CH_2OH$, with its richness in oxygen and its constitution stands so near to the carbohydrates that it can hardly be regarded as a true fatty complex. Its transformation into $C_3H_6O_3$, that is to say into a triose, either into dioxyacetone, $CH_2OH - CO - CH_2OH$, or into glycerin aldehyde, $CH_2OH - CHOH - CHO$, requires only the addition of one atom of oxygen and takes place in a test tube with remarkable ease. The polymerization of such a triose, which means a carbohydrate with three carbon atoms, into a hexose, has been successfully accomplished by chemists. It is only one example from many in which lower carbohydrate groups condense to higher ones. And the animal body also is surely able to accomplish this oxidation of glycerin and its polymerisation to $C_6H_{12}O_6$, a hexose. This has been proved at least for the sorbose-bacterium by the most excellent work of Bertrand. And we shall surely have this simple way possible also in the body of higher animals.

In the formation of new sugar from protein we have to take into consideration its components, the aminoacids. Certainly we are far from a precise knowledge of the protein molecule; the real amount of the known components is not established, and we may still expect to find a number of new components. Neither from the qualitative nor from the quantitative side has the working up of the decomposition products given sufficient results. We know but little about its structure and about the arrangement in space of its components. In spite of all these objections we have already a certain conception of the protein molecule. In the same sense as the starch molecule is to be looked upon as a combination of innumerable molecules of grape sugar, so can we look on the protein molecule as made up of innumerable glycocoll groups.

Glycocoll, $CH_2NH_2 - COOH$, is the simplest α-aminoacid. We can consider all known aminoacids as derivatives of glycocoll. Alanin is a methyl-glycocoll, cystein a thio-methyl-glycocoll, leucin an isobutyl-glycocoll, phenyl-alanin a phenyl-methyl-glycocoll, and so on.

$CH_2 \cdot NH_2 - COOH = R_2$ Glycin
$CH_3 - CH \cdot NH_2 - COOH = R_1$ "
$CH_2 \cdot SH_2 - CH \cdot NH_2 - COOH = R_1$ "
$C_4H_7 - CH \cdot NH_2 - COOH = R_4$ "
$C_6H_5 - CH_2 - CH \cdot NH_2 - COOH = R_7$ "

Of all the decomposition products now known, only one, glucosamin, differs in structure from these; it is an α-amino-aldehyde, but it also contains the amino group in the α-position like the other components.

Since most of the linkages in the protein molecule are linkages between the amino group of one aminoacid and the carboxyl of another, protein could be regarded as a *polysubstituted polyglycocoll.*

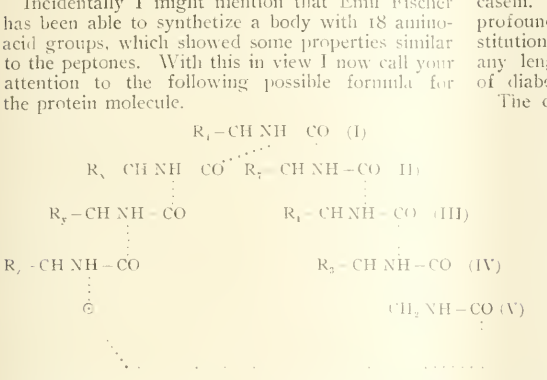
I present here the formulæ of a simple and of a complex polypeptide, of glycyl-glycin and of glycyl-glycyl-alanin, which are types of synthetical products made by Emil Fischer.

Glycyl-glycin = $CH_2 \cdot NH_2 - CO$
$\vdots$
$CH_2 \cdot NH - COOH$

Glycyl-glycyl-alanin = $CH_2 \cdot NH_2 - CO$ (I)
$\vdots$
$CH_2 \cdot NH - CO$ (II)
$\vdots$
$R_1CH \cdot NH - COOH$ (III)

You can see that glycyl-alanin may be considered as a compound of three glycocoll groups, in which one is substituted by a methyl (R_1). I call your attention to the fact that at the first glycocoll group, an isobutyl group can be readily substituted and we obtain a leucyl-glycyl-alanin, and so on until we come to the higher polypeptids.

Incidentally I might mention that Emil Fischer has been able to synthetize a body with 18 amino-acid groups, which showed some properties similar to the peptones. With this in view I now call your attention to the following possible formula for the protein molecule.



It consists of a series of substituted glycocoll groups: you see that the first is a leucin, the second a phenyl-alanin, and then follows alanin, valin, and glycocoll and so on. Of course, this gives no idea of the arrangement of the protein molecule in space, nor does it take into consideration the optical properties of the molecule, still it represents an easily conceived possibility.

Of course, other linkages, important for the constitution of protein and for the function of the protoplasm also occur in the protein molecule, and perhaps also other components of quite a different hitherto unknown type may still be found. If so, the classification of protein I have chosen would have to be extended and altered. Although this designation of protein as a *polysubstituted-polyglycocoll* may, perhaps, prove to be chosen too early, it takes away the mysteriousness with which the nature of protein has up to the present been surrounded in the eyes not only of physicians but also of chemists.

The riddle of sugar formation from albumin appeared for a moment solved, when Pavy found a preformed carbohydrate complex in protein. But it was soon discovered that this body, whose osazon is identical with that of grape sugar, was not grape sugar itself, but glucosamine. Its mass amounts at most to 30 per cent. in the glucoproteids, but in the true proteids is present only in minimal quantities or is totally absent. Accordingly, it is insufficient for the production of large quantities of sugar. And feeding experiments with free glucosamine, with glucosamine hydrochloride, or glucosamine ester showed that this body produces absolutely no sugar in the animal body. Also in the test tube the conversion of the glucosamine into grape sugar, which was originally expected by reason of the close relation of the formulæ has not yet been realized.

It has even been shown by an examination carried out from another point of view, that precisely that very proteid in which no glucosamine and no preformed carbohydrate are present, casein, yields the highest quantity of sugar in the diabetic body. It was a question of great practical importance to know which proteid would yield the smallest quantity of sugar. This would certainly be the most advantageous for a diabetic subject. The differences which were observed in feeding experiments on diabetic patients are not very great. Plant proteids certainly yield somewhat smaller quantities of sugar than animal proteids and especially than casein. But for superficial and also for more profound reasons, a more or less complete substitution of plant albumin for animal protein for any length of time is impossible in the dieting of diabetic subjects.

The question of sugar formation from proteid is to be reduced to the question of the different aminoacids. Lusk and Stiles have shown that, on feeding with completely digested protein, that is to say, with the aminoacids *in toto*, the sugar output in the case of a phlorhizinized dog rises as high as on feeding with natural protein. But special difficulties stand in the way of the examination of the single aminoacids. The method of glycogen accumulation in animals which have been freed from glycogen is impracticable also on feeding with aminoacids. For this purpose, also, investigation of the diabetic organism is the only practicable way. But on account of their irritative action, only small quantities of aminoacids can be introduced, and for this reason the differences in the sugar output were in general relatively small. Embden and Salomon in their best experiments found that after feeding with 20 to 40 grams of alanin the urine sugar rose from 7 to 17 grams, that is to say about 10 grams. And it is very doubtful, on account of the spontaneous variations in the sugar output, whether these 10 grams have really arisen from the introduced alanin, all the more so, because the experiments of the various authors do not quite agree. The most recent experiments of Graham Lusk, however, speak in favor of the transformation of glycocoll, alanin, aspartic acid, and glutaminic acid into sugar.

Karl Grube has tried to apply another method for the solution of this question. He had found that the tortoise liver, on transfusion with artificial serum, was a most excellent test object for the examination of glycogen formation. He used this method also for the examination of the amino acids.

But in contrast to other substances these bodies failed to accomplish glycogen formation in the experiments on the tortoise liver. Certainly the liver, the most general and important chemical laboratory of the body, takes part in the formation of new sugar, as has been proven by various experiments, but still Grube's experiments have shown that this organ is not *in itself* capable of effecting the complete transformation of the aminoacids to sugar. It seems that a preliminary part of the work necessary for this purpose must be carried out by the other organs. And thus the negative results in the case of the isolated tortoise liver do not prove the non-existence of sugar formation from aminoacids in the organism. Even Pflüger, in the last work of his long and glorious life, was converted to the belief of sugar formation from glycocoll.

If, with a certain reserve, we may rely on these investigations of the different authors, their results may be generalized as follows: It appears that aspartic acid, glutaminic acid, alanin, and also glycocoll are sugar producers, while leucin and tyrosin are not.

As to their connection with sugar formation the aminoacids are to be divided into two opposite classes, and this division is also justified by their different behavior in another biochemical process; that is to say, by their relationship to acetone bodies. I would emphasize the fact that the two groups of aminoacids are directly opposed to one another in relation to the production of oxybutyric acid and of sugar. Alanin, aspartic acid, glutaminic acid, and glycocoll, which yield sugar, seem to diminish the elimination of acetone bodies, while those aminoacids which yield no sugar, such as leucin and tyrosin, cause a decided rise in the oxybutyric acid output. This is extremely important for the understanding of both processes.

However doubtful the relationships of the single aminoacids to sugar may be, still they permit some conclusions to be drawn in respect to the chemical changes which must occur. Friedrich Müller supposed leucin to be the real or the most important source of sugar, because this aminoacid contains six carbon atoms like sugar. But it is precisely from leucin that according to our present knowledge, no glucose is produced. A sugar formation from the lower aminoacids with four, three, and two carbon atoms, aspartic acid, alanin, etc., supposes a synthesis of a chain of 6 carbon atoms from chains of 2, 3 or 4 carbon atoms. Pflüger some years ago would place such a synthesis outside the possibilities of the animal body. But I need only to remind you of the formation of fat, that is to say, of fatty acids with from 16 to 18 carbon atoms, from grape sugar, in order to refute Pflüger's objection. A synthetical condensation is also present in the case of sugar formation from glycerin, which has been established beyond doubt. Here the synthesis consists in a linking up of 2 chains of 3 carbon atoms each.

The question here arises as to whether complexes with 2 or even with only 1 carbon atom can also be used in the body for the synthesis of sugar. In the case of alanin we have the following alternative. Alanin can by the loss of an amino group be transformed into lactic acid $C_3H_6O_3$, which is isomeric with glyceric aldehyde. It could be assumed that the first by an intramolecular rearrangement might pass into its isomeric form and this be condensed to sugar.

A second possibility is the following: Emil Fischer and Neuberg have effected a reduction of aminoacids to aminoaldehydes by the action of sodium amalgam. Perhaps a similar reduction may occur also in the organism, which has strong reducing forces at its disposal. Aminopropylaldehyde would then arise from alanin and the amino group would only then be split off.

$$\begin{array}{l} CH_3-CHNH_2-COOH \\ \quad\quad\quad\

Grube passed a very dilute formaldehyde solution for many hours through isolated tortoise liver and found an appreciable rise in the glycogen content of one lobe at the end of the experiment, in comparison with that of the other lobe, which was analyzed before the transfusion. I may mention in passing that it has been proved by numerous experiments that the glycogen content of the different parts of the liver is usually the same.

I can find no fault either in principle or analysis in Grube's procedure—Grube worked in Pflüger's laboratory—and, accordingly, I am inclined to consider his experiments as correct.* But by reason of the enormous importance of this result, a careful reinvestigation and a confirmation from other sides is extremely desirous.

Should Grube's results be confirmed, then a difference between plant and animal life, which has up to now been held as fundamental, would be wiped out and the limits of the synthethic capacity of the animal body would once more be widely enlarged. Certainly one difference will still remain, that is to say, the synthesis of protein. I consider it improbable that the animal body can unite free ammonia, which is not already combined with carbon, to carbon and in this way synthetize protein from its elements.†

We may draw a further conclusion from what has been stated. Even though the capability of the body be so manifold for the synthesis of sugar from chains of different length, it is certain that chains of 4 or 5 carbon atoms, as aspartic and glutaminic acid can be used for the synthesis without any splitting off of single carbon atoms. Such a splitting off will take place many times over. Some aminoacids will split off only one C atom; others more. Besides this there are certain aminoacids which do not yield sugar at all. Mehring's supposition that 100 parts of proteid should yield 135 parts of grape sugar is, according to this, incorrect.

The chemical process of the transformation of the high fatty acids into grape sugar can be specified with still less accuracy, even on the ground of supposition, than with the aminoacids. Pflüger's view that the 18 carbon atoms chain of stearic acid be directly decomposed into three chains of 6 carbon atoms each, is extremely improbable. It has absolutely no analogy in the entire field of chemistry and biochemistry. We know from investigations as to the production of oxybutyric acid that the decomposition of the fatty acids takes place by oxidation in the β-position and that the long carbon chains are in every case shortened by 2 carbon atoms. From stearic acid, palmitic acid is produced, and from caprylic acid, caprinic acid, capronic acid, and butyric acid. Here we may ask whether these 2 carbon atoms, which are repeatedly split off together, represent the material for the sugar synthesis: or is this material first set free, when the catabolic process has gone down to a lower fatty acid with 6 or 4 C atoms? It is impossible at the present time to express assumptions of any sort in respect to this.

But I feel inclined to consider the latter as being the more probable. In any case, I would like to emphasize the difference existing between the oxidation of the amino and fatty acids as being of the greatest importance for the formation of sugar. By the splitting off of an amino group, which is possibly the first process in the transformation of the aminoacids into sugar, an α-oxyacid is formed in each case, while by the oxidation of the true fatty acids a β-oxyacid arises. The oxybutyric acid is an actual representative of these β-oxyacids. It seems to me extremely probable that the combination present in the α-oxyacids, that is to say, the occurrence of hydroxyl and carboxyl in adjacent positions, highly favors the sugar synthesis, in opposition to the more distant position which these groups have in the β-oxyacids. Perhaps in this circumstance lies the solution of the riddle that protein yields dextrose so much more easily than fat.

FORMATION OF GRAPE SUGAR FROM OTHER HEXOSES.

The chemical process occurring in the transformation of the different hexoses into one another is to-day by no means so problematical as the processes which have just been described. The transition of levulose, galactose, and mannose into grape sugar has long been proved for healthy animals by the method of glycogen accumulation. It is further confirmed by experiments on diabetic subjects. It was thought for a time that the mutual transformation of the hexoses in the body was to be attributed to the same forces as in the test tube, that is to say, to the action of alkalis. Remember, please, gentlemen, the brilliant experiments of Lobry de Bruyn and von Eckenstein, who, on adding alkali to a solution of either dextrose or levulose or mannose, found after some time all three kinds of sugar present in the solution. Still the so-called alkalinity of the blood is insufficient for this transformation. Blood contains no sodiumhydroxide, nor sodium carbonate, but only sodium bicarbonate; it contains no hydroxyl-ions, and it is these only which cause the transformation in the test tube. No conversion of levulose into grape sugar takes place in the blood; it occurs only in the organs, partly in the liver, and it is performed probably by the action of ferments, which possess similar powers in the body as the hydroxyl in a test tube.

	LEVULOSE.	MANNOSE.	GLUCOSE.	GALACTOSE.
I.	$C{\cdot}H_2OH$	$C{\cdot}HO$	$C{\cdot}HO$	$C{\cdot}HO$
IIα.	$C{\cdot}O$	$OH{\cdot}C{\cdot}H$	$H{\cdot}C{\cdot}OH$	$H{\cdot}C{\cdot}OH$
IIIβ.	$OH{\cdot}C{\cdot}H$	$OH{\cdot}C{\cdot}H$	$OH{\cdot}C{\cdot}H$	$OH{\cdot}C{\cdot}H$
IVγ.	$H{\cdot}C{\cdot}OH$	$H{\cdot}C{\cdot}OH$	$H{\cdot}C{\cdot}OH$	$OH{\cdot}C{\cdot}H$
Vδ.	$H{\cdot}C{\cdot}OH$	$H{\cdot}C{\cdot}OH$	$H{\cdot}C{\cdot}OH$	$H{\cdot}C{\cdot}OH$
VIϵ.	$C-H_2O$	$C\,H_2OH$	$C\,H_2OH$	$C{\cdot}H_2OH$

Dextrose, levulose, and mannose differ from one another only in the different arrangements of the hydrogen and of the hydroxyl at the first and second carbon atom of the chain. Their mutual transformation is to-day explained by a certain liability of this arrangement which permits under certain conditions a mutual exchange of the H and the OH.

The difference between galactose and dextrose, however, is greater. They differ by an inverted arrangement of the H and OH at the fourth, the γ-carbon atom. Chemists have not yet succeeded in transforming these products directly into one another. In the body, however, galactose is certainly formed from grape sugar. This has been established by Porcher by means of interesting studies of lactating animals. Strong hyperglycemia occurs immediately before and after parturition. If the milk gland be removed, either before or after parturition, a decided glycosuria occurs after the

*Only in a remark contained in Pflüger's last publication could I find a support for doubts.

†In his last work Knoop, however, seems to have proven a synthesis of an aminoacid, namely, of benzyl-alanin from benzyl-pyrotartaric acid and ammonia.

birth. This may rise rapidly up to 7 per cent. of sugar, but declines rapidly also, and the glycosuria lasts only from one to two days. If the milk gland be present this hyperglycemia leads not to glycosuria but to lactosuria. It seems fairly certain that the liver empties its glycogen so as to impart to the glands the material necessary for the formation of milk sugar. If the gland be absent then a part of this unused grape sugar is eliminated in the urine. It is interesting that this sugar mobilization is not brought about by the mammary gland, for it occurs even if the gland has been removed long before the birth.

The question of the greatest interest for diabetic therapeutics is whether or not one of the above carbohydrates would be preferred to grape sugar and utilized to a greater extent. In this field also Külz was the first to carry out an experimental investigation. He has shown that a certain preference exists in cases of light diabetes for levulose and galactose or milk sugar over dextrose. It is still unknown which of these are benefited by the substitution of milk sugar for starch, or why it should be so. But with *severe* diabetes these differences disappear. The hexoses mentioned are almost quantitatively transformed into grape sugar. In extremely severe cases of diabetes, when the period of ingesting lactose sugar is longer than from one to two days, it is just as completely eliminated as grape sugar.

Although levulose also seemed to be eliminated just as completely as dextrose in severe diabetes, the use of inulin, the polymer of levulose, has very often been tried by reason of a striking, though still unexplained property of levulose. Minkowski found that the liver of depancreatized dogs, after feeding with levulose, again contains glycogen. This was never the case when even a very large quantity of dextrose was introduced. Von Noorden has confirmed this for diabetic human beings. As the glycogen molecule which is produced from levulose contains only dextrose molecules, levulose must first be transformed into grape sugar. Thus the difference between levulose and dextrose in respect to glycogen accumulation in diabetes is extremely enigmatic. The only possibility that I can conceive at present is, that the levulose can enter the interior of the cells where the chemical processes take place, and it is only there transformed into grape sugar, while it is impossible for preformed dextrose to penetrate into the cells.

The transitions of levulose and of galactose to dextrose are processes which are also reversible in the organism. Transformation of galactose into glucose appears in the healthy being and in the diabetic subject, and is performed in the liver. The contrary transition of glucose into galactose occurs in the active mammary gland. The transformation of levulose to grape sugar can also be reversed and be recognized under suitable conditions. This is apparently the case in levulosuria. In most persons levulosuria is only a question of elimination of exogenous levulose, that is to say, of such as is taken up in vegetables and cane sugar. Such patients seem to have lost the capacity of transforming levulose into dextrose. But in others a derivation of the urine-levulose from dextrose is occasionally recognizable. A patient of Zimmer's eliminated, besides grape sugar, up to 150 grams of levulose. Since such quantities were not taken in in the food, they must have been formed from another material, from grape sugar certainly.

On the whole the clinical significance of pure levulosuria is very small. The levulose elimination seldom exceeds 20 grams. Progression of the metabolic disturbance is not recognizable. In most cases it is usually sufficient, if cane sugar, fruit, and certain vegetables which contain large quantities of levulose be avoided, in order to put an end to the symptoms of levulosuria.

As to the pentoses, I need only mention quite briefly that they undergo no transformation into grape sugar. It is to be regretted that they cannot be employed even on a small scale as a substitute for the useless hexose molecules. Certain diabetic subjects catabolize large quantities of pentoses, 50 grams, and even more in the case of rhamnose, but with most patients the oxidative capacity is far lower. These "semi-foodstuffs" even in small quantities exercise a most violent irritation on the intestine, the kidneys, etc.

Von Noorden has been much more fortunate than Külz in his attempts to find a useful carbohydrate for diabetic patients. However variable the results of the so-called oatmeal cure may be with different patients, still this discovery of v. Noorden's has the highest importance for dietetic therapeutics, and the thanks of both doctors and patients are due to the fortunate discoverer. The action of the oatmeal is completely unexplained. It has been shown that it is not dependent on accidental conditions and that diminution of the proteid ingestion does not play the principal part. This has been shown by experiments with different cereals under similar conditions as to the amount of protein, fat, and starch in the daily food. The specific property of oatmeal is in any case a material one. It may depend on the peculiar properties of the oat starch itself, or on the non-carbohydrate complex of the oats. It is very striking that almost no attempt has as yet been made to solve this problem. It seems to be improbable that oat starch, which is composed only of glucose, should behave differently in the metabolism from other sorts of starch. Still Dr. Lang of Karlsbad, a highly trustworthy investigator, has found differences in the fermentative decomposition of oat starch as compared with other sorts of starch. Further investigations in this direction must be awaited with the greatest interest. I hope shortly to be able myself to take a part in these investigations.

THE CAUSES OF DEATH FROM SHOCK BY COMMERCIAL ELECTRIC CURRENTS, AND THE TREATMENT OF THE SAME.

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With the present widespread use of electricity in almost all manner of human activities, serious and often fatal accidental shocks are of frequent occurrence. The question, therefore, of the best means to be employed in the resuscitation of individuals suffering from the effects of accidental shock is one of decided practical importance. Particularly is this true in a community such as Schenectady, where the chief industries are largely associated with the use of powerful commercial currents.

Certain recent discoveries concerning the possibility of resuscitation after nominal death from other causes, together with the development of practical forms of apparatus for maintaining artificial respiration over indefinite periods of time, have made it seem to the writers worth while to systematize the available knowledge concerning the effects which follow, and the causes of death which results from the application of commercial electric currents and to formulate as far as possible a rational procedure to be carried out in cases of injury by electric shock.

Throughout this paper we have used the term "commercial current" referring to circuits in which the energy is such as is used in ordinary commercial work. The actual amount of current passing through the body varies so much in individual experiments, depending on the resistance of the animal and the character of the contact, that it has been found impractical to attempt detailed ampere readings. Suffice it to say that throughout this paper it is to be understood that the circuits referred to are not of a low-energy source such as galvanic cells, but that a current of up to at least ten amperes may be sustained without an appreciable drop in voltage. In the conclusions reached it may be assumed that the current varies anywhere between one-half and ten or more amperes, depending upon and varying with the resistance of the subject.

Any rational method of resuscitation must be based directly upon a knowledge of the physiology of death from electric currents. This knowledge is in its main aspects readily ascertainable by direct experiments upon animals, controlled as far as possible as regards man by clinical observations in cases of accidental shock, and by observations made at the time of the electrocution of criminals.

The extensive and accurate researches of Prevost and Battelli give us a fairly complete knowledge of the effects produced upon experimental animals by direct and alternating currents of varying potentials up to 4800 volts. Previous to the work of Prevost and Battelli, investigators had arrived at widely different conclusions concerning the cause of death from electric shock; this was due to the fact that the chief cause of death varies with the current used, and that each of the individual investigators had, for the most part, used different currents in his investigations.

For the purposes of systematic study we may consider the lethal effects of electric currents under the following heads:

1. The actual destruction of tissues whereby they are so altered as to be no longer capable of performing their physiological functions. This is often seen locally in the form of electric burns, and the well-known tendency for the tissues in the regions of these burns to slough far beyond the original visible limits of injury suggests the possibility of the widespread destruction of tissues by the currents. However, these burning effects are seen only at the site of high-resistance contacts, and it is certain that the actual physiological destruction of tissue is of but exceptional occurrence and of minor importance as a cause of death.

2. Interference with the action of the heart. This is one of the most common causes of death by electricity, especially when relatively low-tension currents are encountered. Electric currents passing through the heart tend to interfere with the normal rhythmic contractions of the heart muscle and to throw it into a state of so-called fibrillary contractions, in which the individual muscle fibers or groups of fibers contract in an utterly incoordinate manner, and thus absolutely interfere with the normal beating of the heart. The ventricles are particularly susceptible and a current as low as one volt when applied directly to the heart may be sufficient to induce fibrillary contractions.

3. Arrest of respirations by paralysis of the nerve centers governing this function. The central nervous system is highly susceptible to the influence of electric currents, more especially to the influence of the higher tension currents, and it is probable that the respiratory paralysis is the result of a profound anesthesia comparable in many respects to that produced by overdoses of ether or chloroform.

Experimental investigations have shown beyond a doubt that fibrillary contractions of the heart and respiratory paralysis are the chief causes of death from electric shock. And, furthermore, experimental results seem to show a fairly definite relationship between the character of the current employed and the effects produced upon the heart and central nervous system.

There is considerable variation in different animals as regards their susceptibility to electric currents, and particularly as regards the susceptibility of the heart. Thus Prevost and Battelli found that alternating currents of low tension cause only temporary arrest of respiration, but that fibrillary contractions of the ventricles are induced. In dogs these fibrillations always persist after the current is broken, so that once the fibrillary contractions have appeared it is impossible to resuscitate the animal. In guinea pigs and rabbits the fibrillations may sometimes disappear and the animals recover, whereas in rats this latter result is invariably noted, the rat being apparently immune to low-tension currents.

It is thus seen that the data obtained from animal experiments are not necessarily entirely applicable to man, and due allowance must be given for the variations in susceptibility, man being apparently quite immune to currents which are fatal to the dog. Clinical observations, however, seem to show that the cause of death in man is the same, namely, either respiratory or cardiac failure, and that while one animal may be more susceptible than another there is probably no essential difference as regards the fundamental effects produced by the different currents.

The writers in describing the effects produced by the different currents will follow closely the results obtained by Prevost and Battelli, who used the dog, rabbit, guinea pig and rat in their experiments. We will indicate possible corrections for man whenever data is obtainable on the subject.

Direct Currents; the Heart.—The effects produced by direct currents depend upon a number of factors, such as the strength of the current, the duration of the contact and the course of the current through the body, and, furthermore, the steady effect of the direct current is complicated by the sudden shocks due to the make and break of the current.

In dogs fibrillary contractions of the heart may be produced by the shock at the break with currents as low as 10 volts, whereas with stronger currents neither the shock of make nor break is necessary to produce the fibrillary contractions, the heart entering upon the stage of fibrillation during the passage of the current. Indeed, at times, with currents of 400-500 volts the shock of break may

serve to re-establish rhythmic contractions in a heart already in a state of fibrillation during the passage of the current; but if the shock of break of these stronger currents be suppressed by a gradual shutting down of the current, *e.g.*, by the use of a rheostat, the cardiac paralysis remains final.

Considerable variation is noted as regards the cardiac susceptibility of different animals, for, as stated above, a current of 70 volts may be sufficient to produce ventricular fibrillations in dogs, and except in the case of the higher potential currents, where the rhythm may be re-established on breaking the current, practically no tendency is seen toward a spontaneous re-establishment of heart action. On the contrary, in rabbits and guinea pigs, although even low-tension currents produce fibrillary contractions, a well-marked tendency is seen in these animals for the heart to spontaneously re-establish its normal rhythm, and a few of the animals recover spontaneously unless respiratory paralysis is also present, in which case artificial respiration may be necessary to resuscitate the animal. With rats, spontaneous recovery of the cardiac rhythm is the rule, they being apparently almost immune to cardiac paralysis from direct currents up to 550 volts.

No accurate data are available concerning the behavior of the human heart under the influence of direct currents, but it seems altogether probable that ventricular fibrillations may exist at least during the passage of the higher tension currents, and that the failure to re-establish the normal cardiac rhythm is the cause of death in most cases.

Nervous System.—The effect of direct currents on the nervous system seems to be in direct proportion to the strength of the current used and the duration of the contact. Currents of low voltage (100 volts) produce little effect except the muscular contractions at the make and break. Higher currents (200-400 volts) produce tetanic muscular contractions, quickly followed, if the contact is prolonged, by a flaccid paralysis and respiratory failure; whereas with currents of still higher tension (550 volts) the anesthesia of the nervous system may be produced so promptly as to show no tetany, respiratory failure from paralysis being almost immediate under these conditions.

From a clinical viewpoint the writers believe that the effect produced by the higher tension currents on the central nervous system may be conceived as a state of anesthesia quite comparable to chloroform or ether narcosis, except that the respiratory centers are more promptly involved than in surgical narcosis. While possibly this conception may not be absolutely correct, it is of practical use in enabling one to make comparisons with the abundant clinical data concerning respiratory failure during surgical narcosis, and the researches of Robinovitch seem to show that electric anesthesia is quite definitely comparable to ether or chloroform anesthesia.

Alternating Currents.—The effects produced by the alternating current depend largely upon the tension of the current, the frequency of the cycles, the duration of the contact and the course of the current through the body. As a rule, low frequencies (25-150 cycles) are for a given strength of current more dangerous than higher frequencies (1720 cycles). We have been unable to find any reliable data concerning the effects of variations in the curve of flow during the reversals of the current, but it is quite probable that the nearer this curve approaches the sine curve the less irritating it becomes.

The Heart.—In experimental animals, currents of low frequency and relatively low tension almost uniformly produce ventricular fibrillations, whereas the effects of currents of high tension are more noticeable in the central nervous system.

Prevost and Battelli found that under favorable conditions a current as low as 15 volts at 30 to 150 cycles would produce fibrillary contractions in the heart of the dog. With low-tension commercial currents (about 130 volts) cardiac fibrillation is constantly produced, and in the dog these fibrillations always persist after the current is broken, so that once the fibrillations have appeared it is impossible to resuscitate the animal.

In guinea pigs and rabbits the fibrillations may sometimes disappear and the animal recover, whereas in the rat the heart invariably regains its normal rhythm, this animal being quite immune to low-tension currents either direct or alternating.

This cardiac paralysis with low-tension currents in susceptible animals presents certain very striking clinical features: the heart is essentially the only organ affected by the current, and after the interruption of the current the animal may continue to breathe and retain consciousness for a minute or more, the respirations and consciousness finally failing only as a result of an anemia of the central nervous system produced by the failure of the circulation.

As the tension of the current is increased, decidedly less tendency is seen toward the production of fibrillary contractions, and when these do come on they are less liable to be final than when produced by low-tension currents. Guinea pigs may recover from the fibrillary contractions following the application of a current of 240 volts, when they do not recover from one of 120 volts; rabbits may not show fibrillations with a current of 600 volts, when they do with one of 240 volts. Even dogs fail to show fibrillary contractions on the application of high-tension current (1300-4800 volts), but, on the contrary, the heart-beats become quicker and stronger and the blood pressure rises. Crile and McLeod have, however, found that even with currents of 2300 volts, if the contact be prolonged from 5 to 10 seconds, the blood pressure falls to zero, and the animal cannot be resuscitated by artificial respiration.

Not only do very high-tension currents (4800 volts) show little tendency to cause fibrillary contractions, but Prevost and Battelli have shown that the application of a high-tension current (4800 volts) may re-establish normal heart-beats in a heart previously paralyzed by a low-tension current, provided the high-tension current is applied before the blood pressure has fallen to zero.

The failure to reestablish the heart-beats after the blood pressure has fallen to zero is explained by the well-known facts that the maintenance of cardiac contractions is largely dependent upon a sufficient pressure in the coronary arteries. With cardiac paralysis, blood pressure falls to abscissa in about 15 seconds, so that the time for the application of this method of resuscitation must be very sharply limited, unless it be possible to again artificially raise the blood pressure by some method such as the adrenalin-salt solution injections of Crile and Dolly.

All writers seem to agree that very high frequency currents (1720 cycles) are much less liable

to produce cardiac paralysis than those of low frequency (25-150 cycles) with similar voltage.

But very little accurate data is available concerning the behavior of the human heart when subjected to various tensions of alternating currents. The medical reports of the executions in New York State since 1890 seem to agree that with a current of about 1500 volts, 15-50 cycles, 2-7 amperes, the heart continues to beat and the respirations show a tendency to re-establish themselves when the contact is broken after a few seconds; but that with a longer application of the current (45-87 seconds) the cardiac action is entirely suspended.

Central Nervous System.—As before stated, low-tension alternating currents may kill by causing cardiac fibrillations without producing any noticeable effect upon the central nervous system; even consciousness may be but little affected, and both consciousness and respirations finally fail only as a result of the anemia of the central nervous system resulting from the stoppage of the circulation. Medium-tension currents (600 volts) cause loss of consciousness and respiratory paralysis, usually accompanied by cardiac fibrillations. On the other hand, currents of high tension (2300-4800 volts) cause instantaneous loss of consciousness with almost instantaneous respiratory paralysis, accompanied only very infrequently by cardiac fibrillations.

If the contact is prolonged with the higher tension currents the anesthesia produced is most profound and may last for half an hour or more, and yet the patient ultimately recovers under artificial respiration, provided there has been no cardiac paralysis. One case is on record in which a man is said to have recovered after four hours of artificial respiration.

Variations in Effects Produced Due to Different Points of Application of Electrodes; Freak Accidents.—The markedly variable results from accidental shocks are well known to all; fatal accidents sometimes result from contacts with currents ordinarily hardly considered dangerous, and individuals at other times escape from contacts which under ordinary conditions would seem necessarily fatal. This must in part be accounted for by the poor contacts often formed in accidental cases, as contrasted with the carefully planned contacts of experimental work. Also, due to the arcing tendencies of high-tension currents, portions of the body may sometimes serve only as a means of completing the arc, the current not permanently passing through the body.

In experimental work wide variations are seen in the results, depending upon the points selected for the application of the electrodes; this must also be an important factor in explaining the effects produced by accidental contacts. When the electrodes are placed in the mouth and the rectum, the current must necessarily traverse the region of the heart, and with all strengths of current cardiac fibrillation is far more likely to occur than if the electrodes are placed on the head and one fore-limb, or one fore-limb and one hind-limb, in which case the heart does not lie in the direct path of the current; on the other hand, the respiratory mechanism is far more rapidly affected if the medulla oblongata lies in the direct path of the current.

TREATMENT OF ELECTRIC SHOCK.

With a definite understanding of the mechanism of death from electric shock, the indications for treatment become clearly outlined. The possibilities of resuscitation are inseparably connected with the factors of respiratory and cardiac failure. In the cases of simple respiratory failure resuscitation depends upon the maintenance of respiration by artificial means until such time as the anesthetic condition of the central nervous system shall have disappeared. The cases with ventricular fibrillation are apparently utterly hopeless from the very first, unless some means be devised whereby rhythmic cardiac contractions of the heart may be promptly reestablished.

Artificial respiration may be maintained either by manipulating the body itself in such a manner that the chest cavity is alternately compressed and expanded, or by the use of a pump or a bellows so manipulated as to force air at regular intervals through the trachea and into the lungs in sufficient volume to expand the chest and properly fill the lungs. Expiration is accomplished by simply releasing the pressure and allowing the chest walls to collapse. As the pressure required is not more than 8 mm. of mercury, a simple hand or foot bellows of sufficient capacity will serve perfectly as an air pump, but as the tube must be inserted into the larynx, a suitably curved metal or hard rubber cannula should be provided for this purpose, and provision must be made for the release of pressure during expiration. It is very essential that no effort be made to forcibly suck the air from the lungs, as this causes a collapse of the smaller bronchioles, which effectually seals the air in the alveoli and prevents emptying the lung.

While artificial respiration may be maintained for some time in a fairly satisfactory manner by manual methods, it is always difficult, and except when performed by skilled operators the exchange of air is barely sufficient to maintain life. A properly constructed apparatus for maintaining artificial respiration is very easy to manipulate once the tube is properly inserted into the larynx, and such an apparatus with some one capable of inserting the tube into the larynx should always be on hand in testing laboratories and places where accidents are particularly likely to occur. Artificial respiration should be begun by manual methods at once and maintained until this apparatus can be brought to the patient.

A possible point in favor of maintaining artificial respiration by means of this apparatus is the fact that all manual methods require energetic manipulation of the chest wall with more or less accompanying massage of the heart, and from a study of the experimental results it seems quite possible that any traumatic impulses transmitted to a heart through which a current has just passed may tend to establish fibrillary contractions in the heart which would otherwise not occur.

In order that the blood supply to the respiratory centers may be maintained as well as possible and in order that the heart may be well supplied with blood, it would seem to be always advisable to keep the patient in the head-down position, best maintained by laying him on a plank or table with the foot end elevated at an angle of 35 degrees. Whereas cases of simple respiratory failure give fair prospects of recovery with properly maintained artificial respiration, the cases of cardiac failure are at present absolutely hopeless from the onset, and will probably remain so unless some practical means be devised for re-establishing the normal action of the heart.

Prevost and Battelli have shown that the application of a high-tension current (4800 volts) may re-establish the normal heart-beats if applied at a time before the blood pressure has fallen too low; that is within less than 15 seconds after the time of injury. Robonvitch has secured similar results with the Leduc current, but methods requiring application within 15 seconds are obviously impossible of execution in practical work.

Within the past few years the researches of Crile and Dolly have added enormously to our knowledge of the factors which maintain the normal cardiac rhythm. These investigators have shown that it is quite possible to re-establish normal heart action in animals killed by chloroform or asphyxia, even after the heart has been entirely stopped for periods up to 5 minutes or more. Crile and Dolly have shown that the limit of time of resuscitation is not determined by the heart itself, but by the susceptibility of the central nervous system to injury by the anemia resulting from the suspension of the circulation. While the heart's action may be re-established after intervals greater than 5 minutes, the central nervous system cannot stand an absence of blood supply for a much longer period, so that the animals recovering after this period show permanent evidence of brain injury, remaining in the more extreme cases practically as decerebrates.

Sollman was the first to show that ventricular contractions depend upon a sufficient pressure in the coronary arteries, and that the quiescent heart may be made to beat if some fluid, even metallic mercury, be forced into the coronary arteries. Crile and Dolly finally devised a means of producing this necessary pressure in the coronary arteries with the heart in *situ*, using the following method: First, the arterial system is rapidly filled with salt solution by injecting the solution toward the heart through a suitable peripheral artery, and at the moment when the arteries are nearly filled a sufficient quantity of adrenalin chloride is added to the salt solution. This causes the vessel walls to contract, and thus rapidly raises the blood pressure within the arteries. At the proper moment the heart is stimulated by a few quick compressions on the chest wall, which causes it to immediately jump into action, beating very vigorously from the first beat.

The possibilities of this method may be well shown by reporting in detail the results of one of our resuscitation experiments.

Dog No. 11. Small fox terrier. Chloroform anesthesia. 12:40. Respirations ceased unexpectedly before the apparatus was ready for the experiment. Very slight heart action for a few seconds after respirations ceased. Laryngeal tube inserted and artificial respiration alone tried without avail, the heart action soon ceasing entirely. 12:44. Carotid artery exposed and cannula inserted toward the heart. No bleeding from artery. Artificial respiration maintained constantly. 12:46. Saline infusion into carotid artery with the bottle at a height of 5 feet above the table, and 1 cc. of 1/1,000 adrenalin chloride solution injected into tube near cannula after salt solution had been flowing about 10 seconds. Indirect cardiac massage by pressure on the chest wall. No response from the heart. 12:49. Salt solution, adrenalin and massage repeated. 12:49:30. Heart begins beating strongly. 12:51. Respirations begin, irregular at first, then become more regular, and animal soon begins to struggle. 12:55. Contact of 10 seconds' duration, alternating current of 118 volts, 60 cycles, with electrodes on neck and abdomen. 12:56. Salt solution and adrenalin chloride solution administered as previously, with artificial respiration. Opened abdomen, examined the heart and massaged the same through the diaphragm. Fibrillary contractions of the ventricles, auricles beating. No return of normal beats. Continued to massage heart until 1:15; experiment abandoned.

The technique of Crile and Dolly is so simple and easy of execution as to make it practically possible to carry out the same in such a place as the testing department of the General Electric Company, where a trained man is always in readiness to care for such emergencies. The writers have therefore made a number of experiments to determine the applicability of this technique as a method of resuscitation in cases of heart stoppage by electric shock.

Our results as regards resuscitation from chloroform poisoning confirm the work of Crile and Dolly, and as regards the death of dogs from low-tension alternating currents, our results are in full accord with the findings of Prevost and Battelli and others; but in no instance were we able to re-establish rhythmic contractions in a dog's heart by the normal salt-adrenalin chloride technique of Crile and Dolly once fibrillary contractions had been induced.

The following is a summary of our experiments:

Dog No. 1. Large male setter. Killed by chloroform anesthesia. Attempted Crile and Dolly technique, but with too small a cannula and salt solution bottle elevated only 3 feet. Result negative.

Dog No. 2. Medium-sized bull dog. Treated as dog No. 1. Results negative, except that a few feeble heart-beats were established by direct cardiac massage after 10 minutes.

Dog No. 3. Large pointer. Treated as dog No. 1. Result negative.

Dog No. 4. Large bulldog. Previous errors in technique corrected by raising salt-solution bottle to a height of 5 feet above the table and substituting a cannula of suitable size. 1:06. Dog killed by chloroform. 1:08. Normal saline infusion toward heart, ½ cc. adrenalin chloride, artificial respiration by machine, indirect cardiac massage. Prompt recovery of heart-beats, with high blood pressure, forcing bloody liquid back into solution bottle. Re-establishment of normal respirations. This dog was again killed by re-administration of chloroform, and second attempt at resuscitation after an interval of 5 minutes failed.

Dog No. 5. Mongrel puppy, weight about 2.5 kilos. Chloroform anesthesia, femoral artery exposed and prepared for insertion of cannula. Inserted laryngeal cannula. Dog almost out of the anesthesia at the time of application of current. 5:30. Ten seconds contact, 118 volts, 60 cycles, electrodes at side of head and abdomen. 5:30:15 and 5:30:30. Same contact repeated. No evidence of pulsation in femoral artery after first contact, but repeated spasmodic respiratory efforts led us to make repeated contacts. Prevost and Battelli noted that dogs may breathe well and retain consciousness for some time after fatal heart failure. 5:33. Saline infusion into femoral artery, with 1 cc. adrenalin chloride, artificial respiration. Indirect cardiac massage. No result. 5:34:30. Same repeated. No result. Opened pericardium through

abdomen and diaphragm. Auricles beating but ventricles contracted with marked fibrillation. Direct massage. No result. The contracted fibrillating ventricles with beating auricles were in marked contrast to the distended heart found at similar periods after chloroform death.

Dog No. 6. Mongrel puppy. Weight about 10 kilos. Chloroform anesthesia, femoral artery exposed, laryngeal tube inserted. 6:00. Ten seconds contact, with a current of 118 volts, 60 cycles, electrodes at side of head and abdomen. 6:02. Saline infusion into femoral artery, artificial respiration by machine, adrenalin chloride, 1 cc. Bimanual cardiac massage with one hand inserted through incision into abdomen, and the other on the outside of the chest wall. No result. 6:04. Repeated infusion, adrenalin, and massage. 6:07 (approximately). On stopping artificial respiration after a period of rather violent cardiac massage, the dog made a few gasping respirations, raising his head somewhat at the same time, and we thought that there were a few spasmodic heart-beats at the same time, but accurate observations were impossible during the spasmodic contractions of the chest wall. 6:08. Exposed heart and found usual fibrillary contractions of ventricles, with beating auricles. Direct massage produced no results.

Dog No. 7. Mongrel puppy, weight about 7 kilos. Chloroform anesthesia, femoral artery exposed, tracheal cannula inserted. 7:30. Ten seconds contact, 118 volts, 60 cycles. 7:31:30. Saline infusion into femoral artery, allowed to flow 10 seconds, artificial respiration. 7:32. One c.c. adrenalin chloride. Cardiac massage bimanually, with one hand inserted through abdominal incision, and other on chest wall. 7:34. More saline. 7:35. One cc. adrenalin chloride. Cardiac massage continued. 7:50. No return of respiration or circulation. Experiment abandoned. Heart definitely in fibrillary contraction when first palpated through the diaphragm. No evidence of circulation in femoral artery at any time.

Dog No. 8. Mongrel puppy, weight about 4 kilos. Chloroform anesthesia, femoral artery exposed, tracheal cannula inserted. 11:30. Ten seconds contact with current as previously. Cannula which had been held in the divided femoral artery by Crile clamps slipped at moment of contact and had to be replaced. 11:32:30. Saline infusion into artery. Artificial respiration. One cc. adrenalin chloride. Bimanual cardiac massage. 11:38. More saline, with 1 cc. adrenalin chloride. 11:55. No return of circulation or respiration. Fibrillary tremulation from moment of contact. No hemorrhage when clamps slipped. Absolutely no effect from salt solution and adrenalin. Violent massage just before abandonment of experiment forced blood high into solution tube by the action of the massage alone.

Dog No. 9. Small mongrel dog, weight about 7 kilos. Chloroform anesthesia, femoral artery exposed, tracheal cannula inserted. 11:00. Ten seconds contact, current as in previous experiments. 11:02. Normal salt infusion into femoral artery. One cc. adrenalin chloride. Artificial respiration, bimanual cardiac massage through incision below diaphragm. 11:05. A slight flutter may be elicited from the heart after prolonged massage through the diaphragm, but no decided heart-beat. Dog gave a few gasps at this time, raising his head at each gasp. These subsided in a short time, and experiment was abandoned. Autopsy shows lungs to be in good condition; the heart is contracted and practically empty.

Dog No. 10. Small fox terrier. Chloroform anesthesia, carotid artery exposed and cannula inserted into proximal end. Tracheal cannula inserted. 11:45. Began chloroform; pushed same until heart ceased beating. Respirations cease. 11:50. Heart has ceased beating. 11:53. Normal saline infusion into carotid artery, about 75 cc. One cc. adrenalin chloride. Artificial respiration and bimanual cardiac massage through incision below diaphragm. 11:55. Heart begins to beat forcibly and rhythmically. 11:58. Spontaneous respirations begin. 12:05. Ten seconds contact, with current as in previous experiments. 12:07. Saline infusion with procedure as above. 12:20. No return of pulse or respiration.

Dog No. 11. Reported in detail on page 900.

Dog No. 12. Large mastiff. Chloroform anesthesia changed to ether. Carotid artery exposed, cannula inserted. 11:30. Heart and respiration suddenly and unexpectedly cease. 11:35. Saline infusion, 1 cc. adrenalin chloride. Artificial respiration. 11:40. More saline, with adrenalin. Bimanual cardiac massage. No return of heart-beat, found to be due to over-distension of heart with the saline infusion.

In conclusion it may be said:

1. That there are many questions concerning this subject which remain as yet unsolved.

2. The two great causes of death are cardiac fibrillation and respiratory paralysis.

3. Low-tension currents tend to kill chiefly by producing cardiac fibrillation.

4. As the tension is increased the effect upon the heart becomes less pronounced, but at the same time the effect upon the central nervous system becomes more and more certain as the tension is increased so that with high-tension currents death is more likely to be caused by respiratory failure, although if the contact is prolonged the heart is also stopped.

5. We have been unable to find any reliable data concerning the action of commercial currents of more than 4,500 volts, but all evidence points to the central nervous system as being the chief sufferer from the effects of currents of more than 4,800 volts.

6. Cardiac fibrillation is fatal under known methods of treatment.

7. In cases of simple respiratory paralysis the patient may be kept alive by artificial respiration until the nervous system recovers from the effects of the shock.

8. Further investigations should be conducted to see if the method of Crile and Dolly may not be combined with the high-tension contacts of Battellior or those of Leduc and Robinovitch whereby resuscitation might be brought about in cases of cardiac paralysis during periods of up to 5 minutes following the accident.

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THE USE OF THIOSINAMIN IN THE TREATMENT OF CICATRICIAL FORMATIONS FOLLOWING BURNS.

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In the Spring of 1908 I was asked, in the absence of the family physician, to see a young girl, who in running from the dining room into the kitchen, at the home of a friend, collided with the range and upset a kettle of boiling water, which flowed over her left arm, producing a scald which extended over

FIGS. 1 and 2.—Appearance of the arm before treatment was begun.

the outer surface of the arm from just below the apex of the shoulder to a point about four inches above the wrist. On the arm the scald encroached upon the inner surface to a slight extent, not quite reaching the median line. On the forearm it involved the greater part of the inner surface from the elbow to the level of the scald on the outer surface.

At the time of the receipt of the injury a dressing of antiphlogistine was applied by the family and the child removed to her home. This temporary dressing was permitted to remain in place until the morning following, when it was removed, the numerous blisters opened and evacuated, a dressing of boracic acid ointment applied and the arm,

enveloped in aseptic gauze and cotton, was placed on a pasteboard splint in the position of an obtuse angle. The dressing gave the child relief from undue pain so that it was not found necessary to administer any sedative.

On the return of the family physician the patient was placed in his care, and I did not see her until the following month of August, when photographs of the arm were taken which showed the mass of cicatricial tissue which accompanied the reparative process as illustrated in Figs. 1 and 2.

An examination of the growth made it evident that operative interference could not be successfully instituted, owing to the extent of the mass, which would not admit of the complete covering by adjacent integument of the denuded surface after removal, nor was it deemed prudent to produce wound conditions in a structure of such character as that which was present.

Fig. 3.—Appearance of the cicatrix after an equivalent of about one year of continuous treatment.

Further study of the case led me to make an effort to produce absorption of the mass, if not entirely, at least to such an extent as to remove the great disfigurement which was present and, possibly, to check the tendency to any further growth.

To accomplish this the child was placed upon thiosinamin, both by internal administration and local application. Internally the remedy was used in the form of pills and externally as an ointment. At the beginning of the treatment one grain was taken after each meal; latterly some nausea supervened, which was attributed by her mother, who administered the remedy, to the quantity given, and the dose was reduced to one-half a grain three times daily. The ointment was of the strength of 8 per cent. As some irritation appeared after somewhat constant use during a period of six months it was deemed desirable to reduce the strength to 5 per cent. The ointment was applied on sheet lint which was held in place by a gauze bandage and permitted to remain in place during the night. I should have preferred to have used the remedy by hypodermatic injection, which would have undoubtedly yielded prompter and more pronounced results than by the method employed, but this was not possible as I had the opportunity to see the patient only at long intervals. Fig. No. 3 was made from a photograph taken one year ago and two years after the beginning of the treatment. In that time the remedy, owing to intermissions, was not actually administered more than twelve months and not as continuously as was desirable.

In the year which has intervened since the taking of the photograph (No. 3) the remedy has been administered with the effect of a still further reduction of the cicatricial mass, so that at the present time the scarred surface is quite on the level with the normal integument and it has lost the bluish color which was so marked in the early stage. It is proposed to continue the use of the remedy with the hope of securing quite entire removal of the scarred tissue and approximate return to a normal condition of the skin.

Thiosinamin was introduced into medicine by von Hebra (*Internat. klin. Rundschau,* September, 1892) and the following interesting statement is made with regard to its action and uses: "It exerts no influence upon the general system, its action is directly upon the blood-making organs. Several hours after injection the leucocytes in the blood are greatly diminished in number, falling, according to von Hebra, from 14,000 to 4,000. This condition lasts but a short time, followed by a pronounced hyperleucocytosis, during which a marked destruction and absorption of exudates, of cicatrical, and other poorly nourished tissues occur. It has been used by clinicians in the treatment of lupus, old cicatrices, chronic glandular inflammations, keloid, urethral strictures, corneal opacities, and sclerotic conditions of the ear with consequent deafness, fibrous tumors, syphilitic lesions, and smallpox scars. It may be administered internally in capsules in ½ to 3 grain doses. Locally it may be applied in soap or plaster, 5 to 20 per cent. It may be injected hypodermatically 1 to 4 grains in alcoholic solution, preferably in the intrascapular or gluteal region. In overdoses it produces toxic effects." Care should be taken to obtain the pure drug and that only which is dispensed by reliable pharmacists.

Hemiplegic Chorea.—R. Massalongo and U. Gasperini report cases of a thirteen-year-old boy and an eleven-year-old girl who presented complete left-sided paralysis complicating chorea. The peculiar choreic movements, as well as the paralytic manifestations that may arise in chorea, are attributed to a toxic, infectious agent acting upon the motor cells in the cerebral cortex, producing either paralytic or excitatory changes.—*Rivista di Patologia Nervosa e Mentale.*

CONCERNING THE RESTORATION OF INHIBITORY QUALITIES IN LIVER EXTRACTS.

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The Wassermann reaction with its five components remains up to date an unsolved problem. The statistical compilation of clinical facts as furnished by the application of this reaction to syphilology permanently places it among the better and at the same time among the most difficult tests in the laboratory. Its practical application has been the subject of many hundreds of communications and most physicians to-day know to what extent it is valuable for treatment and diagnosis. This, however, is not the case with the theoretical and technical part of the reaction. The situation is particularly intricate considering the peculiar mode of action of the various extracts for inhibition of hemolysis, and many workers here and abroad busied themselves to solve this seeming paradox. It was very early recognized that from the point of view of the side-chain teachings of Ehrlich there is nothing in the various extracts used for the Wassermann reaction to justify their classification among true antigens. This is generally accepted and the use of the apellation antigen from the immunity standpoint is more a custom than a fact. We know that many substances when suitably treated are capable of furnishing very useful extracts.

Having worked with extracts from human organs luetic and nonluetic as well as with bovine heart and liver extracts, I came to the conclusion that it mattered very little whether the organ was heart or liver, luetic or not. One fact, however, became apparent and that is, no matter how useful an extract may prove to be at the initial standardization there is very little to guide us in the knowledge as to the manner in which its inhibitory powers will behave in the future. As a matter of fact some of my extracts proved useless a very short time after their initial unit dose was established. I know that many workers hoped to throw considerable light upon the chemistry of these extracts by attempting to obtain in a pure state the complex molecule responsible for the inhibition.

The general opinion arrived at concerning the molecules responsible for the prevention of hemolysis in syphilitic and other sera is that they are substances closely related to bodies of a fatty nature, although what these lipoids may be structurally has not as yet been suggested. Whatever these speculative themes may disclose in the future is uncertain; for the present we are far from the truth concerning the chemistry of the inhibitory principle in the various organ extracts. In order to be able to render more dependable reports on the Wassermann reaction in a given serum some workers resorted to the use of more than one extract. Seligmann employed three different inhibitory extracts and claimed very gratifying results especially in dubious sera.

The above fact and many others point to the uncertainty regarding the adaptability of one extract. It is self-evident that no one is quite sure as to the usefulness of an antigen while preparing the same from any organ. This is true of syphilitic or nonsyphilitic, watery or alcoholic extracts. The unit dose once established, no one can vouch for its strength on the day following. As mentioned before, a very powerful inhibitory extract may in a short time become powerless to inhibit.

Disregarding all these shortcomings as to the unstability of extracts, Wassermann still maintains that the only extract suitable for the test bearing his name is the one prepared from syphilitic fetal livers. In America the majority of workers, including myself, believe that the aceton insoluble fraction of an alcoholic extract from any liver may furnish as useful an inhibitory extract as the watery extract of Wassermann.

The choice of an extract seems to me to be more a matter of individual preference, for when properly used one extract is as good as another. There are tendencies to harmonize the functions of the inhibitory extract (antigen) in concordance with the laws governing immune processes in general, an undertaking which, in my opinion, is untenable so far as the Wassermann reaction is concerned. Steps were also taken to construct (hypothetically) the graphic body of the inhibitory molecule. It seems to me permissible to assume the existence of a central body with a number of side-chains. There is evidence that some workers were enabled to obtain extracts without some of their side-chains. It is to be borne in mind that these opinions are only conjectural; at the same time there is sufficient evidence at hand to permit of thought on these lines.

It has been established that there is a difference in action between the various side-chains of the inhibitory molecule and also that they react differently from the central body (Leistungs-Kern). Some extracts owe their poor inhibitory powers to an overabundance of side-chains of a hemolytic or anti-inhibitory nature. These hemolytic side-chains are, according to U. Friedmann (*Archiv. f. Hyg.*, Bd. 69), insoluble in water-free ether. The inhibitory molecule, according to F. Lesser (*Berliner klin. Woch.*, No. 21, 1909), is soluble in ether.

As practised by Ehrmann and Stern (*Ber. klin. Woch.*, No. 7, 1910), the inhibitory molecule can be separated from its side-chains or purified. These experimenters worked with watery extracts from acute yellow atrophy and streptococcic livers. A closer acquaintance with these hemolytic bodies or constituents of the antigenic molecule were furnished by Joannowicz and Pick (*Ber. klin. Woch.*, No. 20, 1910), who determined that the unsaturated fatty acids were responsible for hemolytic qualities while the aceton-precipitable lipoids carried the inhibitory principle.

It was lately observed by J. Zeissler (*Ber. klin. Woch.*, No. 21, 1910) that extracts kept on ice for four weeks lose their hemolytic property whereas the inhibitory qualities remain intact. If the organ mass from which the extract was prepared was permitted to remain in the same vessel it was found that both properties, hemolytic and inhibitory, remained intact. These observations together with others suggest that the inhibitory molecule consists of an inhibitory nucleus and one or more hemolytic molecules as side-chains. These hemolytic side-chains are comparatively tempolabile, *i.e.* become chemically altered in the course of time and incapable of hemolyzing. In cases where the organ particles are kept together with the extract the tissue sediment seems to be capable of supplying the hemolytic principles for a long time. The above observations furnish facts that could be utilized practically, but the various workers do not state to what extent.

The only one who furnishes figures relative to the return of inhibitory powers in deteriorated extracts is Stuehmer (*Centralblatt fuer innere Medizin*, No. 14, 1910), who worked on the plans of Bencke, who in 1908 believed that the reason why syphilitic liver extracts were more efficient in furnishing suitable antigens lay in the fact that such organs were usually the seat of extensive breaking down processes.

Stuehmer worked with guinea pig livers, making alcoholic extracts from them and subjecting them to different influences.

1, Was not treated in any way; 2, was kept for twelve hours at 38° and was decomposed by bacteria; 3, kept for fourteen days in icebox, bacterial decomposition; 4, kept for nineteen days at 18°, bacterial decomposition; 5, for four weeks on ice, sterile, dry. The extracts showed the following behavior: *a* = absolute inhibition, *b* = partial inhibition, *c* = incomplete hemolysis, *d* = complete hemolysis:

Quantity.	1	2	3	4	5
0.25	*a*	*a*	*d*	*a*	*a*
0.125	*b*	*b*	*b*	*a*	*a*
0.06	*c*	*b*	*a*	*a*	*a*
0.03	*d*	*c*	*a*	*a*	*a*
0.015	*d*	*d*	*a*	*a*	*b*
0.007	*d*	*d*	*a*	*a*	*c*
0.004	*d*	*d*	*a*	*a*	*d*
0.002	*d*	*d*	*b*	*b*	*d*
0.001	*d*	*d*	*d*	*c*	*d*

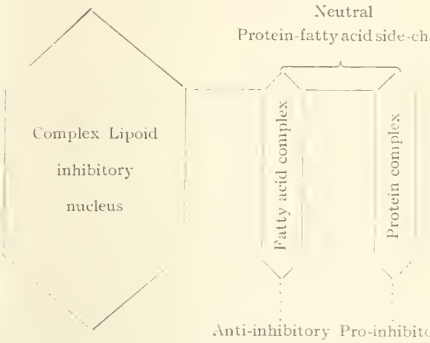
The above table shows that the extract 4 was the most potent as it contained in the small dose (0.004) sufficient inhibitory powers to prevent hemolysis.

The above observations suggest different methods for increasing or restoring the inhibitory qualities in extracts; purifying by extraction or permitting the interfering molecules to break down and utilize the extract in a decomposed condition. Having had two years' experience with making and using of various antigens I had sufficient opportunity to study their behavior.

Those who keep their extracts of liver or heart in its cerumen-like consistency and appearance sooner or later note that the light color becomes gradually darker until it is almost black. This is not due so much to the action of light as to the oxidative powers of the air. Kept tightly corked and covered with aceton the original extract remains of a dark yellow color for months. This retention of color, however, has very little to do with its inhibitory qualities. Its color may remain intact while its usefulness as an extract for deviation may be nil, and that shortly after the initial standardization. The rapid loss of inhibitory powers can be readily detected by observing the control tube with extract (extract, complement, amboceptor tube): if the latter hemolyzes in from ten to fifteen minutes or at the same time as the tube with amboceptor efficiency control it becomes imperative not to use the extract any longer in its present state of activity.

I have on such occasions tried to redissolve my extract stock in ether, to do away with the hemolytic principles, decant after standing the clear supernatant fluid and reprecipitate the remaining mass with aceton. The obtained inhibitory unit was rather large (0.1 c.c.) and I thought of trying the method of ageing. It seemed to me at that time that while precipitating with acetone, our intention of obtaining the inhibitory molecule in a pure state was rendered futile by the presence or coexistence of a complex unsaturated fatty acid-proteid combination in the obtained precipitate. The efficiency of the extract during its initial standardization to my mind is due to the integrity of this proteid-fatty acid combination; as soon as the proteid portion begins to decompose its neutralizing effects upon the fatty acid molecule vanish and the acids are left free to prevent or to interfere with inhibitory action of the central antihemolytic nucleus. In the presence of large quantities of such liberated bodies hemolysis occurs as readily in the antigen control as in the amboceptor control tube. Keeping the entire stock of extract under methyl alcohol renders it a little more stabile, but even this is subject to deterioration.

The suppositional formula for the entire complex capable of inhibition at first, then deteriorating, finally acquiring inhibitory powers anew, can be pictured as follows:



While working with antigens I have observed that most extracts behave in the following manner: (1) They undergo decomposition, which causes the initial inhibitory power to diminish or even disappear. (2) This weakening is the result most likely of liberation of certain bodies of an anti-inhibitory nature. (3) These liberated bodies can be eliminated by certain treatment. (4) The advanced breaking down causes the inhibitory powers to reappear in increased strength. The first observation is known to all who worked with the Wassermann test, and it seems to me is due, if we go back to the structural picture, to a breaking down of the protein portion of the fatty-acid protein side-chain of the inhibitory body. These proteins tend to neutralize the anti-inhibitory effects of the fatty acids, which influence is done away with as soon as the protein molecules break down. The more such neutralizing molecules are set free the less potent does the extract become. Finally the extract becomes entirely incapable of inhibition. If the decomposition is still further prolonged the fatty-acid molecules themselves break down and thus remove their anti-inhibitory influence over the central inhibitory body, rendering the extract useful again and to a much stronger and powerful extent than at the first standardization. This point is brought out by Stuehmer and as will be shown directly, also by myself. In January, 1910, an alcoholic extract of a normal human liver was prepared. The aceton insoluble fraction was obtained and utilized in ordinary fashion—0.15 grams were dissolved in ether and after slight evaporation brought up to 100 c.c. with 0.85 NaCl. Three lots were prepared

and after the initial standardization it was found that the extract was capable of inhibition with luetic sera in 0.1 c.c. doses, while nonluetic sera were not affected by four times this quantity. The extracts were placed in the ordinary ice chest, No. 1 without any sterile precautions; No. 2 was preserved with sterile precaution; No. 3 was used for everyday work.

The extract 1 was tested in June, 1910, was found to be greatly decomposed and foul smelling. No. 2 was also decomposed and malodorous. No. 3 had lost all inhibitory qualities at the end of two months. The inhibitory power of the extracts 1 and 2 were as follows:

Using luetic serum.			Using nonluetic serum.		
Dose.	1	2	Dose.	1	2
0.1	*a*	*a*	0.1	*a*	*a*
0.05	*a*	*a*	0.05	*a*	*c*
0.025	*a*	*b*	0.025	*c*	*d*
0.01	*a*	*b*	0.01	*d*	*d*
0.005	*a*	*d*	0.005	*d*	*d*
0.003	*a*	*d*			
0.001	*b*	*d*			

It becomes at once apparent that extract 1 furnished the best workable extract with the least trouble. The dose 0.01 c.c. multiplied by four gave no inhibition with normal sera, while luetic sera were completely inhibited.

All antigens ought to be used in as small doses as possible with syphilitic sera and the quadruple dose should not inhibit with normal sera.

Extract 1 gave a positive reaction with sera from tabetics whose serum was negative with extract 3 after being five weeks in use.

In my opinion the greatly putrefied extract 1 contained the central inhibitory body plus functionless complexes, the remains of the interfering side-chains. In their present decomposed condition these bodies no longer interfered with the inhibitory functions of the extract, hence its increased powers to inhibit. The above extract is useful for the original Wassermann test as well as for the Noguchi modification, excepting that in the latter instance half of the dose is required. It is no longer necessary to saturate papers with the extract and I believe Noguchi himself is not against the use of the extract in a fluid state.

Summary.—1. Inactive extracts can be made active; 2. this can be accomplished in two ways, by reprecipitation or decomposition; 3. prolonged decomposition gives a powerful inhibitory molecule which is stabile; 4. hypothetically, the inhibitory body apparently consists of a central nucleus of a lipoid nature with complex side-chains capable of interfering with the functions of inhibition; 5. these side-chains are tempo labile, whereas the central inhibitory body is comparatively permanent.

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A NEW THEORY OF ECLAMPSIA.

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Eclampsia is an acute disease, intimate with pregnancy, and characterized by tonic and clonic spasms with coma following. It occurs approximately once in every five hundred pregnancies; some years not often seen; in other years encountered so frequently as to suggest an epidemic. The nearer the pregnancy to term, the more liable the development of eclampsia. Primiparæ contribute 70%. Twin pregnancies increase the possibility five-fold. So, given a twin pregancy in a primipara, near term, and we have the best chance for a case of eclampsia.

In many essentials an attack of eclampsia resembles a seizure of epilepsy. The patient's eyes at first are fixed with pupils dilated, then may roll to either side. Spasms, more often clonic in type, but at rare times tonic, attack the mouth and rapidly extend to the arms, body, legs. Respiration becomes rapid; stertorous. Face is congested; lips cyanotic; mouth foams. The duration may be ten seconds, or as much as two minutes—then coma. Coma may be permanent, or interrupted by more convulsions, or may pass off and the patient appear normal. Death may ensue shortly from edema of the lungs; or, if the case lingers moribund, an aspiration penumonia or an intercurrent infection spells the fatality. Other symptoms may be associated. A fever of 104 to 108 may be present, even when there is no evidence of an intercurrent infection, to which eclamptic women are so readily liable. Retinitis, so often noted, indicates edema of the brain. In a small number of cases, jaundice occurs, usually late, always prophesying a fatal prognosis. The urine may be normal, but usually is lessened in amount, reveals albumin, casts, blood, and a disturbed nitrogen partition, with lessened amount of urea, and an enormous increase in the ammonia compounds of nitrogen. There is only one constant feature to the post-mortem pathology—a hemorrhagic hepatitis. Nephritis and edema of the brain are inconstant. Bronchopneumonia and pus infections have terminated prolonged cases. From gross and microscopical pathology we can deduce nothing of value.

Eclampsia has well been termed by Zweifel "The Disease of Theories." As it is the purpose of this paper not to review the old theories, but to present a new one, I will merely mention them: Nervous, uremic, edema of the brain, bacterial, placental, pressure on the ureters, infectious, intoxication (a) fetal, (b) maternal. The last theory—maternal intoxication—is now generally accepted, and it is the purpose of this paper to set forth the exact agency of the intoxication: that eclampsia is a complex symptom of the mother's need for calcium. Calcium is a physiological necessity. This element, the most abundant of the minerals, is found loosely combined in all fluids and cells of the body, existing, however, in largest quantity as the tertiary phosphate of bone. Bones, poor in calcium, are brittle and fracture readily. On calcium depends the density of the teeth. Witness the tragedy of phosphorous workers whose teeth are ruined by the action of yellow phosphorus upon the enamel. The presence of calcium in the blood maintains blood pressure and its proportion determines the coagulation time of the blood. The continuance of the heart beat depends upon calcium; the influence of a solution of calcium salts upon the beating, excised heart is too well understood to need description. All ferments need calcium. Rennet is inactive upon casein in the absence of calcium. The amount of calcium in the urine helps to regulate the excretion of albumin, sugar, and urea. Calcium maintains tone in the muscles and the nerves. Decrease its amount and excessive irritability results; remove calcium entirely and all irritability will cease. When the blood-vessels of the pia mater are filled with blood rich in calcium by intravenous injection, it is difficult to stimulate the cerebral cor-

tex by any external agent. But if the vessels of the pia contain blood poor in calcium (as obtained by an intravenous injection of normal salt solution) any weak stimulus produces abnormally strong and long-continued twitchings in the peripheral muscles.

In some respects, sodium and calcium salts are mutually antagonistic. Sodium salts promote twitchings. Simple immersion in normal salt solution of a muscle-nerve preparation in a short time produces twitchings. Add calcium to the salt solution and the twitchings cease. Sulphuric acid precipitates calcium. Inject sulphuric acid beneath a frog's skin, and the frog will throw convulsions. Now inject a calcium solution into the frog and the convulsions immediately stop.

The body's demand for calcium becomes doubly urgent in pregnancy. A slight relative decrease in the mother is considered physiologic, helping to soften the bones and ligaments for an easy delivery. The growing fetus is a calcium parasite—and a very exacting parasite. In Nature's conflicts the parasites thrive; the hosts perish. Let the mother beware! The fetus will have its calcium even at its mother's expense. If the mother is not a generous host, greatly enlarging upon her usual calcium intake, her penalty is to suffer with defective teeth, headaches, and nervousness. Among women who are "experienced" childbearers, the expression, "for every child a tooth," tells well the fact that women pregnant are especially liable to decay of the teeth. Each tooth is a storehouse for calcium, but each tooth to be sound and white needs its hoard. The bones, too, store calcium. Osteomalacia, so much more frequent in pregnant women, is further evidence that the fetus is an inflexible calcium parasite. For the fetus needs its minerals—needs them for its blood, its bones, for every tissue fluid, and for the foundations of the teeth which are to come. It has been conclusively shown in the menageries of Dublin and Philadelphia that lionesses fed upon meat, with bones too large to be swallowed, gave birth to cubs which showed a relatively large ratio afflicted with cleft palates. The fetus, then, is a most evident drain upon the calcium reserve of its mother.

Let us for a space consider tetany, another disease often associated with pregnancy. Tetany is marked by convulsions—in reality it differs from eclampsia, only by the fact that its convulsions are not followed by coma. In simple arithmetic: tetany plus coma equals eclampsia. Both tetany and eclampsia resemble epilepsy. The relation of altered calcium metabolism to epilepsy is indicated, but is still under investigation. Tetany, however, has been conclusively proven by Dr. MacCallum of Baltimore to be due to calcium poverty in the tissues. Tetany can be produced in any animal desired, by removing the parathyroids, the organs which govern calcium metabolism. So important are Dr. MacCallum's experiments and deductions to a proper understanding of my theory of eclampsia that I take the liberty of fully abstracting his paper:

"Tetany is commonly associated with: 1. Infections, as, typhoid, cholera; 2. Gastric dilatation; 3. Infants, especially at dentition; 4. Trades, as, shoemakers, carpenters; 5. Bone diseases, as, osteomalacia, rickets; 6. Pregnancy, lactation; 7. Thyroid removal. The spasms may be epileptiform. Destroy the parathyroids, and tetany results. When calcium chloride solution is applied to the cerebral cortex, a greater electrical stimulus than normal is required to stimulate muscular contraction. Sodium citrate, sodium oxalate, and sodium soaps have an opposite effect, causing spontaneous twitchings and epileptiform convulsions, which may bet neutralized by adding calcium chloride. One can apply sodium citrate solutions to one cerebral hemisphere, and calcium chloride to the other, with corresponding opposite results. Therefore, calcium has a permanent moderating function on the brain cortex, and it should be useful in epilepsy.

"Loeb finds that injecting any acid or salt liable to precipitate calcium will produce twitchings. He suggests that any abnormal acidity in the circulation might decrease the calcium content, and necessarily produce twitchings. Such cases might be cured by administering calcium salts. Immerse any muscle-nerve preparation into a sodium citrate solution. Twitchings result. Add a calcium salt to the citrate solution, or transfer the muscle-nerve preparation to a calcium solution; and the twitchings cease. It is difficult to stimulate the cerebral cortex after intraveneous injection of calcium chloride. The postmortem calcium content of the brain in tetany is remarkedly lowered. Calcium-free food increases excitability. The calcium content of the fetus increases rapidly toward term and must be a great drain upon the mother during later pregnancy. So, too, the amount of calcium excreted in the milk is high (.4 per cent. or, 6 to 7 grams per day). Loeb thinks tetany an undercalcifying of the nervous centers, for tetany has been benefited by treatment with calcium. There is an increased output in the calcium content of the urine when a child suffers with tetany. Erdheim produced tetany in rats and found their teeth fragile, opaque, brittle.

"The subcutaneous administration of calcium salts suppresses all symptoms of tetany. Potassium salts make tetany worse. The nervous system needs a certain proportion of calcium; neither sodium nor potassium can substitute. The blood of dogs during an attack of tetany contained only one-half the normal amount of calcium. At the same time the ammonium content was enormously increased—about ten times the normal amount. The brain revealed only one-half its normal calcium content."

Dr. MacCallum concludes that:

"Tetany is a disease in which the mineral balance is deranged—no specific toxin was demonstrated by injecting 'tetanic' blood into normal animals; that there exists an important relationship between calcium salts and the excitability of the nervous system; that tetany is a hyperexcitability of nerve cells due to decrease of calcium. He finds that injecting calcium salts checks tetany symptoms; that calcium is a therapeutic agency in human tetany. A spontaneous tetany can readily be explained by a draining of tissue calcium, by a calcium-poor diet, or by parathyroid insufficiency. Clinical research on animals suffering tetany after parathyroid removal shows: 1. Decrease in calcium content of the tissues, especially the blood and brain; 2. Increase of nitrogen excretion in the urine; 3. Increase of ammonium output in the urine; 4. Relative excess of ammonia nitrogen to urea; 5. Increase of ammonia in the blood."

We find these five symptoms of tetany also present in every case of eclampsia. Tetany is due to a deficiency of calcium. Both tetany and eclampsia have similar twitchings, a long-delayed coagulation time for the blood, and a disturbed nitrogen elimination. Eclampsia, which is tetany plus coma, is a manifestation of still greater deficiency of calcium Toxemia of pregnancy is a clinical moving picture

of the mother's need for calcium. In the early stage she may exhibit her need by eating chalk, slate pencils, or marbles—and her physician calls it idiosyncrasy. Yes, and the chickens that eat cracked oyster shells, and the dogs that gnaw bones, exhibit this same idiosyncrasy. Then her teeth decay. The dentist tells her the cause is her morning vomit. It's acid, you know. She gets softening of the bones—osteomalacia the doctor tells her such is to expected, as soft bones will make delivery easy. Gradually edema of the legs develops, and she gets purgatives and hot packs which do no permanent good, and diuretics of potassium which abstract more calcium and make her condition worse; and also poisonous heart stimulants which act in some unknown, unphysiological manner. The physician overlooks that calcium in the circulating blood is the necessary, natural heart stimulant! And what physician here has not seen the cutaneous edemas resolve like magic under a few doses of calcium lactate. Her urine shows albumin and a disturbed nitrogen partition—her physician's indication for more diuretics. Yet you can produce albuminuria, and the identical ammonia findings in the urine of any animal fed upon maize and distilled water, or any other diet poor in calcium. The fetus is nearing term. The mother's bones and teeth have yielded their store—now the nerves suffer their loss of calcium. The nerves writhe in protest, first with intermittent, tetanic twichings, later with frequent tetanic convulsions. Then the physician unknowingly heeds their cry to preserve their calcium by removing the guilty calcium parasite. The mother now stands seven chances in ten of getting well, but at the expense in most cases of her child's life.

We have seen that calcium salts relieve tetany. If the convulsions of tetany and eclampsia have the same underlying cause, then calcium salts must relieve eclampsia. Several clinical cases bear out the theory strikingly. I will record my earliest case:

K. V. T. entered the hospital at the sixth month of pregnancy on February 23, 1909, suffering with twitchings and convulsions. Diagnosis: tetany of pregnancy. Bromides were administered without any satisfactory result. On March 2 patient suffered two convulsions, both followed by coma. Diagnosis changed to eclampsia. Urine showed albumin, casts, decrease of urea, and high ammonium content. On March 3 the patient suffered four more attacks of convulsions followed by coma, and was given calcium lactate 10 grains 6 times a day. This treatment was kept up for two weeks, during which time no more convulsions took place, and the calcium lactate was discontinued. On April 2 patient had two more convulsions followed by coma, and the calcium lactate treatment was again instituted and maintained until her uneventful delivery.

For the mild toxemia of pregnancy I have been using calcium lactate 10 grains 6 times a day, given by mouth. For cases seen in profound coma I have used the drug in doses of 30 grains by stomach tube, by rectal tube, and intravenously. Calcium cannot be given subcutaneously, as in doses large enough it is too irritating.

The calcium theory explains many clinical features of eclampsia, viz.: The greater frequency in twin pregnancy; the greater frequency at term; the nervous excitability and convulsions; the delayed coagulation time of the blood; the decayed teeth; the urinary findings; the associated edema; the eclampsia of lactation and the newly born; the well-known cessation of convulsions under milk diet.

To prove conclusively that the convulsions, like the decayed teeth, are only a part of the symptom-complex of a calcium-poor toxemia, a thorough clinical test is necessary. From two years of investigation I feel sure that such a test will cause the cure of eclampsia to be written with chalk. It is interesting to note that in Fort Worth, where eclampsia is so prevalent, the city water supply shows that it contains practically no calcium salts.

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6. Renon: "Calcium Chloride in Albuminuria," *Journal of American Medical Association*, February 20, 1908.

Prefetal Vaginal Dilatation in Breech Presentation.—C. Sauvage discusses the use of the Champetier de Ribes balloon not only for dilatation of the cervix but also for dilatation of the vagina in cases of breech presentation. It has been employed by Pinard, at the Baudelocque, in 50 cases, 39 of which were breech cases in primiparæ, the others being multiparæ. There is absolutely no danger for the mother, and the prognosis for the life of the infant is made much better than ordinarily. It makes labor much easier and shorter, and facilitates any necessary manipulations. The period of expulsion is materially shortened. It prepares for a spontaneous delivery, and lessens the indications for extraction by the breech. It increases the strength of the child, betters its mortality by one quarter, and lessens the number of injuries it receives. Pinard believes that in every primipara with breech presentation the vagina should be dilated with a balloon. Among multiparæ it should be used in breech presentations whenever the child is large in size. The balloon should be put in place when the cervix is dilated to the size of a five-franc piece.—*Annales de Gynécologie et d'Obstetriques.*

The Suprarenal Capsules in Pregnancy and the Puerperium.—Luigi Sambalino has examined the suprarenal capsules in 26 cases of pregnancy which ended fatally at the hospital in Florence; of these ten died of eclampsia with albuminuria; four had chronic nephritis, four had sepsis, five had various complications, three died of hemorrhage. The author finds that the principal alterations of the suprarenal capsules consisted in an hypertrophy of the cortical substance, and vacuolization of its elements. He believes that, aside from the other diseased conditions found in these patients, pregnancy has been shown to cause a special reaction in the cortical substance, with pigmentation of the reticulated zone. It has not been demonstrated that the medullary substance is changed. In pregnancy complicated by nephritis and eclampsia there is a relative frequency of suprarenal adenomatosis. In infections complicating pregnancy and the puerperium, especially when there have been severe and prolonged inflammatory conditions, there is a small celled infiltration of the fasciculated zone and the medullary substance, even resulting in connective tissue proliferation.—*Annali di Ostetricia e Ginecologia.*

The Heart in Articular Rheumatism of Children.—P. Nobécourt says that rheumatism in children is peculiarly liable to affect the heart; the virus has a peculiar affinity for the endocardium and the myocardium. We may get valvular lesions appearing in slight cases without any fever. The lesions may take the form of endocarditis, pericarditis, or myocarditis. The most severe symptoms occur in the malignant cases in which there develop swelling of the jugulars, tachycardia, and cyanosis, and sudden death may result. In mild cases the immediate prognosis is good, but the remote results may be lesions that later result in death. These small patients in severe cases quickly emaciate and become cachectic. In mild cases there are no subjective symptoms, and the heart should be watched carefully to detect the physical signs. Treatment demands immediate rest in bed with milk diet and salicylates.—*Archives de Médecine des Enfants.*

MEDICAL RECORD.

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THE STIMULATION OF OSSEOUS GROWTH BY MEANS OF FORMALIN.

THE number and variety of constitutional and local conditions affecting the growth of the bones are such as to impart peculiar interest to the recent investigations conducted by R. O. Meisenbach, and described by him in the *American Journal of Orthopedic Surgery*, for August, 1910. He notes that the effects of disease and trauma on the epiphyses are strikingly indicated in cases of tuberculosis, rickets, osteomyelitis, chondrodystrophy, poliomyelitis, congenital dislocation of the hip, congenitally shortened bones, traumatic separation of the epiphyses, shortening following fracture in the so-called epiphyseal line, and similar conditions. In some of these the epiphyses have been stimulated and in others retarded. With the object of studying the effects on bony growth by influencing the cellular structures of the epiphyseal cartilage, and of determining whether this growth can be influenced by chemical or mechanical means, Meisenbach experimented on young rabbits in the following manner: Into the right tibia just below the epiphyseal cartilage, there were inserted sterile water, sterile graphite pegs, *Staphylococcus pyogenes aureus* vaccine, containing 400,000,000 cocci to the cubic centimeter, sterile graphite pegs in addition to the vaccine, pure tincture of iodine, pure carbolic acid, 95 per cent. alcohol, pure formalin, or 2 per cent. formalin. Only one injection was given in each case, and the left tibia was used as a control.

The effects of these substances were studied after varying periods of time with the aid of radiographic and microscopic examination of the bones. It was found that while normal bone ossifies slowly, the stimulated bone ossifies rapidly. Mechanical stimulation chiefly affects perichondral bone formation, whereas chemical stimulation affects the epiphyseal line directly, causing proliferation of cartilage cells and increased zones of provisional calcification and calcified matrix, together with osteogenetic tissue chiefly derived from the perichondrium. Mechanical stimulation is slow, whereas chemical stimulation is rapid, and acts more universally, affecting the active bone-producing elements. Retardation of growth may occur if the zone of provisional calcification is destroyed, or if this zone is infiltrated by excessive blood-clot or by destructive processes. Of all the substances used formalin produced the best results, on account of its antiseptic properties and its affinity for protoplasm. Injected upon the epiphyseal and diaphyseal lines formalin acts as an insoluble compound, and therefore affects the epiphyseal line both mechanically and chemically with a distinct local rather than systemic tendency. It causes the formation of osteogenetic tissue by influencing the zones of provisional calcification and calcified matrix, and by increasing the number of osteoblasts derived from the perichondrium.

The results of these experiments showed that it is possible by artificial means to stimulate bony growth. They are all the more valuable in view of the fact that in each instance only one injection was employed. The effects of repeated injections of formalin and the use of other laboratory animals would probably yield results of additional value. The clinical value of these investigations is not altogether remote. It is suggested that they may serve as a stepping stone to a new method of treatment in many bone cases which have heretofore seemed hopeless as regards helping the patient, cases such as congenital shortening of the limbs, arrest of bony growth following poliomyelitis, tuberculosis of the bones, osteomyelitis, obstinate nonunion of fractures, and similar cases.

VIRCHOW AND BACTERIOLOGY.

EVER since the germ theory was first postulated it has been urged that Virchow regarded it with undisguised hostility, and upon the death of the great man the numerous obituaries and memorials showed plainly that the then current opinion of the profession remains largely unchanged. This belief did much to discredit the germ theory in the minds of the older members of the profession, and of the laity and lent aid and comfort to the enemies of scientific medicine, especially to organized and professed antagonists. Some medical men claimed that Virchow was not actively hostile toward the germ theory, but merely neutral. He had done his life's work as a mere morphologist, and would not venture into the subject of the dynamics of disease.

Professor Orth, the pupil and successor of Virchow, now puts forward the claim (*Berliner klinische Wochenschrift*, Oct. 20), based wholly upon the writings of Virchow, that the latter should never, even from the first, have been regarded as hostile or even neutral in his attitude toward bacteriology. In fact, he may even be regarded as an active supporter of the germ theory, at least thirty-five years ago; after which his support became intrinsically stronger with time. With all due thanks to Professor Orth for this exploitation of this thesis, it nevertheless seems strange that this claim was not made many years ago. There is no doubt that some influence is at work to neutralize the supposed passive opposition of Virchow toward the germ theory, and despite the convincing excerpts cited by Orth from Virchow's writings we cannot entirely overlook the fact that Virchow is also regarded as a consistent antagonist of Darwinism, and has often been cited by the clergy as a countercheck to the theory of evolution. The Lombroso school might readily explain

Virchow by their generalization that all great geniuses are opposed to new ideas. Thus Virchow, taking up the subject of morphology where others had left it, proceeded to develop it, while jealously hostile to anything actually new and revolutionary. Others, from a lower plane of view, have dwelt much on the fact that it is contrary to human nature for men to accept discoveries which they have blindly overlooked during years of opportunity.

The passages from Orth's article which appear to show beyond doubt that Virchow was always in sympathy with progress are in part convincing; but it is by the same process that followers of great leaders have always attempted to show that the latter have been cognizant of future "discoveries." It seems to us that the interpretation of these passages is often forced. By the same process of reasoning Paracelsus, Hahnemann, and others, to say nothing of classic writers, have anticipated that which was to be. Thus it is said that Virchow always recognized the "zymotic" element in the causation of disease, and especially of epidemics (he is even alleged to have devised the term "infectious diseases"). He made a distinction between virus and venom. The latter did its work while active, but the effect disappeared with the disappearance of the cause; "virus," on the other hand, represented a self-perpetuating or self-reproducing element—in other words, a living cause. Another passage appears to show that the latter was a plant, but that chemistry rather than botany was at the bottom of the pathogenesis. Orth hails this as a brilliant anticipation of modern teaching. Elsewhere Virchow has been made to speak of a contest between microorganisms and the body cells. It is not denied that Virchow indulged in sharp controversies with bacteriologists in regard to special claims advanced by the latter; but it is insinuated that these special pleas do not affect Virchow's position as a whole. The unprejudiced observer, we fear, can hardly rank Virchow as a constructive critic in progressive biology, for his position is too often essentially destructive. Upon the whole we believe that the profession would prefer to regard Virchow as a pure morphologist, rather than as a foreshadower of bacteriology. Virchow, like all others, must be judged by his crystallized utterances in textbooks, rather than by fugitive remarks made in society proceedings, perhaps erroneously recorded.

THE CONTAGIOUSNESS OF POLIOMYELITIS.

Until within a few years the disease commonly, though improperly, known as acute anterior poliomyelitis was considered to be a simple degenerative disease of the spinal cord. Some years ago the conception that it is an acute infectious disease began to take definite shape. To-day it is stated that poliomyelitis, or as Holt suggests that it be called "epidemic myeloencephalitis," is an acutely contagious disease, and by many boards of health it has been included in the list of reportable diseases. This contagious aspect of the disease is emphasized in a recent article in the September number of the *Archives of Pediatrics*, in which Holt compiles the statistics of all epidemics which have occurred since 1907 and calls attention not only to the frequency with which several cases have been observed in a single family, but also to several instances in which the disease appears to have been carried by a third party and others where children have contracted it by entering an infected house at the time harboring no acute case.

In an epidemic at York, Nebraska, referred to by Holt, "there were six families with two children attacked, these being the only children in the family in three of these; five families with three cases each, in every instance all the children of the family; three families with four cases each, these being all the children in one of the families; and one family in which every one of six children was attacked." In an epidemic in Tröstena, Sweden, a widely scattered settlement of 500 inhabitants, forty-nine cases of the disease occurred, forty-two of which could be traced directly to infection in the parish school. The first case of the disease in York appeared in a child nine days after the return of its mother and infant brother from an infected house in a distant town, the travelers themselves showing no sign of the disease. Next door to this child was a family of six children, all of whom came down with the disease in rapid succession. In a number of instances symptoms appeared just five days after a single exposure to an acute case or a few hours' residence in an infected house.

Such evidence strongly supports the theory of direct contagion of the disease, and considering the terrible results of an attack, often even more pitiful when not fatal, and in the light of the danger from contagion by the so-called abortive cases which, occurring in conjunction with paralytic cases, may be easily overlooked, but one equally dangerous, it would seem wise, during periods of epidemics at least, that all cases of the disease not only should be reported, but should also be rigidly quarantined.

Serum Anaphylaxis and Drug Anaphylaxis.

It has been predicted that in the near future study of the two sets of phenomena known as drug idiosyncrasy and serum anaphylaxis will throw much light upon the nature of both. Bruck has taken up the subject in a recent number of the *Berliner klinische Wochenschrift* (Oct. 17). The findings obtainable suggest various interpretations, so that time must elapse before they can be formulated to the satisfaction of all. Bruck chose antipyrin for experiment by reason of the common occurrence of antipyrin idiosyncrasy or supersensitiveness. One might urge in this connection that the word idiosyncrasy is better suited to the phenomena produced by a trivial dose, while supersensitiveness is a much broader term, denoting sensitiveness to ordinary medicinal doses such as cause no rash in the majority of patients. From this point of view one who is able to take subtoxic doses without reaction may be spoken of as subsensitive, which naturally suggests a relationship to immunity. Bruck reports a case of supersensitiveness to antipyrin in a patient with migraine. The latter was always promptly relieved, but aphthæ in the mouth

and later a dermatitis were present as toxic effects. The idiosyncrasy extended to all antipyrin derivatives. After this idiosyncrasy had been known to last for sixteen years Bruck used the patients' serum to inoculate mice and soon afterwards injected a solution of antipyrin subcutaneously. The animals died with convulsions, paralysis, dyspnea, etc., the controls remaining unaffected. The anaphylaxis was thus shown to be transmissible. Bruck has already shown that a similar transmissibility exists for mercury. As already stated, it is at present impossible to give a satisfactory detailed explanation of these phenomena. One point, however, may be brought in at this juncture. Ehrlich and all other workers in synthetics have shown abundantly that the most insignificant change in the molecule of a complex substance may produce a radical change in the action of a remedy.

News of the Week.

Health of the Canal Zone.—The Department of Sanitation of the Isthmian Canal Commission reports that during September, 1910, the total number of deaths from all causes among employees was 48, an annual average of 11.47 per thousand. For Septembers of previous years, the rate is given as follows:

1904.....	14.31	1906.....	57.34	1908.....	12.78
1905.....	32.00	1907.....	28.63	1909.....	12.76

The high rate in September, 1906, was due to an epidemic of pneumonia among the employees. The annual average per thousand of deaths in Panama, Colon, and the Canal Zone includes both employees and the civil population, and was 21.60 in September, 1910, against 19.01 in September, 1909; 24.91 in September, 1908; 32.93 in September, 1907, and 54.54 in September, 1906. Of the thirty-three deaths due to disease among the employees during the month, 4 were caused by malarial fever, 6 by pneumonia, 3 by pulmonary tuberculosis, and 2 by typhoid fever, leaving a balance of 18 deaths from all other diseases. No cases of yellow fever, smallpox, or plague were brought to or originated on the Isthmus during the month. The work of sanitation in Panama has proceeded satisfactorily, the cleaning of ditches and the removal or repair of defective house gutters receiving particular attention. The weather conditions during the month were favorable to the anti-malaria work; except in a few instances the control of fly propagation is well in hand, and there is a decrease in the number of rats being caught, although more traps are in use than formerly.

Infantile Paralysis.—Small epidemics of infantile paralysis have been reported recently from various parts of New York State. During the month of September ninety-seven cases of the disease were recorded with the State Department of Health, of which sixteen resulted fatally. Still more recently a few cases have occurred among the students at Cornell University and another small epidemic is reported from Logansport, Ind.

Plague in China.—Serious riots occurred in Shanghai on November 11, in connection with the sanitary work for the prevention of the spread of the plague, of which a number of cases have been reported. Reports had been spread among the natives that the health officers were poisoning their countrymen in the hospitals, taking out the eyes of babies by electricity, etc. Attacks upon the sanitary officers followed, and in the fighting which ensued several persons were badly injured.

Epidemics in Lisbon.—The United States cruiser *Des Moines*, while in port at Lisbon recently, was compelled to stop shore leave for its men owing to the prevalence of smallpox and bubonic plague in that city.

Cholera in Italy.—New cases of cholera have been reported daily in different parts of Italy, making it evident that while the port of Naples may be free of the disease, there is yet danger in the other infected districts.

Typhoid Fever Conveyed by Milk.—Forty-one cases of typhoid fever have been traced to the use of infected cream by residents of the village of Lime Ridge in Columbia County, Penn. It appears that a dairy farmer had been serving milk to his mother suffering from typhoid fever and bringing back the empty cans. In a short while typhoid fever developed in the immediate family of the dairyman. He in turn had been in the habit of exchanging milk with a neighbor, in whose family also the disease later developed. The second dairyman served milk and cream to an ice cream establishment in Lime Ridge patronized by almost the entire village. An epidemic soon followed and was controlled only when the supply of milk from the infected source was stopped.

City Death Rate.—For the week ending November 5 the death rate in New York was 13.31 per 1,000 of population, the total number of deaths being 1,226. For the corresponding week of 1909, the rate was 15.23 and the total number of deaths 1,333. Pulmonary tuberculosis caused 151 deaths, 11 more than last year, while pneumonia caused 153, or 47 less than the year previous. There were fewer deaths from all other diseases with the exception of diarrheal diseases, which caused 81, an increase of 13. Heart disease caused 137 deaths, against 158 for last year.

Public Health Museum.—The American Museum of Natural History, New York, has lately entered a new field for museum work in the form of a department of public health, "to develop scientific work along practical lines directly beneficial to the masses of people." Prof. C. E. A. Winslow, until recently assistant professor of sanitary biology at the Massachusetts Institute of Technology, has been appointed curator of the new department, which he proposes to develop along two lines—bacteriology and municipal sanitation. A bacteriological laboratory is now being equipped and in this the department will keep under cultivation a complete collection of bacteria. It will thus be in a position to supply the needs of schools and other institutions interested in such work. The public exhibits of the department will deal chiefly with phases of municipal sanitation. To illustrate these, temporary exhibits will be prepared, the first, for instance, dealing with water supply sanitation, the sources of the water supply and its collection for public use being shown by models, specimens, photographs, and charts. The chief features of each temporary exhibit will be preserved for a permanent public health exhibit such as several cities in Germany now possess.

The New York Child Welfare Committee held a meeting at the Colony Club on November 10, Mr. Homer Folks presiding, for the purpose of hearing reports from sub-committees and of arranging for

an exhibit to be held some time in January, dealing with every phase of child life in New York City.

Gaynor Fund for St. Mary's Hospital, Hoboken.—A movement, headed by a number of prominent men, is under way to raise a fund by voluntary contributions from citizens of New York, to be presented to the sisters of St. Mary's Hospital, Hoboken, as a testimonial of the gratitude of New York, for the care bestowed upon Mayor Gaynor while he was an inmate of the hospital. St. Mary's is supported almost entirely by voluntary contributions, and is at present much hampered by lack of funds. Such a gift will, therefore, be most welcome to the recipients, while at the same time the citizens of New York will be given the opportunity to share in the expense incurred by the Mayor as the result of an attack made upon him as an official of the city.

The Healthiest Town in New Jersey.—Dr. S. E. Armstrong of Rutherford, N. J., takes up the cudgels on behalf of his own town and disputes the claim of East Orange to be the healthiest municipality in the United States. As stated in the MEDICAL RECORD of November 5, the death rate in East Orange for 1909 is given by the Bureau of the Census as 9.5 per thousand. Dr. Armstrong, however, calls attention to the report of the New Jersey State Board of Health for 1909, in which East Orange is given a death rate of 10.15 per thousand, while that for Rutherford is but 8.77. New Jersey can evidently point with pride to the good health of its inhabitants.

Bequest to Hospital.—The will of the late Robert Steele of Philadelphia provides for a bequest of $5,000 to be paid on the death of the testator's widow to the Presbyterian Hospital of that city for the endowment of a free bed.

Instruction for Health Officers.—The New York State Department of Health announces a course of instruction for health officers, beginning on December 7 and lasting for three days. The course will consist of laboratory talks and demonstrations at the State Hygienic Laboratory in Albany on the general subject of water and sewage purification. Talks on the Chemistry and Biology of Water Filtration Methods; Pure Water and Methods of Disposal of Wastes for Isolated Houses; the Chemistry and Biology of Sewage Disposal Processes, and Methods of Sewage Disposal for Municipalities will be supplemented by inspections of the water filtration plants at Rensselaer and Albany, and of the sewage disposal systems at Ballston and Saratoga.

New Brooklyn Hospital.—The City of New York is the purchaser of a tract of land measuring 280 by 200 feet in East New York, Brooklyn, on which it is proposed to erect a public hospital. Plans are now in preparation, and it is probable that ground will be broken in the spring.

New Montefiore Home.—At a meeting of the Board of Trustees of the Montefiore Home for Chronic Invalids, New York, Mr. Jacob H. Schiff, president of the board, was able to announce that $850,000 had already been subscribed toward the new buildings for the institution, and that the work of construction would be begun early in the coming spring. A piece of land covering four blocks and equivalent to 162 city lots has been purchased in the upper part of the city along what is known as the Gunhill road, between Jerome avenue and 210th street, and on this it is proposed to erect buildings which will accommodate 600 patients, the entire cost being estimated at about $1,500,000. The old property has been sold for $525,000, the purchasers not to take possession until the new buildings are ready, probably about two years hence. Dr. S. Wachsmann, medical director of the Home, has recently visited a number of European cities, where he studied the arrangement and grouping of homes for the care of chronic invalids, and in drawing up the final plans the board will also have the advice of Dr. S. S. Goldwater, superintendent of Mount Sinai Hospital.

New Nurses' Home.—The Home for Nurses of the Jewish Hospital, Brooklyn, was dedicated on November 6, exercises being held in the new building on Prospect place, near Classon avenue. The Jewish Hospital has recently completed the fourth year of its existence. During its first year 1,544 patients were admitted to the hospital and 11,850 to the dispensary, while during the past year 4,127 were admitted to the hospital and about 30,000 were cared for in the dispensary.

St. Bartholomew's Clinic.—At a meeting of the Medical Board held on November 1 the following officers were elected for the coming year: *President*, Dr. John C. Lester; *Vice-President*, Dr. E. L. Leonard; *Secretary*, Dr. L. D. Alexander; *Executive Committee*, Drs. Alexander, J. M. Keyes, and G. W. Kunz.

Dr. Edmund L. Cocks has been appointed Consulting Dermatologist to Harlem Hospital, New York.

Civil Service Examinations.—The New York State Civil Service Commission will hold examinations on December 15, 1910, for the purpose of obtaining eligibles on the lists of physicians, both regular and homeopathic.

Removals.—Dr. Allan McLane Hamilton has removed to 950 Madison avenue, New York City. Dr. T. Wood Clarke has removed to 136 Park avenue, Utica, N. Y.

Dr. Horatio C. Wood, Jr., has been elected Professor of Materia Medica and Therapeutics in the Medico-Chirurgical College of Philadelphia.

Joint Meeting of Pathological Societies.—The members of the New York Pathological Society and of the Philadelphia Pathological Society held a successful joint meeting on November 9 at the New York Academy of Medicine. Preceding the meeting, the visitors were entertained at dinner at the Yale Club by members of the New York Society.

Harvey Society.—The next lecture of the Harvey Society will be given at the Academy of Medicine, New York, on Saturday evening, November 19 at 8:30. Professor Jacques Loeb of the Rockefeller Institute for Medical Research will be the lecturer, and his subject will be: "The Prevention of the Toxic Action of Various Agencies Through the Prevention of Oxidation in the Cell."

The American Academy of Medicine.—The fourth mid-year meeting will be held at the Lafayette Hotel, Buffalo, N. Y., on December 1 and 2, 1910, the subject for discussion being "The Sociologic Influence of Hospitals and Dispensaries." The first day's session will be devoted to a consideration of the economic influence of hospitals, and that of the second day to the educational influence of hospitals. A number of interesting papers are promised on each subject. The annual meeting of the

society will be held in Los Angeles June 24 and 26, 1911.

The American Public Health Association.—The 1911 meeting will be held in Havana, Cuba, December 4 to 9, at the Academy of Medicine, the use of which has been offered to the association. The changed situation in Cuba in reference to yellow fever is shown by the fact that, whereas a few years ago it would probably have formed the chief subject of discussion, the most prominent place on the program will be given at this meeting, on the request of local physicians, to tuberculosis. The question of the milk supply will also be considered.

New York and New England Association of Railway Surgeons.—The twentieth annual session of the New York and New England Association of Railway Surgeons was held at the Hotel Astor, New York City, on November 3 and 4, under the presidency of Dr. L. M. Bingham of Burlington, Vt., chief surgeon of the Rutland Railroad. Dr. John B. Deaver of Philadelphia delivered the address on Surgery. The following officers were elected for the ensuing year: *President,* Dr. F. A. Goodwin, Binghamton, N. Y.; *First Vice-President,* Dr. Walter Lathrop, Hazleton, Pa.; *Second Vice-President,* Dr. John W. Le Seur, Batavia, N. Y.; *Corresponding Secretary,* Dr. George Chaffee, Brooklyn, N. Y.; *Recording Secretary,* Dr. C. A. Pease, Burlington, Vt.; *Treasurer,* Dr. J. K. Stockwell, Oswego, N. Y.

American Association of Military Surgeons.—The annual convention of this society was held in Richmond, Va., from October 31 to November 4. Milwaukee was selected as the next place of meeting and officers were elected, as follows: *President,* Brigadier-General George H. Torney, Surgeon General, U. S. A.; *First Vice-President,* Surgeon Charles P. Wertenbaker, U. S. Public Health and Marine-Hospital Service, Norfolk; *Second Vice-President,* Surgeon W. C. Braisted, U. S. N.; *Third Vice-President,* Col. Charles Adams, National Guard, Illinois; *Secretary,* Major Charles Lynch, U. S. A.; *Treasurer,* Major Herbert A. Arnold, National Guard, Pennsylvania.

The American Association for the Study and Prevention of Infant Mortality held its annual convention in Baltimore last week. Officers were elected as follows: *President,* Dr. Charles Henderson of the University of Chicago; *President-Elect for* 1912, Dr. Cressy L. Wilbur, Chief Statistician of the Bureau of the Census; *Vice-Presidents,* Mr. Harold McCormick of Chicago and Dr. Henry L. Coit of Newark; *Secretary,* Dr. F. S. Churchill of Chicago; *Treasurer,* Mr. Austin McLanahan of Baltimore; *Executive Committee,* Professor Henderson, Dr. Churchill, Dr. J. H. Knox, Jr., of Baltimore, Dr. John S. Fulton of Baltimore, Dr. Mary Sherwood of Baltimore, Dr. Joseph S. Neff of Philadelphia, and Dr. Helen C. Putnam of Providence. Chicago was selected as the next place of meeting. The permanent headquarters will remain in Baltimore where they were established a year ago, Miss Gertrude B. Knipp being reappointed executive secretary.

Obituary Notes.—Dr. Thomas Coit Fanning, formerly of Tarrytown, N. Y., a graduate of the New York University Medical College in 1861, died at his home in Stamford, Conn., on November 4, aged 70 years.

Dr. John A. Leavy of St. Louis, Mo., a graduate of the Washington University Medical School in 1856, a surgeon in the Confederate Army during the Civil War, died suddenly at his home on October 24, aged 76 years.

Dr. Le Roy Lewis of South Bend, Ind., a graduate of the Jefferson Medical College, Philadelphia, in 1878, died at his home after a long illness on October 26, aged 55 years.

Dr. Charles B. Curran of Brooklyn, N. Y., a graduate of the Long Island College Hospital in 1893, died at his home of pneumonia on November 1, aged 37 years.

Dr. George Asbury Dewey of Brooklyn, N. Y., a graduate of the Medical Department of Western Reserve University, Cleveland, O., in 1849, died at his home on November 1, aged 82 years.

Dr. Charles A. Miles of Yonkers, N. Y., a graduate of the Jefferson Medical College, Philadelphia, in 1876, died at his home on November 9, aged 58 years.

Dr. J. Lacy Brayshaw of Friendship, Md., a graduate of the College of Physicians and Surgeons, Baltimore, in 1888, a member of the Maryland State and Anne Arundel County Medical Societies, died at the Sibley Hospital, Washington, after a short illness, on October 29, aged 55 years.

Dr. Ernest S. Albee of Oshkosh, Wis., a graduate of Rush Medical College, Chicago, in 1900, a member of the Wisconsin State and Winnebago County Medical Societies, and of the Oshkosh Medical Club, died at his home on November 1, of kidney disease, aged 34 years.

Dr. Samuel W. Edmunds of Alexander, Ill., a graduate of the Department of Medicine and Surgery, University of Michigan, in 1868, died at the Passavant Hospital, Jacksonville, Ill., of pneumonia, on November 1, aged 70 years.

Dr. John M. Allen of Liberty, Mo., a graduate of the Washington University Medical Department in 1854, a member of the American Medical Association, and of the Missouri State and Clay County Medical Societies, and Professor of Diseases of the Abdomen in the University Medical College of Kansas City, died October 31, aged 77 years.

Dr. Samuel H. Friend of Milwaukee, Wis., a graduate of the Department of Medicine of the University of Pennsylvania in 1888, a member of the American Medical Association, and of the Wisconsin State and Milwaukee County Medical Societies, died at his home after a long illness on October 30, aged 48 years.

Dr. James D. McGaughey of Wallingford, Conn., a graduate of the Jefferson Medical College, Philadelphia, in 1870, a member of the American Medical Association and of the Connecticut State and New Haven County Medical Societies, died at his home on October 31, aged 62 years.

Dr. Francis S. Mudd of Lafayette, La., a graduate of the Medical Department of Tulane University of Louisiana, died at his home on November 4, aged 82 years.

Dr. E. W. Stevens of Denver, Colo., a graduate of the Jefferson Medical College, Philadelphia, in 1884, a member of the American Medical Association, of the American Ophthalmological Society, and of the Colorado State and Denver County Medical Societies, of which last he was a former president, died at his home of disease of the kidneys, after a short illness, on October 30, aged 47 years.

Dr. J. H. Edwards of Ira, Tex., a graduate of the Medical Department of the University of Tennessee, and a member of the Texas State and Scurry County Medical Societies, died as the result of an accident, on October 25.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

RESEARCH DEFENSE—ENTOMOLOGY—SLEEPING SICKNESS—BIOLOGICAL RELATIONS OF TRYPANOSOMES AND SPIROCHETES—THERAPEUTICS OF RADIUM—RATS AND PLAGUE—OBITUARY.

LONDON, October 28, 1910.

THE Research Defence Society has been working energetically of late, and this week the Earl of Cromer, who is president, went to Oxford to open a new branch and gave an address in the Town Hall, Prof. Osler occupying the chair. Lord Cromer, who is always listened to with attention, affirmed that the bacteriologist needed no defender in the eyes of thinking men; his praises are written in the hearts of thousands of homes where his discoveries have turned death from the door. In point of fact, it was not this society, but its opponents, who were on their defence and were obliged to resort to methods and arguments in the highest degree unscrupulous. Mr. Stephen Coleridge was never tired of saying England was the only country which had legalized torture of animals. If ever there was a clear case of suppression of truth and suggestion of what is false it was that. The real fact was, England was the only country which had passed a law to prevent animals being tortured; in all other countries they had no protection. His Lordship then quoted the statistics of the Punjaub. In a population of about 827,000 some 187,000 were inoculated before the outbreak and 640,000 were not. The deaths were only 314 among the former, but no less than 29,723 among the latter. In other words, it might be calculated that experimental science had saved about 8,000 human lives. Would any one be so bold, rather, he woud say, so inhuman, as to balance those lives against a few score or even a few hundred rats and guinea pigs? It was incredible that any one could doubt, but the course was not callousness, but ignorant and false sentiment. In fact, a distinguished American with the incisiveness of his race recently put the case in a nutshell to an antivivisectionist thus: "At how many rabbits or guinea pigs do you value your wife, husband, or child?" He was not aware whether any opponent was present who had refused when ill or when any of his family was ill to avail himself of knowledge acquired by bacteriologists. If such a strange phenomenon existed, he was prepared to do homage to his logical faculty, but, he must add, at the expense of regard for his sanity.

Entomology is taking a large place in medical research and threatens soon to be an addition to the burden of the curriculum. We have had for the last year or more an official Entomological Committee for Tropical Africa meeting four times a year at the Colonial office, with subcommittees at work during the intervening periods. In connection with this work a "Bulletin of Entomological Research" is being issued, which will record the investigations of the missions sent out to Africa to study the diseases prevailing there, and the insects which are the cause of some of them. I have from time to time reported to you the results of such missions before the Colonial office moved, as well as since. At present Mr. S. A. Neave is in Nyanaland and Mr. J. J. Simpson in Nigeria investigating sleeping sickness and the habits of the *Glossina palpalis* which is a most voracious insect with a special predilection for the blood of man, though in its absence feeding on lower animals. Dr. Rubert Boyce, who lately returned from Sierra Leone, so long regarded as the home of yellow fever, is convinced that that disease is a virulent form of malaria. So certain of this is he that in a recent address he said, "No malaria, no yellow fever." If that be so, the fly must be attacked as it has been in other districts and most in the larval stage.

At the opening meeting of the Pathological Section of the Royal Society of Medicine the president, Dr. Mott, discussed the biological relationship of trypanosome and spirochete infection as shown by the point of inoculation, the period of incubation, the local gland enlargement, followed by a general infection of the lymph stream first, and then of the blood associated with rashes due to migration of parasites, pyrexia, and constitutional disturbances. He said the effects of the two infections on the human nervous system present many points of similarity in symptoms and in histological change, besides which drugs which can avert nerve symptoms in one may, although rarely, avert them in the other. In trypanosomiasis (Dr. Mott would abolish the term sleeping sickness) all cases end in chronic inflammation of the central nervous system, progressing to a fatal issue; in spirochete infection only 5 to 10 per cent. produce neuroses. The trypanosomes always invade the subarachnoid space. The spirochetes do so only in 4 or 5 per cent. of cases, and then probably remain within the lymphatics and do not get free into the cerebrospinal fluid, as the trypanosomes do. Then mercury and other drugs have no effect, although they apparently do on the spirochetes in the lymphatics of the central nervous system. Then trypanosomes can easily be found in the blood, but not spirochetes, which seem only able to multiply in the lymph spaces and channels. Dr. Mott described the trypanosomes as extremely active and capable of penetrating the delicate capillary walls and so passing into the cerebrospinal fluid while the spirochetes moved slowly about in a screw-like fashion, which could seldom pass through the vessels. This, with the other points carefully enunciated by Dr. Mott, would seem to give us a clue to the explanation of trypanosome infection invariably leading to central neurosis, while the risk of spirochetes doing so is comparatively exceedingly slight. In both infections there is polyadenitis; in both there is lymphocytosis in the blood, and in one this is also in the cerebrospinal fluid.

Referring further to the British discovery of a new process for the production of radium, it seems likely that one of the first consequences must be a reduction in cost. This may perhaps lead to a more extensive exploitation of its therapeutic properties. Passing by its use in surgery, which has already received considerable attention, we may say that its medical qualities remain uncertain, although speculation has been rife as to whether it has not sometimes played the part of a concerted remedy in the presence of other substances. Thus it has been supposed that the good effects of some mineral waters may be due to radium, or its examinations and experiments have shown the presence of the unsuspected constituent. It is generally agreed that these waters are beneficial in a variety of arthritic troubles. Some springs have a reputation rather for catarrhal affections of the respiratory tract and some again for neuroses. In both these classes of springs experiments have proved there

are some which give off the emanations. This has led to the idea that the waters might be artificially charged but the evanescence of the emanations is an obstacle, and it has been suggested that this explains the fact so often asserted that some natural mineral waters bottled at the springs seem to lose their therapeutic value during transmission. Another suggestion for local joint troubles is a trial of cataplasms made of powdered pitchblende with water. It is even asserted that the material can be used more than once, for if on removal it is perfectly dried the radioactivity is again perceptible.

A determined attempt to exterminate rats is going on in a small district between the Rivers Stour and Orwell in consequence of circumstances connected with four deaths at Freston between September 16 and 29. Dr. Heath, of the East Suffolk Hospital, from bacteriological examination thought they were due to plague. The local governing board failed to confirm this, but subsequently rats and hares have been found dead in the locality and in three cases the plague microbe has been detected. The health committees concerned have conferred with Dr. Bulstrode, of the local governing board, and Prof. Simpson, of King's College, and detailed recommendations have been made as to systematic work at extermination of rats in stables, slaughterhouses, bakeries and graineries; for covering all receptacles of refuse and so on. In the meantime landowners, farmers, and others have been strewing poison and hundreds of rats, rabbits, hares, and even cats have been destroyed. No new cases of human illness traceable to such a cause have been reported.

The death has occurred of Dr. Thomas Wright, consulting surgeon of the General Hospital and of the Children's Hospital at Nottingham. He was 87 years of age, one of the oldest medical officers of the Volunteers, from which he retired as lieutenant-colonel. He took M.D. Ed. in 1844.

Dr. William Hall, general surgeon of Royal Lancaster Infirmary, died suddenly on Tuesday. He qualified in 1871-2 and took F.R.C.S. Ed. in 1886.

News has been received of the death of Dr. Edward Eldridge Blomfield, lecturer on medicine, University of Otago, N. Z. He went there in 1900. Was M.D. Lond. 1895, having taken various honors at the several examinations, as well as at the London Hospital, where he fulfilled his curriculum.

Surgeon Col. Francis H. Welch died on October 25, aged 71. Educated at the London Hospital, he qualified in 1860 and entered the army the next year. He took the F.R.C.S. in 1871 and was appointed assistant to the professor of pathology at Netley, which office he held until 1876. He served in the Hazara expedition in 1888 and was mentioned in despatches. He retired in 1895.

Lieut.-Col. R. Anderson, late of the R. A. M. C., died on October 24. He took M.R.C.S. in 1867 and entered the army the following year. He was in the Egyptian expedition in 1882 and was awarded the medal and bronze star. He retired in 1893 and has resided since at Bury St. Edmunds, where he was Mayor in 1907. He also served on the Suffolk County Council.

The death is also reported of Dr. Edward Adams, surgeon to Buckhurst Hill Medical and Surgical Home. He was M.B. and B.Sc. Lond. 1884-5, was 50 years old, and died after a long illness.

Richard Thompson Caesar, aged 72, ex-president of Salisbury Medical Society, died recently. He was a retired surgeon-colonel of Volunteers and qualified in 1859-62.

OUR BERLIN LETTER.

(From Our Regular Correspondent.)

CHOLERA IN GERMANY.—BREAST-FED CHILDREN.—THE EMPLOYMENT OF SCHOOL-CHILDREN.

BERLIN, September 30, 1910.

CHOLERA in Germany! About this there can be no doubt. A few cases have been reported in Spandau, at the very gates of Berlin. In this city there are being quarantined a number of individuals with suspicious symptoms. In the eastern provinces bordering on Russia several cases have been reported. There can be no doubt that with the energetic measures taken by the government there can be no fear of an epidemic arising; but is there no remedy for this annual scare. The best answer to this question is that which has been furnished by the Vienna bacteriologist, R. Kraus, in the *New Free Press,* August 25, 1910: "It is clear that the continual danger is to be sought in the low stage of civilization that Russia occupies; there the flame of cholera is never totally extinguished, and thence it spreads into every other country in Europe." Kraus makes an appeal for an international warfare against the Russian cholera. Thanks to modern progress in hygienic science, we are able to make an effective stand against this disease. If we could only apply our prophylactic measures in the neighboring provinces of Russia by isolating the separate cases that arise there would be no danger of a serious outbreak. There are two means of stamping out this disease from its haunts in Russia. The first would be the formation of an international union to persuade Russia to adopt drastic measures against this pest within her own borders. This would be a task for diplomats of all countries, a task greater than all others. The second plan would be the stationing of permanent international sanitary boards in the south of Russia, somewhat like those organized in Alexandria, Constantinople, Arabia, and Persia. The task of awakening the conscience of Russia to these needs is not a small one, but it is urgent.

The scientific attitude and the industry of the practical physicians are indicated by the many articles published by the school physicians of Berlin. The position of school physician is given only to practicing physicians who in most instances formerly have not been in the habit of conducting scientific work, and besides looking after a large general practice are still able to contribute valuable articles on social medicine. Thus Dr. Schäfer published "Statistical Investigations Into the Conditions Relating to the Breast-feeding of the Pupils of the National Schools of Berlin," in the *Medical Reform,* No. 23. As breast-fed children, only those were considered who had been nursed at least six months. Moreover the children were not classified in the manner customary with others who have written upon this theme, namely, according to their good or bad physical condition, but the numbers of breast- or bottle-fed children were calculated in relation to the number of necessary examinations to which these were later brought. The results were as follows: 25 per cent. had been nursed one year; 15 per cent., 9 months; 15 per cent., 6 months; and 10 per cent., 15 months. The children who had been nursed up to three years made no particularly good impression, so far as their constitution was concerned. The author conceives prolonged nursing as a sign of the dislike of the mother to endure the difficulties associated with weaning.

Among 2,796 children, 884 or 33 per cent. had been breast-fed, and 1,912 or 67 per cent. had been bottle-fed. In comparing the bottle-fed with the breast-fed as regards the number whose progress was retarded chiefly on account of beginning school at a late age, it was found that the former exceeded the latter to the extent of 56 per cent. On account of anemia, scrofula, and general weakness, 24 breast-fed and 42 bottle-fed children were kept back; on account of rickets and deformities of the spine, 3 breast-fed children and 30 bottle-fed children were kept back.

Another school physician, L. Hahn, read before the Berlin Association of School Physicians a paper entitled "The Child Protective Law and Industrial Child Labor in Berlin." For several years he had investigated the employments of school-children. In schools of about 800 pupils, nearly 60 were engaged in running errands, such as the delivery of milk, the products of bakeries, and messages, and in other pursuits. About half of the children worked for strangers; the remainder worked for their parents. The former received one to six marks weekly. In three schools were found 146 children who were thus employed. On this basis it was calculated that there were 7,300 boys and 2,175 girls in Berlin who were employed after school hours, a total of 9,500 children. If we accept the statement of the author that 15 per cent. of the employed children are either sick or in poor physical condition, we can realize that 1,400 children are subject to cardiac and other severe disturbances. These figures should certainly awaken the attention of the authorities. The author recommends that the employment of every school-child be investigated as to its compatibility with the health of the child. It is the duty of every school-physician to seriously consider the significance of this investigation.

Progress of Medical Science.

Boston Medical and Surgical Journal.

November 3, 1910.

The Etiology of Cholecystic Gallstones. W. I. Clark.
A Fallacy of Psychotherapy, "Fighting It Out" in Functional Nervous Disorders. J. E. Donley.
Spontaneous Dislocation of the Hip-Joint Following Acute Infectious Diseases. C. G. Cumston.
The Technique of Arthrotomy. A Report Upon and Discussion of One Hundred and Ninety-eight Cases. C. F. Painter and A. P. Cornwall.
Stomach Diseases from a Medical Standpoint. G. A. McEvoy.

Etiology of Gallstones.—W. I. Clark states that since hypotheses and the experimental evidence agree upon the stagnation of bile as the most important predisposing factor to gallstone formation, the first step in the sequence will be a stagnation of bile caused by one of a number of possible causes. Thus, the patient would have suffered from gastroptosis, pregnancy, or some condition mechanically hindering the free flow of bile; or, on the other hand, be a person of sedentary habit and chronic indigestion. Further careful anatomical investigation should show some hitherto undemonstrated etiological factors. In a large number of cases no preceding condition can be found except typhoid fever or chronic indigestion. The contraction of the gall-bladder is governed by a reflex established in the duodenum by the acid chyme, so that a chronic catarrh of the stomach and duodenum might produce a reflex congestion of the mucous membrane of the gall-bladder. This congestion would afford a fertile field for bacterial infection through the bile. An examination of the gall-bladder in the pregallstone stage would show a somewhat enlarged bladder with a congested mucous membrane; the bile is sterile and shows an increased percentage of cholesterin and calcium. Such a gall-bladder would give no symptoms. The next stage is that of beginning stone formation. Bacteria absorbed from the intestine are excreted in the bile and lodge in the congested mucous membrane of the gall-bladder. Here they establish a catarrh with an enormous increase in the mucous glands; with this there is an increase of mucus tending to cause a precipitation of calcium and a change of reaction of the bile, and increased necrosis and desquamation of epithelial cells, resulting in cholesterin formation. The next stage is the stage of development of gallstones. All the classical conditions for cholelithiasis are now present. The enlarged and relaxed gall-bladder is filled with stagnant bile supersaturated with cholesterin and calcium. The stones are soft and readily take impressions from their neighbors and from the contractions of the gall-bladder. A gradual increase in size and number of the stones takes place during this stage and their presence accentuates the catarrhal condition of the mucous membrane. An increase in virulence of the bacteria is more frequently the cause of pain than the passage of a stone into the cystic duct. Most recent authors believe the pain of cholecystic gallstones is due to acute infection rather than mechanical passage.

A Fallacy in Psychotherapy.—J. E. Donley states that in the sphere of the mental life it has long since been realized that spiritual conflicts are fraught with most disagreeable and disabling consequences. If there are many who escape the ill-effects of mental analysis, there are also many who suffer seriously from the wounds this tendency inflicts. Among the latter are nervous people, the evil genius of whose existence is morbid subjectivism. "Fighting it out" is but a continuous, systematic, deliberate perpetuation of this same subjectivism. Through a number of valuable researches one has come into possession of a vastly more comprehensive knowledge of the factors at work in the production and maintenance of different states of psychological instability. The researches of Jung, of Zurich, into the problems of association have opened up an entirely new and fertile field to students of mental life. Experimenting with a considerable number of persons Jung discovered that there are certain associations of ideas which liberate a marked emotional wave, and certain others which produce little or none. By means of psychological experiments for measuring the reaction time for association of ideas it is possible to determine that there are certain ideas for which the reaction time is lengthened. In these cases the cause of the prolonged reaction time, according to Jung and his followers, is that the association of ideas aroused by the stimulus word was of such personal and significant interest to that individual as to give rise to an accompanying emotional state which interfered with the rapidity of association, which blocked it, as it were, and caused a lengthening of the reaction time. By means of another experiment it may be determined that there are changes in the electrical resistance of the body during the formation of an association carrying with it a distinct emotional load. It may be demonstrated that a mere word which sets off an emotion produces a perfectly measurable electrical change. One may thus perceive the profound influence of certain associations of ideas upon one's emotional stability. Against the militant attitude of "fighting it out" another objection may be raised. Utilizing the method originated by Pierre Janet and further elaborated by Breuer and Frend, one has learned that the effort to crowd out of mind, to suppress, the memory of a disagreeable experience or set of experiences, in a word, to "forget it," is oftentimes the source of troublesome nervous disorders. This is most strikingly illustrated in the case of personal religious crises in which the fierce emotional struggle is frequently a source of discontent and unhappiness. Only an attitude of surrender

will terminate the latter. This same attitude may be attained through an appeal to religion, as well as to a common sense philosophy of life.

Spontaneous Dislocation of the Hip.—C. G. Cumston states that it is striking how frequently the hip joint is the seat of spontaneous dislocation, the most important causal factors of which are typhoid fever and acute articular rheumatism. Then, in order of frequency, come scarlet fever, influenza, smallpox, gonorrhea, erysipelas, and puerperal fever. The dislocation usually takes place during convalescence, and is particularly apparent in typhoid fever, while in acute articular rheumatism and scarlet fever the complication is prone to occur during the progress of the disease. Three factors must be combined in order to produce a spontaneous dislocation, namely, (1) a bad position of the limb, particularly favoring the functions of a group of muscles; (2) atrophy and paralysis of the antagonist; and (3) relaxation of the capsule and ligaments. This theory, however, is not satisfactory because there usually must also be some external cause in order to produce a dislocation. This external cause may be found in trauma even if ever so slight. One may briefly summarize the most important pathologic changes occurring in spontaneous dislocation of the hip as follows: (1) Comparatively slight changes in the joint, especially over the femoral head; slight cartilaginous outgrowths in the glenoid cavity; (2) connective tissue overgrowth in the glenoid cavity; (3) sloping or flattening of the roof of the acetabulum; (4) muscular atrophy with contraction of the antagonists. The symptoms are quite the same as in the traumatic type. Regarding the treatment of the dislocation, the principal aims to be obtained are, first, to reduce the dislocation if possible, and, secondly, if this is an impossibility, to transform the bad position of the limb into a functionally useful one. Two methods are at one's disposal, namely, the bloodless and the operative. The three operative procedures available are operative reduction, resection, and subtrochanteric osteotomy.

The Technique of Arthrotomy.—C. F. Painter and A. P. Cornwall continue their article upon this subject.

Stomach Diseases from a Medical Standpoint.—G. A. McEvoy concludes that if special attention be paid to the proper use of the tube as a diagnostic measure, and if the diseases of the stomach be treated according to the mechanical changes produced pathologically, better results will be obtained medically and fewer cases be referred to the surgeons.

New York Medical Journal.

November 5, 1910.

Further Observations on the Use of the Ehrlich-Hata Preparation, 606 in the Treatment of Syphilis. J. A. Fordyce.
Vital Statistics in the Promotion of Public Health. W. H. Guilfoy.
Tuberculosis of Bones and Joints. E. M. Brown.
The Diagnosis and Treatment of Tuberculous Joints. P. P. Swett.
A Rational Basis for the Treatment of Narcotic Drug Addiction. G. E. Pettey.
The Kind of Inebriate Who Needs State Care and the Kind Who Needs the Private Sanatorium. C. C. Wholey.
Tissue Cell Evolution. A Theory of Senescence. I. L. Nascher.
Modern Neurology on Spiritualism and Possession. T. A. Williams.

Observations on 606.—J. A. Fordyce presents a history of this remedy, stating that already from 12,000 to 15,000 patients have been treated by it and that the drug has now been accorded a firm foothold in the therapy of syphilis.

Vital Statistics.—W. H. Guilfoy considers the question of mortality and mortality rates. The country that first entered the field of mortality statistics was Sweden, in 1749. It is not surprising that the lowest rate of mortality in Europe is to be found in the Scandinavian peninsula. Improved vital statistics is the demand of the hour, and in so far as further progress is made in this direction, then so far will corresponding advance be made in preventive medicine. It has been repeatedly shown that given two cities with varying age groupings of the populations, but with exactly the same death rates at these age groups, one city will possess a much lower general death rate than the other, due not to healthier environment but to the more favorable distribution of ages of the inhabitants; sex distribution modifies the death rate, the presence of a larger proportion of females than males in a population always tending to lower the rate. As affecting the death rate density of population is now viewed as of secondary importance, as compared with the immediate hygienic surroundings, the habits, and intelligence of the dwellers. The infant mortality is a good index of these latter influences; in New York, where the number of persons in one block reaches the astounding mark of 2,471 to each acre, the number of children dying out of every 1,000 births was one-half the number dying in blocks with a density less than one-half; it must be admitted, though, that all blocks with a density of 1,000 to the acre showed an increase in the infant mortality compared with that of the entire city. The following general factors affect the rate: Size of city, density of population, latitude, longitude, elevation, rate of annual increase, proportion of males, foreign born, of foreign parentage, of colored, or illiterates, of male wage earners, of ages, the mean annual maximum and minimum temperatures, and mean annual relative humidity; so that the general death rate is when analyzed found to be based upon a very complex set of props, and the influence of the most important must be measured before acceptance of it as an index of mortality. In reviewing the results obtained in New York since the organization of the Board of Health, more than forty years ago, it is noted that the crude rate has decreased from 26.61 to 16.21, almost 40 per cent.; the decrease percentage at age groups representing infancy, childhood, youth, maturity, decline, and old age was as follows: Infancy, 45; childhood, 42; youth, 32; maturity, 25; decline, 3; old age, 6. The death rate among females as compared with males is lower in each decennium and at each age group; by far the greatest saving in human life has taken place before the age of forty-five, and above this latter the saving is comparatively very small. The rungs at the bottom of the ladder of life are being carefully looked after; those at the middle of the ladder have been neglected; the physical welfare of the man has been lost sight of in the multitude of attempts at prolongation and betterment of the physical properties of the child; it is time that the vital statisticians should by investigations show that the mortality from the diseases affecting middle age is increasing, in order that man may be educated into following the ordinary rules of morality, sobriety, and moderation in all things, even in work. The diseases of the kidney, heart, arteries, brain, and digestive organs are growing apace.

Tuberculosis of Bones and Joints.—E. M. Brown states that the improvement in treatment along surgical lines has not been as great as one would wish. The study of the pathology of bone and joint tuberculosis has been neglected. There are three divisions to the treatment: first, general or constitutional; second, specific or serum treatment; and third, local treatment, which is subdivided into injection, mechanical, and operative. The general treatment includes fresh air, nourishing diet, good hygienic conditions, rest, exercise, massage, and cod liver oil. In the specific treatment tuberculin properly administered is of definite value. In the injection treatment the following substances have been used: iodoform emulsion, Calot's iodoformized oil mixture, sterile petrolatum, the Mosetig-Moorhof iodoform plug, bismuth paste, glycerogelatin formalin bone plug, and carbolic acid alcohol. In the superficial bones the *x*-rays have proved helpful. Bier's treatment of passive hyperemia is a valuable therapeutic measure in these cases. The rest secured by mechanical treat-

ment is obtained by fixation, relief from weight bearing, and by traction to prevent the pressure trauma of reflex muscular spasm. The advantages of operative treatment are: disease can at once be thoroughly eradicated, or so nearly so that the patient easily overcomes the disease; dissemination of the disease is prevented; the treatment is shortened; the general condition of the patient rapidly improves; the length of the limb and function of the joints are preserved to the best possible degree.

Diagnosis and Treatment of Tuberculous Joints.—P. P. Swett discusses four elements in the diagnosis, namely, the history of the case, physical examination of the part, radiographical examination, and tuberculin test; also the indications for the conservative and radical treatment. In a general way it is said that, contrary to the popular idea, joint tuberculosis in adults—considering fresh invasions and not merely the lighting up of old processes—is fully as amenable to conservative treatment as it is in children. The primary adult cases outside of this class are apt to be fulminating cases. Goldthwait gives the following reasons for the practice of radical surgery in adults: a. Impatience of conservatism, or inability to give up time to conservatism. b. Failure of conservative methods either to control or check the local advance of disease. c. Danger of general infection. d. Preservation of function in joint. e. Intolerance of apparatus.

Narcotic Drug Addiction.—G. E. Pettey states that in the treatment of a series of 200 cases the conclusion was reached that the retained excrementitious matter was the cause of all the dangerous and most of the painful symptoms incident to the withdrawal of an opiate, in fact, that, when the system was freed from toxic matter and the portal system disengorged, morphine or other opiate could be at once withdrawn without shock, collapse, heart failure, diarrhea, or other dangerous symptoms, and that the suffering incident to such withdrawal would subside in a few days' time without further treatment of any kind. It was also found that this suffering, severe as it would otherwise be, could be obviated and these days passed in comfort by the discreet administration of any member of the belladonna group of remedies. All desire for the opiate as well as all necessity for its use were removed by this course of treatment. The patient must be protected from severe suffering, nerve strain, and damaging mental impressions during the treatment, in fact, no cure can be expected from any plan of treatment which involves severe or protracted suffering such as do the reduction methods heretofore so much in vogue; that no drug patient can be considered cured until he has been made mentally and physically independent of all drugs, taught to rely on his own resources, and fully convinced of his ability to do so.

Inebriates.—C. C. Wholey discusses two types of cases. The first of these is one which in a city environment is considered practically hopeless for permanent cure. He is simply an adult child for whom the constant guardianship of an institution is the only remedy. The solution of the problem for such creatures is that the State shall care for them as it cares for its helpless and insane. They are true degenerates and will never gain sufficient stamina to resist temptation if circumstances place them in an unfortunate environment; after any course of treatment the same tendency to dissipate and the same perverse traits of character will remain. In custodial colonies such individuals can often be made self supporting, thus relieving society of the financial and demoralizing burden they now constitute. Every State must sooner or later provide for this class of derelict. The second type is one in which the habit is merely a symptom of some underlying neurosis or phobia. One may find in a large percentage of drug habitués some physical or mental cause, which, if one but take the pains to discover, often furnishes the clue for bringing about a cure of the addiction. For this class of patients treatment in a sanatorium, covering varying lengths of time, offers the surest means of successful and permanent cure.

A Theory of Senescence.—I. L. Nascher states that senescence is not due to any one cause. There is undoubtedly a determining factor which is the subject of the various theories that have been advanced. Upon the theory of tissue cell evolution life must cease when the cells have reached a stage in their evolutionary progress when the organs which they form are so changed that they cannot carry on the functions of life. It makes no provision for disease as a causative or even an essential factor in the production of senility, for disease is abnormal; it is an interference with the molecular condition or some property of the cell. It rejects arteriosclerosis as a causative or essential factor, but it includes it among the contributing factors of senility. Some of the contributing causes hasten senile changes by interfering with vital functions.

Spiritualism and Possession.—T. A. Williams believes that it is unfortunate that medical men of America are not better informed on psychopathology. To this is attributed the extensive vogue of spiritualism, clairvoyance, and the various cults of mental healing.

Journal of the American Medical Association.

November 5, 1910.

The Prophylaxis of Cancer. C. H. Mayo.
Etiology of Cancer of the Skin. L. Loeb.
Treatment of Malignant Growths of the Skin from a Dermatologic Standpoint. W. A. Pusey.
Surgical Treatment of Cutaneous Malignant Growths. J. C. Bloodgood.
Pathology of Malignant Diseases of Non-Epithelial Formation. F. B. Mallory.
The Pathology of Malignant Epithelial Growths of the Skin. J. A. Fordyce.
Preliminary Report on the Clinical Significance of Indicanuria. G. Baar.
The Comparative Efficiency of Some Common Germicides. W. E. Post and H. K. Nicoll.
The Principles of Hydrotherapy. T. McCrae.
Teaching the Student the Operation of Paracentesis of the Drum Head. H. Friedenwald.
Tetanus Successfully Treated with Large Quantities of Antitoxin. A. J. Caffrey.
The Muffled Room in Treatment of Acute Insanity. S. Brown.

Cancer Prophylaxis.—C. H. Mayo says that one must consider the irritation of groups of epithelial cells as the primary origin of cancer, and that it is evident that there exists a precancerous condition. The unproved type, that of prenatal displacement, one is unable to recognize. The postnatal type one recognizes at least in tumors of a temporary benign character in their more regular and uniform arrangement of structure and cells, such as skin warts, vesical papillomata, cell inclusions in scars and the results of long-continued irritations to tissues. These growths resemble the embryologic development of cells merely in the power of cell multiplication and in the continuance of type in the metastasis and transplantation of the growth. Bashford shows that, while no race is exempt from cancer, the predilection for the disease in certain countries is more from local irritation than from climate, soil, and diet. Why it is not more common following chronic irritation it is impossible to say. It is not necessary to suppose a parasitic origin of the disease to account for its occurrence. In classifying the causes which may render precancerous conditions active one must apparently include nerve fatigue. Cancer of the stomach, bladder, and large bowel undoubtedly result from chronic local irritation, and the question arises whether the supposed repeated medical healing of gastric ulcers relieves the tendency to cancer, a large percentage of which develops on ulcers. The modern surgical tendency is to excise ulcers in their precancerous condition, and this should be the rule also with bladder papillomas. He also recommends it in case of hyperplasia of the prostate, even before it has caused distress, on account of the cancerous tendency of the organ. A rapidly growing, hard goiter should be looked on as a menace and early operation advised. Patients with

thyroid tumors indicate that an adenoma may cause carcinoma in about one in twenty-five or thirty cases. The irritative effects of tumors of the uterus are also noticed, and, while operation should not be advised in all cases, they should be removed if they cause symptoms, by myomectomy in the young and hysterectomy in the older individual as methods of choice. Tumors of the breast should be watched also with great care, and physicians should not assume the responsibility of delay, but inform the patients of the risk they run. He urges the early performance of the radical operation in early cancer of the breast. As to methods of cure one must admit a wide difference in malignancy, but there is also a wide difference in the resistance of the cases. Serum treatment seems to offer some promise. Patients should be informed in the precancerous stage of their disorder and realize that the danger is not in surgery, but in delayed surgery. It is this last which has caused it to fall into any discredit it has with patients at the present time.

Etiology of Skin Cancer.—L. Loeb states that the etiologic factors of skin cancer are external and internal. The external factors of importance are: 1. Light rays, especially the short-wave ones, which are active in the cancer of seamen and in that of old people which are found mainly on parts exposed to light. The *x*-rays are responsible for the cancer of *x*-ray operators. 2. Certain chemical factors are undoubtedly the cause of cancer, such as that of chimney-sweeps and paraffin and coal-tar workers. Arsenic, taken over long periods of time, influences the skin. 3. Certain mechanical irritations, such as heat, friction, etc., are also factors. 4. There may also be mentioned those conditions or organisms that cause lupus, psoriasis, and certain scars and ulcers. One has less definite knowledge of the internal conditions. Cancer arising from a congenital pigmented mole indicates that a certain localized and congenital hereditary condition is to be reckoned with, and there is undoubtedly a susceptibility to the ultraviolet rays of light in some persons. The author takes up the embryonic theory, but does not consider it sustained by facts. So far as old age is concerned, he also discredits it as a direct factor, as far as the epidermis is concerned. Instead of explaining various skin lesions as due to premature senescence, one should take the view that the senile changes are due to long-continued injurious external influences. While at the present time one should keep in mind the possibility of an etiologic significance of microorganisms, their connection with cancer seems to be hardly probable. The effects of irritants among the external causes are suggested as corresponding with the chemical activity of internal organs as a factor in cancer growth, by stimulating the overlying epidermis.

Cutaneous Carcinoma.—W. A. Pusey states that the only internal remedy which he thinks entitled to the slightest consideration is arsenic, which has a definite effect on the nutrition of the skin when given in large doses, and has cured some cases of sarcoma, while some careful observers think it is of benefit also in carcinoma. The most popular method is excision, which is the crudest method of treatment, since it takes no account of the ability of the tissues to assist in the defense against cancer. A clean excision must remove every cell of carcinoma to be successful, and, if it fails in this, the disease remains. Of other methods the author excludes from consideration all measures not vigorously destructive. Such are superficial caustics, substances like pyoktanin, which provoke epidermization and healing and which are especially dangerous in inexperienced hands, electricity, simple curettage, and electrolysis, which is occasionally used for minute epitheliomas, and refrigeration by liquid air, which is not sufficiently destructive and should be used with caution, if at all, and only in carefully selected cases. There remain the strong chemical caustics, arsenous acid, zinc chlorid, caustic potash, and acid nitrate of mercury. The successful treatment of epitheliomas with caustics requires acquaintance with the methods before undertaking their use, and knowledge and judgment are needed. No one method or technique is applicable to all cases. No one not blind to facts can deny that carcinomous tissue can be destroyed by the *x*-ray, and it has theoretical advantages.

Surgical Treatment of Skin Cancer.—J. C. Bloodgood states that the extent of the operation varies with the type of growth. In general it may be said that for sarcoma a local operation is sufficient, while in carcinoma of the squamous type the local operation should, in most cases, be combined with dissection of the neighboring lymphatic glands and surrounding tissues. His article is based on the study of sixty-five cases of malignant pigmented moles, forty-five cases of sarcoma of the derma, and 812 cases of epithelial tumors of the skin and mucosa. A study of the first class, of the congenital pigmented moles, illustrates the importance of the removal of certain forms of benign congenital moles which have a tendency later to become malignant. He gives his opinion that such moles should always be removed, especially when liable to trauma, and he urges complete excision with the knife in preference to any other method. In sarcoma of the derma there is generally a history of congenital nevus, of acquired or congenital fibroma, or the tumor has originated in scar tissue. In case of a nevus, the type is that of an angiosarcoma, and with few exceptions the malignant connective tissue tumor arising from a scar or fibroma is the fibro-spindle cell type. Several interesting cases of sarcoma from nevus and scar tissue are reported, and he specially speaks of the relation of scar tissue to different pathologic processes, especially keloid, which it is important to differentiate from fibro-spindle-celled sarcoma. If there is any doubt he should advise its treatment as sarcoma, though the local operation need not usually be very extensive in these borderline cases. There is also difficulty in the differentiation of fibroma and sarcoma of the skin. Other forms of skin trouble noticed are fibromyxoma, connective tissue cysts and lymphangioma, all rare of dermal origin. The prognosis and treatment of epithelioma according to site is taken up, and the public should be educated as to the importance of immediate consultation as to any ulcer, induration, wart, or scab on the mucocutaneous border of the lower lip. Cases of cancer of the tongue are too rarely submitted to the surgeon sufficiently early, and the operation has usually been too extensive in some respects and not sufficiently so in others.

Non-Epithelial Tumors.—F. B. Mallory concludes that it is advisable to discard certain loose and indefinite terms frequently used in connection with tumors and to strive for definite diagnoses and exact terms.

Malignant Skin Growths.—J. A. Fordyce states that the study of cutaneous malignant growths indicates a multiple etiology. Epithelioma developing from *x*-ray and sunlight or other radiant agency forms a strong argument against the parasitic nature of the disease, and the occurrence of epithelioma in xeroderma pigmentosum and like conditions of the skin coming on in old age or middle life, also points the same way. Further, he states that the action of chemical substances on epithelioma, such as arsenic, tar, tobacco, etc., shows that a variety of agents have the power to stimulate epithelial mitoses which may pass into malignancy. Cancers which develop on scar tissue or antecedent skin disease, like lupus, syphilis, etc., suggest that we are dealing with misplaced cells in some cases and in others with degenerative processes impairing the functional activity of the cells, followed as a consequence by vegetative activity.

Indicanuria.—G. Baar, on the basis of ten thousand examinations for indican, states that trauma to the intestinal wall is sufficient to produce indican, if sufficiently pro-

longed and severe, whether it occurs through mechanical injury in operation, adhesions or coprostasis. Enteroptosis may produce this latter condition and thus produce exaggerated intestinal putrefaction with its consequences. The constant finding of indican in constipation complicated with cardiac insufficiency is notable. Indicanuria exists in extreme hepatic insufficiency, and with gastric hyperacidity, especially with gastric and duodenal ulcers. In several cases of ozena and dental caries indicanuria was conspicuous, though there were no other signs of pathologic conditions. The insufficiency of pancreatic juice with its consecutive increase of intestinal putrefaction was shown in two cases of carcinoma of the pancreas with ever-present excessive indican. Bile insufficiency as a cause of indicanuria was not especially proven by his studies. About fifty cases of icterus with complete occlusion of the common duct showed indicanuria in only ten cases. In three of these there was drainage through a cholecystotomy with absolutely acholic stools. As regards treatment, he mentions three cases with excessive indican, one of pernicious anemia and the other of depressive neurasthenia, in which the indican disappeared and the condition markedly improved with the use of 1 per cent. ichthyol irrigations carried high up into the colon.

Common Germicides.—W. E. Post and H. K. Nicoll performed a series of investigations which showed the following results. 1. The reliability of the prompt action of a few simple germicides, such as tincture of green soap, alcohol in solutions above 50 per cent., silver nitrate solutions as dilute as 1 to 1,000, the iodin solutions, either as the tincture or in aqueous solutions with potassium iodid, phenol in 5 per cent. solution. 2. The unreliability of many agents prevalently supposed to be effective germicides. 3. The slow action of solutions of mercuric chlorid, although when given hours to act it is effective in high dilution. 4. The economic importance in the choice of germicides. This is of special interest to the managers of hospitals, since there is a great difference in expense between furnishing the much-advertised, high-priced (yet less effective) articles in concentrated solutions, and the simple, cheaper (yet more effective) articles in higher dilutions. In one hospital alone, where advantage has been taken of this difference, the saving has been several hundred dollars a year, and efficiency has been increased at the same time.

Hydrotherapy.—T. McCrae discusses this method of treatment under three heads: Internal, local, and general hydrotherapy. One of the most marked examples of its benefit is seen in the acute infections, in which the greatest danger lies in toxemia. In some of the lesser infections, such as tonsillitis, some forms of chronic arthritis apparently of toxic origin, and in some nervous diseases, the effects of the internal administration of water are marked. The absurdity of giving diuretic drugs without also giving water is admitted. One should consider the condition of the circulation and the kidneys, but, in general, these are more liable to be injured by toxins than by hydrotherapy. In typhoid fever, for example, one should try to have the patients pass at least 3,000 c.c., or, better, 5,000 c.c. of urine every day. In pneumonia one could hardly reach such amounts; probably 2,000 c.c. would be as much as could be passed. In septicemia again one may hope to obtain the larger amounts. In certain diseases, like gout, arteriosclerosis, or chronic arthritis, one advises the free ingestion of water as a routine measure, having regard always to the state of the circulation. Metabolism is probably helped and the excretion of toxins aided. The influence on the digestive tract should be kept in mind, however, as too much water might be injurious to an atonic stomach. In local hydrotherapy the circulatory and nervous systems are especially involved and it is sometimes difficult to say which plays the more important part. There are several factors at work. One of the most important is the influence on the blood-flow; another is the effect on osmosis, which is markedly altered in inflamed tissues. In some applications there is an important effect on deeper structures. The use of cold compresses to the thorax in bronchitis is mentioned. The effect on local nervous influences is shown by the relief of pain, and it is possible that the sympathetic system is also involved. General hydrotherapy is mainly employed by the use of baths, which are of value in both chronic and acute infections as well as in various nervous disorders. As in the local use of water, both the circulatory and the nervous systems are affected. The use of baths in fevers, and as relief for insomnia, is mentioned as well-recognized and illustrating both these uses. Friction as an adjunct to the bath is also mentioned as stimulating the circulation of the vasomotor system.

Paracentesis of the Drum Head.—H. Fuedenwald describes a modification of the schematic ear model of Bacon, by means of which a paraffin paper representation of the drum membrane enables the student to practice the operation many times.

Treatment of Tetanus.—A. J. Caffrey describes a case of tetanus successfully treated with large doses of tetanus antitoxin, a total of 45,000 units having been used.

Muffled Room in Treatment of Acute Insanity.—S. Brown states that the question of satisfactory muffling depends on the treatment of the doors, windows, floors, ceilings and partitions, and is a problem for the practical architect and engineer to solve. So far it has not been satisfactorily worked out.

The Lancet.

October 29, 1910.

The Chief Aim of Medicine. S. Delépine.
Hematemesis. Sir Dyce Duckworth.
A Case of Acute Pancreatitis; Operation; Recovery. A. H. Barker.
Phagocytosis of Erythrocytes by Endothelial Cells; Some Points in Connection with it and a Method for Its Demonstration. W. O. Meek.
Some Notes on "Delayed Chloroform Poisoning." E. D. Telford.
A Case of Poisoning by Aconite. W. Edgecombe.
A Method of Removing Naso-Pharyngeal Fibromata, with Two Illustrative Cases. T. Guthrie.
The Treatment of Ascites by Drainage into the Subcutaneous Tissues of the Abdomen. P. Paterson.
Preliminary Observations on Some Cases of Esophoria not Caused by Refractive Errors. R. A. Morrell.
Two Cases of Malignant Pustule. L. A. Parry.
The Treatment of Syphilis with Ehrlich's Dioxydiamidoarsenobenzol. W. Wechselmann.

The Chief Aim of Medicine.—S. Delépine believes that the object of preventive medicine is to keep the living organism in that state characterized by a certain duration of life, absence of pain, capacity for work, and power of reproduction, which is commonly known as health. One must look upon health as the normal reaction of the normal organism to its average environment and circumstances. The day may come when man will be in a position so to control the conditions of life as to raise the standard of health above the present level. During the past 48 years in England and Wales, as the result of preventive measures, the death rate has fallen from 21 to 14. Further progress is to be expected. An analysis of the chief causes of death in 1908 shows that more than one-half of the deaths were due to preventable causes.

Hematemesis.—Sir Dyce Duckworth discusses some of the causes of gastric hemorrhage and the appropriate treatment for patients suffering from it. The most common cause is gastric ulceration. Modern surgery has increased one's knowledge. Inspection of the gastric mucosa on the operation table in some cases of severe recurrent hemorrhage has revealed a lesion which had no resemblance to ulcer as commonly recognized in the post-mortem room, and conceived as existing beforehand. All that was apparent consisted in a series of small fissures, or chaps, from which blood oozed freely and continuously. Each of these being ligatured with fine thread ceased to bleed, and nothing further remained to be done; recovery followed. The oozing patch was regarded as an erosion, which, in-

deed, it appeared to be, hardly amounting to an ulcer. Cases of this kind have probably been regarded as instances of gastrostaxis, and one may assume that many of them cease to give trouble and heal kindly under appropriate treatment. The lesions may be multiple and it is certain that they are as apt to be serious sources of hemorrhage as are the deeper ones. Whatever the lesion, or the degree of it, the treatment of the patient is the same, and it consists in absolute rest, recumbency with head low, and morphine given hypodermically. Nothing whatever is to be given by the mouth, not even iced-water or pieces of ice. Saline solution, in half-pint quantities, should be given by the bowel, and nutrient enemata consisting of from eight to ten ounces of peptonised milk, with yolk of egg and grape sugar, repeated three or four times each day for at least three days. The mouth should be cleansed with borax, thymol, and warm water several times a day. As regards drugs, astringents are not now used as formerly. Subnitrate of bismuth and calcined magnesia are best employed a few days after bleeding has stopped. The lower bowel should be washed out daily. In cases in which ulceration is found near the pylorus, it is desirable to perform gastroenterostomy, on account of the risk of pyloric obstruction. Many patients suffer from gastric ulcer without any hemorrhage or with very small bleedings. As regards hemorrhages from cancerous growth in the stomach, this condition is not met with in persons under forty years of age, and there is seldom any serious loss of blood in such cases. Coffee-ground vomit is more common, although this is also met with in acute and chronic ulcers. Apart from gastric ulceration, the most formidable cases of hematemesis are those dependent on advanced cirrhosis of the liver. The bleeding commonly occurs from esophageal varices, and the loss of blood is sometimes enormous, recurrence being almost certainly fatal.

Acute Pancreatitis.—A. E. Barker reports a case of this condition in which recovery followed operation. The original attack in this case was not due to one of those fulminating processes in which wide sloughing of the pancreas occurs, from which no recoveries under any treatment can be expected. But the suddenness and severity of its onset, with fever, peritonitis, and fat necrosis, justify its being placed among the acute cases. The opportunity of examining the abdomen *in vivo* some eight months after an attack of pancreatitis showing the absence of any palpable evidence of damage from the earlier inflammation of the pancreas encourages the hope that prompt drainage from behind may serve to arrest the disease in other cases.

Phagocytosis of Erythrocytes by Endothelial Cells.—W. O. Meek as the result of a series of investigations comes to the following conclusions: 1. That preparations of endothelial cells are especially suitable for observations on hemophagocytosis. 2. Human blood sera, whether from "natural" or "immune" sources, which cause agglutination of other human red blood corpuscles, can be shown to also bring about phagocytosis of these erythrocytes by endothelial cells. 3. That the amount of "hemopsonin" in such sera is closely related to the amount of "hemagglutinin" which they contain.

Delayed Chloroform Poisoning.—E. D. Telford reports the case of a woman aged 47 years upon whom an operation for pyloric obstruction had been performed under chloroform anesthesia. After 36 hours, "coffee-ground" vomiting began, and with increased pulse-rate, delirium, and restlessness, continued till death occurred four days after the operation. At autopsy, the liver was found to be slightly enlarged, of bright yellow color, and showing an extreme degree of fatty degeneration. At the operation the liver had been found normal. A review of the literature of "delayed anesthetic poisoning" shows that the vast majority of the cases have occurred after the administration of chloroform, and that but few have been noted after the use of ether. It appears probable from both clinical and experimental work that any general anesthetic induces a state of acidosis, and the relative immunity from untoward results shown by the ether cases is probably due to the fact that the danger lies more in embarrassed excretion than in increased production of the acid bodies, and that ether hampers the kidneys less in their work than does chloroform.

Aconite Poisoning.—W. Edgecombe reports a case of recovery of an adult from accidental poisoning resulting from the drinking of an amount of a liniment containing the equivalent of about one-eighth grain of aconitine, or thirty-one times the maximum dose.

Nasopharyngeal Fibromata.—W. Guthrie describes two cases in which these growths were removed, in which the methods employed was that advocated by Brady, with the difference that the anterior bony nasal aperture is widened through an intranasal instead of an external incision.

Ascites and Subcutaneous Drainage.—P. Paterson describes his method of draining the peritoneal cavity in cases of ascites by means of a glass drain of such a shape that it will not slip into the peritoneal cavity. The drain consists of a perforated glass cylinder expanded into a flange at each end. This is introduced through an abdominal incision in such a manner that one flange should lie flat on the peritoneum and one on the abdominal aponeurosis, without any pressure being exercised on the intervening tissues.

Esophoria Not Caused by Refractive Errors.—R. A. Morrell describes a series of cases representing a large number of patients applying for relief from headaches, in which the only abnormality to be found is an esophoria when the patient is accommodating for a near point. This esophoria is at once relieved by placing a weak convex glass in front of each eye. Such cases are closely allied to those classed under the heading of muscular asthenopia, in which the symptoms are due to some kind of heterophoria.

Malignant Pustule.—L. A. Parry describes two cases of this condition, and states that the only treatment that need be referred to is that which is practically universally adopted—namely, destruction of the primary focus of the infection, either by caustics, the cautery, or the knife. The last is the best.

Treatment of Syphilis with 606.—W. Wechselmann, chief of the dermatological department of the Rudolf Virchow Hospital in Berlin, who has treated more cases with this remedy than anyone else, namely, 1,100 patients, contributes this paper. He concludes that it may now be taken as certain that the value of the new remedy is great, nay, more, that it is indispensable, and its danger is shown to be small. Further work will make known the limits of its efficacy, but under all circumstances the discovery of it and the creation of chemotherapy form one of the greatest and happiest events in the history of the natural sciences.

Berliner klinische Wochenschrift.

October 24, 1910.

Semen Findings and Male Sterility.—The fact that many women pronounced in perfect shape for childbearing and anxious for children do not conceive and that the husband appears equally potent has turned the attention of several authorities in recent years toward a research for overlooked causes of male sterility. Fürbringer has recently devoted much time to the semen findings, excluding such frankly apparent conditions as azöspermia, which is synonymous with obliteration of the seminal passages. Other forms of this condition are doubtful as shown by repeated examinations. It is an accidental and transitory condition, and even with atrophy of the testicle completely formed and active spermatozoa are sometimes present. The

best condition for study of the semen is the fresh and pure ejaculation as obtained in the condom. It is not easy to assert offhand just how few spermatozoids must be present to constitute oligospermia, but it may be an incidental and transitory condition is evident. Of much greater significance are changes in the form, mobility and tenacity of life possessed by the spermatozoids. Changes in form are extremely numerous and may be termed immature or degenerative in the absence of exact information. The dark field illumination has naturally come into use in this connection. The author knows of several men with badly deformed spermatozoids habitually present who have begotten healthy children. Those spermatozoids might be termed atrophic or dwarfish. Hence form seems no absolute barrier to potency. In regard to sluggish, weak or short-lived spermatozoids it is known to be a fact that disease anywhere in the seminal passages may be responsible for such behavior, but conception may occur in spite of it. It is a question whether spermatozoids so damaged may retain their vitality in the vagina. As regards absolute vitality of these bodies after ejaculation, they have been seen alive and vigorous for 60 hours later, even when produced by the aged. They do not always perish together. The gist of the whole matter seems to be that one cannot with positive certainty connect anomalies of form and motion in the spermatozoids with absolute impotence.

Accidents in Serotherapy.—Jochmann cites very many of these, some of which occur frequently and seem to possess a definite relationship to the reaction, while others are rare and problematic. Among the former are the rashes, which appear in great variety, and may simulate the examthems of infectious diseases. The latter or problematic kind include such phenomena as acute edema of the glottis. Naturally the results of second injections are not included in the primary series. The induced state of anaphylaxis has prompted the question "is serotherapy destined to defeat its own ends?" The author denies the existence of a single fatality from pure serum disease. It is now known that the latter tends to follow the larger doses. But these are necessary to produce curative results in cerebrospinal meningitis, streptococcus disease, etc. A good-sized immunizing dose is more valuable and safe than an extra large curative dose. The future of serotherapy must be bound up in the search for a practicable serum from some animal other than the horse, although the latter must be depended on in part, as for first injections. Anaphylaxis may be prevented in part by using other sera for successive injections. Serum disease may also be prevented to some extent by giving calcium chloride for three days before an injection. About one gram should be given on each of the three days, per os or subcutaneously. The author does not believe this resource to have any power in anaphylaxis. When serum disease has once appeared it must be treated symptomatically. The joint pains of serum disease, Jochmann says, do not yield to salicylic acid.

Recent Statistics Concerning the Warfare Against Tuberculosis.—Prof. B. Fränkel of Berlin devotes a few paragraphs to this subject. The method of collecting results in this connection takes cognizance of a zero stage (stage 0), which corresponds roughly to the pretuberculous stage and may readily be confounded with the "first stage" of common acceptance, unless sharply marked criteria are enforced. In fact, the 0 stage is set down as implying a condition somewhat superior to stage 1. It is of course, possible that under the new procedure many who would not come to consultation are rounded up, hospitalized and discharged cured, along with those who present slight, although manifest, evidences of infection. The death rate among those actually treated for phthisis is still heavy, but has shown a marked falling off. We note no figures as to the ratio of mortality from tuberculosis to the general mortality in the tuberculous years. It used to be an axiom in life insurance circles that a candidate for tuberculosis was relatively shortlived and that if he did not succumb to tuberculosis he would perish of some other affection. The entire movement against tuberculosis is doing good beyond expectations, but we should not grow weary of well-doing, nor should we believe that we have exhausted our resources. What has been done has been well done, but there are evidently reserve resources which have not yet been pressed into service.

Deutsche medizinische Wochenschrift.

October 27, 1910.

Treatment of Morphinism.—Weber warns against confounding the mere effects of morphinism with the degenerative substratum which paves the way for the habit. This is shown chiefly in anomalies of character, as bound up in mental and physical inefficiency. Such individuals may be trusted to pursue a vocation which is essentially tranquil. Prognosis must be guarded if patient is subject to neuralgia, biliary colic, etc. Such ailments should if possible be radically terminated by surgical operation. A successful cure is usually heralded by normal pupillary reaction, return of sleep and appetite, and gain in weight. The mind may, however, exhibit peculiarities for a much longer period, and hence an aftertreatment of from 4 to 6 weeks is advisable, especially as it tends to prevent a sudden relapse. There is a peculiar mental indifference which exists even after restoration of the physical functions. The patient must be made to feel that he is undergoing a new birth, and it is possible that psychoanalysis may be able to remove some lurking inimical influence to a complete regeneration.

Functional Tests of the Pancreas.—Hirschberg concludes that our diagnostic resources in this direction are extremely divergent, according to the nature of the disease actually present, all depending upon whether the gland is wholly or partly destroyed, and whether its secretion is wholly or partly cut off; and finally upon the physiological presuppositions which have been present in the minds of the investigators and which have led to the formulation of the tests. One cannot tell in general whether a given diagnostic resource is more trustworthy than some other. But if one combines the results of all tests one should have made essential progress in pancreatic diagnosis. In order to recognize acute inflammation of the pancreas, Wohlgemuth's test—the increased presence of diastase in the urine—should be of value. We now make a diagnosis by this means *in vivo* where formerly we had to await the autopsy. Next in value to this urinary test come the results of fecal investigation as judged by increase of fat and presence of a tryptic and diastasic action of the feces. Results of an oil breakfast for pancreatic action, the presence of undigested nuclei of meat, etc., and many other tests are mentioned, covering the whole of gastrointestinal digestion. Most striking to note is the complete omission of Cammidge's name.

Lordotic Albuminuria.—Pechowitsch takes up this clinical variety of orthostatic albuminuria, which becomes less in extent when the patient creeps on the floor. It is due entirely to lordosis in the lumbal region, which furnishes a mechanical obstacle to the passage of blood through the renal veins. The creeping exercises, as developed by Klapp, are not only of diagnostic but therapeutic value. The children who suffer from this condition are of a type predisposed to tuberculosis and are asthenics in general. The number of varieties of postural albuminuria is now known to be considerable, and the predominant influence in the production of all the varieties is obstruction of the venous circulation.

Book Reviews.

Fifty Years of Darwinism. Modern Aspects of Evolution. Centennial Addresses in Honor of Charles Darwin. Before the American Association for the Advancement of Science, Baltimore, Friday, January 1, 1909. New York: Henry Holt & Co., 1909.

It is hardly possible for the generation of to-day, for whom the heresies of only a comparatively short time ago have always been articles of faith, to realize the truly stupendous nature of the change in scientific thought and feeling occasioned by the first enunciation of Darwin's doctrines. Some echoes of the battlefield reach our ears when we read such books as "Huxley's Life and Letters," or the remarkable "Father and Son," written by Philip Gosse's son; but of the storm of opposition that greeted the appearance of "The Origin of Species," of the acrimony of the controversies it engendered, of the havoc among the intellectual leaders of the time that this bloodless revolution wrought, we can have but little idea. That more extensive research has sometimes failed to corroborate some of Darwin's dicta, and that it may be necessary to modify his theories in more or less important respects, in no way alter the greatness of his work, the value of which is not only intrinsic, but lies also in the momentum of the tremendous forces of research that he set in motion. In this collection of addresses, commemorating the centenary of Darwin's birth and also the fiftieth year since the appearance of the "Origin," a number of eminent scientists review the evolution of the doctrine during this period and discuss its application in the most varied fields of natural history. The growth of some of the modern conceptions, such as that of De Vries concerning the discontinuity of unit characters, Waagen's mutation, and rectigradations of Osborn, is fully outlined and the possibilities and probabilities of the next half century's research are suggested. It would hardly be possible to produce a more effective summary of the whole doctrine of evolution as at present taught, and the method of discussion adopted by the authors is sufficiently untechnical to be acceptable to any reader of average intelligence. The whole story, from its stormy beginnings to its present era of rapid amplification is one of absorbing interest, quite aside from the fact that familiarity with it is an essential in the mental equipment of every well-educated person, and we know of no better exposition of its essentials than is to be found in the present volume. The writers of the separate addresses are as follows: T. C. Chamberlin, University of Chicago; Edward B. Poulton, Oxford University; John M. Coulter, University of Chicago; David Starr Jordan, Stanford University; Edmund B. Wilson, Columbia University; D. T. MacDougall, Carnegie Institution of Washington; W. E. Castle, Harvard University; Charles B. Davenport, Carnegie Institution of Washington; Carl H. Eigenmann, Indiana University; Henry Fairfield Osborn, Columbia University and American Museum of Natural History; and G. Stanley Hall, Clark University.

Practical Pathology. A Manual for Students and Practitioners. By G. Sims Woodhead, M.A. (Cantab.), M.D. (Edin.), Hon. LL.D. (Toronto), Fellow of the Royal Society, Edinburgh; Professor of Pathology in the University of Cambridge. With two hundred and seventy-five Colored Illustrations. Fourth edition. London: Henry Frowde, Oxford University Press; Hodder & Stoughton, 1910.

It is twenty-five years since the first edition of this well-known book was issued, and yet, so thorough has been the work of rewriting and revision that it appears to-day as one of the most complete and modern manuals we have. The author was a pioneer in writing what was really a *practical* pathology; that is, a treatise in which every step and procedure necessary for the successful study of a given tissue are described in detail as part of the discussion of its pathology, and he has had many imitators, but none of these, certainly, has ever surpassed him in the application of this method of dealing with the subject. While the book is avowedly intended primarily for class-room use, its breadth of scope and unusual richness in technical information make it an invaluable work of reference as well, for both the laboratory and the library. The opening chapter deals with the technique of the post-mortem examination and describes a very satisfactory and systematic method. It might be suggested that the introduction of a few diagrams illustrating the position and direction of the various incisions in exposing the body cavities, opening the heart, etc., would be of great value here, and would make the description of the procedures much easier for the beginner to understand. The following hundred pages comprise an excellent treatise on section cutting, staining methods, etc., in which nearly every method of importance has been incorporated. Somewhat less attention is given to the preparation of frozen sections, however, than present-day practice, in this country at least, would seem to require. The use of compressed carbon dioxide gas in this connection is so great a step in advance as to justify more than the casual reference the author makes to it, and the value of thionin as a stain for frozen sections in rapid diagnostic work is not spoken of at all. In the description of the methods for paraffin embedding the recent carbon disulphide method, certainly the most useful and rapid of all, is not given, and under the celloidin technique Stepanow's very rapid and excellent clove oil method has been omitted. The succeeding chapters on inflammation, organization, and repair, and then on the various organs and systems of the body, are superlatively good. The descriptions are marvellously clear and complete and the unusually careful system of cross-referencing adds greatly to the value of the book. Criticism might be made of the chapter on the organs of generation in the female as being somewhat less full than is desirable, particularly as this is a subject that is usually treated in rather stepmotherly fashion in works in general pathology in spite of its exceedingly great importance; for example, out of two hundred and seventy-five illustrations, six seems rather a small number to allot to this topic. Bacteriology has now assumed such proportions, and is customarily so fully taught as a separate subject, that it might appear wiser to give up the nine pages devoted to it to a more ample discussion of some of the other subjects. The illustrations are unusually beautiful and the author's judgment in selecting for them sections showing lesions commonly seen rather than laboratory curiosities will meet with the approval of all teachers. The mechanical execution of the work is very fine, and only one typographical error has been encountered, a misspelling of "sporozoa" occurring twice on page 740. The author is to be highly congratulated on what is truly a work of remarkable excellence, and the industry with which he has kept it so fully abreast of the times without sacrificing any of its original virtues must command the admiration of all who have ever attempted a similar task.

A Practical Treatise of Organotherapy. By D. M. Ouspensky, M.D. St. Petersburg [Russian text], 1910.

The author of this monograph is an enthusiastic disciple of Brown-Séguard, and has collected a great number of data in reference to the internal secretions of various organs, their preparations for therapeutic use, and the results obtained. Not only such glands as the thyroid, the adrenals, the ovaries, etc., are considered, but also the lungs, the heart, the intestines, the prostate, etc., all of which are supposed to furnish specific secretions, which may prove useful in the treatment of conditions due to a supposed organic or functional deficiency of these structures. The wealth of data contained in the book should make it useful to such students of this phase of therapeutics as are able to read Russian or to obtain correct translations from this perhaps the least widely known European language.

Praktische Winke für die chlorarme Ernährung. Von Prof. Dr. H. Strauss, dirigierender Arzt der inneren Abteilung des Jüdischen Krankenhauses in Berlin. Berlin: Verlag von S. Karger, 1910.

This booklet consists of a number of tables giving the salt-content of various foodstuffs and of numerous "recipes" for the preparation of salt-free dishes. It should prove very useful in making up diets for chronic nephritic and cardiac patients.

Essentials of Laboratory Diagnosis. Designed for students and practitioners by Francis Ashley Faught, M. D. Director of the Laboratory of the Department of Clinical Medicine, and Assistant to the Professor of Clinical Medicine, Medico-Chirurgical College, etc., etc., Philadelphia, Pa. Containing an Indican Scale in Colors, Eight Full-Page Plates and Numerous Engravings in the Text. Second Revised Edition. Philadelphia: F. A. Davis Company, 1910.

In this little volume the author has supplied practically all the information on laboratory work that the general practitioner is likely to require. As its title implies, it contains the essentials (and nothing else) of what relates to clinical laboratory diagnosis. The arrangement of the material is good, the instructions are clear and concise, and all superfluous matter is omitted. The section on blood pressure is particularly valuable; the chapter on serodiagnosis includes the Wasserman and Noguchi reactions.

Society Reports.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held October 24, 1910.

The President, Dr. John E. Weeks, in the Chair.

Nominations.—The nominations of officers, censors, and delegates to be elected at the one hundred and fifth annual meeting (November 28, 1910) preceded the scientific session.

The Relation of Experimental to Human Poliomyelitis.—Dr. Simon Flexner addressed the Society on this subject and said that it seemed to him that the experience of the last three years entirely justified a discussion on the subject of poliomyelitis before such a representative medical body. Many were doubtless familiar with the fact that within this period of time this disease had been introduced into the United States and had widely extended over the country. During the summer just past there were greater numbers of cases of poliomyelitis than had ever been known before and probably a greater number than had occurred in the previous two years during which this epidemic prevailed. The figures available, however, were not complete nor accurate; but from the official figures, as well as from those unofficial, Dr. Flexner thought it was reasonable to state that there occurred as many as 20,000 cases of epidemic poliomyelitis during the past summer in this country. The mortality from this disease varied from five to ten per cent. and the percentage of children crippled was probably 75 per cent. Doctors were not at all adequately informed regarding all the features of the disease, but what was more important was that the doctors were not alive to the fact that epidemic poliomyelitis was a contagious disease. It was not easy to establish in an individual case precisely how the disease was acquired; it was difficult to bring evidence that was at all convincing that this disease was contagious. However, the fact of the contagiousness of poliomyelitis had gradually been spreading. In many quarters the disease had been dealt with by the public authorities as was customary with other established contagious diseases. Such measures, however, were not generally undertaken. In the Greater City of New York not to report these cases he believed to be a flagrant omission. It was desirable that physicians who dealt with this disease should realize that they were dealing with a contagious disease, and also that it could be spread by healthy intermediaries. Since the disease was so terrific in its effects every precaution should be taken in preventing its spread. Three years ago epidemic poliomyelitis appeared on the Atlantic seaboard; this year it had prevailed along the Pacific coast, in Mexico, and had spread over this country to an alarming extent. The disease had been looked upon as something mysterious; they had but little knowledge of its agency and of its pathology. However, since the epidemic of three years ago an opportunity had been afforded for a study of the disease by experimental methods. It had been found that it could be transmitted among the lower animals, but only those that were closely allied to the human species, namely the monkey. A very large number of experiments had been conducted with success upon the lower animals, and particularly upon the so-called lower monkey. It had been found that poliomyelitis could be transmitted to the lower monkey and with regularity. It was necessary to bring the infected material from the human source from the central nervous system and spinal cord in direct relationship with the central nervous system of the monkey. He knew of no disease that was so rapidly reproduced in the monkey as was poliomyelitis, and it probably took in 100 per cent. of the animals inoculated. It resembled the disease which appeared spontaneously in the human being. Monkeys did not spontaneously take the disease, and the question naturally arose why a disease which was so fatal in this species should not occur naturally or spontaneously in that species. This might seem to indicate that the disease was not so contagious as he had suggested. Dr. Flexner called attention to the defenses set up against the infection. There were external as well as internal measures of prevention against microorganisms; when one came to the question of the experimental or artificial protection, he must take into account the natural defenses of the organism against diseases. The virus of epidemic poliomyelitis must come into intimate association with the central nervous system before the disease developed. The experimental study of the disease had established the fact that this particular virus belonged to that class of infectious agents which were described as filtrates, the kind that were beyond the observation of the human eye. At the present time he had a virus which had been under observation since last September, which developed the disease in a severe form, producing death in animals in 90 per cent. of the cases, and this virus had been transmitted in from 38 to 40 generations. Whether the virus belonged to the bacteria or to the protozoa he could not tell. However, it was a living organism; of this there could be no doubt. Epidemic poliomyelitis was a disease infectious in character as well as contagious in nature. The virus could not be seen by the naked eye, and it was not likely that it could ever be seen directly or photographed by the ultra violet rays.

In speaking of the pathogenesis of epidemic poliomyelitis, Dr. Flexner said that the indications were that the virus of this disease did not act directly upon the gray matter of the cord or ganglion cells of the anterior portion of the cord. The paralysis which resulted was not due to the immediate effects or results of destruction of these cells. The disease began as an infection of the meninges, especially in the tissues near the blood-vessels. The paralysis was produced partly by a functional disturbance of innervation, because of an interruption of the blood supply. The vessels became narrowed. What he thought very important to bear in mind in studying the pathogenesis of epidemic poliomyelitis was that the restoration of function occurred so remarkably that one should know that he was not dealing with actually destroyed ganglion cells, but that he was dealing with some functional disturbance. There was no therapy in this disease which could be regarded in any way as specific; the treatment was purely symptomatic. Since there was such a great variation in the appearance of the disease and because there was so much to learn regarding its pathogenesis, it developed upon the laboratory workers to do something which would tend to mitigate the ravages of epidemic poliomyelitis. It had been proven that one attack of the disease when experimentally produced protected against a subsequent inoculation or infection. It was not improbable that one attack of the disease produced a permanent immunity. It was possible to inhibit the disease by inoculation. Up to the present time in their experiments with this disease it was possible by means of a serum secured from an animal recently recovered from the disease to bring about an interruption in the progress of the affection. Experimentally they had been able to control the disease. Dr. Flexner was very hopeful that when the disease was once acquired it might be controlled. He asked that the medical profession become more united in believing in the contagiousness of the disease; much more then could be accomplished toward the elimination of this distressing disease.

Dr. L. Emmett Holt said that even five years ago if anyone had suggested that the disease under discussion was an infectious or a contagious one, it would have been

looked upon as a joke. The opportunity for studying the disease during the past few years had been so great that it was now a settled question that the disease was spread from patient to patient. All were brought face to face continually in practice with the question "What shall we say about the disease?" The public now was wide awake upon this subject, and Dr. Holt recalled a case in which the father made the diagnosis of poliomyelitis when the doctor in attendance had failed to do so. This disease had had an enormous spread during the past four or five years and he urged the necessity of a rigid quarantine in every case. Poliomyelitis promised to become one of the great scourges of the country. There was a hopeful outlook for a specific therapy. The profession generally should be made aware of the great prevalence of the disease and should be constantly on the lookout for these cases. There was but little doubt regarding the nature of the disease, whether it existed epidemically or sporadically; it was the same disease.

Dr. B. Sachs did not believe that this disease was entirely out of the hands of the clinician, and he called attention to the fact that while they owed much regarding the knowledge of its contagiousness to the work of Dr. Flexner, fully fifteen years ago they knew that this disease was infectious, if not contagious. Years ago they also know the seasonal influence on the character of the disease. With regard to the prognosis, Dr. Sachs believed that a great deal could be done particularly if they bore in mind certain observations made in Scandinavia that school houses seemed to play an important rôle in the spread of the disease. Many of the cases could be traced to the school houses. To prevent the spread of the disease, when a case appeared in a child attending school, that school should be closed; in fact, all schools should be closed that were within a radius of that disease. So far as the contagiousness of poliomyelitis was concerned, it was a curious fact that in the hospitals where the cases were not thoroughly isolated, other cases had not appeared. He did not know of one family in which there was one case that infected another member of the family. However, Dr. Sachs thought it was well to maintain a strict rule in regard to the isolation of such patients. It was a mistake, in his opinion, to be frightened regarding this disease; the mortality in Greater New York was not greater than 10 per cent. and probably not more than 5. He was surprised at the large number of mild cases and the large number that ended in complete recovery without any paralysis. He had made a study of the epidemics and he had before no conception that so many people had been affected and recovered without any residue of paralysis. There was no reason for a panic regarding epidemic poliomyelitis. With regard to the treatment, as a matter of fact little could be accomplished by the use of drugs. But everything was to be done by the use of electricity, gymnastic exercises, and massage. The keynote in the therapeutic situation was the exercise of the muscles, actively or passively.

Dr. Israel Strauss said that poliomyelitis was not a very infectious disease when compared with such diseases as scarlet fever and measles; the infections with poliomyelitis fell very low when compared with the epidemics in these other two diseases. The child normally seemed to have a great resistance to the virus of poliomyelitis. The probabilities were that in a few years, rather than increasing, the sporadic form of this scourge would be on the decrease. One thing he thought should be impressed upon all, that was that when a man was called in to see a case of this nature in which there had occurred paralysis, he should at once call in a skilled orthopedist. If any quarantine was needed, it should be a strict one.

Dr. Virgil Gibney said that in 1907 when they realized that they had a terrific epidemic of poliomyelitis to deal with Dr. Flexner was communicated with because they all felt the need of a preventive serum. He was willing to admit that the orthopedic surgeon could do much against the resulting deformities of poliomyelitis. But the cases were not gotten by them until the deformities had occurred as a rule. He emphasized the importance of immobilization; the lower limbs should be completely immobilized from the toes to the free ribs. He said he was panic stricken in the face of these epidemics. The orthopedic surgeon must make rapid strides in work on the disease if he expected to cure the cases, but he must look to the laboratory for prevention. Dr. Gibney thought the best plan during the first ten days of the attack was to immobilize the parts and keep the feet at right angles to the leg. To prevent much deformity, as much counter-irritation as the patient could stand should be employed. Keep the legs and toes extended.

Dr. Le Grand Kerr of Brooklyn (by invitation) said there was no reason in the face of the facts that they had at the present time both from a study as to its epidemicity and the studies from the laboratory why they should sit idly by and allow themselves to be parties to the further spread of this infection. The cases should always be isolated and especially during the acute stage. It was a difficult matter, however, for a doctor to go into a home and insist upon strict isolation when the Department of Health in that city or town took no recognition of the disease and its possible infectiousness or contagiosity. The Department of Health of every city and town should make this a reportable disease. Closing the public schools simply added to the hysteria of the public and made matters worse; such a course, he believed, to be impracticable.

Nitrous Oxide-Oxygen Anesthesia.—Dr. R. C. Coburn read this paper. He said that until recent years the dangers of the anesthetic were considered solely those occurring upon the operating table, but laboratory investigation had established, beyond a doubt, that a percentage of surgical mortality, hitherto considered to be due to the patient's condition, effects of the operation, etc., was sometimes directly due to the effects of the anesthetic, even though death occurred remotely from the time of the operation. Clinical observation had completely corroborated this scientific conclusion. Since the discovery of nitrous oxide-oxygen anesthesia, this agent had slowly, intermittently, but very persistently gained recognition, until to-day it occupied the meritorious position of being endorsed by one of the largest and greatest scientific societies in the world, as being, all effects considered, the best means for producing anesthesia that was known. The prevalent idea that nitrous oxide-oxygen was better adapted for minor surgery and for short operations than for major work was erroneous, for the longer this form of anesthesia was maintained the better it became in every way. The writer had administered it without deleterious effects in several operations lasting three and one-half hours, and in one case for over four hours, the longest period, he believed, wherein this agent had been continuously used. Dr. Frederick Hewitt, the leading authority of Europe on anesthetics, had said that there was no form of anesthesia at present known which was so devoid of danger as that which resulted from nitrous oxide when administered with a sufficient percentage of oxygen to prevent all asphyxial complications. The Anesthesia Commission of the American Medical Association reported at its recent session in St. Louis that "As a routine anesthetic nitrous oxide-oxygen has a peculiar value, and in the hands of highly skilled anesthetists is the best method yet devised." These statements had been corroborated by such surgeons as Crile, Bevan, Beck, Kelley, and Halstead. There was much less surgical shock and postanesthetic nausea and depression with nitrous oxide than with ether or chloroform: the patient regained consciousness

very quickly, and, being less depressed, recovered from the operation sooner and better. The quicker recovery and consequent shorter stay in the hospital counterbalanced the increased cost of the anesthesia. Hamburger and Ewing, in investigating the effects of different kinds of anesthetics upon the blood, found that ether caused the color index to show a rather constant drop, starting immediately after anesthesia and reaching its lowest point on the fifth to the seventh day. This indicated a relative loss of hemoglobin per cell; the volume index likewise showed an immediate loss, which was most marked in 24 hours, and again on the fifth to the seventh day. In nitrous oxide the percentage volume remained unchanged throughout and the only sign of low color index was found immediately after removing the mask and this was entirely absent two hours later. Chloroform produced even more destructive changes in the blood than did ether. These facts in critical cases might be the determining factor in producing a fatal termination. Ether increased the toxemia arising from infection, whereas nitrous oxide exerted no injurious effects upon the leucocytes and consequently did not lower the patient's immunity. In serious cases the difference in recovery was strikingly shown. Ether was an irritant to the respiratory mucous membrane and to the kidneys, whereas nitrous oxide was without deleterious effect upon these tissues; it was, therefore, strongly indicated as the anesthetic agent whenever these structures were involved, no matter what might be the operation. Very sick patients with a rapid pulse and quick shallow respiration actually seemed to be benefited by this form of anesthesia; some such patients would undergo this anesthetic for three-quarters of an hour to an hour and manifest a distinct improvement in the rate and quality of both circulation and respiration, both during and subsequent to the operation. The lessened discomfort to the patient was an added factor in favor of this anesthetic. Before administering nitrous oxide-oxygen it was advisable to use a preliminary hypodermic injection of morphine and atropine about one-half hour before the operation, as this medication aided very materially in securing muscular relaxation. The patient recovered from this anesthesia so quickly that this measure was indicated for the postoperative pain alone. In that class of patients in which it was difficult to overcome muscular rigidity the addition of a very small amount of ether, not sufficient to give the ether after-effects, would secure the necessary relaxation. Used in this way, the speaker said, nitrous oxide-oxygen amply fulfilled the requirements of both minor and major surgery, and produced not only the lightest but also the least toxic general anesthesia yet discovered.

Dr. Joseph E. Lumbard said he was very glad that Dr. Coburn had brought this safe and very valuable anesthesia sequence to the notice of the Society; the medical profession were in the main ignorant of the possibilities and limitations and proper mode of using nitrous oxide with or without oxygen. He said he could not recommend it for a general routine anesthesia, for it would not work well unless ether was added in many cases. In well-selected cases, however, and in the hands of an experienced anesthetist, it was almost ideal; surely it was the safest and pleasantest anesthesia for all parties concerned. For an anesthesia, short or long, where absolute immobility and complete muscular relaxation were not essential, and where there was some special reason for not using ether or chloroform, this anesthesia sequence was well indicated. So far as the simple maintenance of unconsciousness was concerned, this system was practical, but the surgeon usually wanted more; then this sequence would not always meet the requirements. Ether was often used in this sequence, but was seldom mentioned in discussion on the method.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, Held October 17, 1910.

The President, Dr. Reynold Webb Wilcox, in the Chair.

Nasal Diphtheria in Infants.—This paper was by Dr. George Dow Scott, who said that nasal diphtheria was not uncommon, but was often overlooked, and the condition illy diagnosed. The cause was the Klebs-Loeffler bacillus; the predisposing factors, rachitis and malnutrition. Crowded tenement houses, badly ventilated rooms, adenoids, congestion of the epipharynx, articles placed in the nose, and deflected septa aided materially in producing a fertile soil for the bacillus. The absolute diagnosis was possible only by a microscopical examination. Nasal diphtheria, in his experience, was never absolutely of a pure character. Even the simplest forms showed a larger or smaller number of other bacteria. The condition was both primary and secondary, and passed through three stages: a catarrhal rhinitis, a fibrinous rhinitis, and a diphtheritic catarrhal rhinitis. The characteristics of each of these were described. The first, he said, was often overlooked and not treated; passing away in a few days and leaving the mucous membrane sound as before infection. Of the bacilli present in this primary form, the Klebs-Loeffler predominated. In the second stage the membrane disappeared in eight to ten days if untreated (earlier if treated), leaving a moderate diphtheritic catarrh, or the third stage of the disease. The latter might last for weeks, and Fränkel's bacillus, the pneumococcus, the pseudo-diphtheritic, and the staphylococcus or streptococcus might implant themselves upon this fertile soil. The persistency of this stage was undoubtedly due to the implantation of the specific organism of the disease in the accessory sinuses. The infection might extend also through the lachrymal duct, with the effect of closing it and causing an overflow of tears. In infants the cervical adenitis incident to nasal diphtheria rarely terminated in sloughing or abscess. The above classification as to the three stages of the disease Dr. Scott believed to be the best. On the other hand, some authors, as Fränkel, Hoffmann, and Beck, regarded the second stage, that of fibrinous rhinitis, as an independent disease, since few Klebs-Loeffler bacilli were apparently found, and these due to their implantation on the surrounding membranes. Baginsky, however, considered fibrinous rhinitis diphtheritic unless bacterial examination showed this not to be the case, while Bretonneau stated that one or two enlarged glands, combined with redness of the upper lip on the same side as the pathological lesions, were pathognomonic symptoms of nasal diphtheria. The nasal type of diphtheria might be remarkably contagious. Hence the prophylaxis of the patient and his surroundings was almost as necessary as the treatment. Conscientiously done, it meant no further contagion. At the outset an immunizing doze of antitoxin should be given to each member of the family, 500 to 2,000 units as the ages warranted, subcutaneously or by the mouth, and they should be instructed not to mingle with others. Having described the other prophylactic measures required, he said that swab cultures from the nose ought to be taken every three days until no bacilli were found to be present, care being used in pushing the swab gently toward the posterior nares. In speaking of the treatment he said that a nursling should have its regular feedings from the mother, the latter carefully cleansing the nipple immediately after nursing. She should, moreover, receive a larger immunizing dose of antitoxin than other members of the family. In the bottle-fed infant, if the ordinary modification of milk was not taken well, the proteids might be reduced. During the intervals between feedings Dr. Scott gave 1 to 3 drachms of fruit soups or raw pineapple or

orange juice, warmed and slightly sweetened. He was strongly opposed to the use of nasal douches, on the ground that they are liable to carry infected material into the surrounding sinuses. Pledgets of cotton, moistened with warm raw pineapple juice, inserted alternately into both nares, softened and probably digested the crusts, and might be followed with pledgets containing carbolic acid, 2 per cent., or warm sweet oil, hydrogen peroxide, one-quarter strength, or argyrol, 5 per cent. Broths, bouillons, peptonized milk, and wine whey are at times of service. For the prostration, strychnine, caffeine, or camphor might be given, while castor oil, in small but frequent doses, served to relieve constipation. Enough antitoxin should be administered to neutralize the poison and lessen its invasion; the amount required depending on the age of the child, the severity of the intoxication, and the extent of the nasal membrane. It was well never to wait for a bacterial examination in a suspected case, but to give the antitoxin immediately. Fifteen hundred units injected deeply into the buttocks once, and followed by 2,000 units by the mouth, once or twice (after an interval of six hours), usually sufficed. In the second stage he follows up the initial injection with a second, and perhaps a third, at five-hour intervals. As the membrane disappeared, 2,000 units were again given by the mouth once, twice, or three times, as might be required. In Dr. Scott's hands this mouth administration of antitoxin had always worked well. At each visit a study of the condition of the membrane and of the intoxication present is of paramount importance.

Psychotherapy: Its Uses and Abuses.—Dr. Edward D. Fisher said that the various discussions on this subject had attained the purpose of removing much of its mystery, while the many failures in effecting cures had made the public less credulous and rendered those practising this form of therapy less boastful in their claims. We had possibly, therefore, arrived at a time when the chaff could be sifted from the wheat in this field. That there was something of value in psychotherapy should be accepted, because many persons showed by restored mental health that something had wrought a change in them, and because, while many individuals having no knowledge whatever of disease had assumed to treat disease by this method, many others, thoroughly trained in the study and treatment of disease, had seriously employed it. It could readily be seen, however, that such a so-called school of medicine, when it assumed for itself a special entity, apart from the realm of general medicine, instead of remaining only a subsidiary branch of the latter, became a danger to any community by its very specialism, since its practitioners were entirely ignorant of the vast field of scientific medicine. As regards the Emmanuel movement, it was hardly an answer to these objections to contend that the patient must first be examined and passed on by a physician. Practically, when the patient once came under the care of the Emmanuel operator he remained there indefinitely. If there was need of special mental therapy, the physician should be the one to send the patient to the religious adviser; not, however, giving him up as a patient, but treating him from a physical standpoint until in his opinion no further treatment was required. This, in fact, had always been the course pursued by every intelligent physician. It was almost trite to say that only in functional, temporary disturbance of the body was it possible for psychotherapy to have any position as a curative agent, and it was a sad commentary on what we would expect from the advanced general teaching of the present time that we found so many anxious to flock to the exponents of these various schools of irregular methods of cure. The speaker next considered the trained teacher and expositor of psychotherapy as a science founded on psychology; taking up the two methods most prominent in this kind of treatment. Dubois' work on "The Psychic Treatment of Disease" had been of great value to the physician. His method was that of suggestion, and he did not in any way discount medical treatment. Its danger was its positivism. Dubois was opposed to the psychoanalysis plant of Freud. He kept constantly asserting to his patient that his trouble was psychic and therefore curable, and his talk took the form of repeatedly saying, "You will be cured." Freud, in his work "Psychotherapy of Hysteria," maintained that all hysteria is due to a psychic *trauma*, some unhappy experience or shock in the past, or to some immoral act, especially, in his experience, of a sexual nature. He taught that if the patient could be made to reproduce this original trauma, and circumstantially discuss it, the hysterical or nervous symptoms would disappear. Often it was only when the patient was questioned while in the hypnotic state that these memories appeared with the unlimited vividness of first occurrence. In this method of treatment much depended on the physician and the exhaustion and submission of the patient. Education and training, leading to self-control in habits of life and processes of thought or reasoning, had always been the means of making men moral, hopeful, and energetic. What more did suggestion do, and why should it be more effective when urged only on the subconscious self, a lower, automatic part of our consciousness, than when presented to the individual when his higher consciousness was at its full capacity of activity and receptivity? As to there really being such a condition as functional disease, Dr. Fisher expressed the opinion that it was rather a confession of our ignorance as to the etiology and especially the pathology of so-called functional affections. It was the very absence of function of its consciousness which made a hallucination, illusion, or delusion possible. It was a loss of the powers of association and coordination, either in the field of memory itself, its association tracts, or in the highest region of intellectual association or coordination. It was difficult to think of such conditions of mental impairment without a physical change having taken place in these cell areas. How limited, then, was the field of practical psychotherapy! Obsessions of the condemnatory type, delusions of the paranoid type, persistent phobias, which the patent prayed to be delivered from and from which he tried to deliver himself, were supposed to be the especial field in which the psychotherapeutist was eminently successful. That improvement often took place in this class of cases could not be denied, but this might possibly be explained by the attention given to the patient and the evident interest in and desire to help his case. In conclusion the speaker said that psychotherapy seemed an unnecessary and labored process, and one open to much error and fraud, as well as liable to have permanent evil results.

Dr. Smith Ely Jelliffe said that if he were to ask someone how he treated diphtheria or syphilis or tuberculosis, and the reply made was, "by pharmacotherapy," further questions would be necessary in order to find out the particular kind of pharmacotherapy employed in each instance. The same was true in regard to psychotherapy, which was just as diverse as pharmacotherapy in its aims and methods, although, naturally, the variety here was not so great. In psychotherapy to prescribe the same kind of measures in every case would be just as sensible as to treat all kinds of disease with one prescription. Psychotherapy, in plain English, was simply a group term for a large variety of mental modes of treatment. These measures were among the very oldest forms of medical treatment, but, because they were so ancient, it did not follow that distinct advances had not been made in our knowledge of the methods and their various applications. Such drugs as opium and belladonna had been employed for a very long time, yet no one would pretend to say that we did not know more about them than our forefathers. Very little

had been said in reference to the subdivisions of psychotherapy. Psychotherapy was an extremely complex matter. To be able to get at a knowledge of mental facts and the effects of these required an amount of acumen which was scarcely called for in any other department of medicine. The absurdity of the claims of many modern pretenders, various sects of mental healers, etc., was strikingly shown in their attitude toward functional disease, which alone they claimed to be able to treat. Now, the only difference in this connection between organic and functional disease was that in the former the causes and the mode of development were known and could be worked with, whereas the term functional was a confession of ignorance on the part even of those best informed about these very facts. Thus the reasoning reduced itself to absurdity. The mental healers, with no knowledge whatever, stated that they did not pretend to understand those diseases which medical science really knows much about, but, in their simplicity and guilelessness, they pretended to be able to do the much more difficult thing of treating these diseases, the key for the understanding of which medical science, after long research, had not yet been able to find. Glancing at the gross classification of therapeutic measures, we found four prominent methods of treatment: hypnotism, suggestion, reeducation, and psychoanalysis. Hypnotism, it might be stated, applied to primitive minds alone, the type of mind which received everything unconditionally. The operator simply piled mere facts on the mind of the hypnotized subject. As to suggestion, it was not as simple a matter as many supposed. In order to get a mental fact in, one often had to be very careful, and it was necessary to employ what might be called subterranean methods. The Dubois method, the speaker said, he believed to be fundamentally sound. It was a kind of reeducation, and the ways of accomplishing this differed in different classes of patients. Psychoanalysis had a limited yet very important application, and could usually be employed with success only in the case of individuals of a particular kind of mentality. There were some persons, psychoneurotics, who carried about with them, buried down deeply, sore spots in the soul. These buried and incompletely adjusted complexes were not clearly recognized by the individual, and hence they had to be dug out by the various methods of psychoanalysis. The three chief modes of approach to these hidden sources of disturbance were free association, as originally outlined by Freud and now expanded, the system of word association, as elaborated by the Zurich school, and the analysis of dreams, as suggested by Freud. In actual practice we used all three methods, and others in addition. The disentombment of the complex, turning it over to the light of free consciousness, caused its catharsis and cured the patient.

Dr. Graeme M. Hammond said that the question which concerned most physicians was, What has psychotherapy done for medicine? Has it added anything to our ability to shorten the time in treating disease? This method of treatment was nothing new. Long ago Charcot had adopted the practice of pressing a disk of gold on the nape of the patient's neck, afterwards substituting rubber for this. In this procedure he simply made use of the influence of suggestion. There was a good deal in psychotherapy, and one of the first organizations to realize this was the so-called Christian Science Church. Eddyism had been established on the ignorance of doctors. Suggestion had an immense influence in neurasthenic females, and it remained for a woman to make practical use of this. There would be no objection to Christian Science if it were called by its proper name, suggestion. Its success showed that we had at our disposal a means which was very useful in appropriate cases. We now knew more about psychotherapy than formerly. As to Freud's method, it was a fact that everyone liked to talk about his own case, and the mind was relieved by discussing its troubles. The idea of a *trauma* was ridiculous and absurd. These mental diseases were caused by worry, grief, etc. The Weir Mitchell rest cure was itself suggestive therapeutics. Dr. Hammond said that in his own practice he used suggestion constantly. There was no one who was not more or less influenced by suggestion, and certainly no one more powerfully than the neurasthenic. By this means hope could be instilled into the mind of the despairing patient, and the dread from which he had been suffering became dissipated. He was often in a state of fright, fearing some catastrophe, as suicide or the onset of insanity, or believing that he had contracted some incurable disease, such as organic heart trouble. When the actual condition of affairs was explained to him he would get well, his mind being relieved by the removal of his fear and doubt. This was the part which suggestion played, and it was a *bona fide* and efficacious mode of treatment in such cases. We could, however, easily overdo it, and it was therefore essential to treat each patient in accordance with his characteristics. When you had won the intelligence of the patient, and thus secured his confidence, you had accomplished much. When we came to analyze the Freud and the Dubois methods, suggestion and Christian Science, it would be found that they all came down to the same thing, the influence of the physician or operator on the patient's personality.

Dr. George W. Jacoby said that in all scientific questions, and especially medical ones, it was a good plan to stop now and then and, so to speak, take an account of stock. In times long past all psychic trouble was looked upon as a result of moral turpitude, with the effect that the treatment, so-called, consisted in an endeavor to drive out the bad spirits which had taken possession of the sufferer. The advance in the natural sciences then created a complete reversal of ideas. The dualistic conception of the separation of body and soul was overthrown and replaced by the concept of the interdependence of brain and mind. Then science laid special stress upon the dependence of the *psyche* upon the brain, and psychology gave place to a study of brain physiology. With this materialistic conception, our treatment of psychic disturbances naturally also became materialistic, and of late years, he regretted to say, one-sidedly materialistic. Hydrotherapy, electrotherapy, rest cures, and medicinal treatment were carried on with the sole thought of their action upon the anatomical structures of the body. More recently the pendulum had swung backward, and much thought had been given to the psychic action of all our remedies. Psychotherapy to-day rested upon a psychological and physiological basis. This had brought with it much clearness in our concepts and much good to our patients; but the exaggerations of modern psychotherapy were also noticeable. In all psychotherapy the temptation was strong to give attention only to the mental symptoms. This, of course, was wrong, since psychotherapy could and must constitute but one part of our treatment in any given case. Knowing, as we did, that all mental action is quite as dependent upon physical processes as the latter are dependent upon mental action, we could not imagine any psychotherapy *per se*, but only a psychotherapy as a part of the general medical treatment of the individual. To what extremes this error of unilateral bias might lead was shown not only by the vagaries of Schlatterism, Eddyism, and Emmanuelism, but also by the edicts of a Dubois, who absolutely condemned the use of all aperients in chronic constipation and of hypnotics in any form of insomnia. Even not free from exaggeration was the system which of late years had attracted more attention than any other, that of Freud. While his psychological studies were undoubtedly of great scientific value, his method was open to much serious criticism. Thus, in the first place, his peculiar views as to

the origin of obsessions, it being stated by him that almost all have their origin in some sexual act committed in childhood. There could be no doubt that he exaggerated and overestimated this factor, and no doubt that he had by his method sometimes suggested memories of sexual occurrences where no such occurrences had taken place. Furthermore, by his method he produced a state of auto-suggestion, and with it an added hysterical state. The advantages which Freud himself claimed must to the practical man seem doubtful, since the length of time required to effect what he called a cure was from six months to three years, with daily sittings of one or more hours. Now, what he designated as a cure was freeing the patient from his false concepts; but if psychotherapy merely relieved a patient of his false concepts, and could not give him something positive and beneficial to replace them, the method must be looked upon as a failure. Therefore, practically, we had to have adjuvants. Here electricity, hydrotherapy, massage, etc., would have their place; but what we still required most for our patients was work of some kind, occupation, persistent and absorbing. This brought us to the question why psychotherapy might not be carried out by anyone but a physician. There could be no doubt that this, like all other medicinal, surgical, or mechanical therapy, belonged to the physician, and to no one else, not even the clergyman. Any remedy which was health-giving might also be disease-producing; and so it was with suggestion, the basis of all psychotherapy. Much hysteria might have been relieved by suggestion in the hands of clergymen and other unqualified persons, but certainly much hysteria had thereby been produced. The ill effects of any and every remedy could be avoided or relieved only by the schooled physician. In this there was no middle road; so that even the association of physician and clergyman was a partnership which could not be condoned. Having referred briefly to the subject of auto-suggestion, so-called, the speaker said that we must ask ourselves what was to be done in order to protect our patients against the craze of spurious psychotherapy which had taken possession of the public and which quacks and charlatans of all kinds were utilizing to enrich themselves. There was, he thought, but one answer to this question, and that was, the public must be educated, and we are the ones to do it. We were in possession of the proper facts, and we were the ones who should appeal directly to the public by means of popular lectures and books, and who should instruct them in the principles of psychology and give them a knowledge of true psychotherapeutics.

Dr. William M. Leszynsky said that this discussion was timely and valuable, as many members of the profession had an inadequate or erroneous conception of the prevailing views regarding practical psychotherapy. Again, others had given the subject no attention at all, or it received unjust condemnation or adverse criticism. On the other hand, there was an increasing majority who deemed it worthy of careful consideration. The viewpoints of the general practitioner and of the neurologist upon this topic were essentially different, and often more or less antagonistic. Psychotherapy should not be characterized as a method confined to special forms of psychological analysis, persuasion and hypnotic suggestion. Within its sphere we must include isolation, educational methods (physical, moral, and intellectual), healthful occupation and diversion, encouragement, etc. An idea might be pathogenic or therapeutic. According to circumstances it might prove beneficial or malign. One did not always realize the immediate or remote effect upon the patient of some inadvertent or discouraging remark. Many susceptible and sensitive persons were thus unfavorably influenced, and their subsequent brooding was not satisfactorily neutralized by the accompanying prescription. The man who thoughtlessly told his patient there was no hope for him, or implied as much by his manner or remarks, was, to say the least, an undesirable representative of intelligent psychotherapy. Special methods of psychotherapy in nervous diseases, such as the reeducation method of Dubois, Freud's analytic method, and hypnotic suggestion, all had their limited fields of usefulness, and should be selected with careful discrimination. But any form of psychotherapy alone, in the vast majority of instances, could not successfully supplant a rational plan of modern medical treatment adapted to the individual and based upon the regulation of diet, habits and occupation, hydrotherapy, physical exercise, the judicious use of drugs, etc.

As an adjuvant to customary forms of treatment unsystematized psychotherapy was unconsciously or deliberately utilized by all physicians in their daily work; but its practice as a special or exclusive method presupposed special skill and training and was applicable only in suitable cases of hysteria, impulsive or irrepressible ideas, obsessions, hypochondriasis, etc. It required much time, patience, and perseverance, and its successful utilization depended, in a large measure, upon the personal influence of the physician and the receptivity, intelligence, credulity, and faith of the patient. It was more effective and permanent in its result under radical change of environment. In some psychasthenic cases a favorable opinion of the patient's condition, emphatically expressed in writing and presented to the patient, often proved more impressive and beneficial than repeated and, at times, almost interminable verbal assurances and reassurances. A number of his patients, the speaker said, had carried such letters about with them for several years, with the most satisfactory results. However, psychotherapy was by no means a panacea in the psychoneuroses, its usefulness being limited. The recent wave of public opinion, fostered by a superabundance of psychopathic literature, ranging from that based upon sound psychological principles to that of blatant self-advertising, had, naturally, resulted in overestimation and exaggeration of its importance. In an overzealous and, apparently, irrepressible activity in this direction the fundamental element of preliminary diagnosis had often been ignored, to the detriment of the patient and the ridicule of the medical profession. The profession and the public would, in due time, realize that attempts at the indiscriminate use of exclusive psychotherapy by untrained operators would inevitably result in a rapid increase in the ranks of the psychopaths. Whatever form of medical treatment was instituted, were it psychical, physical, or medicinal, it was the prerogative of the educated and specially trained physician, and should not be relegated to others.

Dr. Edward Wallace Lee said that he had studied psychotherapy for the last twenty-five years and he could not sanction it in any way. It might have been of some benefit in certain instances, but in many others it did harm. Foolish people were influenced by the Eddyites, who affected to consider all disease as an "error in human mind." The medical profession could not afford to countenance Christian Science in any way, and it seemed to him that the remarks of one of the speakers in reference to it were calculated to have a bad effect. It was to our shame that we were not in a better position to-day as regards such fraudulent practices. When he had made a correct diagnosis, and then only, the physician was competent to say whether such and such a treatment would prove of benefit or not. The medical profession had a great deal to contend with now, and from a selfish point of view, if for no other consideration, we had a difficult task to maintain ourselves.

The President, Dr. Wilcox, said that the presentation of the subject in these papers, each with its own line of thought, had been an illuminating one. It was noticeable that there was a great diversity of opinion in them, and not one of the four neurologists who had taken part in the

discussion was willing to express his entire confidence in either the Dubois or the Freud method. The case in its various aspects, it might be said, was now before the jury for its verdict; the jury being the great body of general practitioners. He would like to hear from one or more of these. It would appear that the proper field of psychotherapy was an exceedingly limited one and that its practice would be most successful when under the direction and absolute control of the educated physician, while its reputation as a remedial method would suffer from the unwarranted exploitation of its more or less ill-informed lay advocates.

Dr. Fisher, closing, said that the general idea in his paper was to take up the question of psychotherapy and to protest against its employment as a separate entity, a special school of treatment. There was unquestionably in it a great deal that was excellent. The important thing to decide was who should practise it. However much benefit there might be in mental suggestion we should not lose sight of the danger of depending upon that alone, or of the very limited field in which psychotherapy was applicable. There might in any given case be some grave physical condition upon which this kind of treatment could have no effect, and there was presented, therefore, the danger of failing to recognize this until it was too late for treatment of any kind to be of service. In the last twenty years nothing very novel had been promulgated in the department of psychotherapeutics, although we were now better qualified than formerly to discriminate in the matter. Dubois' book was filled with beautiful thoughts and no one could read it appreciatively without an inclination to lead a better life. But in it we did not find any definite line of treatment. There was simply the kind of advice which all of us on occasion would give to some friend in trouble. In Freud's work, on the other hand, there was a definite method of treatment, which any one, after a proper study of the subject, could carry out. But the question arose, Is the Freud treatment, after all, of any real benefit? If we failed to get results from the method in any given instance the disciple of Freud would be sure to say to us, "But you did not treat the case properly." The difficulty about the system was that it was not generally practicable, requiring too much time. Dr. Fisher said his own position was that the practice of psychotherapy should always be associated with proper medical treatment, as commonly understood. He had not taken up the matter of Christian Science because, this being a religious cult and not simply a method of treatment, it involved a wider field than we were now considering. But he did think that we could make use of psychotherapy as an adjuvant to the ordinary forms of treatment, and that we ought by all means to discourage any attempt to establish it as a separate school of therapeutics.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, Held October 13, 1910.

Dr. Eli Long in the Chair.

Report on the Use of Ehrlich-Hata Preparation for the Cure of Syphilis.—Dr. Herbert Budington Wilcox presented a girl, twelve years old, who was first seen at the Bellevue clinic suffering from periostitis and muscle pains of syphilis in November, 1909. After some weeks' treatment in the children's ward she returned to the clinic and was under weekly observation until August, when she developed a keratitis with severe inflammation of the entire eye, considerable hemorrhage, and marked photophobia. Under the usual treatment there had been no improvement at the end of two weeks; then Dr. M. S. Kakels injected 3 decigrams of Ehrlich's 606. In twenty-four hours the evidences of acute inflammation had almost subsided. The photophobia was correspondingly diminished. In the six days following the exudate and hemorrhage were rapidly absorbed and now the cornea was nearly clear. There was considerable pain and swelling at the site of the injection for forty-eight hours. The temperature rose to 101° F. on the second day, and was normal on the fourth day. The urine was examined daily and was negative throughout. There was a leucocytosis of 20,000 on the second day; this dropped to 12,000 on the fourth day. The Wassermann reaction showed a gradual reduction in intensity, being very weak at present. This patient illustrated the remarkable effect of the preparation of Ehrlich's on an acute inflammation due to the syphilitic poison. As illustrative of the action of the drug in clearing up products of inflammation, Dr. Wilcox reported the case of a boy, nine years old, who had a double keratitis which left him with barely light perception. He was sent to Bellevue for treatment. He was given 3 decigrams of Ehrlich's 606 and had no local reaction. The urine remained normal. The temperature rose to 101° F. on the second day. There was a leucocytosis of 15,000 for two days. On each of the six days following the injection there was noticeable lessening of the opacity in both eyes and at the end of ten days he was able to distinguish small objects at a distance of five feet. The first patient gained eight pounds in two weeks following the injection. No record was kept of the weight of the boy.

A Case of Hereditary Syphilis.—Dr. Charles Herrman reported this case. The mother had been injected with Ehrlich's 606. The patient was a baby at the breast and received the supposedly curative substance in the mother's milk. He said that several cases had been treated successfully in this way by German physicians. Thus far, six days after the injection, the patient had not shown any distinct signs of improvement. It was extremely important that cases of hereditary syphilis should have breast milk. It had been suggested that in cases in which the mother was unable to give the breast a syphilitic wet nurse should be injected with 606 and the baby nursed at her breast.

Dr. Alfred F. Hess reported three cases of hereditary syphilis treated with Ehrlich's preparation: in all disagreeable local symptoms developed after the injection into the buttocks. In one instance, a miserable marantic child developed necrosis six weeks after the injection. The children all had temperatures. The syphilitic symptoms disappeared. The injections were made by an experienced man and the solutions were neutralized.

A Case of Congenital Cardiac Disease without Cyanosis.—Dr. F. L. Wachenheim presented a child, six years old. When examined six months ago there were positive signs of an open intraventricular septum and ductus arteriosus, with stenosis of the pulmonary conus. There was a loud murmur over the pulmonary site. In spite of the cardiac lesions there was no cyanosis. The relative frequency of this condition was referred to.

Dr. William P. Northrup said that the question of the noise heard in the child's chest depended upon the relation of the pressure on the two sides and the size of the openings. He made a diagnosis of congenital pulmonary lesion. He said he had made a number of autopsies on these cases and he had verified about eight of them.

Dr. L. E. La Fetra said that at the Vanderbilt Clinic he probably saw one instance every month of these congenital cardiac cases without cyanosis. It should be kept in mind, on the one hand, that marked congenital murmurs with no cyanosis were not at all uncommon; and that, on the other hand, there might be extreme cyanosis and clubbing of the fingers with absolutely no murmur to indicate the congenital heart deformity. In all doubtful cases examination of the blood might be of value since a high

hemoglobin and a red cell count of over five million would indicate congenital heart disease.

A Case of Hysterical Singultus.—Dr. Sara Welt-Kakels presented a girl, twelve and a half years old, who had hysterical singultus lasting four and a half weeks. During the past six months she had occasional hiccough, lasting but a few minutes at a time. Six weeks ago she received a sudden fright and two weeks later her present condition appeared which had persisted. The hiccoughs ceased during the night but started immediately upon awakening. She complained of pain in the epigastrium. The singultus occurred about twenty-four times to the minute and appeared to be worse when she was being examined. In making a differential diagnosis of these cases it was important to remember that persistent singultus occurred in diseases of the gastrointestinal tract and of the peritoneum; it also might depend upon direct lesions of the phrenic nerve. It might occur also in myelitis (cervical portion of the cord). The treatment consisted in rhythmic traction of the tongue, compression of the lower half of the thorax, and insertion of the esophageal tube. Electricity, hydrotherapy, opium, and chloroform were productive of good results. Hysteria was found more frequently in boys during childhood than at a later period of life, and was characterized by the absence of stigmata. The prognosis was better among children than in adults because it was easier to influence the child's mind. The treatment was solely psychic.

Dr. William P. Northrup said he was struck by the suggestion of placing such children in a hospital and recalled the case of a girl who was said to have epilepsy. When she was brought to the hospital she had twenty-seven epileptiform convulsions on the first day and the same number of fits on the second day. She was placed in a ward and her convulsions dropped shortly to twelve a day. After three weeks the number was reduced to six a day and soon ceased entirely. She remained in the hospital three months and the fits did not return. She went home and again the epileptiform convulsions appeared. Here entered the question of the home life. The parents talked about fits before the child. The people smoked and pow-wowed up to midnight when the child was present. At home the attacks kept up. She was returned to the hospital, placed on ward diet and ward regulations with the same effect as before; the epileptiform convulsions ceased. Her seeming entire recovery was the only reason Dr. Northrup gave for thinking these attacks might have been hysterical rather than epileptic.

Purpura Hemorrhagica in a Boy Five Years of Age Successfully Treated with Human Blood Serum.—Dr. Charles Gilmore Kerley reported this case which he had seen in consultation. The family history of the patient was negative. His tonsils and adenoids had been removed six months before his present illness with no more than the usual bleeding. On June 15th he was taken ill and for a week his temperature ranged between 100° and 102° and numerous subcutaneous hemorrhages occurred at various sites over the body, but more particularly on the legs. A large hematoma developed in the abdominal wall and there was some bleeding of the gums. There was also moderate bleeding from the bicuspid tooth. The child was given calcium lactate, three grains every three hours. The hemorrhage from the gums ceased and the subcutaneous hemorrhages began to show signs of absorption. On July 7th there was a hemorrhage from the nose which lasted one hour and on the following day another which lasted five hours and resisted all ordinary efforts at control. The calcium lactate was resumed in ten grain doses every two hours. Normal salt solution was given into the colon by the drop method. The stools consisted largely of coagulated blood. On July 10th a nasal hemorrhage began again and lasted five hours. The child was in an extreme condition and 30 c.c. of human blood serum were injected hypodermically by Dr. Welsh. During the remainder of the day from 45 to 60 c.c. of human blood were injected at two-hour intervals, the entire amount injected being 290 c.c. On July 11th there was a moderate nasal hemorrhage, after which 167 c.c. human blood was injected in three doses. On July 12th there was no visible hemorrhage from any portion of the body. Four hypodermics of human blood serum were administered, the total amount being about 191 c.c. During the following three days three injections of serum were given daily, then two injections were given daily for two days. From this time the child made a slow but steady improvement and eventually a perfect recovery. The hemorrhage, which had continued intermittently for three weeks, ceased within fifteen hours after the first injection of the human serum, and it seemed beyond a possibility of doubt that the serum had saved the life of the child.

Mechanical Injuries (Blows, Falls) of the Head in Infants and Children; the Necessity for Immediate Treatment; What This Should Be.—Dr. H. Illoway said that children fell against tables, chairs, rocks, etc., or were struck upon the head in the course of play; they cried for a while, were often soothed to quietness and soon all was forgotten until sooner or later some one or other of the symptoms of cerebral concussion manifested itself. Though it was true that in a great number of the instances the traumatism had been of a trivial character, so slight that the brain was not at all affected thereby, it was equally true that it was the cause of serious and, not infrequently, fatal disease. It had been said by eminent pediatrists that only traumatisms of such great violence as to cause fracture of the skull were followed by cerebral disease; Dr. Illoway's experience contradicted this statement. No one could tell whether a fall or a blow upon the head would engender cerebral disease; in a certain proportion of such cases such injuries were followed by grave cerebral disease and, therefore, it was the physician's duty to prevent, if possible, the grave consequences. Tumors of the brain and its coverings were not of rare occurrence in childhood. Though it was true that a very large percentage, 50 per cent. according to Read, was said to have been of a tuberculous nature, there still remained a large percentage the etiology of which was as yet in total obscurity. It was not improbable that in many of these cases the first impulse to the development of a growth was a fall upon the head or a blow received in the course of play, an accident quickly forgotten in the rapidly moving life of childhood. In all traumatisms of the head there was, if nothing more, a cerebral concussion. The brain cells might be injured and an inflammatory condition develop with a tendency to pus formation or abnormal cell growth. The treatment that was imperatively indicated was to allay all irritation as quickly as possible and to further the restoration of the injured brain structures to the normal. Any child who had suffered such a traumatism should be kept in bed. Two very important effects of calomel, not clearly set forth in the books of to-day, he called attention to, namely, (1) calomel was a most potent remedy to allay vomiting; (2) it had a decided antiphlogistic action on the brain and its coverings, as well as on the spinal cord. It was, under the circumstances here treated of, the opium of the brain. By means of its antiphlogistic action one could effect what could not be accomplished with bromides and the various hypnotics.

Nitrogen Metabolism in Normal (Artificially Fed) Infants.—Dr. B. Raymond Hoobler read this paper in which he called attention to the fact that metabolism work thus far had been done mostly on sick babies and that until normal metabolism could be defined through the study of a sufficient number of normal infants it was rather dif-

ficult to draw conclusions from the study of abnormal cases. The study presented was a portion of a metabolism problem which involved the determination of the nitrogen, fat, sulphur, magnesium, and calcium in the food, urine and feces covering a nine days' period, divided into three periods of three days each. The child used for the study was a robust infant, nine months of age, who was fed on three different cow's milk mixtures, involving the use of certified whole milk, fat free milk, and 16 per cent. cream, which, when modified, represented a low fat, medium fat, and high fat formula. The child was kept on a definite formula for two days before being put in the frame for three days and was given a ten days' rest between the three-day periods. The urine was collected daily and the total nitrogen, urea, ammonia, and kreatinin determinations were made the same day, and also the tests for acetone, diacetic acid and beta oxybutric acid and total acidity. The feces were also collected in daily quantities except on two occasions when forty-eight-hour specimens were collected. Throughout the experiments the results were compared with those obtained by Keller and by Rubner and Heubner, who were the only other investigators who had published similar experiments—their children being three and seven and one-half months of age, respectively. The subject of the present study gained in weight while those of the other investigators lost, which seems to indicate that the others were underfed. The percentage of fat and proteid used in the present study was as follows: In the first period, called the "low fat" period, the fats were 2.1 and proteid 4.1; in the second period, called "medium fat," fats were 4.0 per cent. and proteids 3.5 per cent.; and in the period called "high fat" the fats were 5.5 per cent. and proteids 3.34. In the "low fat" period the child took 53.1 grams in 24 hours, in the "medium fat" period 44.8 and in the "high fat" period 43.4 grams. The study included the determination of the amount of nitrogen excreted by both the feces and urine during the three periods, both daily and average amounts, and the absorption of nitrogen in percentages and in grams per kilo of weight. The author thought that one case did not warrant any definite conclusions, but he made the following observations. 1. Nitrogen was absorbed exceedingly well by healthy children. 2. The percentage of absorption at varying ages was about the same, even though the intake of nitrogen per kilo differed greatly. 3. Nitrogen absorption was carried on equally well under low, medium, and high fat feeding. 4. The per cent. absorption varied little from day to day. 5. Nitrogen absorption was not affected by a condition of mild acidosis. In regard to retention of nitrogen the author observed: 1. The proportion of food nitrogen which was retained was about one-third. 2. The per cent. retained was about the same for the three ages under discussion. 3. Retention took place in about the same per cent. whether the infant was fed on low, medium, or high fat. 4. Percentage of nitrogen retained remained about the same whether fed on low, medium, or high protein. 5. In high proteid feeding a large amount of nitrogen was absorbed and eliminated, thus causing more work to be performed by the infant than when on a lower proteid feeding. 6. Body weight might diminish on a fair nitrogen retention. In regard to nitrogen elimination it might be observed that: 1. Nitrogen was largely eliminated through the urine. Considerably more than half of the nitrogen ingested was excreted in the urine. 2. A very small quantity was found in the feces. 3. The increasing per cent. of ammonia nitrogen in the urine is an index of acidosis.

Dr. Herbert Budington Wilcox said that the question of nitrogen metabolism was particularly applicable in the use of Finkelstein's Eiweiss-Milch in infant feeding. This had been the routine diet in Bellevue for the last three months. The average child in the ward weighed less than nine pounds and took daily from his food, which contained 2.8 per cent. proteid, about 6 grams nitrogen. Apparently all the nitrogen ingested must be absorbed and excreted. The digestion had no means of avoiding the nitrogen task set it by the diet, and the working over of so large an amount for a considerable space of time must represent a metabolic strain. After from two to three weeks of such feeding every one of these children began to have too frequent and large, although perfectly normal, stools and, at this point, were likely to lose in weight. It was an interesting question how much bearing the excessive nitrogen metabolism had on this intestinal condition; and whether it evidenced an attempt on the part of the body to aid in the elimination of the large amount of nitrogen ingested.

Dr. L. E. La Fetra said that the figures presented were very interesting and there were two practical conclusions which might be drawn from even this single case which Dr. Hoobler had so thoroughly worked out. In the first place he would emphasize that while the nitrogen feeding had its advantages it had also certain disadvantages. For instance in cases of diarrhea the use of Eiweiss Milch, as indeed of fat-free buttermilk, permitted giving food much earlier and food of a higher caloric value than had been found possible heretofore. This treatment prevented the severe loss of weight in such cases. On the other hand there was the disadvantage of high proteid feeding that so little of the increased nitrogen was retained, only about one-third in the case of cow's milk preparations. This was in great contrast to the much larger quantity retained when breast milk was given. The retention of so little nitrogen meant that high proteid feeding necessitated a great amount of work on the part of the organism to eliminate the two-thirds of the increased nitrogen, a process which was presumably a strain on the metabolic energy of the child. If breast milk was given, of course very much less nitrogen elimination would be necessary. Notwithstanding that breast milk had a lower proteid than cow's milk, it was necessary, on account of the smaller retention of nitrogen in artificial feeding, to use a higher quantity of protcid; but extremely high proteid undoubtedly placed a strain on the organism. The second conclusion to be drawn from the tables was that there was danger of acidosis from the use of high fats. Notwithstanding that the patient showed no nervous symptoms, the urine contained evidences of acidosis, and therefore the child was in danger of a nervous explosion. This must always be remembered when high fats were prescribed.

Dr. Henry Dwight Chapin said that he had often observed the diarrheal stools to improve in character, but the babies did not seem to gain in weight on the Finkelstein feeding. One should give the babies a high proteid diet, but apparently this did no good for they could not take care of it.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Virginia State Board of Medical Examiners.

June, 1910.

ANATOMY.

1. Describe the spine and give the general characters of vertebra.
2. Name and describe the muscles of the orbit.
3. Name the branches of the axillary artery and give its relation in its third portion.
4. What is the lymphatic system? Describe the thoracic and right lymphatic ducts.
5. Name the nine regions into which the abdomen is divided, giving their boundaries and contents.
6. Describe the superior radio-ulnar articulation.

HISTOLOGY.

1. (*a*) Name the elementary tissues of the body and give the morphological constituents of each. (*b*) Describe a cell.

2. Name the varieties of muscle tissue and give general distribution of each variety.

3. Give the two principal component parts of the nervous system. Briefly describe and give function of each.

4. Give the histological structure of the stomach.

EMBRYOLOGY.

1. What relation do the Wolffian ducts and the ducts of Muller bear to the sex of the fetus?

2. What is the difference between the human ovum and the ovum of the fowl as regards the nourishment of the embryo?

PHYSIOLOGY.

1. Give distribution and chief functions of vagus.

2. What is meant by an afferent impulse; an efferent impulse; by reflex act?

3. Give names and locations of the three salivary glands, with the manner of communicating with the mouth.

4. What part does saliva play in digestion?

5. Give composition of bile and its function in digestion.

6. What channels does the blood pass through in the systemic circulation, from leaving the heart till return to same? What changes take place in blood in each channel?

7. Describe the pulmonary circulation, giving changes in blood in same.

8. What is the lymphatic system?

9. How is heat dissipated from the body?

10. What organs eliminate soluble systemic poisons from the body?

CHEMISTRY.

1. Give preparation, properties, and uses of N_2O.

2. Give preparation, properties, and uses of (1) chloroform, (2) iodoform.

3. Name salts of K, and give preparation and medical uses of any two.

4. Give preparation of (1) ether, (2) chloral hydrate.

5. What is the periodic law?

6. Name three organic acids, and give description of two compounds of such acids used in medicine.

7. Name three sorts of sugars.

8. What changes occur in sugar solutions exposed to air?

9. What are the ordinary chemical substances used to produce soap?

10. Name four vegetable active principles used in medicine.

11. Name three mineral acids, with formula for any two.

12. Name following, any two:

(1) $C_2H_4O_2$ (3) $KMnO_4$ (5) C_6H_6O
(2) C_2H_2 (4) $Ca(ClO_3)_2$ (6) HNO_3

MATERIA MEDICA.

1. Define the following terms, giving an example of each: Alteratives, narcotics, diuretics, emmenagogues, mydriatics.

2. Define and classify anesthetics, naming the more prominent of each class, and state which you regard the safest general anesthetic, giving the main reason why you so regard it.

3. Give doses of the following: Hydrochloric acid dilute, hydrocyanic acid dilute, oxalate of cerium, chloral hydrate, codeine sulphate, creosote, strychnia sulphate, tincture strophanthus, and atropia sulphate.

4. Give sources from which cinchona is obtained and mention its main salt and alkaloid.

5. From what is the alkaloid hyoscine obtained, what is the dose and how best administered?

6. Classify astringents, with reference to the sources from which they are obtained and give one or more examples of each class.

7. Name several leading antipyretics and state in general how they reduce temperature.

THERAPEUTICS.

1. Give modes of administering drugs, and a good rule for dosage to children.

2. Give four general indications for diuretics.

3. What three ill effects sometimes develop during administration of digitalis, and what is its best substitute?

4. Write a prescription for four doses, containing four drugs, having active cholagogue properties.

5. Give indications and contraindications for use of ergot.

6. What are the general indications in the treatment of poisoning by drugs?

7. Give symptoms and treatment for poisoning by carbolic acid.

8. Differentiate the coma resulting from opium, uremia and alcohol.

THEORY AND PRACTICE OF MEDICINE.

1. Give treatment and management, in general, of typhoid patient, during and immediately following profuse intestinal hemorrhage.

2. Give period of incubation and symptoms of smallpox.

3. Differentiate lobar from bronchopneumonia.

4. Give symptoms of acute uremia.

5. Give gross pathology of hypertrophic cirrhosis of liver.

6. Give treatment of acute nephritis.

7. Define (*a*) hydronephrosis; (*b*) empyema; (*c*) chlorosis; (*d*) Graves' disease; (*e*) sciatica.

8. Name the important complaints of acute articular rheumatism.

9. Name five important symptoms of tabes.

10. Give causes of arteriosclerosis.

OBSTETRICS AND PEDIATRICS.

1. Give relative diameters of inlet and outlet of the true pelvis and fetal skull.

2. Give preparation of patient, solutions, dressings, room and bed during labor.

3. Describe an up-to-date obstetrical bag and its contents.

4. Technique of applying and delivering by forceps a R. O. P. position, the head being through the cervix, but not on the perineum.

5. Course and treatment of (*a*) primary uterine inertia; (*b*) secondary uterine inertia.

6. Causes, symptoms and treatment of phlegmasia alba dolens.

7. Diagnosis and treatment of early hereditary syphilis in infants.

8. Give the handling and care of cow's milk in order to be able to dispense with pasteurization of the same for infant feeding during the summer months.

9. Give clinical manifestations of acute infantile paralysis.

10. Give causes and treatment of acute ileocolitis.

SURGERY.

1. What is surgical shock? How managed?

2. What is the difference between an acute abscess and a purulent infiltration?

3. Describe the appearance, symptoms, and management of a syphilitic leg-ulcer.

4. Differentiate fractures and dislocations.

5. To what are hemorrhoids due? How many forms, and how treated?

6. Differentiate an incarcerated from a strangulated hernia. What other conditions may be mistaken for them?

7. Give detailed description of an amputation at midforearm. Include technique (preparatory and operative), describe each step in regular order, until dressing is complete.

GYNECOLOGY.

1. What conditions may produce leucorrhea?

2. To what may dysmenorrhea be due, and how best remedied?

3. To what symptoms would a medium perineal laceration give rise?

4. Differentiate pregnancy, retained menses, and uterine fibroid.

5. What are the evidences and manifestations of approaching puberty?

PATHOLOGY AND BACTERIOLOGY.

1. Define the terms thrombus and embolus, giving the causes and results of each.

2. Explain the occurrence of the metastatic abscesses characteristic of certain infectious diseases.

3. Name the diseases in which intestinal ulceration is an essential feature. Name the portion (or portions) of the intestinal tract in which the ulceration is found in each of these diseases.

4. Describe the phenomena, or signs, of inflammation, illustrating the subject by describing the formation of a common boil (furuncle).

5. Name the variety of degeneration termed cloudy swelling. Name the class of diseases in which it commonly occurs.

6. Name the class of tumors under which the carcinomata are grouped histologically. Name the subvarieties of carcinomata.

7. Give the bacteriology of erysipelas, syphilis, puerperal infections, and basilar meningitis.

8. Explain the mode of infection in the malarial fevers, typhoid fever, tuberculosis, and tetanus.

9. Define the term protozoa. Name two pathogenic protozoa and the disease which each causes.

10. Give a typical example of an obligate parasite, and of a facultative parasite. Does the colon bacillus ever become parasite in nature?

MEDICAL JURISPRUDENCE.

1. Name six signs of death.

2. How soon after death does rigor mortis set in, and to what is it due?

3. How can you determine that a body has been burned during life or after death?

4. What is infanticide?

5. Define illusion.

TOXICOLOGY.

1. What is the first thing you would do in being called to a case of poisoning?

2. Name two reliable emetics with dosage.

3. Give the best general antidote for (*a*) arsenical preparations; (*b*) mineral acids.

4. Give symptoms of acute phosphorus poisoning.

5. Give treatment of carbonic acid gas poisoning.

HYGIENE AND PREVENTIVE MEDICINE.

1. How does standing water purify itself?

2. Give an efficient method of rendering river water suitable for town consumption.

3. In the disposal of sewage, which is the more effective: the intermittent or the continuous flow, and why?

4. Give a cheap and effective formula for disinfecting privies and water closets.

5. How would you manage an epidemic of scarlet fever, and how would you disinfect clothing and rooms?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

VIRGINIA STATE BOARD OF MEDICAL EXAMINERS.

June, 1910.

ANATOMY.

1. For *Spine*, see Cunningham's "Anatomy" (1909), page 88; or Gray's "Anatomy" (1908), page 67. The *general characters of a vertebre* are: Body or centrum, arch, two pedicles, two laminæ, four articular processes, two transverse processes, and one spinal process.

2. See Cunningham's "Anatomy" (1909), page 399; or Gray's "Anatomy (1908), page 374.

3. The *branches of the axillary artery* are: Superior thoracic, acromial thoracic, long thoracic, alar thoracic, subscapular, anterior circumflex, and posterior circumflex. *Relations of third part of axillary artery: In front:* Skin, fascia, pectoralis major, and inner head of median nerve. *Behind:* Subscapularis, latissimus dorsi, teres major, circumflex and musculospiral nerves. *Outer side:* Median and musculocutaneous nerves and coracobrachialis. *Inner side:* Axillary vein, ulnar nerve, and lesser internal cutaneous nerve.

4. See Cunningham's "Anatomy" (1909), pages 904 and 906; or Gray's "Anatomy" (1908), pages 772 and 775.

5. The regions of the abdomen and their contents are shown in the following table. It is to be remembered that the contents will vary according to the position of the lines drawn; these are arbitrary, and nearly every writer differs from every other. In the following table the superior horizontal line extends between the cartilaginous ends of the tenth ribs, the inferior between the anterior superior iliac spines. The vertical lines pass upward from the iliopectineal eminences, at right angles to the upper horizontal line.

The viscera situated in each region are as follows:

RIGHT HYPOCHONDRIAC.	EPIGASTRIC.	LEFT HYPOCHONDRIAC.
Liver.	Liver.	Stomach.
Right Kidney.	Stomach.	Spleen.
Hepatic flexure of the colon.	Gall-bladder.	Left kidney.
	Duodenum.	Splenic flexure of the colon.
	Pancreas.	
RIGHT LUMBAR.	UMBILICAL.	LEFT LUMBAR.
Right kidney.	Transverse colon.	Small part of left kidney.
Ascending colon.	Duodenum and small intestines.	Descending colon.
Ileum.	Great omentum.	Small intestines.
RIGHT ILIAC.	HYPOGASTRIC.	LEFT ILIAC.
Cetum.	Small intestines.	Sigmoid colon.
Appendix.	Bladder in children.	Small intestines.
Last coil of ileum.	Distended bladder in adults.	
	Pregnant uterus.	
	Sigmoid colon.	

6. See Cunningham's "Anatomy" (1909), page 281; or Gray's "Anatomy" (1908), page 316.

HISTOLOGY.

1. The *elementary tissues of the body* are: Epithelial, connective, muscle, and nerve. They are all made up of cells and intercellular substance.

A typical cell is the ultimate element of structure; it enters into the formation of all tissues. It consists of a tiny mass of protoplasm, and contains a nucleus and an attraction sphere, but as a rule no cell wall. Cells vary in shape and size (from about 1-3000 to 1-300 of an inch in diameter), and are characterized by power of movement, assimilation, growth, excretion, and reproduction.

2. *Varieties of muscle tissue:* (1) Voluntary striated muscle; (2) involuntary, non-striated muscle; (3) involuntary striated or cardiac muscle. (1) is found in skeletal muscles, pharynx, diaphragm, larynx, external ear and eye. (2) is found in the alimentary tract, trachea, bronchi, arteries, ureter, bladder, uterus. (3) is found in the heart.

3. See Cunningham's "Anatomy" (1909), page 443; or Gray's "Anatomy" (1908), page 815.

4. See Cunningham's "Anatomy" (1909), page 1058; or Gray's "Anatomy" (1908), page 1281.

EMBRYOLOGY.

1. At an early stage the fetus contains an indifferent sexual gland, together with duct of Muller and the Wolffian duct. Later the gland becomes either testis or ovary; and in the male, the duct of Muller atrophies, and disappears (except at its extremities); while in the female the Wolffian duct atrophies or degenerates.

2. In the *human ovum* the protoplasm and deutoplasm are uniformly distributed; in the *ovum of the fowl* the deutoplasm accumulates to one side of the ovum.

PHYSIOLOGY.

1. *Distribution of vagus:* To dura, external ear, pharynx, larynx, heart, lungs, esophagus, and stomach. *Functions:* "Throughout its whole course the vagus contains both sensory and motor fibers. To summarize the many functions of this nerve . . . it may be said that it supplies (1) *motor* influence to the pharynx and esophagus, stomach, and intestines, to the larynx, trachea, bronchi, and lungs: (2) *sensory* and, in part, (3) *vasomotor* influence, to the same regions; (4) *inhibitory* influence to the *heart;* (5) *inhibitory* afferent impulses to the *vasomotor center;* (6) *excito-secretory* to the salivary glands; (7) *excito-motor* in coughing, vomiting, etc." (Kirkes' *Physiology.*)

2. An *efferent impulse* is one that is conveyed away from the nerve centers; an *affrent impulse* is one that is conveyed toward the nerve centers. A *reflex act* is an involuntary or unconscious act due to a suitable stimulus. It depends upon the integrity of the *reflex arc,* which is a complex made up of (1) A surface capable of receiving an impression; (2) an efferent nerve; (3) a nerve cell capable of receiving and also of sending out impulses; (4) an efferent nerve, and (5) a surface capable of responding in some way to the impulse conveyed by the efferent nerve.

3. *Parotid gland* is situated on the side of the face below and in front of the ear; it communicates with the mouth by Stenson's duct. *Submaxillary gland* is situated below the mandible, in the submaxillary triangle; it communicates with the mouth by Wharton's duct. *Sublingual gland* is in the floor of the mouth, at the side of the frenum of the tongue; it communicates with the mouth by the ducts of Rivinus.

4. Saliva by the ptyalin, aids in digestion of starches; the ptyalin converts them into dextrin and sugar.

5. *Bile* is composed of water and solids; these latter are sodium glycocholate, sodium taurocholate, mucin and pigments, cholesterin, lecithin, fats, salts (both soluble and insoluble).

The *functions of the bile* are: (1) To assist in the emulsification and saponification of fats; (2) to aid in the absorption of fats; (3) to stimulate the cells of the intestine to increased secretory activity, and so promote peristalsis; and at the same time tend to keep the feces moist; (4) to eliminate waste products of metabolism, such as lecithin and cholesterin; (5) it has a slight action in

converting starch into sugar; (6) it neutralizes the acid chyme from the stomach, and thus inhibits peptic digestion; (7) it has a very feeble antiseptic action.

6. The blood passes through arteries, capillaries and veins. The changes occur in the capillaries, where the blood gives up nourishing material to the tissues and receives from them waste matter; in this way the blood is changed in character from arterial to venous.

7. For pulmonary circulation, see Cunningham's "Anatomy" (1909), page 991; or Gray's "Anatomy" (1908), page 1404.

(*b*) In its passage through the lungs, the blood in the pulmonary artery: (1) becomes cooled; 2; becomes a brighter red color; (3) gains oxygen (about 10 or 12 volumes); (4) loses carbon dioxide (about 7 volumes).

8. See above, ANATOMY, question 4.

9. *Heat is given off from the body* by: (1) The skin, through evaporation, radiation, and conduction; (2) the expired air; (3) the excretions—urine and feces.

10. The liver, lungs, kidneys, skin, and intestines.

CHEMISTRY.

1. PREPARATION OF N_2O. By heating ammonium nitrate: $NH_4NO_3 + \text{heat} = 2H_2O + N_2O$.

Properties: It is a colorless, odorless gas, with a sweetish taste, heavier than air, slightly soluble in water, is a supporter of combustion. It has (when inhaled) anesthetic properties. *Uses:* As an anesthetic, chiefly for short operations.

2. CHLOROFORM. *Preparation:* By heating chloral hydrate with potassium hydroxide: $C_2HCl_3(OH)_2 + KOH = HCOOK + H_2O + CHCl_3$.

Properties: It is a colorless, volatile liquid, with a sweetish taste and a strong, peculiar odor. It is a good solvent for many substances not soluble in water. *Uses:* As an anesthetic and a solvent.

IODOFORM. *Preparation:* By heating alcohol, iodine, and potassium bicarbonate: $C_2H_5OH + 2I_2 + 2KHCO_3 = 2KI + 3H_2O + 2CO_2 + 2CHI_3$.

Properties: A yellow, crystalline solid with a peculiar penetrating odor; insoluble in water. It contains nearly 97 per cent of iodine. *Uses:* Treatment of wounds, sores, and ulcers; as a surgical dressing.

3. *Salts of K:* Chloride, bromide, iodide, nitrate, hypochlorite, chlorate, sulphates, dichromate, permanganate, acetate, carbonates, oxalate, tartrates, cyanide, ferrocyanide, ferricyanide:

POTASSIUM IODIDE is *made* by dissolving iodine in solution of potassium hydroxide. $3I_2 + 6KOH = KIO_3 + 3H_2O + 5KI$.

Medical uses: In syphilis, rheumatism, pleurisy, synovitis, arteriosclerosis, nephritis, lead and mercury poisoning, goiter.

POTASSIUM ACETATE is *made* by treating acetic acid with potassium carbonate: $2C_2H_4O_2 + K_2CO_3 = CO_2 + H_2O + 2KC_2H_3O_2$.

Medical uses: As a diuretic, diaphoretic, in rheumatism, gravel, irritation of the urinary tract, and in fevers generally.

4. *Ether* is prepared by the action of sulphuric acid on alcohol:

$C_2H_5OH + H_2SO_4 = H_2O + C_2H_5HSO_4$

$C_2H_5HSO_4 + C_2H_5OH = H_2SO_4 + (C_2H_5)_2O$.

Chloral hydrate is prepared by the action of water on chloral: $CCl_3CHO + H_2O = CCl_3CH(OH)_2$.

5. The periodic law of Mendelejeff states that "The properties of elements, the constitution of their compounds, and the properties of these latter are periodic functions of the atomic weights of the elements."

6. *Three organic acids:* Oxalic, tartaric, and citric acids.

Cerium oxalate is a white granular powder, odorless and tasteless, insoluble in water.

Lithium citrate is an odorless, white powder or colorless crystalline substance, deliquescent.

7. *Three sorts of sugars:* Monosaccharids, disaccharids, and trisaccharids.

8. Fermentation occurs.

9. Soaps are generally the sodium, or potassium salt of oleic, palmitic, or stearic acid.

10. Strychnine, morphine, aconitine, and digitalin.

11. Hydrochloric acid, HCl; sulphuric acid H_2SO_4; nitric acid, HNO_3.

12. (1) Acetic acid; (2) acetylene; (3) potassium permanganate; (4) calcium chlorate; (5) phenol; (6) nitric acid.

MATERIA MEDICA.

1. *Alteratives* are substances which in some unknown way modify the course of disease; *Ex.* mercury.

Narcotics are agents which produce, or tend to produce, deep sleep, and to relieve pain; *Ex.* opium.

Diuretics are agents which promote the secretion of urine; *Ex.* alcohol.

Emmenagogues are agents which promote the menstrual flow; *Ex.* apiol.

Mydriatics are agents which cause the pupil of the eye to dilate; *Ex.* atropine.

2. *Anesthetics* are agents which temporarily abolish sensation. *Local anesthesia* is the condition in which there is loss of sensibility of the tissues over a limited area, due to the application of certain agents, such as cold, ethylene chloride, ether, cocaine, eucaine, or the infiltration of water, or a solution of salt, or of salt, cocaine, and morphine. *General anesthesia* is a condition in which there is unconsciousness as well as abolition of sensation; it may be induced by the inhalation of ether, chloroform, nitrous oxide gas, chloride of ethyl, or a combination of certain of these agents. The safest general anesthetic is nitrous oxide; the mortality with this anesthetic is very much less than that with the other general anesthetics.

3. Dilute hydrochloric acid, ♏x-xx; dilute hydrocyanic acid, ♏ij-v; oxalate of cerium, gr. v; chloral hydrate, gr. x-xv; codeine sulphate, gr. j; creosote, ♏j-iij; strychnine sulphate, gr. 1/40; tincture strophanthus, ♏v; atropine sulphate, gr. 1/80.

4. Cinchona is obtained from several varieties of cinchona tree (cinchona calisaya, ledgeriana, officinalis, succirubra, condaminea, pitayensis, micrantha). Its main alkaloid is quinine; its chief salt the sulphate.

5. Hyoscine is an alkaloid of hyoscyamus; the dose of hyoscine hydrobromide is gr. 1/125; best given hypodermically.

6. *Astringents are:* (1) *Vegetable* (as tannic acid, catechu, rhus glabra); and (2) *Mineral* (as alum, lead, silver nitrate).

7. The following table (from Potter's "Materia Medica") gives the chief antipyretics with their manner of action. Temperature depression may be done by five different actions working upon two principal lines, viz., by—

(*a*) *Lessening heat production, by*
- (1) diminishing tissue change.
- (2) reducing the circulation.

(*b*) *Promoting heat loss, by*
- (3) dilating cutaneous vessels, thus increasing heat radiation.
- (4) promoting perspiration—its evaporation lowering the temperature.
- (5) abstracting heat from the body.

The following list of antipyretics includes a few for each of the above-named actions, to which the numbers refer in each case, viz.:

Quinine, 1.	Aconite, 2.	Antipyrin, 1, 4.
Phenol, 1.	Alcohol, 1, 3.	Antimony, 2, 4.
Salicin, 1.	Nitrous ether, 3, 4.	Cold bath, 5.
Digitalis, 2.	Acetanilid, 1, 4.	Cold drinks, 5.
	Phenacetin, 1, 4.	Wet-pack, 5.

THERAPEUTICS.

1. *Medicine can be administered:* (1) By the mouth; (2) by the rectum; (3) by inhalation; (4) by inunction; (5) hypodermically; (6) by intravenous injection; (7) by fumigation; (8) by cataphoresis.

To determine the proper dosage for a child: Let $x =$ the age of a patient; then $\frac{x}{x+12} =$ the fraction of the adult dose which the patient should receive. Thus, a patient of four years old should receive $\frac{4}{4+12} = \frac{4}{16} = \frac{1}{4}$ of an adult dose.

2. Diuretics are employed: (1) To remove excess of fluid from the tissues, as in dropsy; (2) to dilute the urine; (3) to promote the elimination of waste products or poisonous material from the blood, and (4) to maintain the action of the kidneys.

3. *Three ill effects:* Nausea, indigestion, and syncope. The best substitute is strophanthus.

4. ℞ Extracti colocynthidis, gr. j.
Hydrargyri chloridi mitis, gr. viij.
Jalapæ resinæ, gr. iv.
Extracti colchici, gr. ij. Misce.
Fiat massa in pilulas no. iv. dividenda.
Signa: Take one at bedtime.

5. ERGOT. *Indications:*—To promote uterine contractions during third stage of labor; fibroids, menorrhagia,

post-partum hemorrhage. Some forms of amenorrhea and dysmenorrhea, dysentery, arterial hemorrhage, congestive headaches, laxity of sphincters of bladder or rectum, hemorrhoids, aneurysm, diabetes, urinary incontinence, direct paralysis of the sphincter vesicæ, atonic spermatorrhea.

Contraindications:—In labor if the birth canal is not free, and the os uteri is not dilated.

6. *General principles of treatment in poisoning:* "(1) Lose no time. (2) Use the best remedy obtainable at once. (3) Get rid of the poison. (4) Stop its action. (5) Remedy the mischief already done. (6) Fight against the tendency to death (Tanner). In the treatment of poisoning, whether by mineral or vegetable substances, if the poison is known the first indication is to administer the proper chemical *antidote*, so as to render it harmless or comparatively so. Next, the stomach should be emptied and washed out, lest the newly formed compound be absorbed after a time, also to remove any poison which may have escaped the action of the antidote. Next, the appropriate *antagonist* should be administered to counteract the effects of such portion of the poison as may have been absorbed. Lastly, such *antagonistic measures* should be employed as may sustain the action of any organic function showing signs of failure. In most cases of alkaloid poisoning absorption has proceeded so far before professional assistance is obtained that antidotes are of no value, hence reliance can be placed only upon the physiological antagonist and such supporting measures as will tend to maintain vitality until the poison can be eliminated by the natural channels."—(Potter's *Materia Medica*, etc.)

7. *Symptoms of carbolic acid poisoning:* Buccal mucous membrane is whitened and hardened; vomiting; burning pain in mouth, esophagus, and stomach; pulse and body temperature are lowered; the pupils are contracted; collapse, and finally death. The urine may become dark.

The *treatment* consists in administering white of egg, sodium sulphate, or saccharated lime, followed by lavage. Alcohol is said to be antidotal.

UREMIC COMA.	ALCOHOLIC COMA.	OPIUM POISONING.
Deep coma. Slow onset unless convulsions have preceded the coma.	Can be aroused by supraorbital pressure unless very profound.	Can be aroused unless very deep.
Albuminuric retinitis.	Pupils normal or somewhat dilated.	Pupils contracted to pinpoint size.
Pulse rapid.	Pulse more rapid than normal and full.	Pulse rapid, may be irregular.
Respiration frequent and irregular.	Regular respiration.	Respiration very slow—may be 6 to 8 per minute.
Urine shows albumin, casts, and low urea percentage.	Normal.	Normal.

—(From Eisendrath's *Surgical Diagnosis.*)

THEORY AND PRACTICE OF MEDICINE.

1. See French's "Practice of Medicine" (1907), page 117; or Osler's "Practice of Medicine" (1909), page 103.

2. See French's "Practice of Medicine" (1907), page 301; or Osler's "Practice of Medicine" (1909), page 115.

3.

LOBAR PNEUMONIA	BRONCHOPNEUMONIA
Generally a primary disease.	Generally secondary (to bronchitis or an infectious disease).
Age has little influence.	Generally found in very young or very old.
Sudden onset.	Gradual onset.
Fever is high and regular.	Fever is not so high, and is irregular.
Ends by crisis between sixth and tenth day.	Ends by lysis, at no particular date.
Generally only one lung affected.	Generally both lungs affected.
The physical signs are distinct, and there is a large area of consolidation.	Physical signs indistinct, and the evidences of consolidation are indefinite.
Sputum is rusty.	Sputum is rather streaked with blood.

4. See French's "Practice of Medicine" (1907), page 888; or Osler's "Practice of Medicine" (1909), page 683.

5. See French's "Practice of Medicine" (1907), page 831; or Osler's "Practice of Medicine" (1909), page 501.

6. See French's "Practice of Medicine" (1907), page 895; or Osler's "Practice of Medicine" (1909), page 600.

7. See French's "Practice of Medicine" (1907), pages 513, 547, 909, and 996; or Osler's "Practice of Medicine" (1909), pages 707, 721, 765, and 1039.

Empyema is a collection of pus in the pleural cavity.

8. See French's "Practice of Medicine" (1907, page 226; or Osler's "Practice of Medicine" (1909), page 223.

9. *Five important symptoms of tabes:* Loss of patellar reflex, lightning pains, Argyll-Robertson pupil, incoordination, and loss of muscular sense.

10. See French's "Practice of Medicine" (1907), page 623; or Osler's "Practice of Medicine" (1909), page 848.

OBSTETRICS AND PEDIATRICS.

1. The pelvic diameters:

	Antero-posterior.	Oblique.	Transverse.
Inlet	4 inches.	4½ inches.	5 inches.
Outlet	5 inches.	4½ inches.	4 inches.

The fetal head has the following diameters: Occipito-frontal, occipito-mental, bitemporal, biparietal, suboccipito-bregmatic, trachelo-bregmatic, and mento-bregmatic. Of these, the occipito-frontal is 4½ inches, the occipito-mental is 5½ inches, and all the others are approximately 3½ inches.

2. See Williams' "Obstetrics" (1909), page 303; or Hirst's "Obstetrics" (1909), page 778.

3. The contents of the obstetrical bag will vary with the requirements and experience of its owner, and the preparations already made by the patient. In any case the following articles should be taken by the accoucheur to a confinement: Tablets of bichloride of mercury, or some other material for making antiseptic solution; forceps; ether or chloroform, with inhaler or mask; fluid extract of ergot; hypodermic syringe, with tablets of strychnine, morphine, etc.; needles, sutures, and needle holder; nail brush and nail cleaner; umbilical scissors; carbolized vaseline; stethoscope; male catheter (rubber); a 1 per cent. solution of nitrate of silver, with eye dropper.

In addition to the above some would also include: A sterile apron or suit; a Kelly pad; solution of cocaine; soap, boric acid, and gauze, all sterilized; absorbent cotton, iodoform gauze, chloral hydrate; dilators, and other instruments.

A bag or grip made of canvas, or a metal case covered with canvas, is better than a leather bag, as the former can be sterilized.

4. See Williams' "Obstetrics" (1909), page 409; or Hirst's "Obstetrics" (1909), page 821.

5. See Williams' "Obstetrics" (1909), page 659; or Hirst's "Obstetrics" (1909), page 439.

6. See Williams' "Obstetrics" (1909), pages 489, 865, 878, and 898; or Hirst's "Obstetrics" (1909), page 761.

7. See French's "Practice of Medicine" (1907), pages 426 and 429; or Osler's "Practice of Medicine" (1909), pages 269 and 280.

8. *Essentials for the production and preservation of pure dairy milk:* Vaughan's rules are as follows: "(1) The cows should be healthy, and the milk of any animal which seems indisposed should not be mixed with that from the healthy animals. (2) Cows must not be fed upon swill or the refuse from breweries or glucose factories, or upon any other fermented food. (3) Milch cows must not be allowed to drink from stagnant pools, but must have access to fresh, pure water. (4) The pasture must be freed from noxious weeds, and the barn and yard must be kept clean. (5) The udders should be washed and then wiped dry before each milking. (6) The milk must be at once thoroughly cooled. This is best done in the summer by placing the milk can in a tank of cold water or ice water, the water being of the same depth as the milk in the can. It would be well if the water in the tank could be kept flowing, and this will be necessary unless ice water is used. The tank should be thoroughly cleaned each day to prevent bad odors. The can should remain uncovered during the cooling, and the milk should be gently stirred. The temperature should be reduced to 60° F., or lower, within an hour. The can should remain in cold water till ready for delivery. (7) Milk should be delivered during the summer in refrigerated cars or in bottles about which ice is packed during transportation. (8) when received by the consumer it must be kept in a clean place, and at a temperature some degrees below 60° F."

9. See French's "Practice of Medicine" (1907), page 1083; or Osler's "Practice of Medicine" (1909), page 915.

10. See French's "Practice of Medicine" (1907), page 771; or Osler's "Practice of Medicine" (1909), page 508.

SURGERY.

1. Shock is the name given to a sudden and general depression of the vital powers due to some strong stimulation (such as injury or emotion) acting on the vital centers in the medulla, and producing vasomotor paralysis.

Treatment of shock: place the patient in the recumbent position, with the head low, apply warmth to the body, administer a stimulant, and give a hot saline infusion; morphine, hypodermatically, may be necessary for the relief of pain.

2. In the abscess the pus is circumscribed; in the purulent infiltration it is diffuse and not circumscribed.

3. See Rose and Carless' "Surgery" (1908), page 97; or Da Costa's "Surgery" (1908), page 150.

4.

FRACTURE.	DISLOCATION.
1. Crepitus may be present.	1. Crepitus never present.
2. Preternatural mobility.	2. Rigidity rather than mobility.
3. Easily reduced—but	3. Difficult to reduce—but
4. Deformity more liable to recur after reduction.	4. Deformity less liable to recur after reduction.
5. The head of the bone is in its proper place.	5. The head of the bone is not in its proper place.
6. The socket containing the head of the bone is not empty.	6. The socket which should contain the head of the bone is empty.
7. When rotated the bone does not move as one piece.	7. When rotated the bone moves as one piece.

5. See Rose and Carless' "Surgery" (1908), page 1148; or Da Costa's "Surgery" (1908), page 1012.

	STRANGULATED COMPLETE HERNIA.	OBSTRUCTED OR INCARCERATED HERNIA.
Swelling	Larger than before and firmer.	Larger than before.
Impulse	None.	Present on coughing, but less marked.
Reducibility	Irreducible.	Irreducible.
Other local signs	Dull pain over swelling, later signs of peritonitis.	
Signs of obstruction	Colicky pains, absolute constipation; vomiting; later fecal.	Gradual onset; vomiting slight; bowels can be moved. Occurs in aged.
General disturbances	Marked and early intoxication.	Slight, no collapse.

—(From Eisendrath's *Surgical Diagnosis.*)

Reducible, simple, irreducible, or inflamed hernia, tumor or hydrocele may be mistaken for them.

7. See Rose and Carless' "Surgery" (1908), pages 1307 and 268; or Da Costa's "Surgery" (1908), pages 1211 and 52.

GYNECOLOGY.

1. *Leucorrhea may be produced by:* Pelvic congestion, endometritis, retroversion of uterus, vulvitis, vaginitis, gonorrhea, benign and malignant growths.

2. DYSMENORRHEA. *Causes:* Pelvic congestion, pelvic inflammation, malnutrition, overwork, lack of development, neuralgia, stenosis, or obstruction of the cervix, prolapse, or displacement of the uterus. *Treatment:* If possible remove cause; attend to the general condition, hygiene, tonics, regular habits, etc.; curettage may be necessary, and may have to be repeated (perhaps more than once).

3. Hemorrhoids, cystocele, rectocele, bearing down pain, frequent urination.

4. *Differential diagnosis.—Pregnancy:* The tumor is hard and does not fluctuate, is situated in the median line, and may give fetal heart sounds and movements; the cervix is soft, and the other signs of pregnancy are present. The rate of growth of the tumor, and the general condition of the patient's health may also help in arriving at a diagnosis.

Retained menses: Absence of other signs of pregnancy, cramp-like pains about once a month; the condition may be of longer duration than an early pregnancy, and the cause of the retained menses is generally demonstrable.

Uterine fibroid: Menstruation is irregular and sometimes very profuse; absence of the signs of pregnancy; the tumor is nodular, firm, irregular in outline, and while generally placed somewhat centrally is not in the median line, and is not symmetrical; the rate of growth is irregular, being, as a rule, slow, and sometimes extending over years.

5. Development of the reproductive organs, enlargement of the breasts, hair on pubis and axilla; the form becomes rounded, the hips widen, menstruation occurs; there are certain mental and emotional changes, and "the development of those womanly beauties physiologically designed to attract the male."

PATHOLOGY AND BACTERIOLOGY.

1. A THROMBUS is a blood clot formed in the blood-vessels during life. *Causes:* Changes in the blood current; changes in the vessel wall; anything within the blood current not covered with endothelium. Generally more than one of these conditions are present. *Results:* Formation of emboli; infarction; heart clot, and sudden death; cerebral softening; the thrombi may become organized, liquefy, soften, become calcified, putrefy, become discolored, or may resolve.

AN EMBOLUS is a plug in the circulation. *Causes:* Thrombi, detached pieces from the heart valves, microorganisms, oil, fat, parasites, pieces of new growths. *Results:* Obstruction to the circulation; infarction, inflammation of blood-vessel; dilatation of blood-vessel.

2. Small pieces of infected tissue are carried by the blood or lymph to distant parts; there they are lodged in the capillaries and proliferate and establish metastasis.

3. *Intestinal ulceration* is found: In the duodenum, in burns, in chronic nephritis and in enteritis; in the *ileum,* in typhoid and tuberculous enteritis; in the *large intestine,* in enteritis and dysentery.

See also French's "Practice of Medicine" (1907), page 776; and Osler's "Practice of Medicine" (1909), page 501.

4. See Rose and Carless' "Surgery" (1908), page 62; or Da Costa's "Surgery" (1908), page 132.

5. Cloudy swelling is known as parenchymatous or granular degeneration, also as albuminous infiltration. It commonly occurs in fevers, toxic infections, and some poisonings (such as phosphorus, arsenic).

6. Histologically, the carcinomata are grouped under the epithelial tissue tumors. *Subvarieties:* Squamous celled; cylindrical celled or columbar celled; glandular (scirrhus and encephaloid).

7. *Erysipelas* is caused by the *Streptococcus erysipelatis;* it appears in chains of varying lengths or in tangled masses, the presence or absence of oxygen does not seem to be of much importance, it grows at room temperature, and has the cultural characteristics of the *Streptococcus pyogenes.*

Syphilis is caused by the *Treponema pallidum;* this is a flexible spiral organism, with several turns, and a flagellum at each pole.

Puerperal infections: See Williams' "Obstetrics" (1909), page 852.

Basilar meningitis is tubercular. The tubercle bacillus is rod shaped, is from 1½ to 3½ mikrons in length, and about one-third to one-half a mikron in breadth, is a strict parasite, is not motile, and has no flagella; it has no spores, is non-liquefying, non-chromogenic, erobic, and acid-resisting.

8. In *Malaria,* the infection is due to the bite of an anopheles mosquito which is already infected. In *typhoid* the typhoid bacillus is swallowed with food or drink which has become contaminated in some way. In *tuberculosis,* the tubercle bacillus is usually inhaled, but may be taken in with food and drink, or through wounded skin or mucous membrane. In *tetanus,* the tetanus bacillus generally gets into wounds (penetrating, or dirty, or gunshot, or "cracker," with earth).

9. *Protozoa* are unicellular animal organisms, of variable size (from that of bacteria to many centimeters in length), and of complex and little understood life cycle. *Examples:* Trypanosome, which causes sleeping sickness; and *Plasmodium malariæ,* which causes malaria.

10. The tape worm is an obligatory parasite; the bedbug is a facultative parasite. Yes, the colon bacillus may be a parasite.

MEDICAL JURISPRUDENCE.

1. *Six signs of death:* (1) The permanent cessation of circulation; (2) the permanent cessation of respiration; (3) rigor mortis; (4) loss of body heat, so that the body has the temperature of the room in which it is placed; (5) adipocere formation; (6) putrefaction.

2. Rigor mortis begins at a period varying from about fifteen minutes to eight hours. It is said to be due to the coagulation of the muscle plasma.

3. In *burns* produced *before death:* There is usually a blister, with a bright, red base, and containing a serous fluid, which is albuminous; occasionally there will be no blister if there has been excessive shock; also, there will be a red line of demarcation between the injured and the uninjured parts, and this, being a vital process, is only de-

veloped during life. In *burns* produced *after death* there is no true blister, no red base, and gas only is present in place of the serous fluid.

4. *Infanticide in a medicolegal sense* is the murder of a newborn child, which has a separate existence from its mother. In a *physiological sense* it would include the destruction of the life of a fetus or child before it was separated from its mother.

5. An *illusion* is a false or perverted impression received through one of the senses. *Example:* The whistling of the wind being mistaken for a voice telling a person to do a certain thing.

TOXICOLOGY.

1. See above, THERAPEUTICS, 6.

2. *Two reliable emetics:* Apomorphine hydrochloride, dose gr. 1/10 by hypodermic; and wine of ipecac, dose ℥xx.

3. (*a*) For *arsenical preparations*, give freshly prepared solution of ferric hydroxide; (*b*) for *mineral acids*, give magnesia, or soap and water, or milk.

4. *Symptoms of acute phosphorus poisoning:* "Eructation of gas having the odor of garlic. The mouth, when observed in the dark, is frequently faintly luminous (phosphorescent). After several hours, pain in the throat, a sense of heat in the epigastrium, nausea, and vomiting. The vomited matters are sometimes bloody, and frequently luminous when agitated in the dark. The abdomen is tender, and there are diarrhea and colicky pains. After one or two days these symptoms cease, there remaining only pain in the back and limbs and a feeble pulse. Death sometimes occurs suddenly in from two to four days. Usually about the fourth day the patient becomes jaundiced, suffers from headache, insomnia, and retention of urine, rapidly becomes delirious and comatose, and dies." (From Witthaus' *Essentials of Chemistry and Toxicology.*)

5. Strictly speaking, carbonic acid gas is not a poison; it suffocates. Treatment, therefore, consists in removing the patient immediately to pure air, and instituting artificial respiration. After respiration is established, stimulation will be necessary.

HYGIENE AND PREVENTIVE MEDICINE.

1. The standing of water aids in the subsidence of foreign particles, and also (slightly) of organisms. It can be increased by the addition of precipitating agents (lime, alum, iron, etc.). Most of these substances have been suspended mechanically in the water, and the standing causes them to settle; but some have been in solution, and have become insoluble because the water is deprived of carbon dioxide by being exposed to the air.

2. River water may be rendered suitable for town consumption by filtration. Ordinary filter beds for the purification of water are tanks of varying size, shape, and construction; the walls may be vertical or sloping; upon the paved bottom are pipes to carry off the filtered water. Above these pipes are successive layers of coarse gravel, fine gravel, coarse sand, and at the top fine sand about four feet deep. Through these layers the water passes.

3. The intermittent system is the better, because it allows of aeration of the soil.

4. *Disinfection of privies and water closets:* "In the disinfection of these nothing is more convenient and effective than lime chloride, which is a mixture of various chlorine compounds, or milk of lime, freely used; the latter is made by adding one pound of freshly slaked lime to two or three quarts of water. Lime chloride should be purchased in sealed packages only, otherwise its efficacy as a disinfectant is slight. Air-slaked lime is of no use as a disinfecting agent."—(Wilcox's *Fever Nursing.*)

5. See French's "Practice of Medicine" (1907), pages 324 and 309; or Osler's "Practice of Medicine" (1909), page 139.

The Pathogenesis of Tetany in Childhood.—V. Pexa found that dogs fed on a calcium free diet presented a clinical picture in which the most conspicuous symptom was a passive condition toward external influences. There was no increased electrical irritability in the peripheral nervous system. The calcium content in the central nervous system was diminished, but there was an abundant increase in the amount of glycogen contained in the parathyroids, which were otherwise unchanged. It is concluded that the origin of tetany and spasmophilia can not be attributed alone to a deficiency of calcium in the various organs, which deficiency is not associated with a diminution of electrical irritability in the peripheral nervous system. Even if the poverty of calcium in the various tissues plays a rôle in tetany, at any rate the latter would be prevented by the antitoxic power of the parathyroids.—*Archiv für Kinderheilkunde.*

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of November 12, 1910.

	Cases	Deaths
Tuberculosis Pulmonalis	573	163
Diphtheria	312	30
Measles	106	5
Scarlet Fever	134	3
Smallpox	—	—
Varicella	69	—
Typhoid Fever	133	26
Whooping Cough	54	3
Cerebrospinal Meningitis	2	2
Malarial Fever	—	—
Totals	1,383	232

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, during the week ended November 11, 1910.

PLACE	DATE	CASES	DEATHS
CHLOERA			
China: Amony	Sept. 18–24		1
Hankow	Sept. 24	2	..
Germany: Marienburg	Oct. 3–9	6	2
Indo-China: Saigon	Sept. 19–25	3	3
Italy, general	Oct. 29–30	12	8
Provinces—Avellino	Oct. 2–7	3	1
Bari—Carbonara	Oct. 2–7	1	1
Molfetta	Oct. 2–7	1	1
Terlizzi	Oct. 2–7	1	..
Caserta	Oct. 2–7	17	6
Foggia—Cerignola	Oct. 2–7	2	2
Naples	Oct. 2–7	68	15
Rome—Fiumicino	Oct. 2–7	1	1
Avellino	Oct. 16–22	2	1
Bari	Oct. 16–22	12	6
Campobasso	Oct. 16–22	3	1
Caserta	Oct. 16–22	96	97
Lecce	Oct. 16–22	6	3
Messina	Oct. 16–22	1	1
Naples	Oct. 16–22	70	28
Palermo	Oct. 16–22	..	..
Palermo	Oct. 16–22	4	0
Rome	Oct. 16–22	..	..
Rome	Oct. 16–22. From the previous week.	6	7
Salerno	Oct. 16–22	3	2
Trapani	Oct. 16–22	2	2
Japan: Fukuoka	Oct. 4	20	..
Kagawa	Oct. 4	2	..
Kyoto	Oct. 7	82	30
Kobe	Oct. 3–9	38	24
Moji	Oct. 8	22	9
Nara	Oct. 4	1	..
Okayama	Oct. 4	1	..
Tokushima	Oct. 7	2	..
Wakamatsu	Oct. 8	2	..
Java: Batavia	Sept. 8–24	10	5
Persia: Kermanshah	Oct. 1–10	67	46
Present in all localities between Hamadan and Ksinekin.			
Philippine Islands: Manila	Sept. 11–24	11	9
Provinces—Batangas	Sept. 11–24	292	189
Bulacan	Sept. 11–24	14	12
Cavite	Sept. 11–24	3	3
Ilocos Sur	Sept. 11–24	14	13
Nueva Ecija	Sept. 11–24	60	33
Pampanga	Sept. 11–17	2	2
Pangasinan	Sept. 11–24	12	6
Rizal	Sept. 11–24	29	22
Tarlac	Sept. 11–24	13	9
Russia, general	Nov. 11–17	9,554	4,632
St. Petersburg		791	296
Constantin		17	9
Archangel		1	1
Servia: Belgrade	Oct. 7–22. Including 1 case previously reported.	6	1
Straits Settlements: Singapore	Sept. 11–17	3	..
Tripoli: Tripoli	Oct. 3–16. Including 3 fatal cases previously reported.	12	9
Turkey in Asia: Erzeroum	Oct. 7–15	13	13
Trebizond	Oct. 10–16	109	60
YELLOW FEVER			
Brazil: Manaos	Oct. 9–15. S.s. Augustine, left Manaos Sept. 24 bound for Liverpool, via Para and Lisbon. After leaving Manaos 5 cases of yellow fever developed; 2 of these were landed at Para, 2 were buried at sea, and one was landed at Liverpool convalescent.	2	2
Para	Oct. 9–15	11	7
Great Britain: Liverpool	Oct. 14. See remark opposite Manaos.	1	..
Hawaii: Honolulu	Nov. 5. From s.s. Hongkong, Maru, from Empalme, Mexico, via Manzanilla.	1	..
Mexico: Campeche	Oct. 25	1	..
Sierra Leone: Freetown	Sept. 1–31	..	1
PLAGUE			
China: Amoy	Sept. 18–24	..	1
SMALLPOX			
Brazil: Para	Oct. 9–15	1	..
China: Shanghai	Sept. 26–Oct. 9	..	4
Egypt: Cairo	Sept. 24–30	1	1
Indo-China: Saigon	Sept. 19–25	3	3

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Original Articles.

THE U. S. NAVAL MEDICAL SCHOOL.*

BY HENRY G. BEYER,

MEDICAL INSPECTOR, U. S. N., PRESIDENT OF THE SCHOOL.

GENTLEMEN: It may be taken for granted that all those of us most deeply interested in the work of the Naval Medical School consider it eminently fit and proper to open the sessions with an informal introductory address, if even for no other purpose than that of giving those of you who enter as students of the school, first, a hearty welcome; second, a brief description of the aims and objects of the school and, third, a short account of the requirements which students are expected to conform and live up to during its sessions.

Those of you, gentlemen, who have successfully passed the Naval Medical Examining Board have caused to be placed on file at the Navy Department not only a written record of your professional qualifications, but also and at the same time a record of a mental endurance test. It is conceivable and has indeed happened more than once in my experience in the service that persons, otherwise well qualified professionally to pass the examination, have, nevertheless, withdrawn on account of a lack of enduring moral force. Military hardihood and a disciplined mind, kept well under the control of a strong will and guided by a noble purpose, are characteristics as desirable in a naval medical officer as they are in an officer of the line. The successful candidates are therefore to be congratulated as having proved themselves physically, mentally, and morally equal to an accepted standard in an examination for one of the Government services.

An Examining Board, indeed, with its requirements and its functions, is not unlike a standard toxin, by means of which we standardize our antitoxins coming into our laboratories from the different manufacturing establishments. At least one difference, however, we must admit exists between these two standardizing agencies, and that is that we cannot keep the members of an Examining Board in a water and air-tight compartment and at a uniform temperature during the intervals of their functional activity. On the contrary, we must admit that the more air and the more light this standardizing board receives during such intervals the more perfect, the more to be feared, it is bound to become. This, gentlemen, with all due apology to the distinguished members of that board present on this occasion.

The results of your examination having thus clearly been obtained by scientific methods, they certainly ought to be reliable, and the congratulations which I have the pleasure of extending to you are consequently also not merely matters of empty form and rhetoric, but they rest on sound principles and logical reasoning. Still, in order to make you not unduly or prematurely proud and to continue the figure, it is your practical value to the service to be shown in your future work that must be allowed to confirm the promises which you have so far given us and to convert the probability values of your examination marks into actual and undisputable values.

Function of the Naval Medical School.—The objects and purposes of this school, like those of any other school, are, of course, educational, but the educational completeness that we must ever aim at, the special ideal that we should never for a moment lose sight of and which forms the very foundation of our existence, is that we should lay special stress in teaching those branches that alone are calculated to make of us and of our services more valuable instruments in the service of the Navy of the United States than we would be without such instruction, and especially with reference to service in the fleet and at sea. At present we are still working on the foundations of this ideal structure. It will be for you to carry on the work after we have gone.

Regarded in the light of a preparation for service, the course which you are about to begin signifies one more of those rare opportunities knocking at the door of your young lives and at the beginning of your professional career, clamoring for admission, and which it is of the greatest importance for you to embrace with all your might and to utilize to the full extent of your ability; an opportunity which never can be made to come back after once it is gone. Let there be no wobbling uncertainty about that. I am merely stating a plain and serious truth when I say that if I, who stand at the end of my professional career in the Naval Medical Service, possessed the ability of conveying to you, who stand at the beginning of it, the true sense of appreciation that I feel of the value of the instruction you are about to receive at this school, and which experience alone can duly appreciate, you would enter upon your work here with an attachment for all your instructors little short of reverence.

The instruction at this school, so far as it has been possible to perfect it up to the present time, falls into three main functionally different groups or branches, namely, (1) the biological branch, (2) the professional branch, (3) the military branch.

The Biological Branch.—To the biological group of subjects I would refer bacteriology, pathology, and medical zoology. Chemistry, as far as it is taught in this course, is auxiliary to both the biological and the professional branches of study. All these studies may be termed the fundamental sciences upon which medicine depends.

*An address delivered at the opening of the U. S. Naval Medical School, Washington, D. C., on Monday, October 3, 1910. Published by permission of the Surgeon-General of the Navy.

In reading the syllabi submitted by Drs. Butler, Mink, and Garrison you will notice that the laboratory work is all done by the students themselves, that no important detail of work is omitted, the intention on the part of the instructors being that of making the student an independent worker is everywhere apparent. In bacteriology none of the practical laboratory procedures are omitted. In pathology I was glad to note that due attention will be given the collection, preservation, hardening, and embedding of pathological specimens, as well as to the study of the microscopic characters of the various lesions. In medical zoology, besides a thorough study of the protozoa, vermes, and anthropoda, from which three classes of the animal kingdom most of the animal parasites are derived, you will receive some further useful instruction with regard to the collection and the systematic recording of museum specimens and the necessary information of their habitat that must go with such specimens.

The biological laboratories have furnished the physician and surgeon alike new means for diagnosing and combating disease, and the education of the medical practitioner under the present changed conditions makes entirely new demands on both his preliminary and his professional training. Since the large majority of the medical schools in this country do not require a knowledge in the fundamental branches before admitting the students to professional studies and since the highest standards of professional efficiency cannot be attained without it, the necessity for the creation of special service schools for the supply of that knowledge became apparent. The brief history of these schools and the excellent work done by the students and instructors has more than justified their existence.

The Professional Group.—Hygiene (Dr. Fiske), tropical medicine (Dr. Butler), surgery (Dr. Spear), ophthalmology (Dr. Shipp), and psychiatry (Dr. Butts) together form the professional subjects in which you will receive advanced and practical instruction. The very essential importance of a practical knowledge on these subjects will at once appeal to you without any further comment on my part. I may therefore omit the reading of the syllabi submitted by the instructors in these departments. From the service point of view, however, I might mention that their relative importance should be interpreted as following the order in which they are here enumerated.

The Military Group.—The various military exercises and drills that are so essential and so necessary to make you a homogeneous part of the corps of officers of the naval service are of great practical and of still greater personal importance to you. This branch of instruction is practically a school of application intending to point out the way in which your professional accomplishments must be applied to the naval service. This branch of instruction is under the sole charge of Commander Wilson, a gentleman who combines a rare quality of kindliness with a sincerity of purpose which must appeal to all of you and whom you will all respect and appreciate and, I am sure, remember long after you are well launched on your career as naval medical officers. I herewith admonish you to give him the respect he deserves.

Laws, Regulations, and Orders.—With the laws, regulations which you will most frequently come in contact with, it will take but a short time of practical naval life to make you acquainted. But, in order that this first acquaintance may be a pleasant one and not be followed by disagreeable consequences, it behooves you to get a knowledge of the regulations as soon as practicable, and to get yourselves into the habit of obeying orders. Any lawful order, whether good, bad, or indifferent, must be obeyed without hesitation and mental reservation. The sooner you will understand that a military order is not an insult or an attempt at any interference with your personal right or liberty but constitutes for you a simple call for duty, the smoother also will be your introduction into the service. Respect for and obedience to the orders of your superiors must be insisted upon wherever you may hereafter be on duty. This is necessary in order that not only shall the machinery run smoothly and without friction, but it constitutes a training for your daily life in the service if this is expected to be a happy one.

With regard to local orders, orders to which you will be expected to conform while attached to this school, the necessary information may be obtained from the various bulletin boards. Whenever in doubt as regards your military conduct, Commander Wilson will, I am sure, be your ever willing and ever present friend and guide.

In conclusion, I charge you to hold high your professional aims and I beg of you to remember that from now on you have assumed a serious and lasting responsibility, both personal and professional, for the honor and efficiency of the naval medical service. While every man owes that duty to his profession, and while in no profession this obligation is clearer than in that of the physician, in no association of physicians is this duty more compelling than in that of the medical corps of the military services.

THE PHILOSOPHIC ANATOMY OF THE LIVER.

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It is remarkable that the liver is the organ which the common people mention most often in telling of their ailments. In warm climates especially they are all the time saying that they are bilious, that their liver is not acting, that they have cooked bile on their liver. They often say of people of a sallow complexion that they are bilious. In fact, we are told that in very hot climates people greet each other not by asking "how are you?" but "how is your liver?" Physiologists tell us that the liver is the lungs of hot climates.

It is noticeable that the word liver in Greek means fat, so says the dictionary. It is truly the only organ that will accumulate fat most rapidly. It is particularly so in the lower animals. All epicures know how luscious is the famous "Paté de foie gras," due to the hyperfattening of geese from overfeeding or gavage, particularly with nuts. It is probably due to the fine taste of young fat livers that the birds of prey instinctively selected the liver to pick in the case of the legendary Prometheus while chained to the rock. It is astounding how rapidly the liver undergoes total fatty degeneration, in some cases of yellow fever, the whole organ being converted into a hard mass of tallow in some forty-eight hours.

We should note that there is only one liver in the human subject, but in some of the lower animals there are a number of lobes and lobules inde-

pendent of each other. However, the common people from their observation of rabbits and other animals speak of the liver in the plural—the livers, "les foies," in French.

We must lay stress on the fact that the liver is the largest organ in the human body, except perhaps the lungs separately. This is in keeping with its manifold and most important functions. It is noteworthy that it is beyond question the heaviest of all the organs. No other organ presents such variations in weight, however, within the boundaries of health.

The liver is a single organ, but is not on the median line like the heart, brain, and bladder. The other single organs are the brain, the heart, the pancreas, the bladder, the prostate, the womb, the penis. It is to be noticed that it is an asymmetrical median organ. The heart and the pancreas are the only other such organs. The liver is unique in the large extent it occupies in the abdominal cavity, extending through three regions, right hypochondrium, epigastrium, and left hypochrondrium.

We must call attention to the several directions it presents; its axis is horizontal, its anterior surface is vertical, the posterior is oblique; the upper border is longitudinal, the lower is oblique. The manner in which the organ is held in place is most worthy of notice. Like the heart it is suspended from its broad upper border by the large hepatic veins as they open into the inferior cava, itself so firmly adherent to the fibrous opening presented by the aponeurotic diaphragm for its passage. The so-called suspensory ligament, the coronary ligament, the triangular ligaments have but little to do in holding the liver in place. We must note also that the liver is supported or rather rests on the stomach and intestines as on a soft bed, such as the heart lies cosily on the diaphragm and the spleen on the left of the colon.

We must bear in mind that in its situation the organ is entirely passive. It moves up and down with the movements of the diaphragm and the lungs, but it has no motion of its own. It is to be remembered that whatever be the means of fixity of the liver it will sometimes stretch them to the extent of comparative excessive mobility. We all know of floating livers, though the organ never roams about the abdomen as the spleen and especially the kidneys do. These organs are the only ones that "float." The liver is the one organ whose shape is truly hard to define so as to convey a correct idea. The comparison to the longitudinal half of an ovoid is about the best.

It is notable that for many years the anterior or convex surface of the liver was the only one that interested the surgeon, but now there is no part of the organ that he will not reach. It should arrest attention that it is the largest surface, that it gives insertion to the so-called suspensory ligament, that this ligament corresponds to the median line, that it divides that surface into a right and left lobe; that the part of the surface which corresponds to the right hypochrondrium is covered by the ribs and intercostal muscles, the pleura, the diaphragm, the peritoneum. It is of importance to remember that the portion of the anterior surface that corresponds to the epigastrium is the only superficial portion of the liver, reached as soon as the skin, muscles and peritoneum have been incised. We must note that that portion of the organ extending into the left hypochondrium is very small, thin, and comparatively of little pathological or surgical interest.

The posterior surface is most remarkable for its many irregularities. It presents more of these than the surface of any organ in the body. These irregularities are due to the several organs with which this surface is in relation, the stomach, colon, suprarenal capsule, kidney. It is concave because the largest of all these organs are convex. That surface is smaller by one-third than the anterior or convex surface, but how many most remarkable and unique things are seen there! It is striking that the most important peculiarities are all centered in the middle of the surface, to the right of the median line, in a space not more than four inches square. The first that should arrest attention is that these peculiarities are represented by three grooves, two vertical or oblique and one horizontal or transverse, the whole representing the letter H. Of these grooves or fissures the transverse one is the one to be dwelt upon above all others. It is the hilum, a model hilum. The liver and kidneys alone present such a model hilum. This hilum, however, has a special interest over any of the others because it presents the portal vein, which in this hilum becomes an artery by penetrating and breaking up into capillaries in the liver. This is unique and truly wonderful. In the hilum we must observe particularly the reflections into the organ of the capsule of Glisson as it is here more developed than in any other structure. Surgeons should bear in mind that the hilum is in the right of the epigastrium and comparatively superficial, so that in exploring deeply with a large aspirator needle the portal vein and the hepatic artery might be wounded with possible serious consequences. We should not forget the relative position which the artery, the portal vein and the common bile duct occupy on their way to the hilum in the right border of the gastrohepatic omentum. The artery is on the inside of the duct, on the same plane, and the vein is behind them. Our attention must be arrested by the fact that these structures form the anterior boundary of the famous foramen of Winslow.

It is interesting to note that the suspensory ligament, the obliterated umbilical vein correspond to the median line, the vein being deeply seated; the obliterated venous duct corresponds also to the median line, but higher up and still more deeply seated. Also that the fundus of the gall bladder corresponds to the lower border of the liver and to the junction of the edge of the abdominal straight muscle and the chondral border; higher up and very deep we find the inferior cava on the same line.

We must insist on the fact that no other organ presents such lobes as the spigelian, the square, the caudate. It is of particular interest to the pathologist and to physicians to remember that these lobes are in relation with the stomach, so that abscesses of the liver may, and do, discharge into that organ. This applies also to the right lobe, which partly rests on the colon, into which abscesses of the liver are thus enabled to discharge.

The upper border of the liver is most interesting because it is through it that the inferior cava passes to go through the diaphragm and that it is just at that point that the hepatic veins discharge into the cava. The adhesions of that border to the diaphragm and through the diaphragm its relation with the base of the right lung offers a possible issue to hepatic abscesses into the bronchi.

It is worthy of more than passing notice that the inferior border is long, thin and oblique, quite in contrast to the upper border. We must lay pe-

culiar stress on the fact that it is truly the surgical border of the liver because of its accessibility, because it never projects beyond the ribs unless the organ is enlarged or is pressed down by accumulations or by tumors above. A point of special interest to operators is that it presents the notch for the fundus of the gall gladder corresponding to the junction of the edge of the costal cartilages and the border of the abdominal sraight muscle. That border is also of interest because it crosses the epigastrium longitudinally, a surgical landmark of some value. We find nowhere else an organ presenting such a large and solid lobe as the right lobe and extremity of the liver. We should admire its bulk, filling all the right hypochondrium. It is, in fact, the liver.

The smallness and flatness of the left lobe and extremity is comparatively insignificant both from a pathologic and a surgical aspect. However, it sometimes has surprises in store for the diagnostician.

It should be noted that the liver, the spleen, and the kidneys are the only dark colored organs, the liver and the kidneys being very much of the same color. When a man is known to be of strong sexual temperament and happens to lose a couple of wives in rather close succession the common people say that he has a white liver. The liver and kidneys also present pretty much the same consistency. They are also remarkably friable, though less so than the spleen. For that reason they are often lacerated in falls and blows and ordinary sutures will tear through the tissue. Mattress sutures are the best to use. It is noticeable that, like the kidneys, the liver has no elasticity, no retractility. It is unyielding, hence the great pain in all lesions that tend to increase the interior pressure. We must observe that, on tearing, the liver presents a granular appearance due to the projection of the innumerable small acini. No other structure, except the kidney, presents this.

The liver presents the most wonderful structure of all the organs. It has more unique and peculiar features than are found in any one organ. It has more folds of the peritoneum connected with it than any other, the falciform ligament, the coronary, the triangular, the gastrohepatic. The falciform is unique, and is due to the presence and course of the obliterated umbilical vein.

The thinness of the fibrous coat on its surface is to be noticed. It is more delicate than in any other organ, is so much so that it cannot be peeled off as can be done with the fibrous coat of the kidney, although this one is quite thin also, but it is more resistant. We should here admire how it thickens in the hilum and how it is there reflected into the organ to form a sheath for the vessels, veins, and the bile ducts. Thus they have an easy and protected course through the dense tissue of the organ, like electric wires in conduits. Nowhere is the interior reflection of the external fibrous coat so well seen as here, although it is seen in all the organs presenting an external coat. Attention must be called to the fact that on a section of the liver the ramifications of this capsule collapse, whereas the sections of the hepatic veins remain gaping. Let us note that the ultimate divisions of the capsule become very delicate and cause the stroma of the liver to be barely visible with the naked eye, quite in contrast with the stroma of the spleen. Finally, we should not overlook the fact that the stroma is purely fibrous, presenting no elastic fibers, no muscular fibers such as we find in the spleen, hence the absence of normal expansion and retractility as we see again in the spleen.

It is indeed worthy of notice that the cells of the liver present no characteristics. Taken out of the organ they cannot be distinguished, and it is impossible to say with certainty that these cells come from the liver. But their radiated arrangement in the lobules is characteristic, unique, and most admirable. This arrangement with a linear space or track between the radii was imperative to have a way for the capillaries of the portal vein and hepatic artery on their course toward the center of the lobule, where they finally merge into the single small trunk of the central intralobular hepatic vein.

The vascular supply of the liver challenges admiration. It is dual. It presents two arterial vessels bringing the blood into the organ. The lungs are the only other organs presenting a dual circulation.

The hepatic artery is most remarkable for its small size compared to the bulk and density of the organ. That is because it is mostly the nutrient artery of the organ, and contributes comparatively little to the secretions.

The portal vein is the most wonderful of all veins. It is unique. No such vessel is to be seen anywhere else. It is the type of portal systems, *i.e.* a system of veins which originate like ordinary veins in a set of organs, which veins unite to form a single trunk which itself breaks into capillaries into another organ without passing through a propelling center. A portal vein is an ordinary vein at its initial end, but it is an artery at the other end. Such a special arrangement was rendered necessary by the fact that the veins of the stomach and intestines absorb indiscriminately all the soluble substances contained in the gastrointestinal canal, many of which substances would be injurious if discharged directly into the general circulation. By the portal arrangement these substances are carried into the liver, which eliminates or modifies them before allowing their penetration into the general circulation through the hepatic veins. We must note specially that the vessels do not anastomose in the liver, nor do they in the lungs or kidneys.

The efferent vessel from the corpuscle of Malpighi is considered also as a capillary portal system, but how infinitely insignificant compared to this gigantic hepatic portal system. Besides, it is an arterial portal system.

It is also unique that each hepatic lobule is surrounded by a dual set of capillaries, one formed by the hepatic artery and the other by the portal vein. It is beautiful to see arising from the concave surface of the dome the fine capillaries which descend into the radiated intercellular space. This sort of arrangement is seen nowhere else. It is truly admirable to behold on a fine penetrating injection the red colored arterial capillaries gradually merge into the blue colored radicles of origin of the central intralobular hepatic vein, and then the blue capillaries centering into a blue dot which is the section of the trunk of the capillary central hepatic and intralobular vein, the origin of the whole system of the large hepatic veins. We may look in vain for any similar arrangement in any of the other organs of the human body. I only saw this to my satisfaction once in my life, but I saw it then for all time, because I am the lucky and happy possessor of that beautiful slide. It was made

many years ago by one of the most skillful German technicians of that time, the celebrated Thiersch. I saw a number of pretty good slides of this kind, but not one could approach this peerless one.

To mention the star-shaped cells of the Kupffer is to challenge admiration. It is also unique and most worthy of wonder to note that the ultimate capillaries in the lobules have no endothelium, the walls of the vascular channels being formed by the walls of the hepatic cells themselves between the blood and the contents of the hepatic cells. We find such a condition in sarcomas, but I do not know of another instance in the normal tissues.

It is noteworthy that the hepatic veins form a system of their own, that they have a direction and course separate from the hepatic artery and portal vein. We must note that in their run out of the liver they have an independent course and that they do not come out where the arteries go in; that they converge toward the left part of the upper border; that there they form two large trunks discharging into the inferior cava as it passes through the aponeurotic diaphragm. We must observe that the vein from the right lobe is enormous, due to the very large size of the lobe. We again find in their course a peculiar condition, that their walls are adherent to the hepatic tissue so that when they are cut they remain gaping. Yet they are not sinuses because all the coats of ordinary veins are there present. Again we must be impressed with the direct venous connection between the right auricle and the farthest venous radicles of the liver through the inferior cava, the opening of the hepatic veins in the cava being so close to the auricle that that vast system of venous canals without valves, all the time gaping, presents an easy to and fro course from the liver to the heart and the heart to the liver. No wonder, therefore, of the great correlation between the affections of the two organs. In cases of obstruction through the heart the stasis of the blood into the hepatic veins dilates and stains the central hepatic intralobular vein so that on a section they appear like black dots, and cause the condition known as the nutmeg liver.

We must here consider the large size of the splenic vein compared to the size of the spleen, that it is one of the two large formative branches of the portal system; that it has such free communication with the liver that it is said that the spleen is the reservoir or safety valve of the liver; specially owing to its expansibility. It is also to be noticed that whereas all the other veins which form the portal vein come from the gastrointestinal canal the splenic vein is the only exception.

It is of importance to remember that the most distal capillaries of the portal system come from the anus. This explains how obstructions in the liver cause hemorrhoids and how inflammation and ulcerations of the anus cause hepatic abscesses. It is to be noted that the veins which form the portal system come from organs which receive a coat from the peritoneum, except the last portion of the rectum.

We must not lose sight of the fact that the hepatic or efferent veins carry a purer blood than the afferent vessel, because the liver has purified this blood. The pulmonary vein and the renal veins also carry purer blood than their corresponding arteries for the same reason; although veins by their direction and course they are truly arteries by their contents.

A noteworthy fact is the anatomosis of some of the veins of the liver with adjoining veins, a fact of which surgeons have tried to make use by performing operations to increase these anostomoses in order to relieve the circulation through the liver in case of intrahepatic impediment.

The liver is the only organ where, for a long time, it has been thought and taught that the lymphatics had any connection with the initial radicles of the excretory apparatus of the organ. This idea, however, is altogether abandoned nowadays. We must note in connection with the lymphatics the presence of the several glands in the gastrohepatic omentum which when enlarged have a detrimental action by the compression of the trunk of the portal vein. The vas aberrans of the liver is worthy of remembrance.

The nervous supply of the liver must arrest attention. That it has two great sources of supply should be noted. The fact is that almost all the terminal portion of the right pneumogastric nerve is lost into the liver. The only other large nerve that is distributed exclusively almost to one organ is the hypoglossal nerve to the tongue, barring the nerves of special sense. The second supply, it is to be remembered, is purely sympathetic, coming from the solar plexus and its divisions following the hepatic artery. This supply, let us note, is quite abundant owing to the large size of the artery presenting a large surface for support.

The excretory apparatus of the liver will fully repay close consideration. It is notable that the origin of the bile radicles is still, for some, a moot question. Not to speak of the theory expressed above, the relation of the hepatic cells to the beginning of the radicles have given rise to an altogether unanatomical conception. It is truly queer to place the cells around, on the outside, of the dilated extremities of the bile radicles instead of placing them in the interior of the dilations as we find the gland cells in all the glands. For the liver, it is to be borne in mind, is nothing less than a huge racemose gland.

That the color of the interior of the ducts is unique is readily understood. Another unique feature is the presence of microscopic racemose glands in their walls. This is seen nowhere else. It is remarkable that next to the kidneys the liver presents the most extensive excretory apparatus, presenting, however, more branching off than the kidneys in the form of the bile ducts, hepatic ducts, common bile ducts, and conjoined duct of this common bile duct with the main pancreatic duct or duct of Wirsung. It is also remarkable that the liver is the only organ the opening of whose duct on the surface of the mucous membrane presents such a large tubercle-like projection like the tubercle or ampulla of Vater. The accessory duct of the pancreas presents also a projection, but so small, the lesser tubercle. The only other gland that does present a projection is the opening of Wharton's duct. But how small and insignificant compared to the large tubercle of Vater presenting the opening of the dual ducts, the common bile duct, the duct of Wirsung. All the other ducts open by depressions, the salivary glands, the kidney, and the testicles.

We must here remind the surgeon of the special course of the common bile duct, on the outer side of the hepatic artery, in the right border of the gastrohepatic omentum; and further down, in the groove between the head of the pancreas and the middle portion of the duodenum. He should not forget that there it is in the posterior groove.

The gall-bladder comes in now for a share of many interesting remarks. We must first note that it is, next to the urinary bladder, the largest of the receptacles found in the course of the various excretory apparatuses. The spermatic duct is the only other organ presenting a storage reservoir in its course. But whereas the largest of these reservoirs, the urinary bladder, is on a straight line with the course of the ureters and the urethra, the gall-bladder is, as it were, on a side track, presenting a duct of its own, the cystic duct, which joins it to the main channel. The seminal vesicles are also on the side of the duct, but they are sessile, they have no duct similar to the cystic and are simply like dilatations or offshoots of the spermatic duct. It is notable that the other glands of the body, the salivary glands, pancreas, prostate, present no reservoirs. That is because their secretion is intermittent, taking place only when needed.

We should consider the peculiar shape of the gall bladder. It is unlike the urinary bladder and unlike the seminal vesicles. The neck is without a parallel, being manifestly twisted or spiral-shaped. The interior of the gall bladder is unique again, first by its color, yellow or green, due to the contact of the bile, then because it is reticulated and villous in the full acceptance of the two words. Why reticulated and villous? We must also remember that the walls of the gall-bladder present microscopic racemose glands like those found in the walls of the bile ducts. Now the neck of the gall-bladder is twisted inside as well as outside, so as to prevent the too rapid outflow of the bile. We should pause here to consider that, of all the glands, the liver, the kidneys, and the testicles are the only ones with reservoirs on their course. Of these the contents are excretory, whereas in the case of the gall-bladder it contains a secretion that has an ultimate action in the process of digestion. It does seem a small reservoir for such a large organ especially when we think of the kidneys and bladder. Maybe its contents are simply a reserve to come into use at once until the secretion of the gland has been well established under the stimulus of the presence of food in the stomach.

Let us remember that the liver, like so many other organs, is developel by separate parts which finally coalesce more or less completely. Thus we understand how the various lobes of the liver are formed. Sometimes the blending of the lobes fails, and then there are separate livers. I have a specimen where the left lobe is separate from the right, joined to it only by a fibrous band. But the most astonishing feature in the development of the organ is the presence and course of the umbilical vein on its under surface where it gives off a special branch to the left division of the portal vein. So that the left lobe of the liver equals the right lobe in size. After birth this branch obliterates and the left lobe generally becomes of the size we find in the adult. Why this special branch to the left lobe? We find nowhere else anything like this except, perhaps, the arterial duct of Arantius.

We must here mention some anomalies in the development of the liver represented by some two or three vertical grooves on the external surface of the liver. I have read several explanations of them but none satisfactory. The liver is one of the few organs that is liable to be deformed by habits. Very tight lacing long continued may develop a circular groove on some subjects, besides disfiguring and displacing the organ.

CHEMICAL PROBLEMS IN DIABETES.*

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METABOLISM OF PROTEIN.

In former times an increased protein metabolism was generally attributed to diabetes. Especially with the French, azoturia played a great part in diabetes. But it is of course of no significance if an undieted diabetic patient consuming large quantities of meat yields thirty, forty, or fifty grams of nitrogen in the urine. Such azoturia is the result solely of the large protein intake in the food. But an abnormal protein metabolism was believed in quite apart from this form, mostly by reason of clinical phenomena, because it was so often observed that diabetic patients lost in weight. Physicians attributed a toxic destruction of the body protein to the disease itself. But in the older experiments no attention was paid to the calculation of the intake, nor to the loss of energy by the sugar output. If a diabetic patient be given sufficient quantities of fat and protein his protein metabolism behaves just the same as that of a healthy man on the same diet. Still diabetic patients, although being kept at a rational diet, lose weight in the course of years: but this by no means contradicts the statement that their proteid metabolism takes place as in healthy people. The loss of flesh is caused by the one fact, that for the length of time patients cannot command sufficient food for the conservation of equilibrium.

Diabetic patients may subsist even on small protein intake. Therapeutics at present tend to restrict not only the carbohydrates but also, as far as possible, the protein ingestion. Also with small protein rations nitrogen equilibrium is reached in most cases. I had a severely diabetic patient of sixty-four kilos, a remarkable fat eater, who for many weeks remained in nitrogen equilibrium on being given only sixty grams of protein.

Since the introduction of the oat diet, nitrogen equilibrium has been observed with still less protein, at least for short periods. The physiological economy in food, which your countryman Chittenden has studied so successfully with healthy subjects, is applicable also in diabetics. As a rule the general nitrogen metabolism is not disturbed in the ordinary course of diabetes and the presence of a toxic moment must be denied.

It is only in single cases and in certain periods of diabetes that a real disturbance in the protein metabolism occurs, that is to say, a toxic loss of body proteid, which cannot be explained by insufficient food. These are rare occurrences and their cause is still unknown. It was believed that diabetic coma was dependent on a loss of body protein. This was found true in some cases, but these are exceptions. I myself happened to study the nitrogen metabolism of three patients for from ten to twelve days before, during, and after the coma. If coma had produced any toxic disturbance of the protein economy it would surely have been observed on account of the long duration of the experiments. But in none of these most convincing experiments had a loss of body protein taken place.

The behavior of the protein metabolism in pancreas and phlorhizin diabetes of dogs is in

*The second of the Cartwright Lectures of the Alumni Association of the College of Physicians and Surgeons, Columbia University, New York, for 1910.

striking opposition to its behavior in cases of human diabetes. The most convincing experiments are those made on fasting animals. In these the height of the protein decomposition is often four to five times the normal value. Hence, Falta has concluded that there is an *essential* difference between pancreas diabetes in dogs and human diabetes. I believe he is not right, the contrast between the two conditions being due to the different time of development of the metabolic disturbance. The sudden and complete suppression of sugar combustion which occurs in the experimental diabetes of dogs induces a radical and most serious damage to the organism. In human diabetes, on the contrary, the decrease of sugar utilization extends over a long time, during which the organism adapts itself partly to the new conditions of life. In pancreas diabetes no time is left for compensation. If phlorhizin experiments are conducted for a long time adaption seems to take place. In the observations of Hartogh and Schumm, indeed, the nitrogen elimination sank appreciably in the later weeks. If moderate quantities of meat were given, and even more so with large quantities, nitrogen equilibrium was almost reached in some animals.

As to the chemical decomposition of the protein molecule, only a few peculiarities are to be mentioned. Blumenthal, on applying the methods of Fischer and Bergell, found tyrosin in the urine. Also in regard to the combustion of inactive alanin irregularities have been observed. But it is unknown whether such occurrences are more common with diabetic patients and whether they do not also occur in other diseases. Before we know this it is useless to discuss this question.

As a general rule the decomposition of the protein molecule proceeds normally in diabetes. The same end products are found in the urine as in normal life; the amount of urea reaches from 80 to 90 per cent. of the total urine nitrogen, supposing that no excess of ammonia is present. Even if this is found it means no disturbance of the protein breakdown, for the normal end product of such destruction is *ammonia* and not *urea*. The formation of the latter is due to a synthetic process, and this synthesis, which is performed principally by the liver, is not itself disturbed in diabetes. The ammonia, however, combines with some of the organic acids, such as oxybutyric acid, and is thus withdrawn from the synthesis. If the ammonia be set free from this compound by replacing it by sufficient alkalies the ammonia content of the urine sinks and the urea rises accordingly.

I have now to make a few remarks as to the so called protein degeneration in diabetes which some years ago was widely discussed. The opinions were based on those experiments which should show a sugar formation from fat. As I have already mentioned in my last lecture, we calculate all the experiments on the assumption that the maximal sugar formation from protein never exceeds a certain value of forty-five or perhaps sixty grams from a hundred. Kraus, an opponent of the doctrine of sugar formation from fat, relied on the supposition that the protein breakdown might have been very much greater in the experiments in question than could be calculated from the urine nitrogen. He took for granted that a part of the protein involved in the metabolism had given up sugar, but the corresponding nitrogen had been retained in the body. A retention in the form of ammonia or of urea is out of the question considering the long duration of such experiments. The only question is whether the ordinary protein is transformed by giving up carbon for the sugar into a protein *poorer in carbon*. That was called a degeneration of the protein and this hypothesis was regarded as extraordinarily brilliant. But a closer consideration shows that this assumption is quite untenable, or at least absolutely improbable.

Let us look a little closer at this idea from the chemical standpoint. First of all, I would emphasize the fact that varieties of proteids with less than 50-53 per cent. of carbon have never been found in nature. A degeneration of a protein with 53 per cent. of carbon into a sort essentially poorer in carbon might for example occur in *this* manner, namely, that a lower amino acid takes the place of a higher one. For instance, a part of leucin, tyrosin, or histidin would be replaced by groups such as alanin or glycocoll. But a protein with its composition changed in this way will by no means possess the same chemical properties as the original protein. Even with the simplest chemical substance a certain change of its properties takes place if a butyl, propyl, or ethyl group be replaced by a methyl. Remember that we have defined protein as a polysubstituted polyglycocoll. For the formation of any quantity of sugar, innumerable phenyl, isobutyl, propyl, or ethyl groups must be split off from this protein, or be replaced by methyl groups, and so on. And if the chemical properties of a lifeless protein be so strikingly changed by varying the radicals, which are substituted in the glycocoll group, how much more shall we expect this to be the case in the complicated structure of the living protoplasm? There is no doubt that the fundamental differences of the different proteids which are obtained from various organs or from different animals depend chiefly on the different amount and on the different nature of the amino acids which they contain. A casein molecule certainly could yield no mechanical energy in the muscle, a brain albumin could furnish no hydrochloric acid in the stomach, etc. A degeneration or rather a transformation of the protein molecule has certainly taken place in the course of millions of years in the development of plant and animal life. But then it went hand in hand with a change in the life itself and with a modification of the functions. A transformation of this sort with a retention of the same functions in single individuals is for me unthinkable.

THE METABOLISM OF FAT IN DIABETES.

The extent of the metabolism of fat in diabetes must as a whole be considered together with the question of the metabolism of energy. This will be treated later. The chemical decomposition itself is in principle certainly quite undisturbed. It is only when the higher fatty acids have been broken down to butyric acid and this has been oxidized to oxybutyric acid that that remarkable disturbance of oxidation begins, which is known as acidosis and which is announced by the appearance of acetone bodies in the excreta. This question will also be treated separately.

We will here speak only of that remarkable disturbance of the fat metabolism which we call lipemia. This phenomenon is not peculiar to diabetes alone, but it is in this disease that it is most frequently met with and reaches the highest degree. As high as 30 per cent. of fat has been found in the blood serum.

Normal blood at all times contains fat, partly

combined and invisible, partly in the form of fine drops. If considerable quantities are visible to the naked eye in the form of an emulsion in the blood, then we speak of lipemia. All lipemia means a wandering of fat. Digestive lipemia after eating fat, and hunger lipemia are the visible expression of a *normal* transport of fat, either from the intestine or from the fat stores to the organs in need. This transport takes place partly in the same way as with the other foodstuffs, through the blood passages, but in opposition to protein and to sugar the fat betrays its presence on its way by its optical properties. The fat content of the blood varies with and depends upon the varying relation between the fat entering the blood and given up by it. Under conditions of normal life the fat content seldom exceeds 1-2 per cent. In severe diabetes this equilibrium between the fat entering the blood and given up by it is most extensively disturbed. However, it should be remembered that lipemia may be absent even in diabetic coma.

The reasons for this disturbance of the fat equilibrium are as yet unknown. It is immaterial also whether this fat, which is circulating in the blood, comes directly from the intestine or from the subcutaneous fatty tissue, etc. In no case, however, dare we, like earlier investigators, try to explain the lipemia by a diminution of the combustion of fat or by a decrease of the oxidative power of the organs. Neither in diabetes nor elsewhere is the oxidative power for fat, as such, deficient. And on the other hand no lipemia occurs in those rare cases in which a marked decrease in the total oxidation occurs, as for instance in myxedema.

With a fat content of from 20 to 30 per cent. in the serum, about 500 grams and more of fat circulate at the same time in the blood passages of a diabetic patient. Of course some time is necessary for the accumulation of such quantities, several weeks at least. So the disappearance of lipemia which can be observed in a non-diabetic patient requires a long time; in the case of an alcoholic patient of Gumprecht's with an amount of 7 per cent. of fat fully six weeks were required. In any case the disturbance is due to difficulties not met with by the fat in passing out from the capillaries. Perhaps in this passage we have to deal with a fermentative process or a vital property of the capillary cells, a process which is also of the highest interest for physiology. Still the normal process is not yet completely explained.

It is striking in diabetic lipemia, as Klemperer first emphatically brought to our notice, that the lipoids, cholesterin, and lecithin form a large part of this blood fat. Their amount in the blood can reach several parts per cent. and their percentage in the fat of the blood is far higher than is normal, and what is more, far higher than in the fat of the fat deposits. Accordingly Klemperer is right in stating that the fat in the blood of a lipemic patient is not simply wandering deposit fat. He though first of all of a deprivation of organs which are rich in cholesterin and lecithin. But neither the brain nor the kidneys show any diminution of these substances in diabetic patients with severe lipemia. I think that another explanation is possible, that the cholesterin and lecithin stored up in the blood are derived exclusively from the food and that at first only the exit of these substances from the blood is disturbed. In the second place, only a retention of the true fats would take place which are required to keep the lipoids suspended. As to the true fat itself its origin could be looked for in the fat stores of the body. This is proved by the severe lipemia occurring in fasting diabetic dogs.

DIABETIC ACIDOSIS.

In dealing with the problems of β-oxybutyric acid and of acidosis I do not venture to give you a full account of this doctrine, though it is that field of metabolism in which research has most widely enlarged the knowledge of biochemical occurrences.

In order to place the problem fully before you let us take for granted the following statements:

1. Oxybutyric acid yields acetoacetic acid;* the transformation of the latter to acetone occurs only in very slight degree within the body. Most of the acetone found in urine is split off from acetoacetic acid within the eliminated urine, but was not secreted as such by the kidneys. Probably also the exhaled acetone is split off by the capillary cells of the lungs. Instead of dealing with three different acetone bodies—a term which means oxybutyric acid, acetoacetic acid, and acetone—we have to deal actually only with the two acids, and a calculation of their amount as by the amount of oxybutyric acid alone is justifiable.

2. Oxybutyric acid is derived from fats and from certain amino acids, but not from alcohol and not from carbohydrates.

3. Acetone bodies appear in the urine and in the expired air only when carbohydrates are lacking in the food, or when they are not utilized in the normal way. There may be other factors which increase or diminish the height of acidosis, but the predominant cause of acidosis is the non-utilization of the sugar molecule.

4. Acetone bodies are found in minimal quantities in the excretions of healthy people. Thus they must be considered as normal intermediate products.

5. Besides carbohydrates other substances are known which diminish the output of the acetone bodies. They are called antiketonuric bodies. Their efficacy may depend on different reasons.

The problem to which I want to call your attention is as follows: What is the extent of the intermediate formation of acetone bodies in the human organism in normal life and in disease, and especially whether any difference exists in the amount of acetone bodies formed in health and in diabetic coma?

I shall attempt to support the doctrine that oxybutyric acid is formed to just *the same amount* in healthy persons living on meat and fat as in diabetes. In enunciating this hypothesis I own frankly that it has not been proved and that some facts might be considered as contradicting this view. But in my opinion all facts known about acetone bodies would be understood best and be appreciated in the most simple manner by the doctrine that oxybutyric acid is the *obligatory* product of intermediate metabolism of fatty acids and of certain amino acids.

Having just introduced the conception of an *obligatory* intermediate product of metabolism, please allow me to explain what is meant by this term. When in the sixties of the last century the idea of intermediate products was introduced no clear definition as to its quantitative side was given for many years. The term was applied to all products which not having been completely broken down have been found under any conditions in the excretions or in the body itself. But a sharp distinction has to be made between facultative and

*This transformation, however, is reversible.

obligatory intermediate metabolism. For instance, glycuronic acid is a facultative product; it appears in the urine only when substances are introduced or formed in the body which need neutralization by combination with glycuronic acid because of their toxic character. Thus glycuronic acid is a facultative product of the sugar decomposition. If once it were established that sugar is broken down by yielding at first lactic acid or another chain with three carbon atoms, then this substance would have to be designated as the obligatory intermediate product of sugar oxidation. As another example: One might say that amino acids were the obligatory products of proteid breakdown if the decomposition in the body cells were initiated by a fermentative splitting-up identical with that of trypsin and erepsin. I might mention, by the way, that the opinions of authors on this point are as yet contradictory.

The amount of intermediate obligatory products will, according to this definition, depend only on the amount of the mother substances broken down and may be estimated by stoichiometric calculation.

As to oxybutyric acid, its amount is easily calculated, as far as the fatty acids are concerned in its formation. Of the two components of fat only the fatty acids yield acetone bodies; glycerin, on the contrary, is an antiketonuric substance. By investigations performed either with living beings in the state of acidosis or with the transfused dog's liver, it has been established that fatty acids are broken down by a repeated splitting off of two carbon atoms. The first step is the formation of a β-oxy acid which is then transformed to a β-keto acid;* the prototype of such conversion and the best studied is the transformation of butyric acid into oxybutyric acid and acetoacetic acid. The transformation requires a twofold oxidation at the β-carbon atom. Contrary to what happens in the lungs with acetoacetic acid, a splitting off of the carboxyl group and a formation of a true ketone generally does not take place in the metabolism; instead we find a simultaneous splitting off of the carboxyl group and of the α-carbon atom, thus yielding a new fatty acid lower by two carbon atoms. This opinion has been proven by the admirable experiments of Embden. He found that in the transfused dog's liver only fatty acids with an even number of carbon atoms gave rise to an increased formation of acetoacetic acid, while the acids with an uneven number do not. And I might also mention in this connection the name of Dr. Dakin, who has made important contributions to our knowledge of the breakdown of fatty substances. In this way from stearic acid palmitic acid is formed; from this an acid with fourteen, twelve, ten, or eight carbon atoms is derived; then caproic acid and finally butyric acid and oxybutyric acid are formed. The relative figures are as follows:

	Molecular Weight	Relation of Mol. Weight	% Yield of Oxybutyric Acid from 100 gm.
C_{18}	284	100	36.5
C_{16}	256	90	40
C_{14}	228	80	46
C_{12}	200	70.5	52
C_{10}	172	61	60
C_8	144	51	72
C_6	116	41	90
C_4	88	31	118
Oxybutyric Acid	104	36.5	

*Now, however, some authors assume that at first a β-keto acid is formed, and that this is reduced to a β-oxy acid.

Thus from one hundred grams of *stearic* acid ninety grams of palmitic, eighty grams of myristic acid are formed, and so on. And finally, thirty-six grams of oxybutyric acid arise. The yield is somewhat higher from one hundred grams of palmitic acid. Thus from a triglycerid of average composition thirty-six grams of oxybutyric acid are formed, supposing that every molecule of fatty acid yields one molecule of oxybutyric acid.

A similar calculation of the quantity yielded by the decomposition of protein is far more difficult. Neither do we know all the components of the protein molecule, nor do we know the real percentage of the known amino acids in the different proteids, especially in the katabolized protein of the body. Moreover, the behavior of all the different amino acids in regard to the acetone body formation is not yet known. With some reserve we may accept the following statements: That leucin, tyrosin, phenylalanin are producers of acetone bodies, while valin, glutaminic acid, aspartic acid, alanin, and so on are not.

I cannot point out the chemical steps leading from amino acids to oxybutyric acid; by analogy we might exclude certain amino acids as not giving rise to oxybutyric acid, while we might assume such possibility with others in regard to their chemical structure. But I might emphasize the fact that at least two groups of amino acids are contained in the protein molecule whose behavior is entirely antagonistic. Those amino acids which yield oxybutyric acids like leucin and others are not converted into sugar and *vice versa*. Considering the fact that one hundred grams of protein may form fifty grams of sugar and even more, we might estimate a yield of 40 per cent. of oxybutyric acid from one hundred grams of protein as a maximum. This calculation probably is rather too high than too low.

For the simplification of reckoning we might assume that the percentage of oxybutyric acid yielded from protein was just as high as from fats, namely, 36 per cent., or a little more than the third part.

Furnished with these approximate figures we are now able to examine the quantitative side of the intermediate metabolism. The fundamentals of the doctrine that acetone bodies are the *obligatory* products of metabolism are to be found in the experiments carried out on patients who survived diabetic coma. I emphasize the fact that only in surviving patients can the formation of oxybutyric acid be exactly studied by analysis of urine because the elimination stops too early in the progressively fatal cases. In 1899 I observed in a boy of thirty-one kilos an average elimination of ninety-eight grams of acetone bodies during a period of three days. As to an approximate calculation the boy had decomposed 90 grams of protein and 200 grams of fat; from these 33 grams plus 72 grams or, as a total, 105 grams of oxybutyric acid could have been formed; that is almost the same figure as was found by analysis. The almost perfect identity of the two figures is merely accidental, since different factors of the calculation are not exactly determinable, but in spite of that the agreement of reality and of calculation is striking. *In this case no doubt every molecule of fatty acids and of those amino acids which can be converted into acetone bodies really had undergone this transformation*, and it has been possible to prove this because no destruction had taken place.

For a number of years after that time no similar observation was made by other scientists; then I had the great satisfaction of finding a full confirma-

tion of my figures in the work of one of your countrymen, Dr. Joslin from Boston, with whom I had the pleasure of working in the laboratory of Prof. Naunyn at Strassburg. Since that time other cases were reported in which the amount of acetone bodies during coma reached approximately the above value.

The hypothesis that the acetone bodies are an obligatory product means that in healthy persons living without carbohydrates just as much of them are formed as in the above cases of coma. A healthy man seventy kilos in weight can cover his loss of energy by the decomposition of 100 grams of protein and 200 to 220 grams of fat either derived from the food or from his own body. From these, 110 to 220 grams of oxybutyric acid could be formed in the course of twenty-four hours; that is, 1.75 grams per kilo. Such a surprising assumption would be refuted immediately if it was not shown that human beings are able to decompose the acetone bodies completely by the process of oxidation. The question has not been definitely decided in *man* because nobody has ventured to introduce such enormous quantities. Twenty grams, which was the maximum I gave to healthy men in Naunyn's clinic, were completely destroyed. But in feeding rabbits with 3.6 grams per kilo of oxybutyric acid or acetoacetic acid I found not more than traces of acetone bodies in the excreta. A dog of Schwarz's three kilos in weight on being given twelve grams of acid eliminated only two grams. Ten grams were burnt. Thus in dogs as well as in rabbits three grams of acetone bodies introduced per kilo were decomposed completely. Three grams per kilo in a small animal does not mean three grams per kilo in a man, whose metabolism of energy is only the half. On the other hand it is to be considered that when substances are administered in four or five subcutaneous doses they rapidly escape through the urine and are withdrawn from oxidation.

The conditions of decomposition are much more favorable when the substances in question are formed in minimal quantities within the body cells during the course of the whole day. You may remember the old example of alimentary glycosuria. Hence the combustion of 1.75 grams of oxybutyric acid per kilo in man seems to be within the limits of biological possibility.

In the normal state of health every molecule of oxybutyric acid is broken down immediately after formation; thus accumulation never takes place. It occurs only when the destruction becomes deficient. Accumulation of acids within the body, a state which was called *acidosis* by Naunyn, according to this opinion depends merely on deficient oxidation. We estimate the degree of acidosis with approximate accuracy by the amount of acids which pass into the urine.

The less fat is burnt in the organism the less acetone bodies are formed. Each gram of carbohydrate or of alcohol replacing fat and removing it from combustion will diminish the formation of acetone bodies. When the needs of the organism are covered by 100 grams of protein and 500 grams of carbohydrates, only 36 grams of oxybutyric acid will arise instead of 110 grams in the case of decomposition of 100 grams albumin and 200 grams of fat. But carbohydrates act not only in diminishing the amount of *formation*, but they are directly implicated in the destruction of the acetone bodies.

Rosenfeld's statement that fats are burnt only in the fire of carbohydrates is not quite right, inasmuch as *only* the breakdown of the lowest stages of fat decomposition, that is to say the acetone bodies, depends on the metabolism of the carbohydrates. Naunyn explains the decomposition of the acetone bodies by the simultaneous combustion of sugar as being a *secondary* oxidation. I should prefer to call it a secondary *splitting-up* due to the splitting-up of carbohydrates. However, this term is merely a paraphrase, since we do not know anything about its mechanism. But we can consider the problem as to its quantitative side.

It is a known fact that fifty to eighty grams of starch are sufficient to make the acidosis of a fasting man disappear within a few days. But even in the absence of any sugar in the food acidosis reaches only a slight degree; from ten to twenty grams of acetone bodies are the maximum found in urine outside diabetes, eighty to one hundred grams derived from fat and protein are decomposed, although no carbohydrate was ingested. The combustion in this case is due to the decomposition of sugar formed from protein, for the withdrawal of the new formed sugar by administering phlorhizin causes an immediate rise of the output of acetone bodies. The quantity of new sugar formed in men fasting or living on fat and meat does not exceed fifty grams. Fifty grams of sugar thus are sufficient for the combustion of almost 100 grams of oxybutyric acid. Between these figures there is no equality in the stoichiometric relation. Considering the different size of the molecules, eighty grams of oxybutyric acid represent more than three times as many molecules as fifty grams of sugar. Thus either one molecule of sugar causes simultaneous decomposition of several molecules of acids or the decomposition of the latter is not *exclusively* dependent on a simultaneous decomposition of sugar. We will come back to this point later on.

In every case utilization or non-utilization of sugar plays the preponderant part in the combustion of acetone bodies. As a rule acidosis, that is, the quantity of non-destroyed organic acids, runs parallel in diabetes to the loss of new formed sugar. There are, however, some exceptions to this rule which I intend to explain later on.

It may be safely assumed that a far larger amount of acids is formed in severe diabetes than is eliminated in the urine. Thus we understand the action of ingested sodium bicarbonate upon the output of acetone bodies. It is a well known fact that alkalies increase their elimination. For instance, in a diabetic girl weighing twenty kilos, on varying the amount of sodium bicarbonate given, the following figures were obtained:

$NaHCO_3$ given.	Acetone bodies in the urine.
9	31
18	37
36	47
50	60

The surplus of acetone bodies with the highest doses of alkali was almost thirty grams. The fact is easy to understand. Alkalies by neutralizing the acids circulating in the blood facilitate their elimination with the urine. Here the increased output of acetone bodies does not mean a diminution of the oxidizing powers of the cells, but merely a rapid withdrawal from oxidation. Generally an increased output of acids means an increased deficiency of metabolism and at the same time an increased danger to life, but in case alkali is given the higher rate of acids in the urine not only is not a harmful process but on the contrary it is beneficial, inasmuch as

the accumulation of acids within the body is lessened.

You may ask why in healthy fasting men, when taking alkalies, no similar increase in the output of acetone bodies is found. Indeed, only minimal quantities pass into the urine in the case of healthy persons. But in these, contrary to what happens in diabetes, only minimal quantities of acids enter the blood, and it is only the circulating acids which are carried away and eliminated by the sodium carbonate.

In opposition to the effect of the alkalies, hydrochloric acid tends to diminish somewhat the output of acetone bodies. In binding the alkalies or the ammonia which were used for the neutralization and for the elimination of the organic acids their elimination is rendered difficult. Thus they are retained in the body and their combustion is favored because they circulate a longer time in the blood. But the increased destruction in this case does not mean an advantage for the organism.

I shall now endeavor to explain some striking results of feeding experiments carried out in regard to acidosis. Butyric acid given to diabetic subjects was found to be the strongest producer of acetone bodies. This conversion requires only one atom of oxygen; it is performed rapidly and the organism is suddenly inundated by an excess of oxybutyric acid. Thus an important part of it escapes decomposition and is found to pass into the urine. On the other hand, on giving stearic acid a certain time will be needed before each molecule is broken down until it reaches the stage of butyric acid. The formation of oxybutyric acid from stearic acid extends possibly over many hours, no sudden inundation will occur and thus no appreciable rise in the output of acetone bodies will take place.

Remember also the fact that regarding the formation of oxybutyric acid three grams of stearic acid are equivalent to only one gram of butyric acid. In the second place we have to consider that on adding 100 grams of fat to the food no corresponding additional combustion of fat occurs, but only a replacing of 100 grams of body fat by food fat. In analyzing the results of all experiments on fat introduction I cannot accept the opinions of some authors that overfeeding with fat causes an increased output of acetone bodies.* Only in a very few experiments the output was increased after taking a great amount of fat, especially in comparison with fasting men, who decomposed body fat. But the difference was small and I do not think it was due to a different breakdown of body and food fat, but rather to secondary factors.

Some years ago the conclusion was reached by several physicians that it was necessary to restrict the fat in the food of a diabetic patient on account of its giving rise to acetone bodies. The above explanation will be sufficient to show the inconclusiveness of such postulation. And knowing as we do at present that the protein molecule also yields acetone bodies, you may easily appreciate that the above conclusion was erroneous.

As to the protein, its part in relation to acetone bodies is more complicated. Protein contains two different groups of amino acids, one group yielding oxybutyric acid, and the other increasing its destruction. In healthy men the efficacy of the latter group prevails. When a healthy man, living on eighty grams of protein and two hundred grams of fat, eliminates six grams of oxybutyric acid, and he is given a surplus of one hundred grams of albumin, acidosis will disappear within a few days. But the rôle of protein is different in severe diabetes. In such cases those amino acids which exert an antiketonuric effect, like alanin, glycocoll, etc., are converted into sugar and eliminated; thus they cannot help in splitting up oxybutyric acid, and the surplus of oxybutyric acid, formed from the other groups of amino acids, will be added to the amount present in the body, and thus acidosis may increase frequently.

Glycerin also is able to prevent acidosis in a *healthy* man. Its efficacy is due to its transformation into dextrose, just in the same way as is the case with glycocoll, alanin, etc. These amino acids also owe their effect to their conversion into sugar. In diabetic patients, however, glycerin fails to show its antiketonuric effect, because the sugar formed from glycerin is not available for the patient.

Besides protein and glycerin another substance is to be mentioned whose antiketonuric efficacy is available, not only in *healthy* men, but also in diabetics, namely, alcohol. Alcohol is not convertible into sugar, hence this food stuff, if we may call it so, is useful in severe diabetes, at least in moderate quantities, on account of its energy content, and of its possible efficacy against acidosis. I deem further experiments on this subject necessary, especially in coma, and I think it very likely that it might give us a little support in the struggle against coma. Its efficacy can be explained either exclusively by its replacing fat and thus diminishing the formation of oxybutyric acid, or by the assumption that it increases destruction, similarly to the efficacy of carbohydrates. Whether or not this be so is as yet unknown.

I will set aside many questions of great interest in the problem of acidosis and will confine myself to three questions only.

1. We know that as long as coma is not imminent, the oxybutyric acid output amounts to not more than fifty or sixty grams daily. In coma the amount rises to two or three times this amount. According to my conception this does not depend on increased formation, but merely on a decrease or even a total loss of the destructive powers. We may ask why oxidation ceases so rapidly, coma occurring sometimes in the course of a few hours? In some cases the coma seems to have accompanied a sudden decrease of the sugar combustion. Such a case was reported by Spitzer. Coma set in immediately after a strong physical shock combined with a physical emotion. From that moment the elimination of sugar, up to then rather slight, rose to abnormal height, and at the same time by increased loss of sugar the oxidation of acetone bodies was lessened to a minimum. Here no time was left for adaptation, which in the general course of diabetes prevents the rapid increase of acidosis. But it is unknown whether the sudden increase of acidosis in coma can always be explained in this way. It is necessary to look for other reasons which influence acidosis.

In connection with this problem I might refer you to a second question, namely, to the differences which are observed in different patients. Some of them, when kept on a strict diet and eliminating some grams of sugar, do not eliminate acetone bodies through long periods of their illness. Others on the contrary, although still decomposing thirty and forty grams of starch given in their food, will eliminate several grams of oxybutyric acid. This

*With the exception only of butter.

difference, which is rather remarkable, points to the conclusion that still other factors besides the carbohydrate breakdown come into play in acidosis; von Noorden especially has insisted upon the existence of such factors. At present we cannot determine them. But I might suggest that the above difference in the acetone body output may be explained by a different localization of the carbohydrate combustion. If the splitting up of oxybutyric acid depends on the simultaneous splitting up of carbohydrate, the decomposition of both substances ought to occur *simultaneously* and in the *same place*. If there was no coincidence of the two processes, neither in time nor in space, then acetone bodies would be eliminated although certain quantities of sugar were utilized.

Let us now return once more to the principal subject of acidosis. In asserting that acetone bodies were an obligatory intermediate product, I refer principally to Embden's experiments on the dog's liver. The yield of oxybutyric acid from the liver, on transfusion with butyric acid, amounted to not less than nine grams, if calculated for twenty-four hours. Considering the low weight of this organ, which is from 100 to 200 grams, this yield is extremely high. Considering further that in the isolated liver the conditions of formation are less favorable than in living beings, and considering moreover that other organs also might form acetone bodies, although we have no knowledge of such formation except in the liver, we might consider the formation of 100 grams in healthy men as being within the limits of biochemical possibilities.

But it was Embden himself who made an important objection to my doctrine. This skilful investigator found that dog's liver is capable also of *destroying* acetoacetic acid. And in comparing the rate of destruction in the liver of a normal and of a diabetic dog, he found that there was no difference. Hence he inferred that the destruction of acetone bodies was not diminished in depancreatized dogs, and he inferred that this was the case also in human diabetes. Thus he was obliged to explain the acidosis in diabetic patients by an increased formation of acetone bodies. His opinion is just the reverse of mine. But there is one error in Embden's conclusion, and that is the difference in the metabolism of diabetic dogs and of men. Contrary to what happens in human beings, severe acidosis is rather rare in depancreatized dogs, and it seldom reaches the height of the human acidosis. *The dog being a carnivorous animal is used to breaking down oxybutyric acid without the help of carbohydrates*, which are needed in human metabolism; thus in canine diabetes the destruction of acetone bodies is not as deficient as in men. It was erroneous to transfer the results of the experiments on the dog's liver to the metabolism of diabetic patients. Thus I deem that Embden's results by no means refute my hypothesis.

The doctrine which I have endeavored to present to you is to the effect that oxybutyric acid is an obligatory intermediate product of metabolism; second, that its amount is the same in healthy persons and in diabetics, supposing that only fat and albumin are decomposed. And, third, that acidosis and the elimination of acetone bodies depend *merely* on the deficiency of destruction. I own frankly that this hypothesis is not proved at all, and you are at liberty not to accept it. I myself do not fix my opinion absolutely. By the thorough calculation of the quantitative factors of the hypothesis in problems of this nature and careful consideration of the ultimate possibilities presented, valuable insight into the question may be obtained which may lead to the development of a well founded theory. In this way weak points in the doctrine may be discovered and new aspects of the problem would present themselves for further investigation. If the ideas that I have been putting before you should lead you to undertake new experiments and to obtain new results, I will be the first to accept them willingly, even if they are contradictory to the above hypothesis.

METABOLISM OF WATER IN DIABETES.

The large quantities of water which the diabetic patient eliminates are almost exclusively the result of his loss of sugar. There is a certain relation between the absolute and percentage quantity of sugar output and the volume of urine. Exceptions occur but are not very frequent. There are patients who on losing only a few grams of sugar eliminate three to four liters of urine. In this case the glycosuria is sometimes overlooked; it seems to be a case of *diabetes insipidus*. Also another variety sometimes deceives physician and patient, and has, therefore, been given the name *diabetes decipiens*. The patient is not troubled with an abnormal thirst; the volume of urine is within normal limits; the patient has also, as the loss of sugar often remains slight, no striking symptoms. Accordingly often only an accident leads to the discovery of the urine sugar, whose mass may then amount to many parts per cent.

In ordinary cases of diabetes the patient covers his increased water output by taking in large quantities of water, so that his organs do not lose water. They do not dry up. But in other cases the taking up of water does not keep step with the flow of urine, in spite of severe thirst and great drinking. The tissues of the body lose some water, whereupon of course a new equilibrium is set up between water introduced and eliminated. This occurs only in patients with a very high sugar output and on a completely unrestricted diet, and especially in wholly neglected cases. Such we find rather seldom at present in Germany. Diabetes has changed its clinical aspects, when compared with a period of thirty years ago, on account of early and careful treatment.

In such patients the loss of water from the skin has sunk to a minimum. Külz has seen diabetics in whom only 100 c.c. water are evaporated from the skin instead of 500 c.c. So much water is used for the sugar elimination that only a very little is left for the dried up skin. As soon as the water content of the organs becomes normal again the perspiration increases. It was also believed formerly that in such severe cases the skin would take up water from the surrounding air. Even Gaethgens has fallen a victim to this deception in spite of great care in his experiments. We know to-day that the skin by no means takes up water from the air. In a bath of warm water a swelling of the epidermal layers takes place and there is a transitory absorption of water. This water, however, does not penetrate into the general circulation. The loss of water from the lungs is usually fairly normal with diabetic patients. If the diet be regulated and the transition to strict diet carried out *quickly*, the weight of these patients sometimes rises several kilos in a few days. This increase is

caused most exclusively by regaining of the lost water of the body.

Also in periods of regulated diet the water equilibrium of a diabetic subject can vary to a certain extent from day to day, partly in connection with the change in the sugar output. To a smaller degree variations of this kind also occur with normal persons. We must be careful not to attribute every kilo of loss or increase in weight to a loss or increase of flesh and fat.

But at certain periods an excess of water may be stored up. True dropsy can appear, but also that condition which Widal has suitably called "preedema." Widal observed that the weight of patients suffering from parenchymatous nephritis on being fed on a diet rich in salt rose five to six kilos before dropsy became visible. In this period the water is uniformly distributed over the body. Both of these states, preedema and dropsy, may appear in diabetic patients, also when distinct nephritis is absent, and are found especially when the patient takes large quantities of sodium bicarbonate, thirty and forty grams daily.

This circumstance leads us to an important consideration. Widal, as you know, has referred the appearance and disappearance of nephritic dropsy to the retention and excretion of salt, and has put forward irrefutable proofs for this opinion. But we must no longer be content to ascribe certain properties to any salt as a whole, since it is known that all salts are split up into ions.

It has always been thought that in the retention of salt by the diseased kidneys it was the chlorine ions and not the sodium ions that played the decisive part. But experimental investigations of this sort had not been carried out when I drew attention to this question last year in Wiesbaden. I myself believe, like most clinicians, that the chlorine ions are responsible for the nephritic retention of common salt. Experiments on nephritic patients which I carried out last winter in this direction strengthen this assumption. But the conditions seem to be otherwise with diabetic patients. Here sodium carbonate often effects distinct retention of water. It appears to act similarly also in infants according to experiments of my friend, I. F. Meyer, on the idiopathic dropsy of young children. Whether the conditions are really different in nephritis and in diabetes I consider not yet decided. Perhaps the dropsy producing property of the sodium ion observed in diabetes is not a direct one. Further experiments in this direction promise to be of value for pathology and physiology.

METABOLISM OF INORGANIC SUBSTANCES.

Common salts, that is to say sodium chloride, also sodium bicarbonate, have such intimate relations to the water metabolism that investigations in this direction will for the most part go hand in hand. Nothing is yet known about peculiarities of the mineral metabolism in the course of common diabetes. Almost no experiments on mineral equilibrium have been carried out, but severe disturbances are scarcely to be expected. Quantities of from thirty to forty grams of common salt in the urine of certain diabetics are only an accidental symptom of the polyphagy. If nephritis appears perhaps the elimination of common salt might be interfered with. Still it is not yet known whether diabetic nephritis has not its own special peculiarities and is different from ordinary nephritis. That appears probable to me.

Disturbances of the lime and magnesia metabolism, also of phosphoric acid, occur in severe diabetes. Considerable losses of all three substances sometimes have been observed. The loss of lime can amount to several grams in the course of a week. It is clear that this lime is derived from the bones, for the total fleshy parts of the body contain hardly more than ten grams of lime and a marked diminution of the lime content of these parts scarcely occurs. The bones, on the other hand, can give up large quantities of lime together with phosphoric acid. Frerichs years ago found in autopsies that bones of diabetic subjects were extremely poor in mineral substances. This single result must be controlled by systematic investigations in diabetic cadavers, but also in other diseases. As in such cases of demineralization a strong acidosis is mostly present we can consider both phenomena to be in connection with one another. We might attribute the loss of lime and magnesia to the action of the oxybutyric acid.

But we must not regard this demineralization purely chemically as consisting of a simple solution of the bone ash in the same way as one formerly ascribed rachitis and osteomalacia to the dissolving power of lactic acid. The oxybutyric acid of the serum is not present in the state of the free acid but as the neutral salt, or as we should say to-day as the anion accompanied by the corresponding masses of cations. The alkalinity of the blood is not changed, at least not except in coma. The oxybutyric acid does not exert a specific action which attacks the bone tissue directly and leads to decomposition, as certainly is the case with oxalic acid. But we cannot quite doubt the influence of acidosis on the inorganic metabolism. I will bring to your notice two very instructive examples showing the influence of acids on the metabolism.

Zuntz and Tangl have shown that the passage of even small quantities of lactic acid from the working muscle into the blood by which the alkalinity is not appreciably diminished has an immediate and definite action on the respiratory centers. By this a more active aeration of the blood and ventilation of the lungs are called into play. Another instance: Loghem several years ago brought forward a particularly good experiment. Rabbits into which uric acid had been introduced subcutaneously transform this rapidly by means of the body alkali into sodium urate, which on account of its slight solubility remains for a time at the site of the injection.

In several experiments Loghem gave the rabbits half a gram of hydrochloric acid, corresponding to about one-fourth gram per day and per kilo. That is a quarter only of the dose which according to Walther is fatal, a quantity which does not interfere with the health of the animals. This small quantity, which is neutralized by three-tenths gram of sodium or by one gram of sodium carbonate, suffices to prevent the transformation of the uric acid into the sodium salt. Experiments of this and of similar sorts show that the influence of acid or of basic components on the metabolism is not to be underestimated, as was done by investigators who apply the modern physicochemical conception of acids and bases to the occurrences in the animal body. In experimental hydrochloric acid poisoning of a dog a moderate loss of sodium was found, and with rabbits this was very much more considerable. So we may assume that a loss of sodium and potassium could also occur in severe diabetic acidosis. But if compared to the large quantities of sodium which diabetic subjects pass through the body (twenty

grams of common salt contain eight grams of sodium), the loss of small quantities of body sodium will not distinctly enough be recognized in the analysis of the urine in the experiments on equilibrium. Probably on analyzing the organs more striking results could be obtained. I consider it possible that, while during a slowly developing acidosis the body loses some alkali, a new equilibrium between intake and output is shortly reached. This will then once more be disturbed in coma by the sudden increase of the acidosis.

TUBERCULIN TREATMENT IN ADVANCED STAGES OF TUBERCULOSIS;

A REPORT OF SEVENTEEN CASES TREATED WITH TUBERCULINUM PURUM IN HOSPITAL PRACTICE.

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Tuberculin treatment now stands upon a well founded clinical and experimental basis, thanks to the researches of the past decade, which have taught us how to secure its specific effects with a minimum of risk by avoiding improper methods of administration. Despite the numerous modifications, there now is a distinct general tendency to revert to the original product, Koch's "old" tuberculin, the simple gylcerin extract of a filtered culture of human bacilli. Why none of the multitude of modified forms has displaced it is not certain; but the possibility suggests itself that they do not exhibit a better relativity between efficacy and toxicity.

Although there is practical unanimity of opinion regarding the value of tuberculin in incipient and moderately advanced cases, specific treatment is generally regarded as contraindicated in the very adanced types of the disease, principally because the patient's organism is unable to withstand the successive shocks of those toxic reactions which are almost inevitable in the course of tuberculin treatment. Accordingly, tuberculin treatment has never seemed to promise much at St. Joseph's Hospital, where the cases for the most part are of the advanced type, patients whom the sanatoria have rejected or discharged as unimproved, cases which have become advanced amid the unsanitary surroundings of the tenement, the workshop, or the mill. The fate of these unfortunate subjects is certainly a sad one; during their rapid progress toward death their sufferings are but temporarily relieved by opiates and other symptomatic remedies. It seemed a pity to withhold from them the possible hope of benefit from tuberculin treatment, on account of their inability to bear the reactive tendencies of the remedy. While it was formerly thought that a systemic reaction is a necessary and desirable therapeutic effect of tuberculin, preponderance of modern opinion regards reactions as both undesirable and unnecessary. The rules of dosage laid down by present day authorities aim at the avoidance of reaction as the prime object. (Goetsch[1], Denys[2], Sahli[3].) Marked reactions are certainly injurious to the system as a whole as well as to the pulmonary tissues, where the toxic effect of tuberculin may lead to necrosis. For this reason I was interested in a communication of Gabrilowitch of Halila, Finland, to the International Congress on Tuberculosis held at Washington in 1908.[4] He announced that Koch's "old" tuberculin contains not only the beneficial principle which has the specific properties, but also certain albumose constituents which have no therapeutic value and which are the cause of the untoward reactions. He worked with a preparation of Koch's "old" tuberculin from which these toxic constituents had been eliminated by means of chemical reagents (alcohol, chloroform, xylol), and found that this purified tuberculin no longer produced general toxic reactions.

According to Gabrilowitch, this tuberculinum purum (T. P.) can be used in rapidly increasing doses, is not contraindicated in cases in which organs other than the lungs are involved, and produces no subjective or objective discomfort to the patients. What was particularly noteworthy was the fact that one-third of his cases were "of the severe type," although the significant phrase occurs in the full report of Gabrilowitch's work[5]: "But it should not be forgotten that the best results can be obtained only in patients in the first two stages of pulmonary tuberculosis." Gabrilowitch reported that the remedy gave him very satisfactory results, reducing fever, increasing weight, improving the local lesions, and lessening the number of tubercle bacilli in the sputum.

Gabrilowitch's contentions seemed to me sufficiently important to challenge investigation, and I therefore concluded to determine whether the purified product could be used without danger in the advanced cases in my hospital service at St. Joseph's. The treatment was applied in the rather unfavorable surroundings of a large hospital filled to capacity and situated within the city, where the refinements of the sanatorium system are lacking. I therefore felt at the outset that the test to which this purified Koch's O. T. would be put left nothing to be desired in rigorousness. Naturally I did not expect to produce absolute cures, but determined to be satisfied if the albumin free tuberculin did no harm, while prolonging life, ameliorating distressing symptoms, and improving the general condition.

The work was begun about two years ago, and included a study of seventeen cases which were treated with the purified tuberculin. No other medication was employed, but the usual dietetic and hygienic rules were, of course, enforced. For the sake of brevity I have condensed the histories and omitted six cases which contribute little in the way of defining the uses and limitations of the tuberculin.

Chronic Pulmonary Tuberculosis. Case I. *Advanced Catarrhal Tuberculosis.*—M. D., woman, Russian, 23 years old, domestic. She has been ill for several months and had been a patient at the Stony Wold Sanatorium, but was not improved at that institution and had returned to the city. There had been cough, fever, considerable expectoration, and marked loss of weight. The patient entered St. Joseph's Hospital on April 16, 1909. Her condition at entrance was very poor, so that she had to be confined to bed. There was considerable cough and expectoration, nausea, and anorexia. All food was almost immediately vomited. Temperature on admission was 102°F. The physical signs revealed consolidation of the upper half of both lungs, without any cavity formation, but numerous râles over the affected area. The heart and other organs were normal. Numerous tubercle bacilli in the sputum. The first injection of tuberculin was given on April 20, 1909, the dose being 0.02 mg. of T. P. Two

injections were then given each week, the doses progressing gradually, according to the scheme laid down by Gabrilowitch, until 100 mg. were reached. At no time were the injections followed by any reactive phenomena or any unpleasant symptoms, except that the fourth injection caused a constricted feeling in the chest, which lasted for about a week. After the second injection the patient's temperature dropped from 102° to 99°F. (See chart 1, April 26.) On that day she was allowed to get up and go about, and this resulted in a slight rise in temperature on the following evening to 100 F. The chart shows the variation in temperature from April 18 to May 30. She continued able to go about, and her temperature gradually became normal after exhibiting some fluctuations during these weeks. On June 1 the evening temperature was normal and continued so thereafter. The patient's general condition markedly improved during the treatment. At the end of the course of injections there were still some bacilli in the sputum. A noteworthy feature was the prompt improvement of the appetite and digestion after the second injection, when nausea and vomiting ceased and did not reappear. The patient was able to enjoy her meals and to digest her food, with the result that her weight increased slowly but steadily. On April 30 she weighed 120.7 lb. When she left the hospital her weight was 130 lb., a gain of about 10 lbs.

The changes in the lungs at the end of the period of treatment, that is about June 1, consisted in a disappearance of the catarrhal symptoms and a clearing of the affected area of all but occasional râles, although the signs of consolidation still remained. The process was evidently quiescent, and in a favorable condition for hearing. There were still slight cough and a few bacilli in the sputum. Two months after the completion of specific treatment, the patient left the hospital and went to Russia. A letter received from her about a week ago (June, 1910) by one of the Sisters states that she continues in good health and has had no relapse of pulmonary trouble.

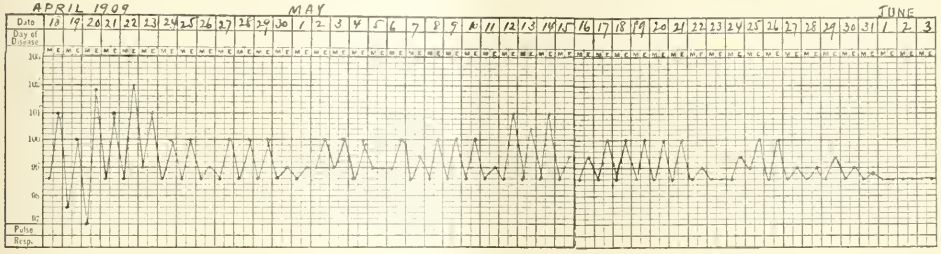

Chart 1. Case I.

Case II. *Catarrhal Tuberculosis.*—A. L., woman, Russian, 30 years old, domestic. The patient had been in the hospital for several months during which time she had shown a steady rise of temperature in the afternoon, in addition to cough, expectoration and at times nausea, vomiting, loss of appetite and general weakness. On May 7, 1909, the cough was annoying and frequent, with a rather moderate expectoration, and some dyspnea on exertion. The patient was able to be about and to do very light work, however. The physical signs revealed a consolidation of both lungs down to the third rib in front, and a corresponding point behind. There were no cavities, but numerous râles over both involved areas. Numerous tubercle bacilli were found in the sputum.

The first injection of 0.02 mg. tuberculinum purum was given on May 7; increasing gradually at each semi-weekly injection, the sixteenth dose amounted to 100 mg. None of the injections was followed by any unpleasant symptoms or any febrile reaction. On the contrary, there was steady betterment of the subjective condition. The temperature during the treatment gradually fell to normal, although a slight evening rise remained for some time after the last injection, and then disappeared.

The results in the lungs consisted in a disappearance of the râles and a quiescence of the catarrhal condition. The cough was markedly lessened and the expectoration decreased. Examination of the sputum showed at times a few tubercle bacilli and at other times none were found. The dyspnea on exertion was markedly improved as were also the appetite and the general condition. The temperature became normal night and morning and remained so. The weight, however, did not markedly increase, but remained practically the same with some fluctuation. The patient left the hospital two months ago and has had no trouble since the treatment.

Case III. *Fibroid Tuberculosis.*—J. K., man, Irish, 30 years old, laborer. The patient had been in the hospital for several months, during which time he had had several severe hemorrhages. A fairly well nourished patient. Cough and expectoration at times marked. Tubercle bacilli in the sputum. The appetite was good, but there was a slight febrile movement toward the evening. The physical signs showed chronic fibroid phthisis involving the upper half of the right lung. There was a moderate number of râles over the affected area, in addition to the other signs of fibrosis. The first injection was given on October 23, 1898, and the doses were repeated twice a week. The first course of injections, sixteen in number, reached the dose of 100 mg. After an interval of about three weeks a second course was begun, this time reaching a dose of 200 mg. At no times were unpleasant symptoms or febrile reactions noted. The slight evening rise spoken of disappeared gradually in the course of the first series. No further hemorrhages occurred after the injections were begun, nor was the sputum tinged red at any time thereafter. The catarrhal signs in the lung disappeared and the fibroid lesions which had previously tended to extend were arrested for the time being. The general condition at the conclusion of the treatment was good. The weight on entrance had been 135 pounds. On October 26, three days after the first injection, the weight was 148 pounds. On

November 16, 151 pounds; on February 16, 156 pounds. The patient became an orderly and remained in the hospital for several months, during which time occasional examinations showed that his good physical condition continued.

Case IV. *Fibroid Tuberculosis.*—C. F. M., American, 30 years old, porter. The patient entered the hospital on January 22, 1908, with a history of cough, expectoration, and a moderate evening rise of temperature. His general condition had been fair, his appetite normal. The physical examination showed chronic fibroid tuberculosis on both sides, reaching to about the fourth rib in front and a corresponding distance in the back. A considerable number of tubercle bacilli were present in the sputum. There were numerous râles over the affected region. Injections of T. P. were begun on October 23, 1908, two doses being given each week. Two courses were given in all as in Case III, the last injection reaching a dose of 200 mg. No unpleasant symptoms were noted, except a feeling of constriction in the chest during the first week of the treatment, which disappeared after about a week. As regards febrile reactions, these were either absent or very slight, leaving no subjective disturbances. The temperature gradually was reduced to normal and has remained so after the treatment until the present writing.

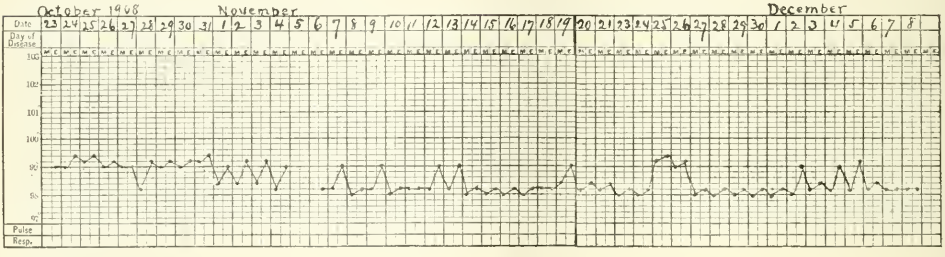

Chart 2. Case III.

The patient has just been reexamined (June, 1910). There has been an arrest of the active phase, disappearace of the catarrhal symptoms, clearing up of the involved area, return of the temperature to normal, considerable lessening of cough and expectoration, and marked reduction in number of tubercle bacilli in the sputum. To the present writing, almost a year later, the patient's condition has remained practically stationary.

Case V. *Ulcerative Tuberculosis.*—W. W., man, American, 52 years old, insurance agent. Patient entered the hospital on August 17, 1908, with cough and expectoration, poor general condition, anorexia, night sweats. There had been no improvement up to the present period of observation; in fact, he had been getting gradually worse. Physical examination revealed ulcerative tuberculosis, with consolidation of both apices, and a cavity in the right apex. The temperature on examination was 101°F. There were numerous tubercle bacilli in the sputum.

The first injection was given on October 23, 1908, and, like in the three preceding cases, two series of injections, 32 in all, were given. No unpleasant symptoms were noted after any of the injections. The weight had dropped from 128 to 120 pounds before the beginning of tuberculin treatment. During the treatment the appetite improved and the patient gained one pound, but his weight remained at this point practically stationary.

The results in this case were a general improvement, a lessening in the cough, dyspnea, and expectoration, and a reduction of the number of tubercle bacilli in the sputum. The patient's improvement, so far as the lung itself was concerned, was not marked, the process remaining stationary rather than receding. At the end of the treatment his general condition was good and remained so. Unfortunately this patient's mental condition was affected; he became melancholy, and committed suicide three months after the discontinuance of the treatment.

Case VI. *Ulcerative Tuberculosis.*—J. R., woman, American, 25 years old, clerk. Patient had been treated at Stony Wold Sanatorium. For several weeks she had been suffering from an acute exacerbation, with a small amount of blood in the sputum, nausea, vomiting, and fever reaching 102° F. Ulcerative tuberculosis was found on examination, with an extensive involvement of both lungs in their upper lobes and a cavity at the apex of the left lung. The first injection was given on April 21, 1909.

Sixteen injections were given in all, the tuberculin being administered twice a week. The maximum dose was 80 mg. After the third injection the nausea and vomiting disappeared, the appetite improved. The temperature gradually fell with fluctuations. The cough at first became looser and the expectoration increased. Later the cough became less frequent and the expectoration scantier. The weight increased from April 22, when it was 93 pounds, to 97 pounds on May 4. After the third injection I also noticed a peculiar change in the skin of this patient. The epidermis which in this girl had been harsh and leathery became pliable and normal in appearance. During the first few injections the patient complained also of a tight or constricted feeling in the chest which disappeared, however, after six or eight injections had been given.

In this case there was no lasting effect upon the temperature from the administration of T. P. I attribute this partly to the presence of a cavity and partly to the probable presence of a mixed injection which is so frequently seen in such cases.

Cases VII to XII were also chronic pulmonary processes of advanced types, but present no features of special interest and therefore their histories are here omitted.

Acute Miliary Tuberculosis.—With a view to ascertaining whether any reactive phenomena would appear, and whether some subjective relief would not occur, T. P. was given in two cases of acute miliary tuberculosis which were admitted in a dying condition. It is hardly fair to include these in

the mortality figures, since their death had been a foregone conclusion.

Case XIII. *Acute Miliary Tuberculosis.*—J. L., man, Italian, 30 years old, laborer. No previous history could be obtained with definiteness, as the patient spoke no English. He entered with nausea, vomiting and fever, and a good deal of prostration. Temperature was 102½°F. and the general condition very poor. On examination, both lungs were found involved in an acute miliary type of tuberculosis. The tuberculin was given with the hope of making the patient comfortable by lowering his temperature and arresting his nausea and vomiting, since it was evident that the case was hopeless. The patient remained in the hospital for about two weeks, during which time four injections were given, the first beginning with 0.02 mg., and the others increasing to 0.1 mg. After the second injection his gastric condition improved, as well as his appetite. The patient felt more comfortable, although no effect was produced upon the pulmonary process. The patient died a few days after the last injection. There were no untoward symptoms or febrile reactions following the injections, and I feel that the tuberculin made his last days comfortable, even if it did not succeed in prolonging his life.

Case XIV. *Acute Miliary Tuberculosis.*—M. F., woman, American, 23 years old, clerk. Patient had been ill for about two months when she entered the hospital on October 9, 1908. There was a cavity in the left lung, and at the time of entrance an acute miliary tuberculosis in both lungs. On admission the temperature was 104°F. At the request of her family physician T. P. was given, but after the seventh injection the treatment was discontinued, owing to the hopeless character of the case. There seemed to be no untoward effects from the tuberculin, but it did not produce any improvement. This case was totally unsuited for T. P., and it was only at the urgent request of both physician and patient that the injections were given. The case progressed rapidly toward its fatal termination, as all cases of this type do, death occurring within two months.

Tuberculosis of the Larynx: Case XV. *Laryngeal Tuberculosis.*—T. O'B., Irish, 33 years old, plumber. The patient had been in the hospital for eight months, during which time he gradually lost much weight, had occasional fever, and suffered from increasing aphonia. There was no history of pulmonary involvement, but repeated examinations of the larynx had shown progressive laryngeal tuberculosis. On October 23, 1908, careful examinations of the lungs showed no pulmonary signs of tuberculous disease. The larynx showed chronic tuberculosis. The patient could talk only in a whisper and was markedly emaciated. There was little dysphagia. At no time were there any tubercle bacilli in the scanty expectoration which accompanied the laryngeal cough.

The first injection of T. P. was given on October 23. There were two courses of injections given in this case, in the same manner as in Case III. At no time were any unpleasant symptoms noted. Improvement did not show itself to any extent in the laryngeal lesions; but rather in a steady gain in the general condition and the weight of the patient. The patient when admitted on April 2 weighed 165 pounds. On October 26, three days after the first injection, he weighed 138 pounds, having lost 27 pounds since admission. Until he began receiving the injections, therefore, he was rapidly losing weight. This was almost entirely checked by the T. P.

The patient is still in the hospital and doing fairly well, the process being apparently quiescent (June, 1910). The results in this case cannot be said to have been extraordinary, yet scarcely better could be expected in an advanced case of primary laryngeal tuberculosis.

Joint Tuberculosis.—Inasmuch as the tuberculinum purum had been well borne by patients with pulmonary and larynygeal phthisis, I employed the remedy in two cases of joint tuberculosis.

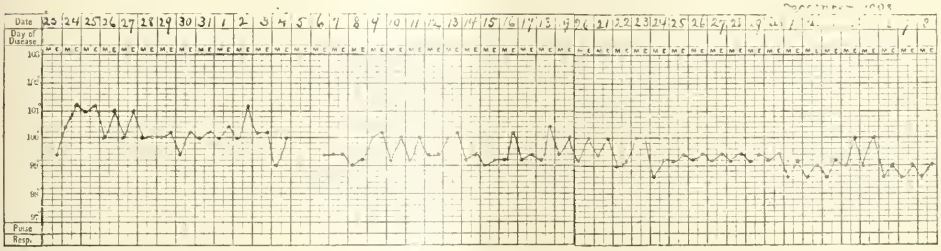

Chart 3. Case VI.

Case XVI. *Tuberculous Arthritis.*—J. G., American, 32 years old, saleswoman. In April, 1909, the patient was operated upon at St. Luke's Hospital for an abscess in the neighborhood of the knee joint. She was told at that time that the bone was not involved. A sinus persisted, however. On May 24 the patient had an attack of pleurisy and several pulmonary hemorrhages, with fever and delirium. In this condition she entered St. Joseph's Hospital. Here her pulmonary condition gradually improved, but the knee became swollen and painful, with limitation of motion and inability to extend. Upon diagnosis of tubercular process in the joint, the patient was put on tuberculinum purum, two injections being given each week. The initial dose was 0.02 mg., the maximum dose 100 mg. At first the pain in the knee increased, but after a few injections the swelling became less marked, the pain gradually disappeared, and range of motion increased. After the sixteenth injection the patient returned to her home with little or no pain in the knee joint, and was able to extend the limb fully, something she had been unable to do for months. The lung condition upon her discharge was in a quiescent state.

Case XVII. *Tuberculous Arthritis.*—B. C., Irish, 39 years old, houseworker. Three and a half years ago her right knee began to trouble her, giving the usual symptoms of tuberculous arthritis. Two years

ago her elbow also became involved. In October, 1909, injections of T. P. were begun. Both knee and elbow were markedly swollen, very painful, with considerably restricted motion. After the first injection of 0.02 mg. the patient complained of a "bound" or constricted feeling in both joints, a sensation which disappeared in about ten days. The injections were repeated twice a week, the doses gradually increasing. At no time were there any febrile reactions or other unpleasant symptoms. Gradually the motion increased in the elbow so that the patient could comb her hair, and in the knee so that she could freely extend that joint. The swelling and pain disappeared. Sixteen injections were given in all, the last amount being 100 mg. In this case not only was the disease arrested in both joints, but a considerable degree of motion was restored to the articulations, which with use will improve further. There was apparently no pulmonary lesion in this patient.

Dosage and Method of Injection.— In my work I followed the general scheme of dosage recommended by Gabrilowitch, and, while ready to make a modification of strength and frequency, did not see any need for so doing. The product was supplied to me in four series of each five sealed bulbs, the first series being a one-tenth of one per cent. solution of tuberculin and each of the following series being ten times as strong as the preceding one. The following table presents the progression of dosage in general, but it may of course be varied in individual cases by diluting the solutions with sterile water, or by repeating a dose without increase, or lessening it, or deferring its administration, if any sign that the limit of tolerance has for the moment been reached appears.

Number of Injection	Dose in Mgm.	Series Used	Volume of the Injection in 1–10 cc.
1st	0.02	A	2
2nd	0.04	A	4
3rd	0.08	A	8
4th	0.10	A	10 (or 1 cc.)
5th	0.20	B	2
6th	0.40	B	4
7th	0.80	B	8
8th	1.0	B	10 (or 1 cc.)
9th	2.0	C	2
10th	4.0	C	4
11th	8.0	C	8
12th	10.0	C	10 (or 1 cc.)
13th	20.0	D	2
14th	40.0	D	4
15th	80.0	D	8
16th	100.0	D	10 (or 1 cc.)

The injections were given not oftener than twice a week.

Conclusions.—Reviewing these cases, it appears that no untoward effect was produced by T. P., excepting occasionally a transient feeling of constriction in the chest. The temperature was not raised by the injections, save in some instances to the extent of a few tenths of a degree. This is in marked contrast to the severe reactions common with Koch's O. T.—fever, chills, dyspnea, prostration—whose occurrence means so sharp a set-back to the patients. In all but one of the acute miliary cases a specific effect on fever, lesions, bacteria in the sputum, expectoration, appetite, digestion, weight, general condition was evident. A distinct arrestive influence on the tubercular process must be conceded. These favorable effects were particularly striking on comparison of these cases with those which received only the regular treatment without tuberculin in the hospital. The results in tuberculous arthritis suggest the desirability of further trials of the product in surgical tuberculosis. My material, therefore, justifies the following conclusions:

1. The purified tuberculin, properly used, causes no reaction of any significance in advanced cases of tuberculosis, so that it may be safely used in stages in which tuberculin has heretofore been deemed contra-indicated.

2. The benefits which often follow the treatment with the purified tuberculin—reduction of fever, of the catarrhal symptoms, of the infiltrates, and of the subjective difficulties—certainly encourage its further use in combating the process and ameliorating the condition even in advanced stages of tuberculosis. I desire to acknowledge my indebtedness to Dr. C. M. Cauldwell for his interest, aid and counsel, which have been of such great value in this work.

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ON PRELIMINARY EXAMINATION OF CHILDREN AT THE DISPENSARY, AS A MEANS OF PROTECTION AGAINST CONTAGIOUS DISEASES.*

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Having been engaged for many years in active dispensary work, and impressed with the inadequate measures taken for the protection against contagious diseases, I took leave in April, 1907, to address a communication to the Dispensary Committee of the Mount Sinai Hospital, in which I suggested the introduction of a preliminary examination of children applying at the dispensary, with a view to early detection and exclusion of contagious cases. To the honor of the directors of the hospital, always anxious that the best should be done for the patient, it should be stated that the recommendation embodied in my communication was adopted and the matter was then referred to the superintendent, Dr. S. S. Goldwater.

According to the fifty-sixth annual report, issued January, 1909, the dispensary of the Mt. Sinai Hospital treats a larger number of patients than any other dispensary in the city; as many as the dispensaries of Bellevue, Gouverneur, Fordham, and the Harlem Hospitals combined. During the year 1908 12,214 children were treated in the medical classes, while the consultations numbered 21,316. From December 1, 1908, to July 20, 1909, on which date the dispensary was closed on account of extensive additions and alterations, which are at the present time nearing completion, the number of consultations in the children's department amounted to 14,583. The total daily average number of consultations, including children and adults, was 678.11, and the largest number of such consultations in one day was 941. Children are attended to

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daily in two afternoon and one morning class. Tickets are issued between 10 and 11 A. M. and 1 to 3 in the afternoon. Morning classes were established in 1907 to accommodate a constantly growing number of applicants and to receive the overflow of the afternoon classes. There is an average attendance of about forty-six children in both medical classes in the afternoon and about twenty-six in the forenoon, the number of cases being restricted to fifteen for each class. This plan was inaugurated by the superintendent of the hospital in 1907 and has proved to be an advantage as it permits the attending physician to devote more time and attention to each individual case. In addition to this, there is a like number of children treated in the other departments (nose, throat, skin, etc.), which brings the total daily attendance of children at the Mt. Sinai Dispensary to about 150.

Procedure of preliminary examination of children at the Mt. Sinai Dispensary.—Mothers and children enter the dispensary through the main entrance on Madison Avenue between 100th and 101st Streets; perambulators are left outside of the building; an orderly stationed at the door directs them to a spacious and light recess to the right, where the physician in charge is stationed; nearby is a desk containing necessary implements, as wooden tongue blades, culture tubes, antiseptic solutions, records for entry of contagious cases, etc. To avoid crowding, if the attendance be large, and to avert possible infection while waiting, visitors approach through a winding passageway between two railguards in single file; they are examined hastily, one after the other, for the presence of any infectious disease. The buccal cavity of each child is inspected and carefully searched for Koplik's spots, pharyngeal exudates, etc., while cultures are taken from throat and nose whenever necessary. The time from entering the dispensary to the conclusion of the preliminary inspection of each applicant shall not exceed three to five minutes.

A more complicated plan was proposed by Knoepfelmacher, who devised for that purpose a system of booths. Each visitor is admitted directly from the street to an empty booth and awaits there the arrival of the physician, who enters from the other side; after the preliminary examination the applicant leaves, without having been in contact with any other patient; in case of contagious disease the booth is closed and thoroughly disinfected. Knoepfelmacher's device seems to be almost perfect, an ideal method, but, I believe, rather difficult to carry out and hardly feasible in an institute with a large patronage.

While the advantage of a preliminary examination is evident, it would be erroneous to assume that by its establishment infectious diseases would be wholly barred from the waiting-room of the dispensary. Errors, often unavoidable, will occur; mistakes will be made, especially when the number of applicants is large; but, if not entirely eliminated, the danger of dissemination of contagious diseases is considerably lessened by it, an ample recompense for the trouble and financial outlay. To render preliminary inspection effective it is essential to examine each child, whether or not suspicious looking. Often children with diphtheritic sore throat present but few visible symptoms of the disease; and it will be easily understood that the exanthematous fevers are as a general rule seen in the dispensary in the early prodronal stage, when, with few external manifestations, the disease may be in the most active period of infection; it is of paramount importance to bar these early cases from the waiting-room, as a safeguard against the dissemination of contagious diseases.

During the precursory examinations it occurred that occasionally noncontagious diseases were detected requiring speedy medical intervention. On the entry slips of cases excluded from the waiting-room on June 17, 1907, I find: Varicella, two cases; tonsillitis exudativa (diphtheritica?), two cases; furthermore, one case of retropharyngeal abscess; and two days later, on June 19: Scarlet fever, one case; varicella, one case; and, again, a case of retropharyngeal abscess. Thus, the early detection of urgent cases requiring immediate medical attention appears to be another advantage of preliminary inspection. Only if found free from contagious disease children receive from the physician marked (O. K.) passes, which must be presented to the dispensary clerk before cards for the various departments are issued. They are then seated and wait for their turn to be called into the treatment room. After the consultation visitors leave the dispensary by a separate exit leading to 100th Street. The time the patient remains in the dispensary may average from two to three hours, and often longer. If, however, a child is found to suffer from a contagious disease, it is, with its attendant, immediately hurried off to one of the two isolation rooms in the basement; here they receive the necessary attention; in case of suspected diphtheria an antitoxin injection is given, and the patients are then sent home, if at walking distance from the dispensary; otherwise, they are detained, and the Health Department is notified to send an ambulance to convey them home, or, if possible, to the hospital for contagious diseases. This is very tedious, as the ambulance will often not arrive before three or four hours; occasionally mother and child will escape during that time, if not closely guarded, or, if waiting long, grow fearful and alarmed and thus give rise to great excitement among the other visitors.

Since April, 1907, preliminary examination of children applying for treatment has been conducted, as yet in the afternoon service only, when the bulk of the work is done, with the result that contagious cases are excluded immediately on entering the dispensary before being permitted to mingle with other applicants in the common waiting-room.*

Far superior to the method outlined here is the system in operation in some of the best European clinics. According to Escherich's description, children excluded from the ambulatorium (dispensary) are sent to the observation ward. This is an achievement of recent years only, though its idea was conceived by Rauchfuss in 1869. Of incalculable service to the hospital, it also serves to protect the individual from diagnostic errors. One part of the observation ward, set aside for the examination of patients and directly accessible from the ambulatorium, consists of separate cells, which are disinfected after each patient; there is also a

*Since the reopening of the dispensary last May two salaried physicians were appointed to conduct the preliminary examination of children in the morning as well as in the afternoon service. The importance of the work is shown by the number of excluded cases. To cite an instance I quote from the records kept by the physicians in charge: On May 17 the following contagious cases were detected among the applicants: Scarlatina, 2; rubella, 1; measles, 1; diphtheria, 1; and on May 26: Varicella, 3; scarlatina, 1; measles, 1; parotitis, 1; and diphtheria, 4. During sixteen consecutive days seventy-four cases were excluded.

room for microscopical examinations; children in whom the diagnosis is established are sent to the pavilions for infectious diseases, while "suspects," indeterminate cases, are detained in the observation ward proper. This has its prototype in the "Système cellulaire" first applied in the "Hôpital de l'Institut Pasteur," in 1900. It consists of cells constructed entirely of glass and iron. The patient remains in the "box" isolated from all others. Regulations to prevent contact infections are almost perfect. Patients are kept until the nature of the disease is determined, when they are transferred to the hospital, or are dismissed, in case of recovery.

The first dispensary in the City of New York, the second in America, was opened in 1791. According to "A Letter from Dr. John Bard, President of the Medical Society of the State of New York, 1791," its establishment was first suggested at a meeting of the Humane Society; the plan was then laid before the members of the Medical Society, who made an offer of their professional services. The necessary means were provided by the citizens of New York, who had long complained that there was no established resort for medical relief for the poor people, save the almshouse, which was the only medical charity in the City of New York at that time. This was the origin of the New York Dispensary, which was opened for patients on February 8, 1791; at first it was located at No. 24 King George Street, cor. William Street. It was incorporated by an act of legislature in April (8), 1795. The New York Dispensary was the only institution of its kind until 1828, a period of 37 years.

The economic and other advantages of the first dispensary were marked, and with the extension of the city limits, with the ever increasing number of its inhabitants, it became necessary to open other dispensaries in various parts of the city. According to the 40th Annual Report of the State Board of Charities for the year 1906, there were 60 licensed dispensaries in the Borough of Manhattan and a total of ninety-six in Greater New York.

During the year 1905, 869,866 persons were treated in Manhattan, and the number of treatments came to 2,452,814. As Manhattan had a population of 2,112,380, it would appear that in the year 1905 about two out of five inhabitants received medical aid in the dispensaries.

The ratio changes somewhat when we consider corresponding figures for the same year in Greater New York, including Manhattan, Brooklyn, Bronx, Queens, and Richmond, the total number of patients treated was 994,315 and the number of treatments amounted to 2,786,206, while the population was 4,013,781. This seems to indicate that approximately one in four of the population was ill and applied for medical relief at the dispensaries.

In the following two years the increase was not very great, possibly due to stricter rules on admission of new patients. According to the records of the State Board of Charities, the number of persons treated in 1907 in Manhattan was 910,380 and in Greater New York 1,042,887; during the year 1908 the number of treatments in Manhattan came to 2,800,170 and in Greater New York, 3,195,507.

But we can not place too much reliance on dispensary statistics; a good many of the gross number of patients have to be deducted as "repeaters," as with the present lack of a uniform system the same person may register in the course of one year at various dispensaries, or even at the same dispensary more than once.

The principles upon which dispensaries were founded were to afford medical relief to the sick poor; this still holds good. But concerned with the welfare of hundreds of thousands of sick people, it is bound to assume greater responsibilities. One of the most important and difficult problems of the modern dispensary is to prevent dissemination of contagious diseases in the common waiting-room.

To study the modus operandi, to learn personally of the prophylactic measures adopted, most of the large dispensaries in Manhattan were visited lately; the opportunity was kindly afforded me to make observations; with very few exceptions, data were given when asked for, and courtesy was shown alike by attending physicians and registrars, which I take pleasure in acknowledging here.

I shall not dwell long on facts well known to those interested in dispensary work; great progress has been made in the last decade. Since the exactment of the dispensary laws in 1899, sanitary and hygienic measures were adopted and a higher standard established, attempts were made to restrict medical charity to the sick poor and to prevent imposition. To Dr. Cabot in Boston belongs the credit of having inaugurated modern methods of hygienic and physical therapeutics, instead of superficial treatment and "wholesale drugging" of the dispensary patient. Following in the wake of the tuberculosis clinics, he introduced in 1905 the visiting nurse in the dispensary service, a useful ally to the physician, explaining and aiding to carry out instructions and insuring hygienic improvements in the houses of the sick poor. Two years later, in 1907, the Superintendent of the Mt. Sinai Hospital, Dr. S. S. Goldwater, proposed to further raise the standard of work in the outpatient department by the adoption of the principle of restricted numbers of patients. This plan has been carried out since in the Mt. Sinai Dispensary with excellent results.

While thus much was done to correct abuses, "dispensary evils" still exist. It is singular that the difficult problem of preventing "contact infection," in the common waiting-room, has up to the present time not attracted the attention it deserves, much less so than it has received in the best institutes in England and the Continent.

Professor Escherich was evidently much impressed by the prevalent lack of prophylaxis. He remarks in his "Pediatrische Reiseindruecke in America" that the fear of contracting acute infectious diseases must be much less in our country than it is in his own, as he had not found in our dispensaries any prophylactic arrangements whatsoever. Escherich, one of the foremost pediatrists of the time, believes that the prevention of contact-infection is of paramount importance. He does not hesitate to assert that the dispensaries, conducted as many are, contribute possibly to an even greater extent than the public schools to the spread of infectious diseases, especially the acute exanthemata. Escherich became convinced of this fact during his activity in Graz, a city with a small population, where it was possible to detect sources of infection which frequently could be traced to the dispensary, especially in cases of measles.

These conditions have long been known to exist, and led in the ambulatorium (dispensary) of Escherich and other pediatrists to the establishment of pertinent provisions for the exclusion of

children ill with infectious diseases and "suspects" before entering the common waiting-room; this is being done by a physician or a trained nurse, an arrangement that has proved satisfactory. Similar prophylactic regulations do not exist in any of the dispensaries I had the privilege to visit. Patients enter the dispensary promiscuously through the same door, through which they usually also depart; stating the nature of the disease, as well as they may, to the dispensary clerk, they receive numbered tickets and are then permitted to occupy seats on crowded, not always asceptically clean benches. Often when one child is ill, the mother is obliged to take the other healthy ones along, as there is no one at home to look after them. The reception hall receives them all, children ill with diphtheria and others in the early stages of the exanthematous fevers; most of them ill nourished, and all very susceptible to infection. It will be readily admitted that many children, even when exposed, will not be affected, either from a lesser susceptibility or because they are immune from a previous attack of the disease. But themselves immune, they occasionally may become "carriers" of the virus. Children within the first two years of age, toddling about and creeping on the floor, are exposed to a direct infection, which Escherich calls "Schmierinfection," by means of bacterial secretions which they smear over their little faces and hands. Already suffering from some form of disease, they thus become exposed to other infections, which may prove dangerous or even fatal, often waiting one or two hours or even longer for the arrival of the physician.

These conditions need to be remedied, not only from humanitarian motives or from consideration of the welfare and protection of the dispensary patient, but also for the sake of the well being of the community and on the ground of public policy.

As a practical illustration of the above I should like to mention an incident, witnessed some few weeks ago in the treatment room of a crowded dispensary on the lower East Side. The Chief of Clinic had just removed tonsils and adenoids in a little boy; one of the next patients was a child with a "sore throat," an inspection revealed the presence of exudates on the tonsils. Likely enough, the children mingled while waiting for their turn to be admitted. Similar instances of exposure are bound to occur under the prevailing system. In one or two of the dispensaries visited, I was informed that "suspicious looking" children are not required to wait their turn, but are picked out from the rest and attended by a physician as soon as possible.

In one of the best equipped dispensaries on the upper East Side, which has separate doors for entrance and exit of visitors, new patients are assigned to the different classes by a medical man, but there is no preliminary examination of children, and infectious cases are detected in this as practically in all other dispensaries, in the consulting room only, no attempt at separation being made in the waiting-room.

Isolation rooms are generally very primitive, and rarely made use of. In one large East Side dispensary with a daily attendance of 50 to 70 children in the medical classes, the attending pediatrist who is connected with the institution, for many years was not aware of the existence of an isolation room. The clerk assured the doctor and me, however, that there was one in the courtyard.

In conclusion I would respectfully submit:

1. There is at the present time an evident lack of prophylaxis in handling contagious cases at the dispensary.

2. As at present conducted, dispensaries contribute to the dissemination of infectious diseases among the poor by contact infection in the common waiting-room.

3. If not entirely eliminated, the danger of exposure is lessened by the preliminary inspection of children, a prophylactic measure which aims at an early detection and exclusion of contagious cases and "suspects" before entering the common waiting-room.

4. Preliminary examination of children has been conducted at the Mt. Sinai Dispensary since April, 1907, with satisfactory results.

5. Its establishment in similar institutes is required as a sanitary safeguard and on the ground of public economy.

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71 East Sixty-sixth Street.

THE PRACTICAL VALUE OF A POSITIVE COMPLEMENT FIXATION TEST IN SYPHILIS.*

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I BEGIN by apologizing for trespassing from the limited field of ophthalmology into the boundless plains of general medicine. My excuses are those of the prospector rushing heedlessly into regions of new found gold; and though the soil I strive to overturn is not strictly virginal, it is at most primiparous, and promises further and exceeding fruitfulness.

We will linger for a few minutes over a study of the practical importance of a positive complement fixation test to the practitioner who handles syphilis in his office and in the clinic. At present it appears as if the serodiagnosis of syphilis has gained no strong foothold in general practice, being utilized more widely by the practitioners of the

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various specialties. This may be because the test is looked upon by the majority of physicians as a corroborative symptom of syphilis of distinct value only in the presence of others. That this is far from the whole truth of the matter I hope to emphasize in this paper.

So great a mass of easily obtainable statistics already illuminates the literature of this subject I feel that pardon will be granted me cheerfully if I fail to embody any of them, old or new, into my discourse.

It has been proven that a positive reaction can be obtained in the vast majority of cases of syphilis as early as the appearance of the initial lesion. It is unnecessary therefore to wait for the skin rash before beginning specific treatment when a positive reaction is present. By this early start the patient may be saved from the misery of mucous patches, sore throat, and other secondaries. Nor need there be hesitation or delay if the chancre appears clinically doubtful; a positive blood test allows immediate antisyphilitic treatment. Once having a positive reaction, no matter how early in the history of the case, the physician may proceed assured of his diagnosis if the test has been made by a competent expert; for confusion cannot arise, as the nonspecific diseases that give a positive fixation test are clinically distinct from syphilis.

During the ordinary course of syphilis when the pathognomonic symptoms are present the positive reaction by being less paramount becomes corroborative only; but in the presence of symptoms that may or may not be luetic a positive reaction becomes vitally important. During the secondary stage no one doubts his diagnosis when confronted with the congeries of characteristic symptoms, but when one or two only of these are present, and perhaps atypical, one hesitates to deposit the syphilitic millstone around the victim's neck unless aided and abetted by a positive fixation test. A positive reaction also is paramount in the diagnosis of diseases or rather symptoms that are not typical secondaries and may not be luetic in origin at all. Among such conditions are afternoon headaches, neuralgia, pains referred to the calves of the legs, skin rashes, iritis, keratitis, etc. A positive reaction settles our doubt while a negative one invites further scrutiny.

We know, often to our chagrin, that our ability to diagnosticate correctly the protean manifestations of syphilis in its tertiary stage is measured by the limits of our clinical experience. Every branch of medicine has needed its expert in syphilis. With the complement fixation test at hand each practitioner may be his own syphilographer.

It is hardly necessary to detail the importance of the serodiagnosis of syphilis to the various specialties. It has become indispensable to the genitourinary practitioner. The dermatologist, hitherto needing somewhat of the qualities of the race track devotee of being a good guesser, now finds himself in the midst of an exact science—almost. The pediatrist has learned instructive and unexpected facts, notably concerning congenital and hereditary lues. The view that a healthy mother may bear a syphilitic child and escape infection must be modified, for it has been found that a very large number of such mothers (65 per cent.) give a positive fixation test, proving the presense of latent syphilis. Also we must change our belief that apparently healthy children of syphilic mothers are immune to the disease. Here again a high percentage of positive tests shows that these children have a luetic infection that is dormant. The internist finds the reaction of importance in manifold conditions, as in arteriosclerosis and certain heart lesions such as aortic insufficiency. In the practice of ophthalmology it has been my custom to prescribe antisyphilitic remedies on the least provocation, as a matter of good business to my patients, to my friends as a matter of kindness. Since I have been making use of the blood test I find that my custom is not unwise. It has become a habit with me to have a blood test made in every case of ocular disease in which the etiology was not absolutely certain. Frequently the test has been positive in cases hitherto looked upon as non-syphilitic, and in cases in which the etiology is unknown or guessed at. While the possibility of syphilis being concomitant and not genetic has not been overlooked, yet many of each of these classes of cases have improved under antisyphilitic treatment.

In no specialty has the serodiagnosis of syphilis been of more value than in neurology. Paresis gives almost 100 per cent. of positive reactions, while tabes over sixty. In cerebral and spinal sclerosis, brain tumor, cerebral endarteritis, and various muscular paralyses the positive reaction is of inestimable etiological and therapeutic import.

Thanks to the complement fixation test our failures due to etiological ignorance are growing less in number. And so it will continue if every case that comes into our practice the cause of which is not absolutely assured is subjected to the test. The practice of using the test only when suspicion of syphilis is aroused or when it is clinically certain is reprehensible, for it is along the ways of doubt and ignorance that the serum reaction carries its light most beneficently. One case I desire to report because it displays well the value of a positive fixation test:

Mr. X., forty years of age, three years ago began to lose the sight of both eyes from a descending optic atrophy of unknown origin. The history of the patient's life from a physician's viewpoint was most unsatisfactory. Every organ outside of his eyes was apparently normal. After a time a mild gastritis developed which was seized upon ravenously as the cause of his optic atrophy. The patient continued to lose flesh and strength. About six months ago he was referred to me and I found both optic nerves in a condition of primary atrophy and the vision reduced about one-half. Pupils were unequal and reacted only to intense light. Of the left eye there was a drooping of the upper lid, and of the right eye a paresis of the external rectus muscle. Knee jerks were absent. He is the father of several healthy children, and oral as well as physical examination failed to elicit the slightest trace or vestige to corroborate the suspicion I entertained of syphilitic infection. However, the Wassermann, the Noguchi, and the Weil tests were distinctly positive. Immediate energetic antisyphilitic treatment was begun consisting of gluteal injections of the salicylate of mercury (two grains a week) and increasing large doses of a saturated solution of potassium iodide. At the end of two months the vision and fields had improved slightly, the muscular pareses had disappeared, and the patient's general condition had improved markedly.

Here we have a case of syphilis in a man of intelligence who appreciates, at least in this exigency, the value of the truth. He says he observed no early evidence of syphilis, and probably he is not mistaken. Not only does this experience prove to

me the practical importance of the complement fixation test, but sustains my belief founded upon an extended use of the reaction that syphilis may be acquired in a manner unknown and unrecognized and remain unmanifested until the appearance of some tertiary or parasyphilitic lesion.

Finally the fixation test is of value as an index to treatment and an assurance of a cure. With the beginning of a vigorous mercurialization the reaction should disappear, speedily from a mild case, more slowly from a severe one. When we have obtained a negative reaction in the course of treatment proper medication should preserve it until at the end of several years it remains permanent without further treatment. The time has come when almost every case of syphilis can be carried to a complete cure without symptoms further than those that drew attention to the condition. Of course we must recognize the fact that there are cases which do not respond well to the ordinary treatment with mercury, and of these we cannot at present presage so hopefully. We expect also that the time is coming when by repeated fixation tests we can determine accurately the quantity of medication required for each case and the time required for a permanent cure.

To sum up, a positive complement fixation test is valuable: (1) as corroborative in company with other characteristic symptoms; (2) as determining the presence of syphilis in diseases either of probable or possible luetic, or of unknown origin; (3) as suggesting that syphilis may run a course without displaying itself until tertiary or parasyphilitic lesions appear; (4) as an index to treatment and assurance of a cure.

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Infantilism of Malarial Origin.—H. de Brun has had the opportunity of observing during a residence of twenty-five years in Syria forty cases of infantilism in individuals who were also the victims of chronic malaria. Thyroid insufficiency could not account for all of the manifestations. Nevertheless it was apparently responsible for the smallness of stature, the absence of the secondary sexual characteristics, and the arrested mental development. On the other hand the exaggerated size of the abdomen contrasting with the extremely slender limbs, the almost total absence of adipose tissue, the emaciation, the precocious wrinkles of the physiognomy, and the weakness of the muscles, are all characteristics that distinguish malarial infantilism from the other forms. The infection produced by the malarial organism, and causing enormous engorgement of the liver and spleen, is responsible for the greatly enlarged abdomen; it also accounts for the striking emaciation seen in some of the cases, and for the polyneuritis which in turn results in muscular atrophy, chiefly of the lower limbs. To these symptoms there are added others that form a group by themselves. These consist of lassitude, depression, inertia, and indifference, amounting in some cases to a profound prostration. These are analogous to similar symptoms seen in cases of Addison's disease, and, taken in conjunction with the pigmentation of the skin so conspicuous in a large number of cases of malaria, may be attributed to a chronic insufficiency of the suprarenal capsules. The arterial hypotension with the occasional smallness and irregularity of the pulse, the gastric crises accompanied by dysentery, the deficiency in the vasomotor reaction of the skin, all symptoms observed in some of the cases, are familiar manifestations of the malarial cachexia. It would appear as if the pigmentary sclerosis resulting from this infection affects the suprarenals as well as other organs. The suprarenals, therefore, share with the thyroid and pituitary glands in the evolution of the phenomena of infantilism.—*Revue de Médecine.*

Contribution to the Surgical Treatment of Jacksonian Epilepsy and Traumatic Intracranial Hemorrhage.—G. Ninni gives his experience with intracranial surgery in a case of Jacksonian epilepsy of traumatic origin. The operative wound healed by first intention and the convulsive attacks remained absent for five months. They then returned to be repeated about once in three months. The patient though not cured had gained, in that his attacks were much less frequent than before the operation, when they had occurred every two weeks. He was able to go about his usual occupations. The author also details the result of operation on a young man of twenty years of age who received a blow over the left eyebrow and another over the right parietal region. Immediately after the blows he lost consciousness, and after two days there were spastic contractions of the fingers of the right hand, and the following day of the left hand and foot. After twelve days he was carried to the hospital. The day after his first contractions he had seventeen attacks of clonic convulsions and the number increased to fifty in twenty-four hours. His skull was opened and a hematoma was found subdural, and extending over a large surface. Two hundred grams of clots were removed from the Rolandic region and the frontal lobe. Three hours after operation the patient recovered consciousness and the next day convulsions ceased entirely. Ninni demonstrates that in cases of cranial hemorrhage one should operate as soon as possible in traumatic cases so as to prevent the occurrence of Jacksonian epilepsy.—*La Riforma Medica.*

Indications for the Treatment of Syphilis with Arsenic.—G. Milian says that, while arsenic is not by any means a substitute for mercury, there are cases of intolerance for mercury that are benefited by its use. There are cases of absolute intolerance for mercury and of partial intolerance. In the latter mercury may be taken for a time, and then the stomach revolts. This is apt to occur after treatment has been given successfully, in the second or third year of the disease. In these cases arsenic should be substituted for mercury. In other cases it may be used as an adjuvant to mercury, since it increases the effect of the mercury. It may be given during intervals of mercurial treatment. It is also indicated in case of anemia.—*Le Progrès Médical.*

Electrical Treatment of Obesity.—A. Laquerriére details Bergonié's electrical method of treating obesity by exercise of the various muscles, the surface of the body being entirely covered with large electrodes, so that all the large muscular masses are affected. The operator then applies a tetanizing faradic current through the electrodes, in such a manner that there is a rhythmical action, the excitation lasting half a second, and the interval of repose a half second. The current should be strong enough to cause marked muscular contractions. During this treatment the body becomes covered with sweat, but the patient feels no disagreeable sensations, only the contraction of the muscles. The heart and respiration are increased in frequency, in response to the need of increased oxygenation in the contracting muscles. There is no appreciable fatigue when the sittings are properly managed; the appetite is increased and sleep is improved; blood pressure is lowered as it is after simple exercise. One gets general active gymnastics, but involuntary ones, and without the interference of the psychic centers. It is difficult to find any other system of gymnastics that approaches this in the general action of all the muscles. This form of exercise may be used even for persons who are persuaded that exercise is bad for them. Since the movement is involuntary the nervous system does not become fatigued. In the fearful and the neuropath one may get the benefits of exercise without their having any of the inconveniences of it. Bergonié has obtained brilliant results by this method in the obese, but the method may be employed also in all the nutritional troubles. This method is both preventive and curative, since it increases the musculature of the patient, and he will not again fall into the hygienic faults that have caused his obesity.—*Journal de Médecine de Paris.*

Cerebral Hemmorrhage from Luetic Vessels.—Henry Head reports the case of an engineer aged 32, who, in July, 1902, contracted gonorrhea, which lasted about two weeks. This was followed by rash and sore throat. There was now a scar at the orifice of the meatus, pointing to the probability that the infection was syphilitic. In April, 1904, he felt dizzy, and within twenty minutes became paralyzed down the right half of the body. He lost his speech, but did not become unconscious. Since that time he had shown no material alteration. He was still hemiplegic, his tongue was protruded to the right, the right knee-jerk and wrist-jerk were greatly exaggerated, ankle clonus was obtained, and the plantar reflex on this side gave an extensor response.—*Proceedings of the Royal Society of Medicine.*

MEDICAL RECORD.

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HUMAN AND BOVINE TUBERCULOSIS.

WHEN, in 1901, Robert Koch threw a bomb into the camp of the bacteriologists by declaring that human and bovine tuberculosis are not identical, that the human variety cannot be transferred to cattle, and that human infection with bovine tuberculosis rarely occurs even if human susceptibility to such infection be admitted, there began a series of investigations in all parts of the world which have succeeded in disproving, in great part, the contentions of the discoverer of the tubercle bacilli. The far-reaching importance of settling this problem concerned chiefly the question of human infection from tuberculous cattle, particularly in view of the fact that a large part of the milk and butter consumed in large cities contains tubercle bacilli. In spite of the general fallacy of Koch's original conclusions, these, nevertheless, contained important germs of truth. Thus it has been shown that human and bovine tuberculosis are not identical, but are caused by distinct varieties of the tubercle bacillus possessing marked differences of character in cultivation and in virulence. Furthermore, while the second contention, namely, that the human variety of the organism cannot be transferred to cattle, has been overthrown, it has, nevertheless, been shown that cattle are less susceptible to the human virus than to their own. Finally, in disposing of Koch's last contention it has been established that a fairly large proportion of the cases of human tuberculosis are caused by the bovine bacillus. Thus, out of a total of 1,042 cases examined by various investigators, 10 per cent. have been found to be due to the bovine bacillus; the percentage is even greater in childhood—of 220 cases of tuberculosis in children under five years, the bovine bacillus has been found in 27 per cent.

In a most elaborate investigation to determine the relative importance of the bovine and human types of tubercle bacilli in the different form of human tuberculosis, William H. Park and Charles Krumwiede, assisted by a large staff at the Research Laboratory of the Department of Health, New York City, have made valuable contributions to this subject, reporting their results in the *Journal of Medical Research*, October, 1910. These studies were begun in view of the fact that nearly all the cases hitherto examined had been selected either with the view of finding bovine infections, that is, tuberculosis of alimentary origin, or adult pulmonary tuberculosis. It seemed that with the knowledge at hand a large series of non-selected cases of every type of disease and under average conditions of exposure would give valuable information, particularly with reference to sanitary control. In addition, the investigators hoped to simplify the methods of differentiation and to settle many disputed or doubtful points in biology or virulence.

The results of their work led to the conclusion that there is no constant qualitative cultural difference between the human and bovine types of tubercle bacilli. Quantitatively and with respect to the effect of glycerin there is a marked difference in the great majority of cultures, so that the type can be determined from cultures alone, particularly from the amount and rapidity of growth of early cultures. All bovine types of bacilli are dysgonic (have sparse growth) and all human types are eugonic (have moderate or luxuriant growth). Glycerin egg was found to be the best medium for eliciting this difference. They draw the general conclusions that all cultures growing luxuriantly on glycerin egg from the start are of the human type, and that those growing sparsely or even not at all on this medium in the first few generations are of the bovine type. In studying the relative virulence of the two types of organism it was found that the bovine type always causes in rabbits a generalized tuberculosis, when given in doses of 0.01 milligram intravenously, the tuberculosis being progressive and causing the death of the animal. Human cultures injected in the same amount produce no disease at all or lesions of varying severity in the lungs or kidneys, or both, never causing a progressive generalized tuberculosis. If a rabbit survived a dose of one milligram for sixty days and showed no generalization the virus was considered a human one. The results of the inoculation work with calves were parallel with those in rabbits—the bovine type caused generalized tuberculosis and the human type caused a localized infection or extension to the neighboring lymph nodes. It is thus seen that the bovine virus is more virulent than the human. The great majority of the cultures group themselves around two extremes from which there are a few cultures showing variant characteristics. The two types are probably different because of residence in different hosts over long periods of time and as such are stable. The evidence in favor of rapid change of type is incomplete and inconclusive.

One of the most important divisions of this research was the determination of the type of infection in 436 cases of human tuberculosis representing all the various clinical forms of the disease. Of 297 cases in adults 16 years and over, only one instance of bovine infection was found, and that in a case of genitourinary tuberculosis. Of 54 cases in children between 5 and 16 years, there were 9 in which the bovine bacillus was isolated and 8 of the latter were cases of tuberculous cervical adenitis. Of 84 cases in children under 5 years, 22 gave the bovine bacillus, 12 of which were from cases of cervical adenitis, and 3 from abdominal tuberculosis. A separate tabulation of 43 fatal cases from the Babies' Hospital, representing average conditions better than the total cases, showed that 9 per cent.

were due to the bovine type. In an unusual series of 9 cases from the Foundling Hospital in children under 6 years fed practically exclusively on cow's milk, 5 cases, or 55 per cent., gave evidence of infection with the bovine type of tuberculosis.

The practical importance of these investigations is obvious. They have shown that it is possible by means of simple methods to differentiate the two types of tubercle bacilli. They have confirmed the results of other observers in determining that the dangers of human infection from tuberculous cattle are real, and that these dangers are greatest in early life, when cow's milk forms the main article of diet. As an example of scientific research of a high order of practical utility, this work of Dr. Park and his associates of the Research Laboratory is one in which the City of New York, under the auspices of whose Department of Health this research was undertaken, may feel a sense of deep satisfaction.

SOME USES OF THYROID MEDICATION IN OBSTETRICS.

There is apparently no end to the suggestions as to the value of the administration of various preparations of the thyroid gland in different morbid conditions. The broad field of thyroid therapy is to be attributed to the fact that this organ elaborates a large number of distinct substances, some of which are indispensable to the entire organism, while others are needed only by certain organs.

The dried substance of the thyroid gland has recently been employed with good effect in the vomiting of pregnancy and in deficient milk secretion, as reported in the *Zentralblatt für Gynäkologie*, October 15 and 22, 1910, by A. Siegmund. In the former condition five severe cases are reported in which the results of the treatment were prompt and lasting. It was found that the best results are obtained by a definite mode of administration. The thyroid is given on an empty stomach several hours before the severest vomiting is expected. The patient is awakened at 4:30 or 5 A. M., and given the first dose; after several hours of sleep she takes her breakfast in bed, and at 9 A. M. is given a second dose. The administration is repeated one-half hour before dinner and supper and before retiring. The morning dose should not be less than 0.3 gram (5 grains) and sometimes 0.45 gram (7½ grains), or 0.6 gram (10 grains) is advisable. If the severest attacks of vomiting occur at other than the morning hours, the large doses are to be given at the former periods. The exact dosage is to be determined by means of daily observation. The powdered dried substance of the thyroid glands obtained from female animals is recommended; the glycerin extract of fresh thyroids is even better. The largest doses are required at the beginning of the treatment, in order to neutralize the greater amount of toxins present in the blood. The diet is to be carefully regulated; small amounts of food are to be taken at one time, and meat is interdicted in the beginning.

The value of the administration of thyroid as a means of increasing the activity of the mammary glands had already been demonstrated by Hertoghe in 1900, in patients presenting mild symptoms of thyroid insufficiency. Seigmund confirms the latter's observations, but believes that the period of lactation is not the best time during which to begin the thyroid medication. He has obtained better results by beginning the treatment in the early months of pregnancy, during the time when the mammary glands are transforming from a state of rest to one of activity. This therapeutic measure is recommended particularly in women who have already given evidence of inability to nurse their children wholly or in part. The dose of thyroid administered is about 0.1 gram (1½ grains) from one to three times a day. The result of this treatment is a copious secretion of milk after the birth of the child. There are no untoward effects of the administration of thyroid during pregnancy; on the contrary the general condition of the patient is improved.

THE EARLY DIAGNOSIS OF TUBERCULOUS BRONCHIAL ADENOPATHY.

The frequency during childhood of tuberculous infection of the bronchial lymphatic glands, with or without similar infection of the lungs or other parts of the body, is an observation that post-mortem investigation has repeatedly confirmed. Until recent years there had been no definite sign by which the presence of these glands could be demonstrated clinically. The importance of early diagnosis can be best appreciated when one realizes that the bronchial lymph-nodes frequently present the first barrier to the invasion of the rest of the organism by the tubercle bacillus, that the infection in these glands may remain latent for many years, and that early treatment, particularly with the aid of sea air, is of permanent curative value in many of these cases. The latent primary infection in these glands is often the starting point of general constitutional invasion after debilitating diseases such as measles and whooping-cough.

Among the signs whose clinical value has received recognition may be mentioned the presence of dullness at the level of the manubrium sterni; the sign described by Rilliet, Barthez, and Baréty, of an area of dilated veins observed on the front of the thorax; the sign of Eustace Smith, or the demonstration of a venous hum beneath the clavicle when the head is thrown back; the sign elicited by vertebral percussion, of dullness corresponding to the fourth, fifth, and sixth dorsal vertebræ, and the evidence furnished by the *x*-rays when these are made to traverse the thorax in such manner as to fall at a point either to the right or left of the vertebral column.

A new sign has recently been added to this list. At the last meeting of the Section on Diseases of Children of the British Medical Association, held during the latter part of July, 1910, Adolphe D'Espine of Geneva described a sign which he had elicited, and which he believed to be more constant than any of those already known. It is based on auscultation of the voice sounds at the level of the seventh cervical or first dorsal vertebra, which corresponds to the first portion of the trachea, a

region known as the posterior glandular, and described by Guéneau de Mussy as the earliest attacked by tuberculosis. If the child is made to speak or count in a low voice, the latter is accompanied by an added whispering sound localized to one or two vertebræ or even extending to the fourth or fifth thoracic vertebræ. A bronchial quality of the respiration has the same diagnostic value as the whispering sound; but the bronchial breathing is present only when the glands are already extensively and considerably enlarged. It is pointed out that a definite dullness at this level, similar to a loud bronchophony, is pathognomonic of a large glandular mass uniting the trachea with the vertebræ. The whispering sign is present long before dullness or bronchophony manifests itself, and for this reason it is accorded a far greater value than either of these. According to D'Espine, neither Eustace Smith's sign nor the area of dilated veins is pathognomonic. The validity of his observation has been confirmed by post-mortem examination. This observer emphasizes the importance of differentiating tuberculous from simple enlargement of the bronchial glands, such as is seen following measles, pertussis, and influenza, the signs of which are less marked and more ephemeral than those of tuberculous enlargement, and in which the percutaneous tuberculin test is negative. In some cases the glandular lesion simulates disease of the pulmonary apices, but it has been shown that the glandular lesion often extends more to the right than to the left, and may even by pressure cause a weakening of the vesicular murmur at the right apex, and also give rise to a loud bruit heard in the suprasternal fossa and under the clavicle.

Pulmonary Hemorrhage in the Tuberculous at High Altitude.

In Public Health Reports, October 7, F. C. Smith, of the Public Health and Marine-Hospital Service, discusses pulmonary hemorrhage in the tuberculous at a high altitude. The Marine Hospital Sanatorium at Fort Stanton, New Mexico, situated 6,200 feet above sea level, is the institution from which Smith collected his data. It appears that since the sanatorium was opened in 1899 fifty-six deaths from pulmonary hemorrhage have occurred there. Smith gives the following summary: (1) Hemorrhage from the lungs is responsible for about 10 per cent. of the total mortality from pulmonary tuberculosis at Fort Stanton. (2) Syphilis and chronic alcoholism increase the liability to fatal hemorrhage. (3) Small pulmonary hemorrhages are rarely suddenly fatal but may cause a dangerous insufflation pneumonia. (4) Recurrence of hemorrhage is rarely or never seen after bronchopneumonia develops. (5) No age period of adult manhood seems especially predisposed to fatal pulmonary hemorrhage. (6) Exciting cause of fatal hemorrhage was noticeably absent; the majority of subjects were in bed at the time and a large number presumably asleep. (7) Acute types of pulmonary tuberculosis are least liable to this accident; negroes showed a lower mortality from hemorrhage than whites. (8) Hemorrhage has not been common immediately after arrival from sea level; the increased mortality from hemorrhage after prolonged residence at high altitude may properly be ascribed to the chronic type of disease in these individuals. (9) Disease of the heart or embarrassed circulation from any cause predisposes to a fatal issue when pulmonay hemorrhage occurs. (10) Pulmonary hemorrhage is not more frequent at high altitude than at sea level, but the results are perhaps more often serious especially in those with impaired circulation. Perhaps the most interesting points of Smith's observations are that cardiac disease seems to be a somewhat frequent accompaniment of tuberculosis; in forty-two autopsies made at Fort Stanton seventeen of the subjects had some serious form of heart disease. The preponderance of left-sided cardiac lesions in the immediately fatal cases was also noticeable. On the whole, although of course the data were insufficient whereon to base any conclusive arguments, the experience with tuberculous patients at Fort Stanton would appear to favor the view that elevated regions are unfavorable for the treatment of ordinary hemorrhagic cases of tuberculosis of the lungs.

News of the Week.

Typhoid Fever at Annapolis.—An epidemic of typhoid fever at the Naval Academy has caused the authorities to make a test of anti-typhoid inoculation on all midshipmen willing to submit to it. The source of the epidemic, which has been confined to the Academy, no cases appearing in the town, has not yet been determined. The water supply of the Naval Academy is obtained from artesian wells.

Cholera on Steamship.—The Italian steamship *San Giorgio*, out from Naples and Palermo, which reached New York on November 16, reported two deaths at sea and nine passengers ill. Of these one was found to be suffering from cholera, which was probably the cause of the two deaths also. All the steerage passengers were detained at Hoffman Island for observation. The *San Giorgio* left Naples on November 1 and touched at Palermo on the following day. A number of new cases of cholera have been reported throughout the infected districts in Italy.

Smallpox Among Indians.—Ninety-three Indians on the Arapahoe Indian Reservation were reported to have died from smallpox in the four days preceding November 18.

Health Report of Nashville.—During the month of October there were 150 deaths and 117 births in Nashville, Tenn., as against 156 deaths and 151 births in October, 1909. The death rate per 1,000 of population is given as 11.38 for whites, 17.66 for negroes, or 13.76 for the entire population. In the mortality list heart disease comes first with 18 deaths, and tuberculosis next with 13.

Lower Death Rate in Springfield.—Fifty deaths were reported in Springfield, Ill., during the month of October, the rate being estimated at about 11 per thousand. The figures are considerably lower than for preceding Octobers. The causes of death were as follows: Organic heart disease, 6; infantile diseases, 6; accidents, Bright's disease, pneumonia, and bronchopneumonia, 4 each; typhoid fever, diphtheria, cancer, croup, and meningitis, 3 each; pulmonary tuberculosis, 2.

City Birth Rates High.—During the month of September, according to the statement of the New York State Department of Health, the excess of births over deaths in the urban localities was 5,947, while in rural sections the excess was only 37. The

urban population of the State is 6,763,934, and the rural population 2,107,786. Of the urban excess New York City leads in number as well as in percentage, having an excess of births over deaths of 5,202; the total number of births was 10,876. Of the other first-class cities, Buffalo, with a population of 423,715, had 670 births, an excess over the deaths of 105; and Rochester, with 218,149, had 384 births, an excess of 133. Of the second-class cities, six in number, Albany and Troy showed an excess of deaths over births, Albany having 13 and Troy 44. In the aggregate, however, there were 932 births and 701 deaths in this class. The sixteen third-class cities reported 786 births, an excess over deaths of 163; and the 23 fourth-class had an excess of 104 births.

Death Rate Discussion.—The Health Department of New York is authority for the statement that comparisons of the death rate of cities may lead to wrong conclusions. Dr. Guilfoy, the statistician of the department, points out that such a comparison should not be made unless correction is also made for the varying age-groupings of populations. St. Paul, Minn., for instance, has a death rate of only 11 per 1,000 of population, while in New York City the rate is 16. In St. Paul, however, Dr. Guilfoy says there is an unusually large percentage of persons between the ages of five and forty-five years, in which the death rate is very low, a condition which does not obtain in Eastern cities. Many of the Western towns are mainly composed of young healthy persons from the East, and have low death rates; while others, because of their very healthfulness, are used as the resort of invalids, and consequently show high rates.

City Death Rate.—For the week ending November 12 there were 1,334 deaths in New York, a rate of 14.49 per 1,000 of population. During the same week last year there were 1,389 deaths, the rate being 15.87. The deaths from typhoid fever and heart disease were slightly increased over last year, being 26 and 168 respectively; but the 162 deaths from pneumonia and the 163 from tuberculosis represented a decrease. Of children under the age of five, 324 died during the week, 232 of whom were under one year.

Nobel Prize in Chemistry.—Professor Otto Wallach of the University of Göttingen has been awarded the Nobel prize in chemistry for 1910.

The New York Milk Committee, having for its objects the improvement of the milk supply of the city and the education of the public in the proper use of milk, was incorporated on November 17. Among the incorporators are John G. Saxe, Mrs. Florence Harriman, F. D. Roosevelt, and W. C. Phillips. The committee will hold a conference in New York on December 2 and 3, which will be open to the public. The subject of controlling the milk supply will be discussed under four heads: Milk Economics, Milk Supply and the Public Health, Milk Standards, and Milk Commissions. Information regarding the program may be obtained from Dr. Ira S. Wile, 230 West 97th street, New York.

Traffic in Rotten Eggs.—An investigation carried on by Commissioner of Accounts Fosdick of New York has apparently revealed a considerable trade in condemned eggs, familiarly known as "rots and spots," which after being declared bad have been disposed of to bakers' supply stores. Dr. Harvey W. Wiley has offered the help of the United States Government in the investigation, and it is probable that his staff, working in conjunction with the municipal authorities, will extend the inspection to conditions surrounding the sale of many other foodstuffs, the use of preservatives, filthiness of small bakeries, etc.

Dirt and Ice Cream.—Out of fifty-one ice cream factories in New Jersey inspected during the past year only fifteen were found to meet with the requirements of the law, according to a statement made at the recent meeting of the National Association of Ice Cream Manufacturers by the Chief of the Division of Dairies of New Jersey. Ice cream plants were found in operation in cellars and dwelling houses, with no protection against contamination. In only ten were there sterilizing equipments.

The Common Drinking Cup.—The New York State Department of Health is seeking the cooperation of the various railroad companies operating in this State in abolishing the common drinking cup and the common towel from all trains and railroad stations.

Aged Mexican.—Juan Burcel, a Mexican living in San Diego, Cal., died on November 18 at the reputed age of 122 years.

Red Cross Seals.—On December 1, 8,000,000 Red Cross Seals will be placed on sale throughout New York by the Committee on the Prevention of Tuberculosis of the Charity Organization Society, which will conduct a widespread advertising campaign. The Tuberculosis Committee of the State Charities Aid Association, which is sole agent for the seals in New York State, exclusive of this city, has offered prizes to the town or village selling before January 1 the largest number of seals per capita of school registration. The first prize is a vacuum cleaning plant; the second, an equipment of sanitary drinking fountains; the third, a set of school text-books on physiology and hygiene.

Red Cross Endowment.—The $2,000,000 endowment fund for the Red Cross in the United States is in a fair way to be realized by the appointment of committees throughout the country to raise definite apportionments. In New York City practically the entire amount apportioned, $500,000, has already been subscribed.

Cuban Medical Affairs.—A National College of Physicians and Surgeons of Cuba was recently organized at a meeting at the Academy of Sciences in Havana. Dr. Juan Santos Fernandez, president of the Academy, who presided, made an address setting forth the need of such an organization to promote the interests of the medical profession at the end of which a committee on organization was appointed. President Gomez in his message to the Cuban Congress referred to the institution of the collge as an important step in the progress of the medical profession in Cuba.

Following a protest on the part of medical students in the University of Havana against a recent decree of the Secretary of Public Instruction permitting graduates of the veterinary department to enter the medical school without a bachelor's degree, the matter has been referred to the Academy of Sciences for decision. The University has hitherto required the bachelor's degree granted by provincial institutes from all students in the medical school. It is thought that the Academy will decide against the admission of any students without degrees, whether graduates of the veterinary school or not.

Need for Missionary Physicians and Nurses.—The Student Volunteer Movement for Foreign Missions calls attention to the great need for physicians and nurses in the missionary field throughout the world. More than fifty physicians, men and women, and nearly as many nurses could find places in China, Persia, Arabia, Egypt, Turkey, India, and the Philippine Islands.

American Museum of Safety.—With the slogan, "Fifty per cent. of industrial accidents preventable," the American Museum of Safety has opened a permanent exposition of safety devices in the Engineering Societies Building, 29 West 39th street, New York. Machines, models, and photographs demonstrating simple, practicable safeguards adapted to the needs of the American employer for protecting the lives and limbs of his workmen are shown.

Dr. James Tyson has been elected Emeritus Professor of Medicine in the University of Pennsylvania, and Dr. Louis A. Duhring has been elected Emeritus Professor of Dermatology in the same institution.

Dr. David Edward Hoag was elected Lecturer in the Department of Nervous and Mental Diseases in the New York Polyclinic Medical School at the October meeting of the Faculty of the school.

The Merritt H. Cash and Lucien Howe Prizes.—Dr. A. Jacobi, chairman of the Committee on Prize Essays of the Medical Society of the State of New York, desires to announce that the date for the presentation of prize essays in competition for the Merritt H. Cash Prize and the Lucien Howe Prize has been extended from December 1, 1910, to March 1, 1911.

The American Society of Medical Sociology.—This is the name of a new society, the purposes of which are stated in the following announcement: "Recognizing the intimate relationship between disease and the social-economic system under which we live, recognizing that many diseases are caused directly by our social and economic conditions, recognizing that the efficiency or inefficiency of our treatment often depends upon the economic condition of the patient, recognizing that there are many problems deeply and vitally affecting the welfare of mankind which are left practically untouched by any existing medical society, The American Society of Medical Sociology has been organized for the purpose of studying radically all questions of a sociomedical nature, and invites your cooperation." The president of the society is Dr. William J. Robinson; the secretary, Dr. A. C. Jacobson, 12 Mt. Morris Park West, New York.

Southern Medical Association.—The fourth annual convention of this association, representing the States of Georgia, Alabama, Mississippi, Louisiana, Florida, and Tennessee, was held in Nashville recently. The following officers were elected: *President*, Dr. Isadore Dyer, New Orleans; *Vice-Presidents*, for Tennesee, Dr. William Litterer; for Florida, Dr. W. P. Adamson; for Georgia, Dr. William C. Lyle; for Alabama, Dr. T. D. Park; for Louisiana, Dr. J. D. Guthrie; for Mississippi, Dr. A. G. Paine; *Secretary-Treasurer*, Dr. Seale Harris, Mobile, Ala. The next meeting of the association will be held at Hattiesburg, Miss.

The Late Dr. Ransom.—The Medical Board of the City Hospital of New York mourns the death of one of its former members, Dr. Charles C. Ransom. During the fifteen years that he served the sick poor in the wards of this hospital his colleagues learned to know him and to love him. His personality united in a rare degree scientific enthusiasm, genuine humanitarianism, and love of his fellowman. For a number of years he had interested himself especially in the welfare of the many sufferers from chronic joint disease who fill our wards, too often a mute but eloquent reproach to the boasted triumphs of modern medicine. Through careful study and painstaking perserverance with the individual Dr. Ransom accomplished wonderful results in the alleviation of this group of patients. When holding important office for the Medical Board, and equally when merely one of its members, Dr. Ransom took the responsibilities of his position seriously. To him we owe the first steps which were taken toward proper living conditions for house staff, and throughout his whole career Dr. Ransom was generously and wholeheartedly devoted to the welfare of the medical men who served under him, loyal to the hospital and all its interests, eager for its betterment, and always hopeful of seeing it realize the high ideals he cherished for it. It is with the realization of personal loss on the part of each of us that we meet here to-day to place formally upon our records our last tribute of affection and respect.

Therefore, be it resolved, That the Medical Board of the City Hospital, conscious of the loss it has sustained in the death of Charles Cook Ransom, a loss not only to each member of it individually, but also to the hospital which it represents, the department of the city government which it serves, and the larger interests of medical science, hereby places this minute upon its records, and be it also resolved that a copy of this minute be suitably transmitted to Mrs. Ransom; that a copy be posted in the staff house of the City Hospital, and that a copy be submitted for publication in the local medical journals.

THEODORE JANEWAY,
JOSEPH COLLINS,
HARLOW BROOKS,
} *Committee.*

Obituary Notes.—Dr. FRANK NEVILLE LEWIS of New York, a graduate of the Medical Department of the University of Vermont in 1882, a member of the American Medical Association, the New York State and County Medical societies, the New York Academy of Medicine, the American Ophthalmological Society, and the New York Ophthalmological Society, and surgeon to the Manhattan Eye, Ear, and Throat Hospital, died suddenly at his home on November 13, aged 53 years.

Dr. JAMES L. ROBINSON of Wheatland, Ind., a graduate of the Medical Department of the University of Louisville, Ky., in 1881, died at his home on November 8, aged 56 years.

Dr. DAVID W. SHARP of Woodstock, O., a graduate of the Cincinnati College of Medicine and Surgery in 1874, died at his home on November 7, aged 62 years.

Dr. JOHN D. WOODWORTH of Leslie, Mich., a graduate of the Rush Medical College, Chicago, in 1852, died at his home on November 7, aged 84 years.

Dr. JOSEPH S. FINN of Jersey City, N. J., a graduate of the College of Physicians and Surgeons, New York, in 1854, the first county physician of Hudson County, a member of the New Jersey State and Hudson County Medical societies, and consulting physician to the Bayonne Hospital, died at his home of acute indigestion on November 19, aged 77 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

DUKE OF CONNAUGHT AT SOUTH AFRICAN MEDICAL CONGRESS—OUTBREAK OF PLAGUE—TRYPANOSOMIASIS—MALARIA AND MOSQUITOS—FLORENCE NIGHTINGALE—KNIGHTHOODS—OBITUARY.

London, November 4, 1910.

Among the festivities in connection with the Duke of Connaught's visit to South Africa Wednesday's proceedings as reported by cable comprise two events of medical interest. At noon His Royal Highness presented certificates of the St. Johns Ambulance Association and referred to the world-wide value of its work, especially "in this land of great distances." In the afternoon His Royal Highness opened the Medical Congress, which is being attended from all parts of South Africa. The Duke commented on the healthful atmosphere and abundant sunshine of the country, and freedom from some of the most fruitful causes of disease in Europe and the East. Yet, he added, few parts of the world were exposed to diseases more obscure in their pathology and more baffling as to cure. He hoped, in medicine as in other fields, the benefits of union would include a more perfect coordination of medical energy wherever required. The health of the population was one of the first cares of a State, and it was difficult to overestimate the importance of the advancement of medical knowledge.

The outbreaks of plague in East Anglia are being met by active measures. The County Council has appointed Dr. Llewellyn Heath, of the East Suffolk Hospital, a temporary medical officer, and he has circularized the profession in the locality as to looking for early symptoms of a suspicious nature. The police are reporting to him places where dead or dying rats or rabbits are found, and an effort is being made by extending the area of observation and search to limit the spread of infected animals. Some of those found have evidently succumbed to poison which the farmers and others have freely distributed. So that without bacteriological examination any case is open to doubt. On the outskirts of Ipswich several such examinations have been made with negative results. It is hoped the infection has not spread to that part. On several estates the keepers have fed ferrets on rabbits with fatal results in some twenty cases, though it is not yet shown whether the disease or poison was the cause. A cat having been infected, the people are keeping a watch on domestic animals, and may be said to be waking to the importance of observation.

The Research Defence Society recently published a pamphlet on "Plague in India," by Lieut-Col Bannerman, of the Bombay Bacteriological Laboratory, which contains a full and authoritative account of research and prevention in reference to the disease.

Among our many societies, we have one "For the Destruction of Vermin," which was founded some three years ago. It was a delicate infant, and did not seem likely to survive, but the outbreak of plague has given it a new source of strength, and it has allied itself to the Royal Institute of Public Health. This body has well-equipped laboratories, and bacteriological researches are to be there actively carried on. A meeting was held on Wednesday when Sir J. Crichton Browne took the chair. He said there was no reason for panic, although caution was called for. It was certain that pneumonia plague was distributed by rats and other vermin, and when human beings took it their breath was infective. Rats had much to answer for as propagators of various diseases. So had house flies. A national effort should be made to destroy vermin through the whole country.

Dr. Sambon showed on the screen a series of illustrations of parasitic carriers of disease and the way in which the virus is conveyed, the transmutation from animal to animal, and eventually to the human host. He said the common house fly is known to convey typhoid, cholera, and other diseases. Fleas convey tape worms, as well as plague. Yellow fever is insect-borne. Cats and dogs are very useful to keep down rats, but when the virus has entered the body of the rat they may become infected.

Sir Lauder Brunton said the exterminating effort should not be confined to a district, but carried out all over the country.

William James Cantlie said suspected animals over a wide area should be driven into a condon, bacteriological examination made, and those infected slaughtered.

Capt. MacIlwaine recalled that rats also disseminated swine fever.

Capt. Tailby deprecated the destruction of birds which prey on vermin and urged the preservation of the owl, one of their most doughty foes.

At the conclusion of this meeting an executive committee was appointed to plan and carry out a campaign. Funds will be required and will no doubt be forthcoming as the public is getting anxious. In the last few days fresh areas have been reported as infected. Of these the port of London is most important, some dead rats having been found escaped from the shipping. Dr. Williams, Port M. O. H., is superintending and directing. Fumigation destroys most of the vermin on a ship, but a few may escape by swimming, though most are too enfeebled to reach the shore. Dr. Williams has also to contend with the fact that fleas from the rats may get on the Lascar and Chinese sailors, who huddle together in our chilly climate. A daily inspection of their lodgings is made and all their clothing fumigated. Suspects are isolated. In the wharves and warehouses a constant war is carried on by rat-catchers. At the meeting of the Court of Common Council the chairman of the Port Sanitary Committee reported that these and other measures were being energetically carried out. Altogether it appears that the authorities are determined that no precaution shall be omitted, while they are confident the danger can be averted.

At the Society of Tropical Medicine a paper was read on October 21 by Dr. Arthur Bagshawe on sleeping sickness. It was a careful review of recent researches and advances in knowledge which his experience in the tropics enabled him to summarize. The facts he presented were so numerous that only a small selection can be mentioned here. As to etiology, he reported an important piece of negative evidence. Of the two islands a few miles apart, Principé and San Thomé, the former has tsetse flies with much sleeping sickness, the latter neither. Further on San Thomé the Portuguese Commission found all the blood-sucking insects they had seen on Principé, with one exception, the genus *Glossina*. Yet in Rhodesia and Nyassaland the disease had been contracted, though it was practically certain that Nyassa if not the Zambesi, was outside

the *Glossina* area of distribution. That seemed to suggest another species might sometimes be the carrier, but, if so, why had not the disease spread in East African high grounds? Dr. Bagshawe suggested as a provisional hypothesis that in the uplands the air was too cold for the parasite to complete its development in the insect. Tsetse flies had been shown by Kleine to be capable, after a latent interval, of being permanently infected. Late development was probably the rule in those insects which transmitted trypanosomes from mammal to mammal. The experiments of the commission showed this interval might be very variable. They were still in the dark as to what went on in the interval. The flies caught on the shore of Victoria Nyanza after two years' removal of the inhabitants had been shown by Bruce to be infective of monkeys, so that the hope that the population might return seemed to be disappointed. If it were proved that wild animals formed a reservoir of sleeping sickness virus where such animals and the tsetse coexisted, man could not remain. As to symptoms, an analysis of fifty cases in Europeans showed the most frequent to be in descending order, fever, erythema, loss of strength, increased frequency of heart beat, somnolence, edema, large spleen, amenia, headache, epileptiform convulsions. As to treatment, little more has been learned of atoxyl and other arsenilates. Arseno-phenylglycin promised more, but the results had been uncertain, though both the locality and the mode of administration had differed. In Togoland the disease seemed more influenced by trypanocides than in German East Africa. Ehrlich's plan was to get the trypanocide into the blood when the parasites were more numerous, his theory being that those killed at once produced antibodies to which the others succumbed. He introduced a drug, tryparosan, which Broden and Rodhain tried, intravenously and orally, the latter more effectively. Aniline antimonyl tartrate was found by Thiroux useful and less toxic than the potash salt. None of the trypanocides could be expected to banish the parasites from the cerebrospinal fluid. Time emphasized the inefficiency of treatment in advanced cases. Experience showed that recoveries had sometimes occurred, so that, if recognized early enough, they might be more frequent. A case was diagnosed in 1903 which had existed in 1900 and now has been in vigorous health for years. Only two out of thirty Europeans survived above three years from the discovery of trypanosomes, which suggested that survival for three years with absence of symptoms indicated a chance of recovery. Five Europeans in good health in June last had lived 3, 3½, 3½, 5½, and 7 years, respectively, since the detection of the parasites. Possibly infection in them was mild. Of their treatment not much could be said. South American trypanosomiasis differed much from African, and the parasite discovered by Chagas in Brazil differed in mode of multiplication and otherwise.

The relation of malaria to mosquitos and the war on the insects in some places may encourage the hope of a successful fight against tsetse flies. But one can hardly forget the apparent failure of the Mian Mir campaign. It is true considerable controversy arose about this, but the report of the commission appointed to inquire into the matter by the Indian Government has now been issued and confirms the fact that the experiment which seems to have been carried out in a most determined way did not succeed in completely exterminating the mosquitos. Everything seems to have been done to abolish the breeding places, and yet the commission found adult anopheles as numerous as prior to the campaign, with the consequence that malaria was not much less prevalent, if at all.

Why measures so successful in Panama and other places should have been less effective in an Indian cantonment is not easy to explain, but the commissioners suggest that partial destruction of breeding places is not sufficient where other conditions favor malaria and further where many breeding places exist at some distance some of the mosquitos there bred may cover that distance in search of food. The protective measures would therefore have to be carried out beyond the distance which the mosquitos can cover. So, too, the destruction of breeding places must be extended nearer to total abolition. The commissioners advise that further efforts should be made to cope with the difficulty. It is to be hoped the Indian people will come to see the benefit of these efforts and heartily second them.

At St. Thomas' Hospital a meeting was held on Tuesday to promote a memorial to Miss Nightingale. A committee was appointed and directed to act in combination with another committee which had undertaken a similar work.

Dr. Kingston Fowler, senior physician, and Mr. Pearce Gould, senior surgeon to the Middlesex Hospital, have been knighted.

Dr. D. H. Stirling of Perth who died on October 14, aged 81, graduated in 1853, M.D., Edin. From 1868 to 1884 he was on the staff of the Royal Infirmary and then became consultant. He established the Hillside Homes, where last year 246 chronic cases were treated. He also founded the Perth City Mission and acted as secretary until his death. He had been a traveler and wrote on leprosy in Norway.

The deaths are also announced of Dr. Alexander Pole, late admiralty surgeon at Lerwick, aged 69. Surgeon-Col. C. G. Irwin, M.B., Army Medical Staff, retired, aged 79, who died on October 23, and Brig.-Surgeon J. McNeale Beatty, aged 82, who joined the army in 1854 and retired in 1880.

Progress of Medical Science.

Boston Medical and Surgical Journal.

November 10, 1910.

Spinal Anesthesia. F. Allen.
Etiology of Elephantiasis. G. C. Shattuck.
Congenital Ophthalmoplegia Externa. S. G. Webber.
The Technique of Arthrotomy. C. F. Painter and A. P. Cornwall.
Cutaneous Diphtheria—Fatal Primary Case. E. H. Place.
Conical Stump After Amputation in Childhood. C. A. Powers.

Spinal Anesthesia.—F. Allen believes that this procedure can no longer be considered dangerous, but is now relatively safe and has a distinct place in surgery. The indications are alcoholism, old age, debility, certain cardiac cases, bronchitis, arteriosclerosis, extreme dread of general anesthesia, diabetes, urinary septicemia, shock, intestinal obstruction, and renal insufficiency. Spinal anesthesia works so well as to be the anesthetic of election in simple herniotomy in men, prostatectomy, hemorrhoids, fistula in ano, amputations of leg or thigh, cystoscopy, and urethral or bladder operations. The solutions used are those of stovaine, novocain, or tropacocaine, always in combination with adrenalin. The technique of the operation is described.

Etiology of Elephantiasis.—G. C. Shattuck states that the essential characteristics of typical acquired elephantiasis are lymphangiectasis, hyperplasia of connective tissue, and chronic edema. The relation of these to each other in the production of elephantiasis is not clear. It appears that these changes may frequently be attributed

to the interaction of stasis and of inflammation. Stasis always occurs early and persists. Inflammation may precede or follow stasis, or may not be manifest at any stage of the disease. Inflammation when present may be acute or chronic, and is generally traceable to bacterial infection. Either chronic stasis or inflammation from any cause may predispose to elephantiasis, but even when they occur together, elephantiasis does not always result. There is reason to suppose that congenital weakness or anomalies of lymphatics may play an essential part in the production of some cases of elephantiasis, and that such weakness or anomalies can be inherited. The filaria is an important factor in the production of endemic elephantiasis of some regions, but it is not essential to the occurrence of endemic elephantiasis. Elephantiasis in filarial regions results indirectly from filariasis through bacterial infection. Sporadic lymphatic elephantiasis and endemic elephantiasis are not essentially different.

Congenital Ophthalmoplegia Externa.—S. G. Webber reports a case of this condition, in which the eyes were almost immovable, the head being moved in reading to follow the print across the page. This affection is a family disease and in many cases hereditary. The amount of loss of power in the muscles varies greatly in different cases, and in different muscles in the same case, from a slight impairment to complete loss of power. The muscles on the two sides may be unequally affected; often only one or two muscles are paralyzed. Sometimes the internal rectus is paralyzed so it does not act alone, but it will act in conjunction with the external rectus, as it has two sources of innervation. In a few cases the superior rectus is said to have been paralyzed, yet when the lids were closed the eyes rolled up as if the superior rectus acted. The causative pathological changes may be found in the muscles or in the nerve nuclei in the medulla. It is not likely to be in the nerves as the paralysis is too sharply limited to a few muscles for the lesion to be where the fibers for so many muscles lie as near each other as they do in the third nerve.

The Technique of Arthrotomy.—C. F. Painter and A. P. Cornwall continue their article on this subject. In the group of excisions and erasions, the danger of disseminating a tuberculous infection through surgical procedure is not a wholly negligible matter. Care must be exercised to allow nature to start her protective immunizing processes, both local and general, before one takes the risk of opening up new tissue to infection and absorption.

Cutaneous Diphtheria.—E. H. Place reports a primary fatal case of this condition, which is not uncommon, having been seen at the South Department of the Boston City Hospital during the past three years in the following conditions: (1) About the face and hands, often appearing much like an impetigo contagiosa, less often with distinct membrane. Cultures show virulent Klebs-Loeffler bacilli, and both types clear rapidly with the administration of antitoxin. (2) On the auricle, chiefly the concha, extending from the middle ear; and behind the auricle inoculated upon the eczema so common in this region in children. (3) Inoculated upon lupus vulgaris lesions on the face, following curettage. (4) In wounds and abscesses on the neck and face. (5) Inoculated upon varicella lesions, most commonly on the vulva or vagina. At times it is severe in these locations, and similar cases of cutaneous diphtheria have been known to be the cause of small epidemics.

Amputation in Childhood.—C. A. Powers calls attention to the fact that when a small child suffers amputation through the upper part of the arm or the upper part of the leg, a conical condition of the stump will result. It occurs because the humerus and bones of the leg develop in large part from their upper epiphyses. The growth takes place at the upper epiphysis and pushes the bone down into and through the soft parts. When the surgeon does his original operation it is best for him to tell the parents that this will probably take place. The younger the child the more frequently will the bone have to be cut off.

New York Medical Journal.

November 12, 1910.

Concerning the Sources of Infection in Cases of Venereal Diseases in the City of New York. F. Bierhoff.
Gross Drugs vs. Active Principles. G. F. Butler.
The Serum Diagnosis of Syphilis, Using the Noguchi System. W. A. Groat.
Further Observations on the Use of the Ehrlich-Hata Preparation (606) in the Treatment of Syphilis. J. A. Fordyce.
The X-Ray and the Special Senses. E. H. Skinner.
The Roentgen Treatment of Carcinoma of the Breast. R. H. Boggs.
Prophylaxis of Enterocolitis. W. H. Randle.
What Shall We Do to Prevent Lateral Curvature of the Spine? M. Strunsky.
Ehrlich's Arsenobenzol: Its Technique and Indications for General Use. A. L. Wolbarst.
Accidental Detachment of the Normally Implanted Placenta. W. S. Picotte.

Sources of Venereal Infection.—F. Bierhoff found in 1,429 cases of gonorrhea, in which the diagnosis was based upon the finding of the gonococcus, that 74 per cent. of the cases had been infected by public prostitutes. Of the remainder almost all had been infected by "clandestine" prostitutes. In comparing his results with those obtained by Fournier of Paris, in 1866, and by the author in Berlin, in 1899-1900, it was seen at a glance how small a rôle the public prostitute plays in Fournier's statistics, as a source of gonorrheal infection, when compared with those obtained by the author both in Berlin and New York. It is concluded that the public prostitute is by far the most prolific disseminator of venereal disease.

Gross Drugs vs. Active Principles.—G. F. Butler states that the active principles alone can fulfill the main requirements of a medicament, namely, uniformity in strength and identity of action at all times. A great advantage of active principle therapy is the facility with which these principles of plants may be administered to patients.

Serum Diagnosis of Syphilis.—W. A. Groat states that the Noguchi modification of the Wassermann reaction is known to be positive in most cases of leprosy, a few cases of scarlatina at the height of the disease, frambesia, sleeping sickness, in malaria during the paroxysm, and in lupus erythematosus. None of these diseases is hard to distinguish clinically, and most of them are rarely met with. With these few exceptions the test is specific. It is positive with remarkable regularity in active secondary cases. While it would seem as though technical errors would account for almost all negatives in active untreated syphilis, yet as in every other infectious disease there must be anomalous cases in which the specific antibodies are not present. Primary cases usually give negatives early and are generally positive before the secondary eruption appears. Negatives should be repeated until well by the period of expected secondary symptoms. Active tertiary cases give more negatives than any other class of active syphilis, previous treatment being undoubtedly a factor in many of these. Congenital syphilis gives practically one hundred per cent. of positives. Brain syphilis and general paralysis usually give positives. Tabes probably gives nearly as high a percentage of positives in the acute stage, most of the negatives being in the old survivors in whom the infection has burned out. The test has been and is to be of great value in clearing up the etiology of diseases in which syphilis has been suspected as a factor.

Ehrlich-Hata Preparation.—J. A. Fordyce states that from an attitude of conservatism in the beginning he is becoming more and more impressed with the remarkable action of the drug, especially in the early period of the disease, and in cases which do not respond to mercury and potassium iodide. Decided improvement occurred in cases of luetic endarteritis of the base and of obstinate gummatous ulceration. It is possible with one dose, though that

be a minimal one, to completely eradicate the cause of the disease. The following points are also emphasized: (1) Primary lesions should be treated as early as possible, and in the young and vigorous with not less than 0.5 gram intravenously. As an aid to complete sterilization energetic local treatment should be employed, such as excision, cauterization, or other means of destruction. (2) In disease of the central nervous system or circulatory apparatus great care should be exercised and only small doses (0.2 to 0.4 gram) given. Whether the intravenous method is to be preferred in these cases has not yet been determined.

X-Ray and Special Senses.—E. H. Skinner presents the following outline of the possibilities of the *x*-ray in the specialties: The *x*-ray stands preeminent in the location with exactitude of foreign bodies in the eye, ear, nose, and throat. It is a valuable assistant in the diagnosis of pathological changes in any of the bony tissues of the ear, orbit, nose, and throat, whether this change is necrosis that is clearly and unmistakably recognized, or whether it is the presence of an exudate that alters the density of the shadows of a part. The *x*-ray gives definite information regarding the anatomy of those cavities which cannot be obtained in any other way than through operative procedure. It permits one to study the physiology of speech, singing, and deglutition. By the process of diagnosis by exclusion the probability of sinus involvement will be excluded where one has pains of a neuralgic character. The *x*-ray serves as an assistant in an operative procedure looking to the extraction of a foreign body from a sinus, cavity, or orifice, by noting that the instrument used to grasp the foreign body is actually attached to such body. This latter service is best afforded by the fluoroscope, thus insuring a vivid picture of the operation in progress.

Röntgen Treatment of Cancer of the Breast.—R. H. Boggs concludes that under the influence of the *x*-rays, used as a palliative remedy, glandular involvement has melted away, ulcerated masses have healed over, adherent tumors have become movable, inoperable cases have become operable, rapidly growing carcinomata have assumed a more scirrhous type, lymphatic pathways have been sealed against extension, and a fibrous wall has been erected against further growth, life has been prolonged and redeemed from misery. This would seem to call for routine anteoperative use of the rays even in favorable cases, but experience is not yet sufficient to permit one to assert this as a demonstrated fact. Postoperative treatment has diminished scarring, promoted healing, postponed or prevented recurrence. Such results demand not only technical competence, but judgment, clinical knowledge of both the disease and the remedy, promptness, energy, and courage. Surgeon and röntgenologist must work hand in hand, each availing himself of the other's aid, but each respecting the other's authority in his own field and each having a broad scientific understanding of the whole subject.

Prophylaxis of Enterocolitis.—W. H. Randle states that this can be summed up in one sentence: "Stop the milk of all bottle-fed babies during the hot weather." As a substitute diet he recommends barley water with a little expressed juice of beef and a pinch of salt; albuminized water with a little dash of pure orange juice; and to a limited extent the best brands of condensed milk.

Prevention of Lateral Curvature.—M. Strunsky advocates a routine examination of the backs of school children, especially at the "scoliotic age." As regards the effects of scoliosis, in the pronounced types and those of medium severity, the heart is displaced and the lungs are compressed. The stomach and intestines and liver are displaced, and the spleen and kidney upon the convex side are smaller than normal. This compression and displacement of organs interferes with their functions and by the mechanical pressure of bone on tissue, causes atrophy of vital structures. The elasticity of the spinal column is mainly due to the intervertebral discs. In scoliosis the latteral pressure of the vertebræ causes the discs to become wedge shaped and to lose their elastic power. The mobility of the spine is also lessened in scoliosis. Scoliotics lack endurance, often suffer from headaches, backaches, and fatigue, and have a frequent irresistible desire to lie down and rest. Often they are irritable. Undoubtedly these symptoms are to a great extent the result of the rigidity of the spine and thorax which act like transmitters to the nervous system of the jar resulting from walking or from various other movements of the body. The early treatment consists of the following: (1) Determining and correcting a possible exciting cause, such as tilting of the head either due to torticollis, deafness of one ear, disturbed vision, or a faulty position of the spine, either due to shortness of one leg, empyema, or paralysis of the trunk muscles. (2) Forbidding patients to carry bundles. (3) Providing frequent intervals of rest. (4) Building up the system. (5) Gymnastics. When structural changes have once taken place no treatment can restore the spinal column to the normal.

Ehrlich-Hata Preparation.—A. L. Wolbarst believes that this should be employed only in cases which by their nature and severity demand heroic treatment and only after a careful study of the technique of administration.

Detachment of Placenta.—W. S. Picotte reports two cases of accidental detachment of the normally situated placenta, and concludes that this condition is more serious than placenta prævia and eclampsia, and that there seem no salvation for the fetus and very slight chances of recovery for the mother. With the child, death follows interrupted nutrition. In the case of the mother, anemia is directly or indirectly the cause of death. If a physician is at hand when the first symptoms appear, the mortality rate might be lowered, but in general practice this is ordinarily impossible. Even were it otherwise, the question of an early recognition of this condition before the appearance of blood externally is sometimes difficult and has been mistaken for other morbid phenomena, and women have died without delivery. If seen before too much blood has been lost, the life of the patient depends greatly on the quick and dexterous action of the accoucheur, and no time should be lost to empty the uterus. In the case of moribund patients some attempt should first be made to stimulate, and to replace part of the blood by hypodermoclysis.

Journal of the American Medical Association.

November 12, 1910.

Kidney and Ureteral Stones. M. F. Porter.
Clinical Use of Strophanthus. R. A. Hatcher and H. C. Bailey.
The Work of the Council on Pharmacy and Chemistry. D. L. Edsall.
Acute Nephritis Following Acute Tonsillitis. H. W. Loeh.
The Treatment of Typhoid Bacillus Carriers. W. J. Stone.
Artificial Immunization in Non-Bacterial Diseases. S. P. Beebe.
Points in the Application of Vaccine Therapy. E. E. Irons.
Autogenous Vaccine Therapy in Endocarditis. E. C. Rosenow.
Significance of Tuberculides in Diagnosis of Tuberculosis in Infancy. J. S. Leopold and T. Rosenstern.
Thyroid Secretion as a Factor in Adrenal Activity. R. G. Hoskins.
Suspended Respiration During Operation. J. L. Crooks.
Diagnosis of Ulcers of the Stomach and Duodenum by the Röntgen Ray. H. Adler.
Toothpicks as Foreign Bodies. G. M. Livingston.
Coccidioidal Meningitis. H. A. L. Ryfkogel.
Human Sarcoma Cultivated Outside of the Body. A. Carrel and M. T. Burrows.
Acute Thyroiditis with Edema of the Glottis Following Exposure to Epizootic Horses. J. P. Lewis and B. J. O'Neill.

Kidney and Ureteral Stones.—M. F. Porter states that the first symptoms of ureteral calculus may be referred to the bladder, which should always be examined, and a stone found in the bladder should always cause search in the kidney and ureter, as calculi are frequently coexistent in both localities. One notices the important part played by infection in the etiology of these formations and that stone in the kidney or ureter as a cause of cancer has received less consideration than it deserves. Cancer with a large stone means that the stone antedated the can-

cer and might be considered its cause. Most surgeons seem to believe that tuberculosis of the kidney is primary and of hematogenous origin, but that trauma is often the exciting cause of tuberculosis is admitted, and these two facts together would seem to indicate that stone might cause kidney tuberculosis. The author does not, however, favor this idea, and an extensive search of the literature, he thinks, does not bear out this assumption. Personally he has seen no coexisting case of stone and tuberculosis of the kidney. Contrary to his former opinion, he finds the *x*-ray of more and more value in the diagnosis and agrees with Bevan that it is a more reliable method of examination than exploratory operation. Careful inquiry in cases of kidney and ureteral stone will reveal important diagnostic points in many cases which the patient would not mention. Hence the importance of careful history taking in such cases.

Clinical Use of Strophanthus.—R. A. Hatcher and H. C. Bailey believe that in the present state of knowledge the clinical use of strophanthus by the mouth is irrational. The absorption of digitalis and strophanthus, chiefly the latter, is variable. The digitalis bodies have a synergistic action. Caffeine is also synergistic to the latter. This should be remembered in prescribing digitalis to those who use large amounts of tea and coffee. Of the two digitalis principles, crystalline ouabain and crystalline digitoxine, the latter is insoluble in water; hence the former should be preferred. The intravenous injection of crystalline ouabain affords the most exact dosage possible in digitalis therapy, and the most rapid effect. It is possible that any Galenical preparation of digitalis or strophanthus will be found available for intravenous or intramuscular injection, but the activity should be determined in terms of crystalline ouabain on the mammalian heart. The cardiac action of any digitalis body is elicited promptly after the intravenous injection. The oral administration of the digitalis bodies will continue to be preferred for the general treatment of cardiac disease, and in such cases the tincture or infusion of digitalis deserves the preference, because they are more readily absorbed than the preparations of strophanthus. There is urgent need of more exact clinical studies of all of the digitalis bodies, particularly with regard to their relative effects on the centers and on the vessels, and there is equally urgent need of further pharmacological investigations of the rate of absorption and excretion of these several bodies, with an elucidation of the phenomenon of cumulation.

Council on Pharmacy.—D. L. Edsall describes the work of the Council of Pharmacy and Chemistry and speaks of its magnitude and of the cordial support given to it by the profession.

Nephritis Following Tonsillitis.—H. W. Loeb concludes as follows: Acute nephritis results from acute tonsillitis far more often than is generally believed. The symptoms ordinarily are not manifested until some time after the inception of the disease. The nephritis is of the hemorrhagic type and differs from that of scarlet fever in that pyrexia, edema, and oliguria are not marked symptoms of the disease. In addition, it follows the angina and is not concomitant as in scarlatina and diphtheria. Judging from the course of the cases reported, there must be many in which a mild nephritis occurs incidental to the tonsillitis, which goes on to resolution without patient or physician being conscious of its presence. As each case of lacunar tonsillitis may be a potential source of acute nephritis, it is incumbent on practitioners to observe the urine, not only during the height of the disease, but for some time after as well. Spontaneous or idiopathic nephritis is probably often due to a tonsillitis that has not been considered as an etiological possibility. Chronic affections of the kidney may well owe their origin to unrecognized acute attacks of nephritis of tonsillar origin. Much light may be shed on this subject by a study of the urine in a large number of cases of acute tonsillitis.

Typhoid Carriers.—W. J. Stone reports the case of a typhoid carrier successfully treated by inoculations of an autogenous typhoid vaccine. Reviewing the literature of cases similarly treated, he concludes that the time element is an important factor in the reaction of susceptibility to inoculations of bacterial vaccines in typhoid carriers. Typhoid carriers injected within a comparatively short time after their infection, will in all probability receive more benefit from properly prepared autogenous vaccine than from any other known form of treatment. "Contact carriers," who never to their knowledge have had typhoid, are more susceptible to the inoculations than carriers who have had a definite attack of this disease, and who are in all probability more immune. When the infection has persisted for years, it may be difficult to clear up the condition by bacterial inoculation. The effort should at least be made, since in the somewhat similar condition of chronic carriers of apparently non-virulent tubercle baccili, the bacilli often disappear from the sputum during a course of inoculations of some one of the tubercle products. The immunity manifested by typhoid carriers is in all probability a partial immunity, in the sense that while these individuals are protected against the infection through an augmented phagocytic power held by their body cells, the antibacterial substances, such as the bactericidins and lysins, are lessened to a degree insufficient to exert any destructive power against the infection.

Immunization in Non-Bacterial Diseases.—S. P. Beebe states that the reactions of immunity are not restricted to higher toxic proteins; the injection of any alien protein stimulates the formation of antibodies, the presence of which may be detected by several methods, such as the precipitin reaction or the deviation of complement, and such reactions are found to be in a high degree specific. Early in this work the suggestion was made that it might be possible to destroy unrecognizable cancer cells after an operation by a cytotoxic serum. The author has made many experiments with nucleoproteid serum which have confirmed his earlier view that it is possible to make a serum which will act primarily on a given organ. The evidence on which he draws his conclusion of specificity is based on precipitation, agglutination, absorption experments, and on the effects of animal injection. Serum has been developed against the human thyroid glands and used clinically in the treatment of exophthalmic goiter. In regard to immunity to cancer, the author says that he has produced an active cytolytic serum from the nucleoproteids of a breast cancer and treated the patient from whom the tumor was removed with this serum in order to prevent a recurrence. No recurrence occurred, but, as the operation was a radical one, no conclusions could be drawn. The observation by Gaylord and Clowes that a certain percentage of mice infected with the Jensen tumor recovered and were thereafter immune was the first authentic experimental production of immunity in tumors. It is known that a certain percentage of animals is normally immune to tumors, the reason for which is unknown. It is also known that a certain percentage of the successfully planted animals recovers spontaneously, the number depending on the virulence of the tumor and the resistance of the animal. The recovered animal also is immune for a long time to tumors of like virulence. The author refers to his experiments made with Crile, showing that the transfusion of large quantities of recovered blood to an animal with actively growing tumors would cause complete absorption of the latter with the usual subsequent immunity. Further research experiments have afforded clear evidence that the regression of the tumor is an essential factor in the future immunization of the animal and transfusion of immune blood

into a susceptible animal without tumors at the time would confer no immunity. There apparently must be some interaction between the tumor and the serum to start the regression. Recent observations by Gaylord, Gay, and others have shown that a method of vaccination is a logical procedure in the treatment of malignant tumors, but that living tumor cells must be used. The author mentions the results obtained by Hodenpyl with the chylous asitic fluid of a cancer patient which at first caused complete absorption and recovery for a time. It is impossible to say how this fluid acts, but the procedure seems to be a logical one and, whatever the ultimate outcome in these cases, they are suggestive for the future.

Vaccine Therapy.—E. E. Irons states that the fundamental theory of the method assumes that the body is capable of reacting to the inoculation by the formation of antibodies, and the giving of vaccines to a patient already overwhelmed with infection is theoretically wrong and practically in most cases a failure. The therapeutic value of vaccines is best shown in chronic or recurrent localized infections, such as furunculosis, acne, carbuncle. Infections of the urinary tract due to the colon bacillus have received much attention recently and the reports indicate that good may be accomplished by the inoculation of autogenous colon vaccines. About 50 per cent. of urinary affections are due to this organism and in still more it is associated with other bacteria. Colon infections of the prostate resistant to ordinary treament have in a number of cases been benefited by vaccine. Streptococcus infections have not been so amenable as the staphylococcus ones. It is possible that it may do good in erysipelas, using autogenous vaccines. Opinion is divided as regards puerperal sepsis and in severely toxic cases one should hesitate. Localized affections about the nose, throat, and ear have been reported benefited, and it has been proposed to use prophylactic inoculations before surgical operations to prevent possible postoperative infection, but the data are not sufficient as regards the advisability of this. Gonococcus metastatic lesions of the chronic and subacute types are often greatly improved and cure hastened by inoculations, and a possible prophylactic value has been suggested. The treatment of localized tuberculosis other than of the lungs has been aided by their careful use. A striking instance of their value is afforded by the statistics of the inoculations against cholera, plague, and bacillary dysentery, and the incidence of these diseases in regions where they are endemic as well as the mortality has been in some cases largely reduced. Similar results have been obtained by the prophylactic use of typhoid vaccine in soldiers, but their value in the treatment of the disease is not determined. The prophylactic use of vaccines in scarlet fever has received much attention in Russia and remarkable immunity results have been reported. In ulcerated endocarditis the results have not been generally favorable. While the general practitioner will do well to confine the use of vaccines to localized infections, mention should be made of the recent work on the treatment of pneumonia by the inoculation of pneumococcus preparations from which the toxic portion has been removed. The work is still experimental but suggests some possibilities. More attention is deemed advisable to the local and general reactions from injection of dead bacteria and their products for diagnostic purposes. Bacterial vaccines are powerful agents for good or harm and the clinical results should be most carefully interpreted.

Autogenous Vaccine Therapy in Endocarditis.—E. C. Rosenow points out that, while the therapeutic injection of dead bacteria in certain localized infections can no longer be questioned, their value in more generalized infections, especially endocarditis, is still very questionable. The continuation of the infection in chronic endocarditis is due largely to a process of immunization or adaptation of the bacteria to the antibodies of the host. This is shown in his study of the subject by the facts that the bacteria grow much more rapidly in the patient's serum than in normal serum; that when grown in the patient's blood or serum, both *in vivo* and *in vitro*, they acquire a resistance to phagocytosis and a resistance to leucocytic destruction; and that they produce alterations in the serum of the patient which robs the leucocytes of something which they need to digest the bacteria when taken up. The destroying power of the patient's blood at these times is found far below that of normal blood. While the inoculations produce temporary improvement they later leave the patient worse. The destruction of the bacteria evidently liberates a toxic material that poisons the individual. Besides activating the blood, a neutralizing substance to prevent intoxication of the already overwhelmed patient will be needed in endocarditis.

Tuberculides in the Diagnosis of Infantile Tuberculosis.—J. S. Leopold and T. Rosenstern present the results of their observations which show how valuable this lesion, as yet unrecognized by most observers, is in the diagnosis of tuberculosis in children. The tuberculides consist of slightly raised rounded papules varying in size from a pin head to a millet seed. At first they are of a red color, but later become brownish and show a scale or crust in the center. When scratched away they leave behind a rounded depression which does not bleed but is dry, as a rule. Their most characteristic points are the absence of any tendency to ulceration, their central depression, their livid brownish color, and their glistening appearance when the skin is stretched. They may appear anywhere on the skin, but preferably on the arms, the lower back, and especially the extensor surface of the lower limbs. According to the author's experience there are rarely many present in one case, sometimes not more than four or five, or even less. Hamburger has called attention to the fact that they are easily overlooked on account of their minute size. They were found in asylum children in about 40 per cent. of the cases. They will be less frequent in dispensary practice, as they need watching for constantly, since they soon lose their characteristic appearance. In many hundred non-turberculous infants they have never been seen by the authors. Their tuberculous character is shown by the fact that in 70 per cent. of the cases tubercle bacilli have been found.

Thyroid and Adrenal Activity.—E. G. Hoskins performed a series of investigations which add to the existing evidence in favor of the theory that the thyroid stimulates the action of the adrenals.

Suspended Respiration during Operation.—J. L. Crooks reports a case of suspended respiration during an operation for depressed fracture of the skull under ether anesthesia. Resuscitation was accomplished by means of Sylvester's method of artificial respiration.

Gastric and Duodenal Ulcer.—H. Adler describes his method of diagnosis of this condition by means of the *x*-ray. He gives a single dose of 1.5 grams of bismuth subcarbonate in half a glass of water and then waits for the stomach to get rid of it, having determined in advance the motility. In cases in which there is no disturbance in motility the picture was taken in from four to six hours after the bismuth, which was given on an empty stomach. This would allow time for all the bismuth to disappear from the stomach and duodenum except that lodged in the crater of an ulcer. After the first *x*-ray examination, one ounce of the bismuth subcarbonate is given in a glass of water and a second picture taken immediately. The bismuth rapidly spreads over the entire gastric mucosa, but this can probably be facilitated by having the patient turn from side to side several times. This examination is for the purpose of obtaining a shadow of the entire stomach so as to localize any shadow made on the first plate.

Toothpicks as Foreign Bodies.—G. M. Livingston reports a case of severe irritation of the stomach and hemorrhage in the stomach and bowel caused by the swallowing of several toothpicks which the patient had been in the habit of chewing. Relief was obtained by the passage of the foreign bodies *per anum*, and there were no serious sequelæ.

Coccidioidal Meningitis.—H. A. L. Ryfkogel describes a case of this condition in which there was absence of the characteristic coccidioidal skin lesions and the case had been diagnosed as tuberculous or syphilitic in character. There were numerous skin abscesses, however, which revealed the organism. Secondary hydrocephalus set in and the question arose whether this was due to meningitis caused by the fungus or, as it occurred after the abcesses had been apparently cured, whether it was an epidemic cerebrospinal meningitis. Lumbar puncture did not settle the question. An injection of Flexner's serum was given without improvement, and about three weeks later a second one, which was followed in 34 hours by death. The author considers the cause of death in this case to be probably the anaphylactic reaction of Richet. Hutinel has published reports of four cases of death after a second injection of antimeningococcus serum, and the hypersusceptibility of tuberculous individuals to a second injection of horse serum is well known. The sensitiveness in this case bears some relation to these and is another evidence of similarity of the fungus granulomata to tuberculosis. There was a tendency of the lesions to heal in this case, and the meningeal lesions were found regressive on autopsy, indicating a possible curability of the condition.

Cultivation of Sarcoma.—A. Carrel and M. T. Burrows performed an experiment by means of which it is possible to cultivate outside of the organism fragments of a human sarcoma in a manner similar to that of the animal sarcoma previously described.

Acute Thyroiditis.—J. P. Lewis and B. J. O'Neill describe a case in which the noticeable features were the evident infection from horses suffering from "epizootic," although no history of trauma or other etiological factor could be elicited; the edema of the glottis at the onset; the seemingly very rapid development of the swelling of the thyroid gland; the lack of involvement of the lymph-glands until some hours later, and the rapid recovery.

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Greek Medicine in Rome. Sir T. Clifford Allbut.
The Traumatic Neuroses. T. R. Glynn.
Desmoid Tumors. R. Morison and H. Drummond.
Notes of Some Cases Treated by Vaccines of Unknown Organisms. E. C. Bowsfield.
Primary Acidosis; Recovery. S. Bontor.
The Use of the Faradic Current in the Treatment of Persistent Aphonia Following Laryngitis; Two Cases. F. H. Johnson.
Notes on a Case of Phlegmasia Alba Dolens, Followed by Pulmonary Embolism and Infarction of the Lung; Recovery. J. C. Curtis.
The Influence of Quinine and Morphine Upon Phagocytosis. H. L. Smith.

Greek Medicine in Rome.—Sir T. Clifford Allbut, in the first lecture of the Fitz Patrick course, refers to Soranus, who was too great a man to be enthralled in any sect, who in learning and practice and in loyal regard to tradition stood on the heights of ancient medicine. Next the lecturer discourses on the origin of the idea of pneumatism, its doctrines and their relation to other doctrines, the Aristotelian influence in Alexandria, Alexandrian medicine, Athanæus, and the growth of polypharmacy.

The Traumatic Neuroses.—T. R. Glynn states that the neurosis excited by traumatisms is usually a hysteroneurasthenia. A predisposing cause is probably often to be found in a weakened nervous organization brought about by the abuse of tobacco and alcohol, and further exhausted by unhealthy or arduous occupations and unhygienic surroundings. Emotional disturbance plays a more important part than physical injury. The most severe cases of hysteroneurasthenia follow blows on the head. When an injury is severe the nervous symptoms may be manifested immediately by excitement, insomnia, night mare, headache, tremors, emotional disturbance, and diges tive troubles. In individuals with stable nervous systems recovery takes place in a few days; in others of neurotic temperament, after perhaps a period of temporary improvement, the nervous manifestations return with greater or less intensity. When the traumatism has been slight, the victim of the accident may experience few symptoms of depression immediately after it, perhaps only vague pains and some weakness of the legs and slight insomnia—nothing to prevent him continuing his occupation. At the end, however, of a few days, or weeks, or perhaps months, progressively or rapidly the symptoms characteristic of a traumatic neurosis appear, and a state of invalidism becomes more or less established. The period of time extending between the receipt of the accident and the development of the neurosis has been termed by Charcot the "period of meditation." According to certain German authors, this period may be prolonged to from two and a half to fifteen years after the receipt of the injury. A traumatism may be followed by a pure neurasthenia or hysteria or by a hysteroneurasthenia; in the latter case the more precocious nervous manifestations are, as a rule, neurasthenic.

Desmoid Tumors.—R. Morison and H. Drummond state that this term is applied to fibromata when occurring in the muscles or muscular fasciæ of the abdominal wall and possessing certain clinical characteristics apart from fibromata occurring in other parts of the body. These tumors are found chiefly in the upper half of the rectus muscle, but also in connection with the other muscles, and are of considerable clinical importance. They are likely to be mistaken for growths in the abdomen, unless the possibility of their occurrence is remembered. Their association with pregnancy is so frequent as to constitute more than a coincidence. Possibly traumatism, by muscle stretching or tearing, is of etiological significance. A firm, but not tender, sausage-shaped tumor, possessed of some mobility, across, but not in the direction of the fibers of the relaxed muscle with which it appears to be associated, becoming fixed when that muscle is made tense, and occurring in a woman recently pregnant, is a desmoid tumor. The treatment is to excise the growth at once, along with a free margin of the surrounding structures, including the peritoneum underlying it.

Vaccines of Unknown Organisms.—E. C. Bowsfield reports four cases treated successfully by means of vaccines, in three of which the apparent cause was an organism which did not lend itself to classification, either because of the unusual form, or because the condition of the patient was such as not to allow time for the purpose. The cases were the following: Pleurisy following measles; malignant endocarditis following phlebitis; puerperal toxemia due to *B. coli communis;* puerperal toxemia due to an unidentified organism.

Primary Acidosis; Recovery.—S. Bontor reports the case of a woman, sixty-eight years of age, who, following a chill, suffered from headaches, insomnia, and nausea. Later she became apathetic, delirious, and finally unconscious. The diagnosis of this case was difficult. It was evidently a toxemia and appeared to rest between uremia, an intestinal infection, and acidosis, but at first there was nothing to enable a differential diagnosis to be made. The urine, which was examined nearly every day, gave no definite reaction until thirteen days from the onset of the condition. Then diacetic acid was found to be present and the condition was shown to be one of acid intoxication, and a line of treatment was framed to meet the condition. In order to keep up the store of glycogen the diet was en-

tirely limited to carbohydrates, and with a view of neutralizing as far as possible the acid condition bicarbonate of soda was introduced into the system as freely as possible. It was given in every feed and by slow introduction into the rectum, according to Murphy's plan, of continuous rectal infusion as long as the bowel would tolerate it, and afterwards by occasional enemata. The author believes that the initial chill interfered with the digestive processes, that an intestinal toxemia was induced, and subsequently the liver cells were so damaged by their work in dealing with the resulting toxins that they were incapable of performing their normal function of transforming the carbohydrates into glycogen. It is thus possible that the patient's store of glycogen became exhausted during the first few days of her illness. In spite of the severe symptoms produced, the patient recovered. The author states that this is probably the first recorded instance of recovery after a severe primary acid intoxication.

Faradic Current in Aphonia.—F. H. Johnson reports a case of aphonia of twelve years' duration following laryngitis, and a similar case of more than two years' duration, both of which were successfully treated by means of external faradization. He finds that the secret of success lies in the regular and persistent use of mild currents, which are not calculated to produce violent contractions of opposing healthy muscles. Where the laryngoscope shows marked swelling and congestion of the cords the mucous membrane must be attacked vigorously on orthodox lines, and here again one is likely to meet with little success if the nasopharynx is in an unhealthy condition. The author urges the necessity, in any given case, of making sure that the aphonia has really resulted from such simple causes as catarrh, overstrain, or a combination of both. Thoracic aneurysm, lesions of the central nervous system, malignant growths, the ulceration of syphilis or of tubercle—these must always be borne in mind as sinister possibilities, and it is at least a waste of time to employ faradization in the case of a patient who subsequently dies from cancer or who is in condition to be cured by iodide of potassium.

Phlegmasia Alba Dolens.—J. C. Curtis reports a case of this condition, followed by pulmonary embolism and infarction of the lung; recovery took place. The chief points in the case were: The large area of lung involved; the almost simultaneous disappearance of the edema in the leg, coincident with the lung lesion; the small amount of pyrexia, pointing to an aseptic condition of the lung lesion; the high respiratory rate, due to the large amount of lung tissue thrown out of action; and finally the total absence of any sanguineous expectoration, and also practically no cough.

Influence of Quinine and Morphine Upon Phagocytosis.—H. L. Smith found that a combination of these drugs in the "ideal dose" (one-eighth grain of morphine hydrochloride to each ten grains of quinine hydrochloride) causes *in vitro* an increased phagocytosis. He believes that the stimulus to phagocytosis in the test-tube cases was due to the quinine and morphine acting as an opsonin to certain microbes. In the initial stages of a bacterial invasion, and particularly in cases of appendicitis, acute colitis, puerperal septicemia, cellulitis, erysipelas, and influenza, the prompt administration of quinine in the ideal dose (which seems to be about one grain to each fourteen pounds of the patient's weight) appears likely to strengthen the natural first line of defence. It is at this period, when the invaders are comparatively few in numbers, that a remedy which will quickly increase phagocytic power is of the greatest service and may possibly abort the attack. Even if the employment of quinine and of morphine fails to achieve complete success its use nevertheless postpones the immediate danger and affords time to bring into play more exact methods of serum or vaccine treatment.

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Diaphragmatic Herniae. A. Keith.
Typhoid Perforations and Perforations of the Gall Bladder. G. E. Armstrong.
Bacillus Coli Infections, with Special Reference to Their Recognition and Comparative Frequency. J. S. Dick.
On the Diet of a Patient Before Operations under General Anesthesia. R. W. Collum.
Ophthalmic School Clinics in the Country. R. B. Hird.
Submucous Resection of the Septum Nasi. T. I. Faulder.
Three Bad Prognostic Signs in Eclampsia. W. F. Shaw.
The Clinical Measurement of Diastolic Blood Pressure and Cardiac Strength. Sir Lauder Brunton.
Greek Medicine in Rome. Sir T. Clifford Allbut.
A Bad Case of Strangulated Omental Hernia, with Very Few Symptoms. A. Z. C. Cressy.
A Case of Tetanus Treated by Chloretone. R. A. Hobbs. With a note by E. W. Sheaf.

Diaphragmatic Herniae.—A. Keith states that herniae through the diaphragm fall into two groups, the congenital and the acquired, the former being to the latter in a series of 34 cases as 26:8. The congenital herniae are chiefly those which occur at the unclosed pleuroperitoneal passages (21 cases), the others being formed (5 cases) by developmental extrusions of the abdominal viscera, chiefly liver, through the septum tranversum. In a certain proportion of congenital cases it appears possible to adopt surgical measures for the cure of the condition.

Typhoid Perforations.—G. E. Armstrong states that the pathogenesis of typhoid perforation is the coagulation necrosis of the lymphoid tissue opposite the mesenteric attachment, where the blood supply is poor. The problem before the profession is to lower the mortality rate; therefore, the first question is, What are the causes of the high death-rate in typhoid perforation? They are: 1. The condition of the patient at the time of its occurrence. Towards the removal of this cause one can do little, although it adds greatly to the difficulties of recognition. 2. The difficulties in diagnosis. This is almost the whole question at the present time. Once perforation has occurred, one may agree pretty well on the remedy to be applied and on most of the details of carrying that remedy into effect; but how to make the diagnosis—that is the question above all others in typhoid perforation. This condition is not announced by definite and distinct symptoms. One must clearly appreciate the difference between perforation and peritonitis. The absence of harmony in symptoms is a diagnostic point in favor of perforation. The change for the worse in the patient is often out of all proportion to the abdominal symptoms. Abdominal pain is the danger signal; with this there are tenderness, rigidity, and muscle spasm. One should not conclude that there is no tenderness present without a rectal examination. Later on, when peritonitis has developed, careful inspection may reveal lessened abdominal movement during respiration. If perforation occurs into the free peritoneal cavity the patient cannot recover unless the opening is closed. The only perforations that do not prove fatal unless closed by the surgeon are those occurring in the large bowel and between the layers of the mesentery. It has been demonstrated at the operating table that a small perforation in the small intestine may be temporarily closed by omentum, but that such cases would have recovered if they had been left alone is open to very serious doubt.

Bacillus Coli Infections.—J. S. Dick reaches the following conclusions: 1. These infections are commoner and more important than the average textbook would lead one to believe. 2. They vary within wide limits in respect of their virulence, and therefore in respect of their clinical features. 3. Their recognition is important, not merely from the standpoint of accurate diagnosis, but also from the standpoint of efficient treatment in the severer types. 4. The slighter cases are apt to be overlooked altogether, the severer cases are apt to be misunderstood. 5. Clinical observations alone, however conscientious, are at present quite inadequate; bacteriological evidence is a *sine quâ non* of decisive diagnosis.

Diet Before Operations.—R. W. Collum states that if an operation in an otherwise healthy subject is to be performed at 9 o'clock in the morning, the patient should be left asleep, unless he awakes of his own accord, until at any rate 7.30, when he may be given his enema. Then, if he be accustomed to breakfast at about 8 o'clock, he may have a thin slice of bread and butter, or a small piece of toast, with as much tea to drink as he desires. He will then be able to settle down much more contentedly to his newspaper until the surgeon arrives. Tea is preferable to coffee, as the former is usually taken with considerably less milk than the latter. The author believes that more attention should be paid to the ordinary habits of the individual patient, in order to relieve him as far as possible from the discomforts of anesthesia He mentions definite hours for the meals (8 a.m. for breakfast, 1 p.m. for lunch, and 4 p.m. for tea) merely for the sake of convenience. If the individual patient under consideration be accustomed to take his meals at some other hours, these should be substituted for the ones indicated. An exception may be made in the case of breakfast if the patient should awake much earlier than usual on the morning of the operation. In this case, if he feels inclined for food at an earlier hour than usual, there is no objection to his having it then instead of later.

Ophthalmic School Clinics.—R. B. Hird states that school medical inspection cannot be regarded as complete unless the defective children receive the treatment they require. An alternative to treatment at the hospitals is that of holding "school clinics," and paying medical men for undertaking the work.

Submucous Resection of the Septum.—T. J. Faulkner had the opportunity of observing a case three years after operation, in which there were two points of interest: (*a*) the comparative ease with which the mucoperichondrial layers were separated from each other after nearly three years in contact—there were only a few feeble strands of fibrous tissue crossing between the two flaps; (*b*) the entire absence of any regenerated cartilage, bone, or fibrous tissue beyond the weak fibrils above mentioned. This case also illustrates the occasional impossibility of making the septum hang truly vertical in the middle line without endangering the integrity of the bridge.

Bad Prognostic Signs in Eclampsia.—W. F. Shaw points out the following three bad prognostic signs in eclampsia: 1. Small amount of albumin in the urine during the eclamptic stage. 2. A high temperature. 3. Convulsions commencing after labor.

Diastolic Blood Pressure and Cardiac Strength.—Sir Lauder Brunton describes the physiology of blood pressure and the methods of its measurement in the laboratory. Diastolic pressure has as yet received comparatively little attention, because of the difficulty of ascertaining it, yet it is a factor of great importance, because by its amount, and by the difference between it and the systolic pressure one obtains valuable data in regard to the strength of the heart and the condition of the arterioles. The two conditions that generally produce low pressure are oversmoking and commencing phthisis. Nicotine has the most extraordinary power of contracting the vessels and raising the blood pressure. A single pipe appears to raise the tension for the time being, but it seems as if tobacco, and probably also opium, cause the organism to produce antibodies, which in the intervals between taking the drug, exercise an opposed action. It is in cases of high tension that the sphygmomanometer is most useful, because by early detection of a rise in pressure, and by the adoption of proper regimen and medicines, the tension may be kept at a lower standard, and dangers which would otherwise accrue to the heart or vessels and to the brain may be avoided. In such cases, as the treatment requires to be carried on, not only for months but for years, it is advisable to interfere as little as possible with the patient's ordinary habits. The only rule in regard to diet is that the patient should take very little, if any, red meat or strong soup. He should eat slowly and masticate thoroughly. He should take neither strong tea, strong coffee, strong wines, nor strong spirits. In regard to exercise, rest should be taken for at least twenty minutes after meals, and then exercise should be taken very slowly. Sudden strain of every kind should be avoided, but moderate exercise without strain is rather beneficial. Even in patients suffering from angina pectoris, gentle exercise is useful, provided the patient will begin very slowly, and will take care neither to go too fast nor too far.

Greek Medicine in Rome.—See abstracts of articles in the *Lancet*, November 5, 1910.

Strangulated Omental Hernia.—A. Z. C. Cressy reports a case of this condition presenting symptoms of pain in the lower abdomen; tenderness over an inguinal hernia, which was hard, dull, and with no impulse; normal temperature; pulse not affected; vomiting occurring only once; bowels open even more than once a day; and the patient walking about three days out of the four during which the symptoms were manifest. One point is strongly brought out in this case, namely, when an omental hernia does get strangulated, it is certain to be fatal if not relieved, as the gangrene does not stop at the stricture, but passes on into the abdomen. The case healed by primary union and did well.

Chloretone in Tetanus.—R. A. Hobbs reports a case of tetanus occurring in a man forty-six years of age, in whom, in addition to antitetanic serum, chloretone was administered by the rectum, in doses of thirty to forty grains, with olive oil, two to three times a day. The chloretone was given when indicated by an increase in rigidity. The total amount of antitoxic serum used was 390 c. cm.; and of chloretone, 420 grains. The points specially noted are: 1. The early onset of symptoms and consequent grave prognosis. 2. A marked decrease in the rigidity was noted a definite period after the administration of chloretone, the trismus being relieved in a constant and remarkable manner. 3. The complete absence of convulsions from beginning to end of the illness. 4. The relief of trismus enabled the patient to take ample nourishment throughout and thus maintain his strength. 5. The rapid recovery of the case. The author is convinced that this man's life was saved by chloretone, although the part played by the antitetanic serum must not be disregarded.

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Diagnosis of Nasal Diphtheria in Very Young Children.—Blochmann relates a case of nasal diphtheria in a child sixteen months old. The patient appeared at first sight to have erysipelas beginning at the nasal orifices. Anterior rhinoscopy disclosed membrane and bacterial diagnosis of diphtheria was made. In diphtheria epidemics the author also examined suspects and those exposed. He found that nasal diphtheria may run an afebrile course, and that membrane may persist in the nasal fossæ for weeks, while the children remained bacilli carriers for months. These latent cases naturally differ radically from the outspoken cases of nasal diphtheria so common in nurslings, in which membrane projects from the nostrils and the right diagnosis is otherwise readily suggested. In latent or beginning cases the author evidently believes that the use of the rhinoscope is an improvement on mere swabbing out of the nose for cultural purposes. A study of the two sides may show in one, or both, areas of intense congestion preceding membrane formation, and isolated patches of the latter may be seen on the turbinals or septum. But while rhinoscopy may represent a diagnostic refinement, it hardly seems calculated to supersede the use

of the ordinary swab for diagnosis of the disease or of a nasal carrier.

New Procedure for the Demonstration of Free Acid in the Stomach.—Fuld writes mainly in the interest of diagnosis of cancer of the stomach. He speaks of the extreme frequency of the latter and the absence of HCl in three-fourths of the cases. We examine the urine to discover the presence or absence of two great folk-maladies; hence one should be equally prompt to make routine tests for free acid in the stomach. In the author's method the patient takes a trial breakfast, and an hour later a swallow of sodium solution. The effervescence may be distinctly heard by the ear placed over the stomach, if acid is present. Hence absence of effervescing sounds suggests a possibility of cancer. When enough gas has been produced by the combination of gastric acid and swallowed soda, the percussion note over the stomach becomes correspondingly modified. It is necessary to control every case by auscultation and percussion before the soda is drunk. Further evidence of gas formation in the stomach may be shown by the fluoroscope. The author discusses the various competitive and analogous tests, but his real service lies less in devising a new test than in his insistence on routine examination for HCl in elderly men out of health from any cause, or even in special cases of men who do not seek medical relief. All tests thus advocated lack the simplicity of urinary tests and of others adapted to ordinary life insurance examinations, such as a routine digital examination of the rectum. But if the policy were a very large one, a test like Fuld's would not be out of place, and absence of free acid would perhaps justify a postponement.

Iodine Cachexia in Arteriosclerosis.—Emmerich refers to the extensive use of iodine in arteriosclerosis and to the great number of iodine preparations on the market to supply this indication. As the drugs must be given for long periods we should be hearing constantly of cases of iodism either as an expression of supersensitiveness or as the socalled iodine cachexia. One very popular proprietary substance is able to produce a very definite type of the latter. The patient emaciates and weakens rapidly and may suffer from insomnia. The symptoms, however, are precisely those common to the disease, and hence the remedy would perhaps be pushed to greater lengths, or dropped as inert. In any case iodism would not be suspected. The author has learned that the iodine was really responsible for the exaggeration of the symptoms by suspending the preparation and watching the development of the case. After an interval perhaps extended the patient would recover his original status. As some of these patented remedies contain a very large percentage of iodine the author prefers the original blood-salts serum with small doses of some iodide.

Münchener medizinische Wochenschrift.

October 25 and November 1, 1910.

Peculiar Case of Fish Poisoning.—Strauss relates the instance of a man, late in his fifties, who partook of some sardines which had remained for a time in the original tin. Patient recalled the fact that the inside of the box cover had turned black. Nothing seems to have transpired for three days, when overnight the patient broke out with a scarlatiniform eruption and angina. One day later violent colicky pains developed, along with constipation, meteorism, anorexia, insomnia, and so on. For three weeks all symptoms persisted. The exanthem then died out, leaving the condition otherwise unchanged. Thereupon a complete left facial paralysis set in, which soon vanished and was succeeded by a right facial paralysis which persisted for several weeks. Patient in the meanwhile complained of dyspnea, on exertion, general asthenia, and marasmus with emaciation. Patient made a slow recovery. The facial paralysis, which remained throughout the most decisive symptom, seems to have been wholly peripheral.

Röntgen Rays in Dermatology.—Löwenberg states that with fourteen years' experience one should be able to lay down the indications and contraindications for this resource in this class of cases. Most of the bad effects on record have affected the Röntgen specialist and his assistants, few having affected the patient. In the meantime the specialist has learned to graduate the dosage; and since 1902 Holzknecht has so mastered this difficulty that the use of the rays is relatively safe for operator and patient alike. Others have taken advantage of this improvement so that by to-day the radiometer of Sabourand and Noiré has been used by the author and his colleagues 3,000 times with relative safety. This instrument is practically a dosimeter, and through its use one reaches an erythema dose which serves as a maximum. One-half or one-fourth of this dose may often effect the desired result. Recent attempts in the sphere of dosimetry appear to add nothing to the Sabourand procedure. Many dermatologists continue to use the rays indiscriminately and without regard to dosage, and failures in depilation and in the reduction of tumors are ascribed to the inefficiency of the treatment, while on the other hand burns are common. One must not, however, fail to take notice of the Röntgen idiosyncrasy or supersensitiveness, which would be constantly in apparent evidence without dosimetry. Such an idiosyncrasy has been denied outright by some and pronounced very infrequent by others. The authors have not seen a single case in 3,000 radiations. Yet the profession and public are always fearful of such supersensitiveness. One should know all that is to be learned of the power of the rays. It appears, for example, that young animals may be stunted in growth by a certain amount of radiation, and, indeed, the known inhibitory action of the rays on cellular activity might justify such a surmise. But apparently human tissues, being more highly organized, are more resistant in these respects. Much depends, naturally, on the right of certain cells to survive. Thus we know that in hypertrichosis the rays are able to destroy certain hair papillæ while sparing the skin at large. Diseases, which by their very nature tend to destroy the hair papillæ, are naturally assisted by this resource, and the old time tedious epilation has been superseded, or if the latter resource is employed it is simple and painless. There is no evidence that the *x*-rays are actually germicidal—hence in all diseases caused by living organisms parasiticides must be employed. The removal of pronounced hypertrichosis, as in bearded women, does not lie within the province of the rays. When used in maximal doses they tend to cause ugly telangiectasias and scars. The rays seem to be efficacious in highly chronic and localized eczema. In fact, they should supersede all other treatments in certain local varieties of the disease. Psoriasis tends to yield to mild radiation, even in one-quarter maximal dose, but relapses occur with the usual frequency. The same is true of the results of radiation for other skin diseases. It is the record of other means of relief for these conditions. Some improve, some hold their own, and others recede under the treatment. When the authors' summary is digested one finds nothing new. Clearly if Röntgen rays give special results in dermatology, the method of demonstrating them is open to all the objections of any new treatment.

Causes of Sudden Changes in Blood Pressure.—Zabel, in a paper with this title, writes incidentally of the great constancy of blood pressure in many individuals. These might be termed normal subjects were it not for the fact that the merely nervous, who can hardly be termed abnormal, exhibit sudden and notable changes. The extreme type of these is seen in hystericals and neurasthenics. But a liability of the blood and vascular system is more deeply seated than an unstable nervous system, although it

often coexists with, or depends on, the latter. Extensive studies show differences in the people of different races or countries. Besides racial divergence, there is individual divergence. This is often seen only in connection with a line of questioning, certain inquiries causing a change in blood pressure. Despite the psychic factor thus placed in evidence it can hardly be said that such subjects are neuropaths or unduly excitable. Rather is it the effort to recollect that produces the alteration. Men who have been dissipating or who are in an irritable frame of mind show special liability for the time being, although generally normal. So also do women during menstruation. Change of pressure may be produced reflexly in many ways. Despite the abundance of detail the author is very conservative in his conclusions. He evidently believes that we must test and retest scores of times to establish actual facts, otherwise we are dealing with impressions only.

The Ehrlich-Hata Remedy and Filariasis.—Reichmann describes a filarial malady which is, if not unknown to parasitologists, at least uncommon. The case occurred in Jena, and had no exotic element. It was, however, rendered obscure by a recent syphilitic infection, which was perhaps responsible for some of the symptoms, although the patient had received proper and timely treatment (Hg). A positive Wassermann reaction accompanied the filariasis. The parasite appeared to attack the pleura and kidneys, so that the symptoms were those of both conditions. Increased intrathoracic pressure, anasarca, oliguria, etc., were present. The earlier symptoms, however, could only be likened to intestinal colic, which fact suggested that some general infection had occurred by the intestinal route. As soon as the positive Wassermann reaction was obtained an injection of 606 was given with astonishing success. Before that period a filarial parasite had been cultivated from a pleural puncture fluid. All attempts to find them in the blood and urine failed. The injection of 606 appeared to have destroyed the parasites. As already stated the filaria was not recognized as corresponding to any known species. Hence it may be claimed that it was not the cause of the severe disease. Whether the Ehrlich-Hata remedy possesses filaricidal powers, or whether it acted on a totally unrecognizable remnant of syphilis, the result was most remarkable.

Polythelia and Axillary Milk Glands.—Höfstatter gives a brief but fairly complete monographic study of this subject. Polythelia represents a condition of supernumerary nipples, while the axillary milk glands seem to be supernumerary mammæ. According to some authorities, however, they are merely exaggerated axillary sweat-glands. Supernumerary or accessory nipples are chiefly regarded as due to atavism. If we include slightly developed cases polythelia is fairly common, not only in women, but in men. Accessory nipples are often overlooked or confounded with other conditions, such as moles. The superfluous nipple, while only appearing as such, may in some cases be found to be connected with the rudiments of a mammary gland. This being admitted the proximity of the axilla to the mamma might imply that the axillary milk glands are merely a form of polythelia. But all the evidence seems to point in the opposite direction. A "deadly parallel" might be drawn up to show the radical dissimilarity of the two conditions. In addition to what we have already stated, it should be enough to state that the axillary milk glands do not represent a congenital condition, but are acquired in the course of gestation. They are moreover so rare that we do not usually find them mentioned and illustrated in obstetrical works.

Deutsche medizinische Wochenschrift.

November 3, 1910.

Significance of Quinquaud's Finger Crepitation.—Some years ago Quinquaud announced a new sign of abuse of alcohol, which, had it been proved trustworthy, would have been of great value in detecting secret drinkers. A considerable literature sprang up, which gave the subject a manysided aspect. As might have been expected this sign was soon found to denote general neuropathy instead of alcoholism, and was especially marked in tabes dorsalis, hysteria, and neurasthenia. When first announced, the alleged sign was given as a tremor of the fingers produced by pressing together with considerable force the tips of the digits of the two hands, or by any similar pressure, as of the patient's finger tips against those of the physician. A true crepitus of the phalanges or tendon sheaths was later exploited as an integral part of the test, while certain autopsy findings were brought out. It should be well known to the general practitioner that the hand of the heavy and steady drinker does not tremble except in cases of recovery from excessive debauch or in general withdrawal conditions. On the other hand, the born neuropathic subject may show tremor in childhood and through life. Tremor of the fingers in the simple sense of the term, unburdened with consideration of special diseases, is a simple appanage of constitutional nervousness. It is natural that, if such a subject is submitted to Quinquaud's test, he may give a positive result, but this does not mean that he abuses alcoholics. He may or may not, as the case may be. If, being neuropathic, he further abuses alcohol we naturally see the vicious circle in operation and a very pronounced reaction to the test. But to possess any diagnostic value whatever, the test should apply to the non-neurotic alcoholic who drinks for Epicurean reasons, or to be in the fashion, or for any one of a dozen reasons which do not involve a neuropathic craving. The author is radically opposed to Quinquaud's teaching. All sorts of theories have been advanced to signify that alcohol can cause structural alteration in some of the numerous tissues which go to make up the digits. In a few cases which have come to autopsy the subjects were tuberculous and might naturally have been expected to present some evidences of osteoarthropathia pulmonum. As a matter of fact, however, there were in these cases no pathological findings whatever. To come back to the crepitation sounds heard by auscultation over the digits; these or something much like them have been placed on record for neuropathic disorders in general. The phenomena, such as they are, are purely neuropathic and are only alcoholic because of the tendency of the neuropath to drink to excess. Given the neuropathic substratum, these phenomena could be called into existence by any kind of mental excitement.

Bacillus Coli Outside of the Body.—The *Bacillus coli* is a type of microorganism alleged to be, according to circumstances, the most indifferent saprophyte or the cause of most virulent diseases. In this respect it agrees with other pyogenic germs which are in abundant evidence outside the body, the exclusion of which by Listerism has marked such an advance in the healing art. The *B. coli* differs in some respects from the other familiars of mankind in that it is an intestinal parasite and one therefore specially likely to be conveyed to the host by food and drink. It is generally known that the *B. coli* appears to be able to set up almost any kind of enteric malady if its virulence is sufficiently pronounced. Diseases which would pass clinically for typhoid, cholera, and dysentery may have no other source. Neumann has made a special study of this germ from the outside—that is, from its incidence in common food and drink. He concludes that while the *B. coli* may not be the exciting cause of certain diseases its presence may serve as an "indicator." That is, in the height of an epidemic of enteric disease, he finds an undue presence of the *B. coli* on the ordinary articles of food use. In examining the rations of hospital dietaries he finds the germ on bread and rolls, butter and milk, and especially on fruit (with the exception of grapes).

Society Reports.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

FIRST DISTRICT BRANCH.

Fourth Annual Meeting, Held at Newburgh, October 27, 1910.

DR. THEODORE MILLS OF MIDDLETOWN IN THE CHAIR.

Election of Officers.—*President,* Dr. W. Stanton Gleason of Newburgh; *First Vice-President,* Dr. Daniel Bailey Hardenberg of Middletown; *Secretary,* Dr. Charles Ellery Denison of New York; *Treasurer,* Dr. James E. Sadlier of Poughkeepsie. Place of meeting, Tuxedo Park.

President's Address.—Dr. T. D. MILLS of Middletown discussed the relations of the medical profession to the community, the State, and the nation. He stated that the medical man did not occupy the position in the community to which his education and training entitled him. The physician was himself largely responsible for the existing order of things. Instead of having committees at work interviewing legislators, physicians should form a part of our legislative bodies. If this were brought about there would be less money wasted on barge canals and more spent on the improvement of our water supplies and the purification of our rivers; pure food laws would be made more stringent and the mortality from typhoid fever and other diseases would be reduced. Sanitation on the farm as well as in our cities would be improved and the general health of the people conserved.

Hints for the General Practitioner on the Nature, Etiology, and Early Diagnosis of Insanity.—Dr. CARLOS F. MACDONALD of Central Valley read this paper. (To be published in the MEDICAL RECORD.)

Sacral Suspension of the Uterus.—Dr. JOHN VAN DOREN YOUNG of New York City read this paper. He referred to a former paper on this subject in which he called attention to the importance of the uterosacral ligaments in uterine suspension and to his report of results in 100 operations for sacral suspension, covering his entire experience with the operation during ten years. He stated that he had since performed the operation 27 times and desired to give his experience during the last year and a half. He had concluded years ago that the recognized operations of ventral suspension, ventral fixation, the Alexander operation, all operations, in fact, on round or broad ligaments, as well as vaginal fixation and the Gillain operation failed to consider the relation between the under surface of the second sacral vertebra and the lower segment of the uterus. When this relation was taken into consideration it must be with the patient in the standing position. It then became apparent that the only rational method for holding the uterus in place was by suspension and not by support and consequently the uterosacral ligaments became of prime interest. He called particular attention to the fact that the levator ani, the perineum, and all the pelvic floor muscles had nothing whatever to do with uterine suspension except indirectly when tears existed. Dr. Young showed that the sacral ligaments were the only supporting ligaments of the uterus. The broad ligaments were strong factors in preventing lateral displacement, and indirectly helped to support the weight of the uterus, but their location and attachments were not such as to prevent retroversion or prolapse. The round ligaments acted only as guy ropes in holding the fundus well forward and keeping the intraabdominal pressure upon the posterior surface of the uterus. In performing this operation the incision should be made low, extending down to the symphysis and varying in length according to the thickness of the abdominal wall; two and one-half inches was usually an ample length. The patient was then placed in the extreme Trendelenburg position and it was a material help to have the body held in position by shoulder crutches, and not by flexion of the legs. This brought the posterior portion of the true pelvis into view. The intestines were held up from the true and false pelvis by abdominal pads wet in hot saline. The uterus was then lifted up and held in position by a volsellum, the ovaries and tubes inspected, and the necessary plastic work done. After the uterus was free the operator examined Douglas' cul-de-sac and located the origin of the uterosacral ligaments from the corporocervical junction. The ligament opposite the side upon which the operator stood should first be operated upon. The ligament was drawn upward, inward, and forward; the weblike relaxed ligament would be seen pulling out from the side of the pelvis; this should be grasped at a point three-quarters of the distance from the uterine end of the ligament to its sacral insertion. This gave the operator two fixed points to approximate. The point at which the ligament should be sewn to the uterus could be easily gauged. There was more danger of not shortening the ligament enough than of shortening it too much. However, if there was too great strain on the sutures they might yield. The next step was to grasp the relaxed portion of the ligament at a distance midway between the second clamp and the uterine origin of the ligament by a third French clamp. A suture of No. 2 chromic catgut was passed through the origin of the ligament and through enough uterine tissue to form a firm hold. This stitch was tied, the other end grasped by an artery clamp, and the needle again passed through the base of the ligament. The first clamp attached to the ligament was then removed and the second clamp with its reduplicated fold of ligament was brought upward, forward, and inward to a point where the needle which had just been passed through the base of the ligament might be carried through both layers of the reduplicated fold of the ligament. This reduplicated fold of the ligament was held close to the uterus by clamp No. 2 during the process of insertion of the needle and placing of the second knot. The second clamp should then be removed allowing the reduplicated fold of the ligament to be brought closely down to the base of the ligament. Much of the success of the operation depended upon the placing of this stitch as that was really the point of anchorage of the ligament. Clamp No. 3 was then drawn upward, outward, and backward, showing the three layers, and a stitch was inserted midway between the clamp and the stitch already in place A third stitch was placed through the two layers of the ligament at clamp No. 3 and through the sacral segment of the ligament high enough to bring the three folds of the ligament taut. Two stitches might be placed between those already in place. Care should be taken that the ureter was not in the folds of the ligament or in danger of damage. The uterus was held either by a volsellum put into the uterine body just posterior to the median line of the fundus, or the lower segment of the uterus might be drawn up by the first stitch. This procedure was repeated on the opposite side. In this series he had had three deliveries which were normal in every particular. The results of these operations had been most gratifying and had fully justified his expectations.

DR. RALPH WALDO of New York said that Dr. Young's paper dealt in a very masterly way with a subject that was most important. Only a few operators had appreciated the rôle that the uterosacral ligaments played in the support of the uterus and in its maintenance in the normal anteverted position. The uterosacral ligaments were not merely folds of peritoneum but they were true ligaments composed of yellow elastic and muscular tissue, as well as peritoneum, and with the broad ligaments were the main support of the uterus. The round ligaments acted as guy-ropes only. Several operators had shortened the uterosacral ligaments through the vaginal route but in many in-

stances the operation was very difficult if not impossible to perform in a satisfactory manner. There was another way that these ligaments had been shortened by the abdominal route, namely, by stitching the opposite ligaments together commencing at their attachment to the uterus and extending as far as one could without constricting the rectum. The method advocated by Dr. Young was very ingenious and suited perfectly the indications.

County Hospital Care for the Tuberculous.—Dr. D. B. Hardenberg of Middletown, N. Y., presented this paper, which consisted in a plea for the establishment of county hospitals for the care of tuberculous patients. He read the law of the State of New York which went into effect on May 13, 1909, providing for the establishment of such hospitals, and recalled the fact that Ontario County had been the first to take advantage of this act. Special committees had been appointed by the boards of supervisors of Orange, Oswego, Onondaga, Monroe, Cattaraugus, Cayuga, and Schenectady counties, to study the subject and report. Such a hospital had recently been donated to Newburgh by ex-Governor Odell and the citizens of Elmira had contributed a fully equipped hospital for patients from Elmira and Chemung County. The utility of the hospital in eradicating tuberculosis had general recognition. Newsholme of England had shown that in nearly every instance where contagious diseases had been brought under control it had been due to hospital care of those having the disease. He also showed that those cities and countries having a large hospital provision for tuberculosis had a rapidly falling death rate from that disease, while those having little hospital provision showed little or no reduction in such mortality. It had been estimated that the economic loss to the State of New York was $70,000,000 annually from tuberculosis. The cost of providing suitable accommodations for the care of this class of sufferers would be small in comparison to this. It had been estimated that the initial cost of construction for such hospitals would be at a minimum rate of $500 for each patient and that maintenance would be at the rate of $1.25 per day per patient. The site of an institution of this kind should be sufficiently removed from a center of population to insure air free from dust and smoke, but at the same time readily accessible by railroad or trolley. If possible an altitude of from twelve to eighteen hundred feet should be secured. The soil should be sandy and there should be a good water supply. A southern exposure and protection from inclement winds were also desirable. There should be sufficient land to provide light occupation to the patients and to provide to some extent for the table. The speaker described two styles of building, one for incipient cases and one for those more advanced. The depreciation in farm lands made it possible to acquire sites at reasonable figures and frequently a commodious farmhouse could easily be altered so as to fulfill all the requirements of a small sanatorium.

Dr. Hardenberg reviewed the benefits of sanatorium treatment both as it benefited the patient and as a means of educating the people and urged the establishment of such hospitals in the counties of this district.

Dr. W. Stanton Gleason of Newburgh said that the approximate cost of maintenance for one patient in the tuberculosis hospital was but one dollar. He told of what was being done in the State and what kind of buildings were needed for the proper care of the tuberculous patient. There had been forcibly impressed upon them the necessity for providing some means of combating this disease which was so prevalent; the necessity for the protection of others against this disease was more urgent than against any other form of communicable disease. In Newburgh through the courtesy of Mr. Odell there had been established a tuberculosis sanatorium as a memorial to his son who died a few years ago. The impetus given in this cause by this act was very commendable. Mr. Odell had given a remarkably good building for this purpose, one which was the nucleus of future development. The building was not yet finished. At present they were following out the best methods of care for these patients as far as they could by means of tent life. They had now eight or ten patients under their care. Mr. Odell said he would extend the building to meet the requirements of the county at a pro rata tax of one dollar per patient. The following resolution was presented by Dr. Gleason:

Whereas, Ex-Gov. B. Odell, Jr., has generously donated land on West street in this city and has built thereon a tuberculosis hospital, and has properly equipped the same for the care and treatment of persons suffering from this disease, and has already opened said hospital for the reception of patients, therefore,

Resolved, That the Board of Health of Newburgh does hereby agree to pay the estimated cost of not more than one dollar per day for each patient received or admitted to the said hospital upon a certification of the health officers. When the bills were drawn by the said health officers and the Auditing Committee of the Board of Health had certified them, the same was a charge against the City of Newburgh.

Embolism and Thrombosis of the Mesenteric Vessels.—Dr. Edward C. Thompson of Newburgh presented this paper, the purpose of which, he stated, was to call attention to a subject which had received little notice by American writers, and to add an interesting case to the comparatively few reported in the literature. He felt convinced that there were more cases of occlusion of the mesenteric vessels than the reports would seem to indicate. In 1904 Jackson, Porter and Quimby had collected 214 cases of embolism or thrombosis of the mesenteric vessels and in reviewing these cases found that 47 had been operated upon with a mortality of 94 per cent. Of the reported cases a large proportion were due to embolism of the superior mesenteric artery or one of its branches. The source of the embolism had usually been the heart, atheroma and general arteriosclerosis having been concomitant conditions, so that the etiology was identical with that of the coexisting endarteritis. There might be a spontaneous closure of the mesenteric artery due to local changes. In a few cases the closure was due to traumatic thrombosis. Thrombosis of the mesenteric veins was of less frequent occurrence than thrombosis of the arteries. The condition was often metastatic and due to coexisting infection in the abdominal cavity. Dr. Thompson reviewed the anatomy of the condition and from an analysis of the cases at his disposal found that the ileum had been most frequently involved. This might be because of the lower degree of its functional activity. The anatomical appearance of the intestine and mesentery, after occlusion of the vessels, varied from a simple hyperemia to a complete hemorrhagic infarction, depending on the site of the occlusion, its extent and the relief afforded by the compensatory circulation. If the infarction was complete and lasted long enough the appearance of the intestine and mesentery was practically that of moist gangrene. The walls of the intestine were thickened, infiltrated with blood, and presented a mott'ed, dark red, or black appearance. The peritoneum was lusterless and covered with a fibrinous exudate, or after the access of pus germs, it became the site of a purulent inflammation. The mesentery was infiltrated with blood and might be necrotic in patches. The glands were swollen and hemorrhagic. Bacteria sooner or later found entrance, usually the colon bacillus, and a purulent peritonitis was engrafted on the local condition. The clinical course of the occlusion of the superior mesenteric artery or one of its main branches might give either an acute or chronic symptom complex. This, however, was not always the same, and the matter of diagnosis was usually difficult. In

one group of cases the symptoms of an acute obstruction predominated; in another group diarrhea, hemorrhages from the bowels, and vomiting of blood were most significant, and here the diagnosis was liable to present difficulty. The blood might not be present in the vomitus or feces. The objective symptoms which examination of the abdomen presented together with the accelerated, weak pulse and the facial expression which went with shock, assisted in making a picture which had to be carefully considered; conclusions were reached by exclusion. Elliott had resected the longest extent of gut for a mesenteric thrombosis, 48 inches, with recovery and the author believed that his case, with a resection of 40 inches, came next. Treatment other than operation was too theoretical for consideration. Early operation gave some chance for recovery, but even here there was difficulty in knowing how much of the gut to resect as the extent of the infection might be still undetermined. For this reason Jackson and Quimby recommended not making an immediate anastomosis after resection, but bringing the gut well out of the wound with a liberal sound margin left at both ends and, after resection, fixing the open end in the wound well walled off with pads. The judgment of the operator would probably determine this point.

The case which Dr. Thompson reported was that of a boy, fifteen years of age, with nothing of importance in family or personal history. His present illness began on May 30, 1910, when he was struck with a ball in the stomach. On the night of June 3 he awoke with severe abdominal pains and nausea and later vomited. He was rather cyanotic with feeble accelerated pulse, but in view of the fact that he had eaten rather imprudently the night before he was given calomel. An ice bag was applied to the stomach and all nourishment stopped. The symptoms continued but there were no hemorrhages from the bowels or the mouth. On the evening of June 4 he was sent to the hospital. His rectal temperature was 98.4°, pulse 84. Towards the morning of June 5 the pulse became more rapid and respiration slightly accelerated. The abdomen was rigid and tender to the right of the pubis. There was no evidence of fluid on percussion. The facies was indicative of shock. The urinary analysis was negative. An incision was made in the median line of the abdomen and a small quantity of serosanguineous fluid was found in the peritoneal cavity. Several coils of ileum were found deeply cyanosed with a rather sharp line of demarkation at either extremity; they were covered with a lusterless peritoneum. The mesentery was thickened, succulent, hemorrhagic in spots, and, on incision, a small quantity of blood exuded from the vessels. There was no evidence of internal strangulation. The whole area was wedge-shaped with the apex near the root of the mesentery. Forty inches was resected with an end-to-end anastomosis with a Murphy button. The mucous membrane of the excised bowel was deeply cyanosed, but intact. The patient made a good recovery, and passed the Murphy button on July 17. A slight diarrhea persisted but was gradually disappearing. This was probably due to the lessened area of absorption presented by the intestines due to the large amount of intestine resected. The age of the boy, the exclusion of any known source for embolism, the acute onset of the symptoms following trauma, the definite wedge-shaped area of infection, the non-pulsating arteries, and the condition of the veins substantiated the diagnosis of thrombosis of the superior mesenteric artery due to trauma.

Rabies and Methods of Its Control in New York State.—Dr. J. F. DeVine of Goshen, N. Y., Chief Veterinarian, New York State, read this paper. He reviewed the history of the disease, showing that it was known in ancient times, having been referred to by Aristotle, Virgil, Horace, Plutarch, and Ovid, and expressed regret that the specific character of the affection was looked upon with doubt by many laymen and even by some physicians and veterinarians just because the bacteriologist had been unable to isolate and point out the specific organism which caused the disease. The organism was probably one of the ultra-microscopical organisms, yet experimental inoculation had proved its specific character beyond a doubt. The specific virus was present in the saliva of animals affected with rabies and was transmitted to other animals and persons usually by a bite; but it might be transmitted through the saliva without a bite, if there was an abrasion, in the same manner as any other inoculable disease. Rabid virulence had been observed also in the suprarenal capsules, in the urine, spermatic fluid, and lymph. The possibility of its being transmitted through the placenta seems to have been established though it did not seem possible to transmit it through the digestive tract. The apparent lack of danger from milk or a product which might be manufactured therefrom was a point of knowledge of particular advantage. The climatic conditions or the time of year had little or no influence on the disease, the idea that the disease was more prevalent during dog days being without any confirmation. The period of incubation was very uncertain; it had been produced by inoculation of fixed virus in a rabbit in six days, though in other instances it had extended to a year or more. The usual period, however, was from three to six weeks. The location and character of the bite in the human family had been found to influence materially the period of incubation. Since it was pretty well agreed that the virus traveled along the course of the nerves, rather than by means of the blood current, the nearer the point of inoculation was to the nerve centers the shorter the period of incubation. The more severe the bite or tear the surer the infection and the shorter the period of incubation. Two forms of the disease were recognized, the furious and the dumb or paralytic. The symptoms of the first stage were a decided change in disposition, morbid appetite, searching and scratching about, licking cold stone or metal, gnawing at the point of inoculation, hideous howling, baying at the moon, melancholy, hopeless expression of the countenance, without, perhaps exhibiting any disposition to bite. There might also be a change in voice. The idea that a dog in this condition avoided water was erroneous. The second or maniacal stage was ushered in by more pronounced manifestations of these symptoms, all becoming greatly exaggerated. A pretty reliable test at this stage was to bring another dog into the presence of the infected animal, which was quite apt to arouse the animal to a fury. The rabid dog seemed to have a preference for biting dogs rather than other animals or human beings. It was even probable that if in reach of its master's voice its actions could be controlled to a limited degree, depending upon the discipline to which the dog had been accustomed. The premonitory and maniacal stages might consume from two to five days and in the course of a day or two more the disease advanced into general paralysis and death. In some cases the preliminary furious stage was omitted and the disease tended to immediate prostration, weakness, dullness, and stupor. Paralysis of the masseter muscles and dropping of the lower jaw seemed to be the most notable symptom after the first stage. It would be seen from these symptoms that the dog which had acted perfectly well and suddenly acted strangely and fell down, frothing at the mouth, etc., was not the mad dog, but was apt to be affected with epilepsy or some benign complaint. It was important to watch with care the strange action of any and every dog in any district where rabies was present. In rabies there were no absolutely characteristic post-mortem findings. If the mucous membrane of the stomach was inflamed and foreign bodies were present, while food was absent and there was an authentic history, the indications were that the animal had died from rabies. A negative postmortem with a history of rabies

was always suspicious. In laboratory diagnosis microscopical examination had largely superseded animal inoculation. As to methods of control, the only one of known merit to-day was confinement and seclusion or muzzling the dogs in the exposed territory. Statistics furnished by Great Britain showed how effective muzzling was. A study of these figures showed that from 1895 to 1899 the number of cases had been reduced from 672 to nine and at the present time the disease was said to be entirely stamped out. Dr. DeVine described the methods used for the control of rabies in New York State and read portions of the Agricultural Law bearing on this subject. One point upon which he advised positively was that in case a person was bitten by a dog that to all appearances was normal, instead of killing the dog immediately, as was frequently done it was advisable to have the dog confined under close observation for twelve days. If at the end of that time no symptoms of rabies were exhibited, the person bitten need have no apprehension of the bite causing the disease. The saliva had never been found to be virulent for more than eight days prior to the development of symptoms in the dog. No known case was on record where a human being had developed rabies when this precaution had been taken. If at any time during this period symptoms developed the dog was immediately killed, and the brain promptly sent for examination. If the dog that developed symptoms had been killed before this occurred the examination might have been negative and animal inoculation would then be necessary, a process which meant two weeks delay. The most positive results were obtained with rapid methods of diagnosis only when symptoms had developed or the dog had died naturally. Negri bodies were present much earlier than changes in the ganglia, still the failure to find Negri bodies in the brain of a dog that had not developed symptoms might be misleading. It was essential that the brain should reach the laboratory in a condition fit for rapid diagnosis. The animal should not be shot in the head nor the brain removed carelessly. In cold weather the safest way was to cut off the head and forward it *in toto* to the laboratory. The most satisfactory method was to remove the brain carefully and put it in a jar containing pure commercial glycerine, sufficient to entirely immerse the brain. The container should be packed in a box and sent to New York State Veterinary College at Ithaca. Examinations were made without charge, which was an advantage not appreciated as it should be. Statistics showed that for the past two or three years New York State had suffered from a severe epidemic of rabies and that if they were to stamp out this disease as had been done in other countries they would have to cooperate and follow the system that had been used in countries that had handled the matter successfully.

The Rewards of the Obscure Physician.—Dr. Merton J. Sanford of Suffern, N. Y., read this paper in which he said that it was customary on occasions of this kind to discuss the duties of the physician to the public and diseases in all their forms, but he thought it well to occasionally discuss the duties of the community to the physician and the diseases of the physician. He asked to what end the great army of physicians were plodding, grinding struggling? For what were they sacrificing leisure, privacy and even life itself? Business was not the average physician's strong point nor wealth his reward. The physician who became great was even more rare than he who became wealthy. A study of history seemed to show that in many instances great men lived at a time when their respective work was imminent. Their success depended upon their ability to adapt known principles to new purposes. The discovery of the blood was not the work of one man but of thousands of hard working, self-denying, unknown men. Each added his mite to the great work. Harvey completed the task and each one breathed the breath of a conqueror. Each cheered the name of Harvey, for it stood for his own victory. Had it not been for this unknown element to what would the proof have amounted? The same was true of many other discoveries. Truth was always welcome to an Æsculapian. This was one of the physician's most marked characteristics. With renewed vigor the new principle was elaborated, utilized, and practised and its proven merits scattered broadcast. This was the best test of the true doctor. This it was that distinguished the physician from the commercial worker. The ordinary doctor, unheralded and unknown, could not do the work of the great man but he did as great a work in another way. He had learned how in emergencies to make the most of what happened to be at hand, and his work was as imperative to humanity and deserved as much admiration as the skill that distinguished the name of the great. Medicine worked a radical change in one's attitude toward the community. The more the physician studied man the more he became differentiated from him. The physician was forced to know the exposed character and his former social equality and harmony had been disturbed. Medicine had disqualified him somewhat as a social being, but it had made him a better judge of character, more intelligent and more charitable. His list of the community's worthy was different from that of anyone else and he was the community's most liberal giver. The physician might have isolated himself from his environment but he had gained the fellowship of his profession. There was no other society so free from veneer as a gathering of medical men. Although fraught with the keenest objectionable features the reward of the physician was adequate, but to appreciate this reward presupposed a broad mind and a self-sacrificing nature. There were thousands of good, earnest, unassuming doctors, working along in an honest matter-of-fact way, meeting every day duties and perplexities in a capable, conscientious manner. Enslaved to their profession they were oblivious to everything save its interests. Thoughts of fame, glory or wealth never diverted them. Their keenest satisfaction was in the thought that pain had been stopped, or a life prolonged. They were men adding a large share to the advancement of humanity and medicine. Their reward was the reward of the unselfish—a reward that could not be stolen.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held November 3, 1910.

The President, Dr. John A. Wyeth, in the Chair.

Committee on Alcohol.—Dr. John H. Huddleston, the Secretary, announced that the Committee of Fifty had been appointed to study the subject of alcohol in the City and State of New York and had consented to serve. He read the names.

Nomination of Officers.—Nominations were made to fill the following offices: President, Vice-President, Corresponding Secretary, Trustee, Chairman, Committee on Admission and Chairman, Committee on Library. The election will occur in December.

Radium and Its Application to the Treatment of Malignant Tumors.—Dr. Louis Wickham, Chief of the Department of Pathological Surgery of the Radium Institute of Paris, read this paper, which he illustrated with lantern slides. The most interesting and important aspect of radium therapeutics was the selective action of the rays. Radium played the rôle of a subtle modifying agent, which sought out those elements which were most sensitive to its action. All tissues were not suitable ground for this selective power; the most favorable were cancer, angioma, keloids, eczema, and some other diseases. The exact meaning of selective action was that a certain quantity of measured radioactivity could modify the cancerous cells and arrest their malignant evolution without producing any

modifying action on the normal cells surrounding the cancer, thus enabling a cancer to regress and disappear without producing on the surface any signs of irritation or inflammation. This selective action could work on the superficial or the deep-seated pathological tissues, the rays possessing the power of traversing them both. The determinative cause between the caustic action, which burned or destroyed, and the selective action was the quantity of rays absorbed in a given time by the tissues. If composed of slightly penetrative rays in great quantity a superficial necrosant action resulted; but let the quantity be measured and a selective action without irritation resulted. If composed of superpenetrative rays in great quantity there resulted a deeper necrosant action, but let the quantity be measured and a selective action in the deep-seated tissue without irritation resulted. Dr. Wickham showed a series of projections representing histological sections taken from a voluminous cancer of the breast where the selective action was demonstrated. In this instance the selective action was visible on fragments taken even from a depth of 9 centimeters, a depth at which it was thought until the present time that tissues could not be affected by the radium rays. The depth at which radium worked depended on the quantity of radioactivity employed, which in this case was 19 cgm. of pure radium applied for 48 hours in the same place. It was important to act simultaneously on several points of the tumor by his "cross-fire" method in order to concentrate the greatest possible quantity of rays on the points in the deep-seated tissues and to act with greater homogeneity. Projections were shown of cases in which Dr. Wickham, in collaboration with Dr. Degrais, had secured very remarkable regressions in cancer, angioma, and keloids. A study of methods for the treatment of cancer by radium had led Dr. Wickham to the following conclusions:

1. The excellence of the results could not be attained without long experience and profound knowledge of these methods, and principally of those without a great quantity of radium.

2. In the majority of cases surgery should be associated with radium. The radiotherapeutist, in the presence of a case of grave cancer, should first consult a surgeon in order that the patient might not be deprived of the prompt help of surgery. If it was difficult or impossible to operate on a case, radium could be applied in order to prepare the ground or to consolidate it. Surgery ought to be used in making the perforations, incisions, or partial extirpations which diminished the thickness of the tissues and rendered more effective the action of the radium introduced into the wounds. Surgery should also be employed in opening a way for radium through artificial orifices or for conducting tubes of radium to the tumors through the natural orifices. Under such conditions Dr. Wickham had treated cancers of the esophagus, of the neck, of the bladder, intestines, rectum, larynx, uterus, subcutaneous cancers, and deep-seated cancers, cancers of the breast, etc. Dr. Wickham related cases in each of these groups, which according to the usual theories would have succumbed within two or three months, and which were still, after one year, having their condition ameliorated. Surgery should develop through its ingenuity methods of helping in the application of radium apparatus, above all in localities which were difficult of access.

3. The tumors should be inundated by the rays and to this end the apparatus chosen should be the most powerful possible, and there should be sufficient apparatus to enable the operator to make applications at several points at the same time. If there were any skin, mucous membrane, blood vessels, or nerves to be protected, metallic screens should be placed between the apparatus and these tissues. These screens should vary in thickness in proportion to the radioactivity needed and in proportion to the power of the apparatus and the duration of the application. This was the method of filtration which Dr. Wickham had inaugurated in 1905 and which was very useful in acting at a depth without injuring the surface. On the quick of the tumors the apparatus could be employed with very light filters in order to utilize the maximum of rays.

4. Like surgery radium had neither an action on the general state, nor could it prevent relapses and metastases. This should be insisted upon in order that the term cure, which on principle should be avoided, might be attributed only to the regression of the tumor itself, so that there might be no risk of deceiving either the patients or the doctors.

5. Even thus limited radium was a valuable weapon. In the struggle against cancer they were so badly armed that any new therapeutic agent if it were in some way really effective should be taken into serious consideration. By the help that radium had brought to those suffering from cancer, it occupied a high place in the esteem of the writer and was the principal reason of the gratitude due to the discovery and scientific work of Curie, Ramsey, and Rutherford. There was no doubt but that radium had a very beneficial effect in certain cases of rebellious eczema, of keloid, flat angioma, and superficial cancers, such as those situated on bones and cartilages, those developed in scars, those surrounded by lymphatic inflammation, and cancers situated inside the nose and in the conjunctiva. These cases were especially difficult to cure by ordinary means, and here radium sometimes succeeded when other means had failed. There were three qualities of radium, perfectly distinct from one another, whose association gave radium a special and unique place. The first was a biological quality, the rays being able in certain doses to act on pathological cells by selective action, modifying these cells without having the same action on normal cells in the vicinity. The second quality of radium was that appertaining to pure physics. It consisted of a great power of penetration. The third quality was of a mechanical kind. It consisted in the possibility of concentrating in very minute apparatus a very powerful radioactivity. This diminutiveness permitted the introduction of the powerful apparatus into the depths of the tumor and into different parts of the body. The maximum usefulness of these combined qualities became evident in the treatment of malignant tumors, especially lymphadenoma, mycosis fungoidis, and giant-celled sarcoma, also in epitheliomatous and glandular growths. If a cancer was situated in a natural passage where the endoscope might be utilized radium could be brought into close contact and in this way cancers of the esophagus, the rectum, the neck of the bladder and uterus had been treated in a satisfactory way. Cancer of the uterus was one of the best grounds for radium. In breast cancer radium also did excellent work. Dr. Wickham had succeeded with some cases in which operation had been refused. Radium in its effects on cancer must be regarded merely as an agent, capable, either by itself or as an adjunct to other means, of bringing relief to the patient by stopping hemorrhage and secretions and by producing local and sometimes entire regression of the tumors; these results, of course, were temporary, but sometimes of such long duration that they succeeded not only in relieving the patient but in prolonging his life for years. Dr. Wickham said in conclusion that he had done all his work with his collaborator, Dr. Degrais. He spoke very highly of the work done in this country by Robert Abbe of New York and Williams of Boston, and in France by his colleague Dr. Dominici Taboin and many others. He referred to the works of Mr. Armet of Lisle, where radium was extracted.

Dr. Robert Abbe said that he had seen amazing results from the use of radium that had not been equaled by anything in surgery that he knew of. For instance, cases of mammary cancer with little nodules treated by laying the

radium upon the nodules with Dr. Wickham's lead film resulted in their quick disappearance without even burning the skin. He reported many cases in which the results had been remarkable, such as sarcoma, epithelioma of the face, especially in old people, etc., in which the cures had been permanent. The good results depended entirely upon the question of dosage; if the right dosage was given, the cases in almost every instance would be permanently cured. Dr. Abbe believed there was a field for the use of this agent in sarcoma and conditions which represented embryonic tissues. In spindle-celled sarcoma his results were not so good. He had seen keloids that surgeons would not touch disappear under the use of radium; they seemed simply to melt away. The penetration of tumors by means of tubes containing radium was an important factor in the cure of these cases. He had devised a celluloid tube; several of these were introduced into the tumor; one of these tubes was then withdrawn, and the radium tube inserted in its place; another dummy tube was withdrawn, and again the radium tube inserted, and so on. It was surprising to see the retrograde changes that occurred under this procedure. He believed there was a great future for the use of radium in the treatment of malignant growths. Small doses were not of much use in his experience; massive doses were required: then a period of waiting for about three months, when if necessary the dose should be repeated. This treatment applied especially to cancer of the face.

Dr. Max Einhorn called attention to his new method of catheterizing the pylorus and duodenum (see Medical Record, October 9, 1910) and how this could be utilized in applying radium to cancers situated about the pylorus.

SECTION ON MEDICINE.

Stated Meeting, Held October 18, 1910.

Dr. C. N. B. Camac in the Chair.

The evening was devoted to reports from the Columbus and Washington Heights Hospitals (medical section) and the Cornell Clinical Laboratory.

Aneurysm of the Ascending Arch of the Aorta.—Dr. Charles Henry Lewis presented this specimen. The patient was a male, forty-eight years old, an Italian. He was a constant smoker and a heavy drinker. Over two years before his admission to the hospital he noticed deep pain in the region of the right nipple; this was accompanied later by a feeling of fullness, and a throbbing sensation became very prominent. A pulsating tumor was seen on the right side between the second and fourth ribs which beat synchronously with the pulse. It was most apparent on palpation and appeared somewhat spherical in its general outline. Over it the percussion note was flat. There was no murmur nor bruit. The heart could not be located satisfactorily; the apex beat could not be felt in the usual area, but there was a diffuse throbbing like an epigastric pulsation around the junction of the cartilages of the fifth and sixth and the sternum. The liver was apparently in its normal position. He was given iodide of potassium and sent to bed. One and a half months after admission to the hospital he left with less pain and was generally improved in his subjective symptoms, but the tumor was somewhat larger. The tumor gradually increased in size, the patient got weaker and weaker, was readmitted to the hospital, and died about one year later. The case was noteworthy (1) because of the unusual location of an aneurysm of the ascending arch and (2) because of the unusual position of the heart which was apparently dragged or pushed from its position by the growing tumor.

Dr. William B. Noyes presented a specimen of a heart with a well-marked aneurysm. The autopsy was performed on October 18. The patient was a male. When dissecting the pectoral muscle, a tumor two inches in diameter was seen bulging between the fifth and sixth ribs. It was four inches to the right of the midsternal line. Upon opening this tumor a large amount of straw-colored fluid and some blood escaped. This tumor or sac communicated with the ascending arch of the aorta. The arch of the aorta was enormously dilated, occupying a space extending from the second rib to the sixth, filling the anterior part of the chest. In the aneurysmal sac was a large clot. The fifth and sixth ribs were atrophied because of the pressure of the aneurysm. The heart was somewhat enlarged, the valves normal except for some thickening of the mitral and aortic. There was a marked atheroma of the aorta. The sac of the aneurysm was about one-fourth of an inch thick, with an eroded surface. The aneurysm ended at the transverse aorta, the carotid and innominate arising from the top of the aneurysm. The descending aorta was not much enlarged, although it was atheromatous. The right lung was somewhat congested and compressed and one lobe was in a state of gray hepatization.

A Case of Bothriocephalus Latus Infection.—Dr. G. R. Satterlee reported this case, a woman forty-two years of age, born in Hungary. About five years ago she visited Hungary and upon her return to this country began to grow weak, suffer from headaches, and lose weight, but had a fairly good appetite. About six months after the onset of these symptoms profuse irregular menstruation without pain set in. These symptoms gradually increased until February, 1910, when she noticed segments of tapeworm in the stools. The blood showed an anemia amounting to 3,800,000 red blood cells, 70 per cent. hemaglobin, index 92; poikilocytes and microcytes were present. The total leucocyte count was 11,200 with 72 per cent. polynuclears, 23 per cent. lymphocytes, 1 per cent. basophiles and 4 per cent. eosinophiles. The feces were said to contain undigested muscle fibers, mucus and ova resembling those of bothriocephalus latus. The length of this parasite which was presented was one and one-half meters. The segments were broad and very numerous. The uterus opened in the center and had numerous racemose glands. The head was small and spoon-shaped and had no hooklets but a grooved sucker on the under surface. The ova were oval, about twice the size of an erythrocyte and contained yellowish yolk granules and a hood at one end containing two hooklets.

A Case of Raynaud's Disease.—Dr. Frederick F. Kosak reported this case, which came under his observation in July, 1909. The patient was a young woman whose father had tuberculosis, one sister chorea, and she herself had had the usual diseases of childhood and several attacks of malaria. On July, 1905, the right toe on her left foot began to swell, felt numb, turned purple, and became markedly flexed. After two weeks the condition disappeared. After eighteen or twenty months the three outer toes of the left foot became affected in the same way and the blueness, swelling, and numbness extended up the foot. Ulcerations between the toes and on the foot followed. The toes of the right foot then became affected, but never to the extent of the left foot. She was confined to bed but after several months recovered. In December, 1908, eight months later, she had a similar attack and came under the observation of Dr. Kosak. At this time she was anemic, had headaches, and complained of dizziness and palpitation. Her head and face showed all the signs of exophthalmic goiter. There were a systolic murmur at the base and an accentuated second aortic. The abdomen showed marked tenderness at McBurney's point and there were large bluish spots over the spines of the ileum. The arteries showed more or less general hardening. The blood pressure was 160 mm. She was put on glonoin, 1/100 of a grain every four hours and iodide of potassium, five grains

three times a day. The toes were wrapped in vaseline and boric acid. Under this treatment she gradually improved and was sent to the country. During the last fourteen months there had been no recurrences.

Three Cases of Gonorrheal Arthritis, Treated by the Gonococcus Vaccines Obtained from the Research Laboratory of the Department of Health, New York City.—Dr. G. R. Satterlee made this report, previous to which he said good results following the administration of the antigonococcus serum had been reported by Rogers, Torrey, Swinburne, Perey, Miro, Herbst, Dimirand, and others, and Shumway had recommended the use of the vaccines in gonorrheal arthritis and iritis in large doses. The ideal treatment of this affection was to attack the gonorrhea which had been carried through the system at its original focus. If this could be done early, before the joints became disorganized and the bone and cartilage attacked, good, if not perfect, joints should result. Vaccines produced an active immunity by stimulating the body to produce for itself a large amount of the immunal substance. In giving the vaccine it must be presumed that the body was not already overwhelmed by the poison of the disease. This could be taken for granted in the ordinary cases of gonorrheal arthritis.

Case I.—A woman twenty-nine years old entered the Washington Heights Hospital suffering from an acute arthritis of the left ankle. No history of gonorrhea could be obtained, but a probable diagnosis of pyosalpinx was made. The salicylates were given without any effect upon the pain. On January 8, a short time after her admission, a vaginal discharge appeared containing gonococci. On February 1, 25,000,000 gonococci were injected into the buttocks without producing any constitutional effects. On February 6, 30,000,000 bacteria were injected, and about two hours after the injection severe pains in the ankle were complained of, and also pain in the abdomen. These pains lasted about twenty-four hours. On February 10 the vaginal discharge stopped. A cystic ovary was removed, but there was no pus. On February 21, 35,000,000 bacteria were again injected and pain in the joint returned for a few hours. On February 26, 40,000,000 bacteria were injected and six hours later pain and swelling in the joint appeared and lasted for twenty-four hours. On March 2, 50,000,000 bacteria were injected and pain appeared after five hours which lasted for forty-eight hours. On March 5 the left inguinal gland was swollen, soft, and tender and there was a rise of pulse and temperature, together with paroxysmal pain. On March 7, 60,000,000 bacteria were injected and on March 13, 70,000,000 more. On March 18 the patient had no pain, was able to walk, and was discharged as cured except for stiffness in the joints.

Case II.—This patient was a woman thirty-five years of age and single, whose family and personal history were good. She had had an attack of leucorrhea about a year ago just before the present attack of joint trouble began. In this case the left elbow and wrist were involved and vaginal examination showed an endocervicitis with a yellowish sticky discharge from the cervix in which gonococci were present. The attempt to make an autogenous vaccine was unsuccessful and on April 21, 50,000,000 gonococci were injected. Twelve hours later the pain in the affected joints was severe. Just previous to this time the knees and ankles had also become involved. On April 26, 50,000,000 bacteria were again injected, but without resulting pain. On May 2, 60,000,000 bacteria were injected and on May 5, 70,000,000. On May 10, 90,000,000 bacteria were administered and on May 20, 100,000,000. Doses of 110, 120 and 130,000,000 bacteria were given on May 24, May 30 and June 4, respectively. The pains were increased following all the injections excepting one. Nearly all the large joints were involved and the pains were very severe. Permanganate and bichloride douches formed a part of the treatment. On June 7 there was no vaginal discharge. On June 10, 140,000,000 bacteria were injected. On admission the leucocytes were 14,000, polynuclears 75 per cent. On May 23 there were 10,000 leucocytes and 76 per cent. polynuclears; on July 8, 8,000 leucocytes and 68 per cent. polynuclears. Anemia was moderate. In addition to the vaccines guaiacol was applied locally and codeia and iron were given internally. The patient was discharged on July 1 with no pain or tenderness in the joints which, however, were stiff. She was able to walk and was considered cured.

Case III.—This patient was a woman twenty-six years of age, married, and with no history of gonorrhea obtainable, but with the history of an induced abortion a few weeks before admission to the hospital. Her left knee became involved on December 18 and she was admitted a week later. There was no vaginal discharge. On January 7, 12,000,000 bacteria were injected and five hours later there was burning of the skin and a pink papular eruption over the knee which extended over the body and arms. On January 8 there was vaginal discharge, with soft cervix, and gonococci were found. The injections were continued at intervals of a few days and in increasing amounts until March 25, the largest doses being 90,000,000 bacteria. Salicylates had been given without effect. She was discharged with good function of the joint and without deformity The leucocytes increased in number under treatment. Cultures from the cervical discharge made for an autogenous vaccine were unsuccessful on account of the inability to obtain pure cultures.

From these cases Dr. Satterlee concluded that when the dose was sufficiently large reaction pain occurred in the affected joints from two to twelve hours after the injection and lasted from five to twenty-four hours and that there was no pain in the unaffected joints. This might be of diagnostic import. The treatment should have two months' duration and the patient should be under observation for a longer period. The leucocyte count was apparently no index in the treatment. Large doses of the vaccine should be used and there should be local treatment of the mucous membranes affected by the gonococcus. Autogenous vaccines were a failure in women because of the great difficulty of obtaining pure cultures.

The Bacteriology of Non-Tuberculous Infections of the Respiratory Tract.—Drs. T. W. Hastings and Walter L. Niles presented this paper, which gave the results of investigations undertaken with the idea that ultimately they might be able to correlate some relation between the secondary infections in tuberculosis and the infections in which the respiratory tract was involved without the tubercle bacillus being found. The work had been continued over a period of eight years with the idea that possibly some variation might be shown from season to season. The conclusions reached in regard to the sterility of the respiratory tract agreed with those of Ritchie and they also agreed with him that the bacteria contained in the respired air were probably withdrawn in the upper air passages. The nasal mucous membranes possessed bactericidal properties. Bacteria introduced into the bronchi of healthy animals soon died. In the non-tuberculous conditions, bronchitis, lobar- and bronchopneumonia, they had probably 3,000 records. There were 178 cases with culture from the sputum, something like 460 examinations of sputum having been made. The method employed for getting the culture had been practically that of Kitasato. The clean, recent sputum was the one to collect for culture. An analysis of the cultures showed that of the 178 cases 12 were laryngitis and tracheitis, 27 were influenzas, 57 bronchitis, acute and chronic. There were two cases each of bronchiectasis and asthma. There were pneumonia with pneumococci in the cultures in 23 cases, pneumonia with no pneumococci in the cultures in 43 cases: there were 12

bronchopneumonias. Cultures were taken in the pneumonia cases from which the sputum was not typical of lobar pneumonia, so that the results had no bearing upon the occurrence of the pneumococcus in lobar pneumonia. The acute and chronic cases of laryngitis and tracheitis showed a large number of organisms. The *Micrococcus catarrhalis* was found seven times, the *Micrococcus pyogenes aureus*, six, mostly mixed infections. Four of the infections were with the *Micrococcus aureus*, one with the *Micrococcus catarrhalis*. In the grip cases the *Micrococcus catarrhalis* was the organism most frequently found, being present in thirteen cases. The streptococcus, pneumococcus, and the influenza bacillus were present in seven cases each. In the grip cases there were seven pure infections out of twenty-seven. The *Micrococcus aureus* and the *Micrococcus catarrhalis* each occurred twice. In the bronchitis cases the *Micrococcus catarrhalis* was found most frequently. Of twenty-three cases of lobar pneumonia with pneumococci in the culture only nine were pure infections. As a rule lobar pneumonia was a mixed infection. Of the forty-three cases of lobar pneumonia that did not show the pneumococci in the cultures only four showed pneumococci in the smears.

Philadelphia Neurological Society.

At a stated meeting held October 29 Dr. N. S. Yawger presented a communication entitled "Colloid Bodies in the Central Nervous System: Their Presence after Severe Traumatism in a Case of Dementia Paretica." He pointed out that these bodes may represent derivatives of medullary substance displaced in consequence of physical influences. They differ from so-called amyloid bodies both in appearance and in staining properties. The former take stains readily, but they lose them spontaneously in the course of a short time. Dr. Alfred Gordon exhibited "A Case of Asymbolia, without Astereognosis and Other Sensory Disturbances." The patient was a girl 12 years old, who at the age of six had a convulsive seizure involving especially the left side of the body and subsequently presented weakness of the left side of the face, the left arm and the left leg. The fingers of the left hand exhibited athetoid movements and the left upper extremity became involved in incoordinate jerking on volitional movement. The identity of objects held in the left hand could not be recognized, although their form and dimensions were correctly appreciated, and all other forms of sensibility were essentially preserved. The kneejerk was increased on the left side, but ankle clonus and toe-phenomenon were absent. Some improvement had been observed as a result of educational efforts. Dr. Eugene Lindauer demonstrated a case of multiple exostoses in a boy of about 14 years in which brachial palsy had resulted in consequence of pressure exerted by growths of bone from cervical vertebræ. Dr. S. W. Ludlam presented a communication entitled "The Variations in the Serum Tests in Nervous Diseases." He detailed the results of observations made in conjunction with Dr. E. P. Corson-White, various tests being employed, including that for globulins, the Wassermann and its modifications, the butyric acid and the cobra venom, and their practical utility demonstrated in a wide range of cases. Dr. James Hendrie Lloyd and Dr. Joseph M. Spellissy reported "A Case of Cerebral Decompression of Four Years' Standing in Which a Large Cerebral Hernia Has Resulted, with Marked Improvement in Optic Neuritis." The patient was a woman who exhibited bilateral papillo edema threatening blindness together with left hemiplegia and other symptoms suggestive of intracranial neoplasm, and for the relief of which an osteoplastic flap was reflected in the indicated motor region, but no growth was found. Some improvement in the paralysis took place and the disturbance in the optic nerve subsided in part with the retention of some measure of vision, but with the development of cerebral hernia. Dr. Tom A. Williams reported (1) "A Case of Hysterical Dyspraxia." The patient was able to perform a given motor act, on command, but had difficulty in dissolving it. For example, he would extend the arm, but would hold it in the position attained; or he would extend the tongue and keep it protruded. When left to himself, or if quietly asked to perform the second movement, he would succeed. Dr. Williams discussed (2) "Professional Cramp and Its Treatment by Psychoanalytical Measures." He reported a group of cases of writer's cramp, in one associated with torticollis from repeated twisting of the neck, and in which good results were obtained by securing the patient's confidence, learning the genesis of the disorder, and directing certain large movements of the affected parts. Dr. Williams further described (3) "A Case of Unilateral Retrospinal Tremor and Dysergia with Ocular and Facial Paresis in the Course of Acute Anterior Poliomyelitis. Finally he described (4) "A Case of Psychasthenia in a Child of Two Due to Coffee-drinking." The child exhibited an habitual movement, consisting in a constant rubbing of the wrist of one upper extremity with the fingers of the other. This tic, the speaker thought, was directly due to the fact that the parents gave the child coffee to drink.

College of Physicians of Philadelphia

At a special meeting held October 14 Dr. Paul A. Lewis presented by invitation a communication entitled "Recent Studies in the Etiology of Acute Poliomyelitis." He related the results of experiments made in conjunction with Dr. Simon Flexner, showing how the disease could be conveyed from human beings to monkeys and from monkey to monkey. Animals that recovered from the disease proved immune to a second attack, and animals treated with serum from a recovered animal proved refractory to inoculation. Dr. Allen J. Smith discussed "The Lesions of Acute Poliomyelitis." He expressed the opinion that the disease is to be looked upon as a general infection with a local manifestation. Studies of the blood had disclosed the presence of protozoa and these may prove to be the cause of the disease. Dr. Charles K. Mills presented a communication entitled "Special Features in the Symptomatology and Treatment of Acute Poliomyelitis, with Some Discussion of the Probable Pathogenesis—Based Chiefly upon Studies Made During the Recent Epidemic." He had found the period of incubation to average two weeks. In some instances death may take place early. Pain was a prominent feature in a number of cases, and also the upper extremities were involved in a noteworthy degree. Dr. Joseph S. Neff presented "A Study of the Cases of Acute Poliomyelitis Occurring in Philadelphia, Especially in Relation to the Etiology of the Disease." A careful analysis of the distribution of the cases showed that they occurred in private dwellings rather than in public institutions and in the houses of the well-to-do, situated in salubrious localities, than in the houses of the poor, in the congested districts. While the disease must be looked upon as a transmissible one, and cases should be reported, it does not seem necessary or desirable at the present to isolate them. Dr. B. Franklin Royer, speaking on behalf of Dr. Samuel G. Dixon, related that more than 900 cases had been reported throughout the State during the present epidemic of the disease, and that two-thirds of these occurred in children under the age of five years. Of the entire number only two occurred in negroes. Males were affected in larger number than females. In only a few instances, the speaker said, were more cases than one observed in the same household.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

FORBIDDEN GROUNDS. By GILBERT WATSON. 12mo; cloth; 324 pages; $1.35, postage 15c. John Lane Co., New York.

HYDROTHERAPY. By GUY HINSDALE, A.M., M.D. 8vo; cloth, 466 pages; illustrated. W. B. Saunders Company, Philadelphia, Pa.

PRACTICAL NURSING. By Major E. M. HASSARD, R.A.M.C., and A. R. HASSARD, 12mo; 339 pages; cloth. Oxford Medical Publications, London, England.

PRACTICAL OBSTETRICS. By TWEEDY and WRENCH. 8vo; 491 pages; illustrated. Oxford Medical Publications, London, England.

HISTORY OF MEDICINE. By MAX NEUBURGER. 8vo; 404 pages. Oxford Medical Publications, London, England.

TRANSACTIONS OF THE INTERNATIONAL ASSOCIATION OF MEXICO. 8vo; paper; 108 pages. American Printing Co., Monterey, N. L.

FIFTH ANNUAL REPORT OF THE BOARD OF MANAGERS OF THE MANHATTAN STATE HOSPITAL. 8vo; paper; 106 pages. J. B. Lyon Co., Albany, N. Y.

REPORT OF THE DIRECTOR OF THE PSYCHIATRIC INSTITUTE. 8vo; paper; 131 pages. J. B. Lyon Co., Albany, N. Y.

REPORT FOR THE FIFTH FISCAL YEAR NATIONAL ASSOCIATION FOR THE STUDY AND EDUCATION OF EXCEPTIONAL CHILDREN. 8vo; paper; 26 pages.

TRANSACTIONS OF THE SEVENTH ANNUAL CONFERENCE OF STATE AND TERRITORIAL HEALTH OFFICERS WITH U. S. PUBLIC HEALTH AND MARINE HOSPITAL SERVICE. 8vo; cloth; 86 pages. Government Printing Office, Washington, D. C.

STATISTICA SANITARIA DELL 'ARMATA. Folio; 264 pages. Roma.

MEDICAMENTS ANIMAUX, OPOTHERAPIE. Par PAUL CARNOT. 8vo; cloth; 602 pages; illustrated. J. B. Balliere et Fils, Paris, France.

SOURCES AND MODES OF INFECTION. By CHARLES V. CHAPIN, M.D., Sc.D. 8vo; cloth; 399 pages; $3.00 net. Wiley & Sons, New York.

SOUTHERN SURGICAL AND GYNECOLOGICAL TRANSACTIONS. 8vo; cloth; 561 pages; illustrated. Association.

PHARMACOLOGY AND THERAPEUTICS, OR THE ACTION OF DRUGS. By ARTHUR R. CUSHNY, M.A., M.D., F.R.S. 8vo; cloth; 744 pages; illustrated. Lea & Febiger, Philadelphia, Pa.

MIKROSKOPISKE UNDERSOGELSER OVER BUGSPYTKIRTELENS. By K. A. HEIBERG. 4to; paper; 199 pages; illustrated. Andr. Fred. Host & Son, Kobenhavn, Sweden.

GYNECOLOGY (PRACTICAL MEDICINE SERIES, VOL. IV). By DUDLEY and BACHELLE. 12mo; cloth; 230 pages; illustrated. The Year Book Publishers, Chicago, Ill.

GENESIS. By B. S. TALMEY, M.D. 12mo; 194 pages; illustrated. The Practitioners' Publishing Co., New York.

URIC ACID IN THE CLINIC. By ALEXANDER HAIG, M.A., M.D.Oxon., F.R.C.P. 8vo; cloth; 306 pages; $1.50 net. P. Blakiston's Son & Co., Philadelphia, Pa.

SYSTEM OF OPHTHALMIC PRACTICE. By WALTER L. PYLE, A.M., M.D. 8vo; cloth; $4.00 net; 444 pages; illustrated. P. Blakiston's Son & Co., Philadelphia, Pa.

DISEASES OF CHILDREN. By GOODHART and STILL. 8vo; cloth; 931 pages; illustrated; $5.00 net. P. Blakiston's Son & Co., Philadelphia, Pa.

HOOKWORM DISEASE. By DOCK and BASS. 8vo; cloth; 250 pages; illustrated. C. V. Mosby Co., St. Louis, Mo.

NEPHROCOLOPTOSIS. By H. W. LONGYEAR, M.D. 8vo; cloth; 251 pages; illustrated. C. V. Mosby Co., St. Louis, Mo.

GYNECOLOGICAL DIAGNOSIS. By WALTER B. BURRAGE, A.M., M.D. (Harv.). 8vo; cloth; 656 pages; illustrated. D. Appleton & Co., Brooklyn, N. Y.

FRACTURES AND THEIR TREATMENT. By J. HOGARTH PRINGLE, M.D. (Edin.), F.R.C.S. (Eng.). 8vo; cloth; 384 pages; illustrated. Oxford Medical Publications, London, England.

APPLIED ANATOMY. By GWILYM G. DAVIS. 630 pages; illustrated; 4to; $6.00. J. B. Lippincott Co., Philadelphia, Pa.

ÉLÉMENTS D'ANATOMIE PATHOLOGIQUE. Par le Dr. L. BÉRIEL. 8vo; cloth; 564 pages, with 232 illustrations by the author; 10 francs. G. Steinheil, Paris.

MOTHERHOOD. By HUDSON D. BISHOP, M.D. 12mo; cloth; $1.50 net; 244 pages. Rose Pub. Co., Cleveland, O.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of November 19, 1910.

	Case	Deaths
Tuberculosis Pulmonalis	495	155
Diphtheria	273	18
Measles	117	1
Scarlet Fever	136	6
Smallpox	—	—
Varicella	83	—
Typhoid Fever	135	15
Whooping Cough	22	2
Cerebrospinal Meningitis	2	2
Malarial Fever	—	—
Totals	1,263	199

Anaphylaxis Toward Cow's Milk in Nurslings.—Barbier regards the intolerance manifested by certain infants toward cow's milk as a manifestation of anaphylaxis. There are infants in whom this intolerance is congenital or developed during the first few days after birth, and there are others in whom this intolerance is acquired as the result of excessive feeding with cow's milk. This intolerance causes a loss of weight and the condition of athrepsia, which disappear upon feeding the infant with breast-milk.—*Archives de Médecine des Enfants.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, during the week ended November 18, 1910.

CHOLERA

PLACE	DATE	CASES.	DEATHS.
Austria-Hungary: Hungary, general	Oct. 9-15	76	34
India: Bombay	Oct. 5-11	..	2
Kurrachee	Oct. 2-8	3	2
Madras	Oct. 1-7	..	11
Indo-China: Haipong	Aug. 30.	..	*a*Present.
Italy (exclusive of Naples)	Nov. 9-16	80	22
Naples	Nov. 8	2	1
Java: Batavia	Sept. 25-Oct. 1	8	5
Japan: Kobe	Oct. 2-12	52	42
Osaka	Oct. 2-10	41	31
Turkey in Asia: Basra	Oct. 20.	2	..
Zongouldak	Oct. 1-16	43	24*

a Bulletin Sanitaire de l'Algerie, October 15, 1910.
* And vicinity.

YELLOW FEVER

Ecuador: Guayaquil	Oct. 1-15	8	4
Mexico: Campeche	Oct. 30-Nov. 5	1	..
Venezuela: Valencia	Oct. 14	3	1

PLAGUE

Arabia: Aden	Oct. 9-15	2	2
Brazil: Fernambuco	Sept. 19-Oct. 4	4	3
Ecuador: Babahoyo	Oct. 1-15	1	1
Duran	Oct. 1-15	1	2
Guayaquil	Oct. 1-15	83	25
India: Bombay	Oct. 5-11	..	16
Calcutta	Oct. 18-24	..	5
Kurrachee	Oct. 2-8	8	8
Madras	Oct. 1-7	..	1
German East Africa: Lindi	Sept. 5	*a*1	1
Mauritius	July 30-Sept. 1	16	10
Peru: Departments—			
Arequipa	Aug. 1-31	1	..
Lambayeque	Aug. 1-31	6	2
Libertad	Aug. 1-31	7	4
Lima	Aug. 1-31	18	8
Portugal: Lisbon	Nov. 9	..	Present
Russia: Odessa	Oct. 9-21	6	3
Turkey in Asia: Beiruth	Aug. 1	*b*1	..

a From the Veroffentlichengun des Kaiserlichen Gesundheitsamtes, Oct. 26, 1910.
b Das osterreichische Sanitatswesen, Aug. 18, 1910.

SMALLPOX

Argentina: Buenos Aires	Aug. 1-31	..	29
Canada: Halifax	Sept. 30-Nov. 5	1	..
Sydney	Sept. 30-Nov. 5	1	..
Chile: Punta Arenas	Sept. 21-27	1	*
Germany, general	Oct. 16-22	3	..
Hawaii: Honolulu	Nov. 14	1	†
India: Madras	Oct. 1-7	..	1
Peru: Salaverry	Oct. 7-13	3	..
Portugal: Lisbon	Oct. 16-22	21	..
Russia: Riga	Oct. 9-22	47	..
St. Petersburg	Oct. 2-22	56	16
Straits Settlements: Singapore	Oct. 16-22	16	5
Switzerland: Zurich, canton	Oct. 16-22	1	..

* From a coaling vessel.
† From army transport Sheridan from San Francisco.

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Original Articles.

SULPH-HEMOGLOBINEMIA, WITH A REPORT OF THE FIRST CASE IN AMERICA*.

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UTICA, N. Y.

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THE case which we have to present is of some considerable interest for three reasons: It presents a very striking clinical picture; it is of exceptional interest from the standpoint of physiological chemistry; and though we do not believe that it is the first case of the kind which has occurred in America, it is unquestionably the first one to have been diagnosed on this side of the Atlantic Ocean, and when it is published it will be the eighth case to have appeared in literature.

In order that the condition may be properly understood, a few words upon the normal and abnormal blood pigments are necessary. You all know that the red color of the blood is produced by the pigment oxyhemoglobin, and that the bluish tinge of venous blood is the result of an admixture of reduced hemoglobin. You further know that the action of various chemicals will produce various compounds of hemoglobin; that coal gas will cause a brilliant scarlet color from carboxyhemoglobin, that cyanides will produce a somewhat similar cyanhemoglobin, and finally that different drugs, as nitrites, potassium chlorate, and especially the coal tar antipyretics, acetanilid, phenacetin, sulphonal, and trional, if given in excessive doses, will cause the formation of the brown pigment, methemoglobin. Probably every physician of experience has been called to see at least one patient who has indulged too freely in one or another of the so-called harmless headache powders and has found a man, or more probably a woman, markedly cyanosed, but without signs of cardiac or pulmonary involvement. This condition of cyanosis in acetanilid poison was originally considered to be due to cardiac depression, but was soon found to be caused by a direct action of the drug upon the blood, transforming a portion of the red oxyhemoglobin into the brown methemoglobin, and thus markedly altering the patient's appearance.

The first case of the so-called idiopathic enterogenous cyanosis was discovered in 1902 by Stokvis[1] of Rotterdam. This author reported the case of a soldier who had suffered from chronic diarrhea and cyanosis for five years. Though there was no history of his having taken any of the drugs which usually cause blood changes, large amounts of methemoglobin were found in the patient's blood. Talma[2] of Utrecht, the same year found three similar cases and further showed that the abnormal pigment was entirely within the corpuscles, and was not to be found in the serum. In 1905 Van der Bergh and Gutterink[3] of Rotterdam, in a similar case proved that their patient's blood contained an excess of nitrites, and as these are powerful methemoglobin forming drugs they believed that the condition of idiopathic methemoglobinemia was due to the absorption of nitrites from the diseased intestines, all of the cases having suffered from diarrhea or dysentery.

At about the same time Van der Bergh[4] had the opportunity of observing the case of a young boy who, as a result of an old rectal stricture, had marked intestinal retention, and was also cyanosed. At first believing the case to be one of methemoglobinemia, he soon found that the characteristic absorption band in the red part of the spectrum was not quite typical of that of methemoglobin, and after diligent investigation he discovered that it in every way coincided with the purple pigment produced many years before in the laboratory by Claude Bernard and Hoppe-Seyler, by the action of suphuretted hydrogen upon blood, and called by them sulph-hemoglobin. The following year Van der Bergh briefly reported three similar cases of sulph-hemoglobinemia, all occurring in women suffering from obstinate constipation. He was unable to find the origin of the sulphuretted hydrogen, but as all four cases recovered after systematic purgation, he believed the condition to be due to the absorption of an excess of sulphuretted hydrogen from the bowel.

In the fall of 1906, one of us (Clarke), while working in the laboratory of chemical pathology in St. Bartholomew's Hospital in London, under Dr. Archibald Garrod, was asked to investigate a case which had been observed for a year and a half by Dr. Samuel West, and had puzzled many of the best clinicians of London, the patient's blood having been reported by the professor of physiology of St. Bartholomew's, to contain methemoglobin, for which no explanation could be given. A search of the literature brought out the facts concerning idiopathic cyanosis, as given above, and a careful study of the patient demonstrated that the pigment in her blood was sulph-hemoglobin and not methemoglobin. The case was therefore reported at the Royal Medico-Chirugical Society by Dr. West and one of us[5] as the first English case of idiopathic sulph-hemoglobinemia. Several months of careful investiga-

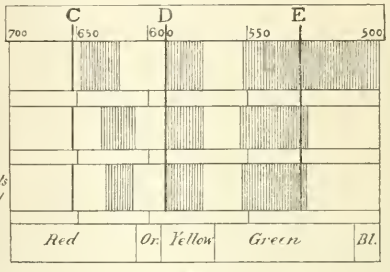
*Read by title before the Medical Society of the State of New Jersey, June 28-30, 1910. The patient was presented before the Society of Internal Medicine and the Roosevelt Hospital Alumni Association in New York in December, 1909.

tion of the patient and of artificially made sulph-hemoglobin, failed to show the origin of the sulphuretted hydrogen which was having so powerful an effect upon the blood. The usual blood examination revealed nothing. The red cells were normal in number, and the leucocytes slightly low. The blood was sterile. The etherial sulphates in the urine were not increased and there was no excess of indol. Careful examination of the stools failed to show any excess of sulphuretted hydrogen or an abnormal number of sulphuretted hydrogen forming organisms. The only clue which was obtained was the discovery that the presence of a reducing agent enabled the most minute traces of sulphuretted hydrogen to act upon the blood, to form sulph-hemoglobin, and the theory was suggested that the pathological condition might possibly be the absorption of some as yet undiscovered reducing agent from the bowel, which enabled a minute trace of sulphurated hydrogen normally in the blood to combine with the hemoglobin and produce the violet pigment sulph-hemoglobin.[6] This is purely theory and is supported by no clinical findings.

Within a week after the publication of this paper in the *Lancet*, the author was invited by Dr. Russell of the West London Hospital, to see a case of cyanosis which had been observed for seven years. This was at once shown to be another case of sulph-hemoglobinemia.[7] A third English case has been discovered since and reported by W. Essex Wynter.[8]

In the winter of 1908-1909, having returned from London to go on the staff of the Rockefeller Institute for Medical Research, one of us was invited to deliver an address before the Passaic County Medical Society, and chose for his subject, "The Rare Forms of Cyanosis, Polycythemia, Methemoglobinemia, and Sulph-hemoglobinemia."[9] A few months later, in September, 1909, the patient whom we now report, made her appearance at the office of the other of us, who was present when this paper was read. The patient, a woman 24 years of age, had never been robust, having suffered from most of the ills to which woman is heir. A few days previously she had noticed that her lips had become blue and her color ashen, though she herself did not feel ill. She was somewhat weak and markedly constipated. Her appearance at that time was much as it is to-day. Her skin was of a steel blue, and her lips purple black. The general appearance has been described as being cadaveric, or better as "of the ghastly hue seen in a person standing under the Cooper-Hewitt mercury light." This was so striking that on many occasions while going through the streets she was advised to go home at once, people believing that she was dying. Physical examination was, however, negative except for the remarkable discoloration of the entire body. The heart and lungs were practically normal. The patient was observed for some weeks, and as the ordinary blood examination failed to reveal any polycythemia or other abnormality to account for the condition, a tentative diagnosis of sulph-hemoglobinemia was made and toward the end of November, 1909, the patient was sent to New York for consultation and a spectroscopic examination of the blood.

When seen at the Vanderbilt Clinic the patient presented the same characteristic appearance of deathly cyanosis as did the two cases seen in London. The almost complete absence of signs of impaired heart or lungs was confirmed and 2 c.c. of blood were withdrawn from a vein in the arm. The blood, which was of a rich chocolate color, was shaken with twice its volume of distilled water in order to lake the corpuscles, and then filtered several times to remove all of the corpuscular remains and fibrin, and give a clear solution. This solution then being further diluted with distilled water was examined with a small pocket spectroscope and showed an intensely dark absorption band in the red portion of the spectrum, in the situation characteristic of the band of sulph-hemoglobin. Artificial solutions of sulph-hemoglobin made by the passing of sulphuretted hydrogen through laked and diluted dog's blood and of methemoglobin by adding potassium ferricyanide or sodium nitrite to similar blood were made for comparison.



Absorption Bands in Spectra. MHb = Methemoglobin. SHb = Sulph-hemoglobin.

The methemoglobin solution when mixed with oxyhemoglobin showed the two absorption bands of oxyhemoglobin in the yellow and green portions of the spectrum, and the characteristic methemoglobin band deep in the red much nearer the C than the D line. The artificial sulph-hemoglobin showed also the bands in the yellow and green, and a band in the red, but not so far in the red as in the methemoglobin spectrum, the band being midway between the C and D lines. The patient's blood in a concentrated form showed complete obliteration of the oxyhemoglobin bands, and the presence of an exceptionally clearly defined band half way between C and D absolutely indistinguishable from that of the artificially made sulph-hemoglobin. It having been shown that sulph-hemoglobin and methemoglobin behave very differently when treated with weak ammonium sulphide, a drop of such a solution was added to all three specimens. The absorption band of methemoglobin disappeared instantly, that of the patient's blood and of the artificial sulph-hemoglobin was unchanged. During the investigation on the first case in London, it was discovered that if carbon monoxide were passed through a specimen of sulph-hemoglobin a new compound was produced called by us carboxysulph-hemoglobin,* the spectrum of which closely resembled that of sulph-hemoglobin, but with the band in the red slightly nearer the yellow. Methemoglobin treated with carbon monoxide produced no such spectrum.[6] Accordingly illuminating gas was allowed to bubble through a specimen of our patient's blood, and the characteristic spectrum of carboxysulph-hemoglobin was produced. The ordinary examination of the blood showed nothing abnormal. There was a slight oligocythemia and a normal leucocyte count.

*After the publication of this report in 1907 it was learned that Angelo de Dominicis had previously reported the preparation of carboxysulph-hemoglobin. The credit of priority is willingly accorded to that investigator.

Accurate hemoglobin estimation was impossible, the chocolate color of the blood making comparison with the standards out of the question.

Through the kindness of Dr. F. C. Wood the patient was admitted to St. Luke's Hospital and kept under observation for three weeks. Our findings were there confirmed. Careful bacteriological examinations and chemical analyses of the excreta including the sulphur and nitrogen partition made by Drs. Hans Zinsser and K. L. Vogel confirmed the findings in the cases worked up in Rotterdam and London, but failed to throw any new light on the origin of the sulph-hemoglobin. While in the hospital the patient, who was kept well purged, improved decidedly, but since her return home some difficulty has been found in keeping the bowels open, and the disease has remained stationary. From these findings it is evident that we have to deal with a case of idiopathic sulph-hemoglobinemic cyanosis.

These two diseases, so much alike and still so easily differentiated, methemoglobinemia and sulph-hemoglobinemia, are probably not common. On the other hand, we do not believe them to be as rare as at first sight they would appear to be. In every instance, when attention has been called to their existence, one or more cases have promptly made their appearance, and nearly every clinician of large experience to whom we have shown our case has remembered that at some time or other in his practice he has seen a case, which, in looking back at it, he believes to have been one or the other of these two diseases.

In making the diagnosis two factors are necessary: The physician must know of the existence of the enterogenous cyanoses, and he must examine the blood with a spectroscope. This latter procedure may at first sight make it appear that the diagnosis of the disease would lie solely in the hands of the expert laboratory technician. Such an idea is, however, a most decided misconception. A spectroscopic blood examination is in reality the simplest of procedures, and requires but little technical ability. The method is simplicity itself. The blood is drawn from a vein, or if this is not allowed, a few drops from the finger or ear will usually suffice. It is immediately diluted until twice its volume of distilled water, before clotting has taken place, and is thoroughly shaken. After the fibrin has separated the solution is filtered several times through one filter paper and the clear solution is looked at through a spectroscope, a simple and inexpensive instrument. The solution is then diluted drop by drop with water, until the red color stands out clearly. If there is a black absorption band in the red, either methemoglobin or sulph-hemoglobin is present. If such a band persists after the addition of a drop of dilute ammonium sulphide, the pigment is sulphemoglobin, if it disappears it is methemoglobin. For a clinical examination nothing further is required.

The recognition of these diseases is of especial importance from the standpoint of prognosis. If undiagnosed the patient's appearance suggests immediate dissolution; when recognized a most hopeful prognosis as to life can be given, though the complete recovery may, as in the present case, be a matter of weeks or months.

As to the clinical picture, the single point of similarity between the two conditions is the cyanosis due to a chemical change in the blood, and unaccompanied by dyspnea or other signs of cardiac or pulmonary disease. The methemoglobinemia cases have usually occurred in men, and have invariably been associated with a chronic enteritis. The sulph-hemoglobinemia cases with one exception have been in women with marked constipation. The one exception was in a boy in whom a stricture of the rectum caused intestinal retention, but fluid stools. A characteristic of the methemoglobinemia cases was pointed out by Van der Bergh. If these patients are put on a strict milk diet, the cyanosis disappears within forty-eight hours, and all trace of methemoglobin leaves the blood. This improvement is, however, but temporary, as one full meal causes the reappearance of cyanosis in four hours and within twelve hours the clinical signs are again as intense as before. No such effect is produced by a milk diet in cases of sulph-hemoglobinemia.

As to the etiology of the diseases, the origin of the sulphuretted hydrogen in the sulph-hemoglobinemia cases is a complete mystery. The methemoglobin is considered to be caused by the absorption of nitrites from the intestines. In an article published by one of us a year ago,[9] attention was called to the recent discoveries that the bacterial flora of the intestines are at times able to break up bismuth subnitrates thus liberating nitrites,[10] and the suggestion was made that, all of the cases of so-called idiopathic methemoglobinemia having occurred associated with chronic long-standing diarrhea, possibly these patients had been receiving bismuth subnitrate over a long period of time, and the condition might really be one of chronic bismuth poisoning. No such explanation is as yet forthcoming as to sulph-hemoglobinemia.

The contention of Gibson and Douglas of Edinburgh that methemoglobinemia is a colon bacillemia, being based on the examination of a few drops of blood taken from the patient's ear, and the observation being unconfirmed, the finding may safely be relegated to the class of technical errors. Owing to the indefinite etiology of the disease, treatment is difficult, inasmuch as obstinate constipation and disturbances of the digestive tract have been found common to most of the cases reported, purgatives would appear to be indicated, and such drugs when effective produce good results. The usual drugs which act upon the blood and circulation give no beneficial results other than would be expected from their general tonic properties. Intestinal antiseptics may be of some value. Betanaphthol and salol were used in the present case, and during the period of administration the patient improved considerably, losing much of the general cyanosis. From observations for over six months, it appeared that rest in bed for weeks with massage, purgatives, and intestinal antiseptics gave the best results. Many varieties of diet have been tried in an experimental way, but nothing of practical value has been learned thereby.

In the present paper we do not pretend to be reporting any new discoveries, or to be making any valuable addition to medical literature. The study of the present case has made no single advance in knowledge; it has merely confirmed what has previously been proved. The purpose of the paper is to put on record the first case of the kind to have been diagnosed in America, and to call the attention of the medical profession to the existence of a disease which as yet has received but little general recognition. We confidently believe that with a dissemination of knowledge of these diseases, many more will be recognized, and we sincerely hope that each case which is found will

be studied with care, with the hope of solving many of the mysteries which still befog our knowledge of the etiology of the idiopathic or enterogenous cyanoses.

Clinical History.—In consideration of the rarity of this disease, and the many obscure points in its etiology it has seemed admissible to append a full clinical history of the case. The following history is taken from the records made at St. Luke's Hospital during the patient's sojourn in that institution. For the use thereof we wish to express our thanks to Drs. Wood and Lambert of the Visiting Staff.

Miss E. H., aged 24, was admitted December 1, 1909, and discharged December 19, 1909. Case No. 79,577. Diagnosis. Enterogenous cyanosis (sulphhemoglobinemia) or idiopathic intracorpuscular sulph-hemoglobinemic cyanosis of enterogenous origin.

Family History.—The father, mother, two brothers, and three sisters are living and well. One brother died at 10 years of age of dropsy, one sister died in infancy of marasmus. There is no history of tuberculosis, but there is a marked history of kidney disease on the father's side.

Personal History.—The patient was a seven months' child. The general health was good up to 1900. She was a blue baby at birth and for the first six weeks of life. The habits are regular. She drinks no coffee, but 6 or 7 cups of tea each day. She does not use alcohol. For the past 9 years her appetite has been poor, but the digestion good. The bowels are constipated. Menstruation began at 16 and has always been irregular, painful, and scanty.

Past Illnesses.—The patient had measles, whooping cough, mumps, and chickenpox in childhood. Up to 7 years of age she had considerable bronchial trouble and tonsillitis. In 1900 she had malaria with considerable anemia, and had recurrences of this disease every summer for six years. In 1902 she had glands removed from the neck, which the doctor said were tuberculous. In 1903, she had osteitis and periostitis of the left hand and in 1904 a similar condition in the nose. In 1905 she had appendicitis with appendectomy. In 1906 she had a long period of illness with profuse night sweats, severe abdominal pain, vomiting, and great general weakness. The right shoulder, right elbow, right hip, and right knee were swollen at different times with great purplish discoloration of the skin over the joints. There was also almost continual headache of a severe nature and occasionally periods of a low fever. In 1907, double oophorectomy was performed, following which the patient enjoyed fairly good health for a year. In 1908 she had very severe pains in the lower back. Since the first illness in 1900, the patient has been quite constipated. She has been under an anesthetic nine times in the past seven years.

Present Illness.—On August 20 and 21, 1909, the patient complained of feeling tired and weak and her friends joked her for being lazy. On August 22 she lay down for a nap and slept five hours and on awakening noticed a bluish color of the skin. She did not grow weaker, but the bluish color became progressively deeper for a week, then remained stationary for about five weeks and then gradually cleared up almost entirely and remained so for three weeks. Then the skin again became gradually darker up to one week ago, since when it has gradually improved. (This last week represents the time since a definite diagnosis of sulphhemoglobinemia was made and systematic purgation instituted). The patient has suffered no other symptoms but weakness, bluish discolorations of the skin, and perhaps more marked constipation. The patient says that preceding each improvement she had had periods of severe vomiting lasting about twenty-four hours.

Physical Examination.—The patient is a woman of slender frame, fairly well nourished and developed, not feeling at all ill despite a very marked cyanosis. There is no dyspnea or orthopnea as she lies in bed. Her skin looks smoky. Her mucous membranes are a dark purple. The fingers and toe nails show extreme cyanosis. Eyes: The right pupil is very slightly larger than the left. Both react sharply to light and accommodation. The bridge of the nose shows the healed scar of an operation; there is slight flattening. Mouth: The tongue is cyanotic and very slightly coated; the teeth are in good condition. Chest: The respiratory excursion is good. At the outer part of the right apex behind there is very slight dullness and increased slightly high pitched expiration and voice. The whispered voice carried through well. Elsewhere percussion is resonant. The breath sounds are of good quality and vesicular. No râles are heard. The heart: There is no dullness to the right of the sternum; the upper border is normal; the left border is four inches from the midline; the apex is palpable in the fourth interspace in the nipple line, and is localized; there are no thrills. The first sound at the apex is booming and accompanied by a short soft systolic murmur transmitted slightly to the left; the second sound is booming. At the base the aortic sounds are normal, the pulmonary second sound is a little accentuated. In the third and fourth spaces close to the sternum a much louder slightly reduplicated ringing sound is heard simultaneous with the basal second sound. No pericardial sounds are heard. The action is regular and of good force. The pulse is of good volume, soft, regular, and with no increased tension. There is no thickening of the arterial wall. The abdomen: In the midline below the umbilicus is the healed scar of a median laparotomy. There is a similar scar over the appendix region. The liver percusses from the free border to the sixth rib. The edge is not felt. The spleen is not felt. There is neither tenderness nor rigidity. No masses or fluid are made out. Extremities: The knee jerks are active; there is no clonus or Babinski sign. There is no edema or varicosities. On the dorsum of the left hand are two linear scars.

The urine is acid; the specific gravity is 1.014; there is a trace of albumin; there is no sugar; there are no pus and no casts. The leucocyte count is 11,000, polymorphonuclear 72 per cent.; lymphocytes 28 per cent. The red blood count is 5,000,000. The hemoglobin is 70 per cent. (?)

December 9. Blood culture was negative.

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CHEMICAL PROBLEMS IN DIABETES.*

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METABOLISM OF ENERGY.

THE metabolism of energy is in general regarded as fairly constant in healthy individuals under like conditions. The unit in which we express it is the unit of heat, the calorie. The measurement takes place either directly by determining the actual loss of heat, for which large and expensive apparatus is necessary, or indirectly by a determination of the expired carbonic acid and the oxygen taken in. From both these values, and at the same time taking into consideration the decomposed protein, we can, with tolerable certainty, estimate the metabolism of energy. As the total metabolism of energy is influenced at different times and in different individuals to a different extent by the food taken in and the muscular work performed, we have accustomed ourselves to exclude these two factors. We study the metabolism of heat and energy in a state of fasting and rest, when none of the muscles are in a state of tension. The figures thus obtained are considered a suitable standard for comparison.

Experiments of this kind generally last only an hour, and I am of the opinion that this method of procedure—which is called the method of Prof. Zuntz, and which I have applied in more than a thousand experiments—needs supplementing by twenty-four-hour measurements, including the digestive and the muscular work.

On the whole, respiration experiments have given the result that the metabolism of energy in diabetes is not essentially different from that in a healthy person under similar conditions. The deficiency of oxidation in this disease concerns only *single* processes. A diminution of the *total* oxidative process does not take place if we may rely exclusively on those respiration experiments which have been carried out up to the present time. But clinical observations, measuring the ingested food for a number of weeks and taking the weight into consideration, point to exceptions from this rule. Naunyn was the first to emphasize the fact that the metabolism of energy, under certain conditions, remains below the values accepted as normal. Diabetic patients who have lost much flesh can, after glycosuria has disappeared, not only keep up their nitrogen equilibrium, but also increase many kilos in weight, on receiving only 1600-1800 calories. On the other hand, there is the fact that polyphagous diabetics often lose flesh, although the available energy of their diet far exceeds the normal, that is to say, 2000-2300 calories. In calculations of this kind the loss of energy by sugar elimination through the urine is of course allowed for. Both these facts, taken together, are of great theoretical and practical significance. They touch on a question of general physiological interest.

At all times the view has been common among a large number of laymen and also many physicians that we eat too much, and that it would be possible and probably also healthier if we were to partake of less nourishment. Excess of food is held to be completely superfluous; also that the yielded energy not only renders no service to the organism, but on the contrary causes a useless waste of force. This would be called in technical language a "luxury consumption."

This is not exactly the same as what Chittenden calls physiological economy in nutrition. Chittenden paid attention principally to the proteid metabolism, and did not go deeply into the problem of "luxury consumption."

Many rigidly scientific observers have not in general been inclined to concede the existence of a luxury consumption. Respiration experiments on healthy animals and men at different times seemed to refute this opinion, and conclusions based on grounds of analogy were likewise unfavorable to this assumption. Breathing in pure oxygen, that is to say, placing more oxygen at the animal's disposal, does not raise the combustion according to the well known experiments of Pflüger. The same thing was also assumed in the case of an excess of food. Of course, an increased introduction of food raises the combustion by a certain percentage for a few hours. This is attributed to the digestive function, or, as Rubner thinks, to the specific dynamic energy of food. And it is very well known that increased intake of protein increases the metabolism of energy more than other foodstuffs. But this increase of metabolism generally lasts only as long as digestion lasts. In general no summation of these actions takes place, no lasting and definite adaptation to a higher metabolic level has been noted. The principle of all cures by overfeeding depends on the fact that the organism does not increase its metabolism corresponding to the surplus of food, but that it stores up a part of the superfluous food. In the same way a diminution of the metabolism of energy in the case of insufficient food has also been regarded as improbable.

But it now seems that we must change our opinion as to this point. Experiments have been made in which healthy strong men with moderate muscular work have apparently thriven for a long time on a diet which placed at their disposal less than thirty calories per day and kilo. Neumann while doing laboratory work has apparently maintained his equilibrium on twenty-five calories for many weeks, while at other times he metabolized thirty-five to forty calories per kilo like other men. We should have the best support for accepting a "luxury consumption" on the basis of such comparative experiments in the same individual. Perhaps we might better use the term adaptation of the organism to different quantities of food.

It seems to me that in none of the experiments carried out up to the present time has any absolute proof for the existence of such an adaptation been brought forward, although they point toward this.

In any case such an adaptation needs a long time and the new equilibrium first appears when the weight has materially diminished. On the other hand an equilibrium following the introduction of greater quantities of food also is reached only after a more or less considerable increase in weight. The whole problem would accordingly resolve itself into a kind of self-regulation, a suitable provision of nature, which prevents overfeeding and loss of weight from becoming excessive.

*The third of the Cartwright Lectures of the Alumni Association of the College of Physicians and Surgeons, Columbia University, New York, for 1910.

The adaptability differs in different persons. It apparently plays an important part in pathological conditions; in obesity and above all in diabetes it seems to be of great importance. I will here touch only on the conditions in diabetes. If some diabetic patients can live for a certain time on 1,500-1,600 calories, while 3,000 or 4,000 are insufficient for others, it seems to me that the adaptation is strongly pronounced in this disease. In principle we find the same conditions as with healthy persons: on the one hand, accommodation to a restricted diet takes place only after a considerable loss of weight and after the organism has subsisted for a long time on a small quantity of food; on the other hand a great waste of energy in diabetics occurs only after they have been overfed for a long time and in an unreasonable manner. The extreme variations in the metabolism of energy in severe diabetes point to the probability that the disease itself —the essential disturbance of which consists in a decrease in sugar combustion—may induce also a lability in the whole oxidative metabolism.

I again repeat that the foundations on which this assumption is based are not sufficient. New systematic investigations with direct measurement of the carbonic acid output and of the metabolism of energy are necessary.

Although the experiments carried out on diabetic subjects by Joslin and Benedict last winter afford no support for these ideas, I feel convinced that with other patients and at certain periods the changes which I have pointed out might be found.

SUGAR COMBUSTION IN DIABETES.

Does sugar combustion totally cease in cases of severe diabetes? This question has been put in various forms by different authors and has been attacked by various experimental procedures. In the first place Külz put the question, whether diabetic patients eliminated sugar quantitatively, if it was added to a strict diet; he found that a large part was catabolized. Troje also observed that only 270 grams of grape sugar out of 300 reappeared in the urine. Naunyn confirmed this for the majority of cases. A complete elimination of the sugar introduced was found by Naunyn only once. But it seems that the majority of all these patients were not suffering from severe diabetes. In any case there are some diabetic subjects—and this is important in principle—who eliminate a surplus of sugar quantitatively. Aside from some cases observed by von Noorden, von Mehring, Lusk, and Mandel, I will only mention an especially convincing example of Cantani. A patient on being fed exclusively on 800 grams of meat and some fat had an average loss of 61 grams of sugar during eight days. Then he received in two days 500 grams of cane sugar. The amount of grape sugar that could have been formed from this is 530 grams, but, as a matter of fact, the excretion of sugar rose by 580 grams.

The differences with different patients as to this point are especially important from a practical point of view. There are some diabetics whose glycosuria ceases immediately after one or two days of a strict diet. These will generally be considered as cases of slight diabetes. But they can stand no carbohydrates without immediately eliminating corresponding quantities of sugar. Thus their carbohydrate metabolism is affected rather severely. Their tolerance is very small, although they do not lose sugar on a strict diet. Other patients on the contrary eliminate some grams of sugar although adhering for weeks to a strict diet. According to the usual definition of slight and severe diabetes they seem to belong to the severe type. Now, if 100 or even 200 grams of bread be given, the excretion of sugar rises only by a small amount, perhaps by 10 or 20 grams, that is to say, these patients decompose large quantities of sugar. Accordingly their tolerance is fairly high. Naunyn has called this a "paradoxical phenomenon." There is no doubt that such patients will do much better on being fed with bread and on eliminating 20 grams of sugar than if carbohydrates were totally avoided. The objections of many practitioners who believe that suppression of glycosuria is not the leading principle of treatment refer to patients of this class, who indeed are not very rare.

Another question is whether in cases of most severe diabetes an extremely high sugar output can be diminished for some time without change of diet, but rather by muscular work or by other measures. That is to say, whether such sugar, which was lost in the ordinary course of diabetes, may be burnt under special conditions. The favorable influence of muscular work has been proved over and over again in cases of human diabetes. I attach less value to the exact investigations of Külz and von Mehring than to the very convincing clinical observations of Bouchardat, Zimmer, Schmitz, etc. Schmitz reports that a considerable glycosuria quite disappeared in the case of several officers when they had taken part in maneuvers, although no special diet had been adhered to. I believe also in opposition to Naunyn that the favorable influence of muscular work not only holds good during the time of actual movement, but also extends far beyond that time. But this is immaterial for the principle of our question. Apparently in none of these cases were the patients suffering from severe diabetes. The same has probably also been the case with the depancreatized dogs, in which Heinsheimer and Mohr observed a diminution in the sugar output after working on the treadmill. See has given this point his particular attention. In the dogs working on the treadmill, in which there was a diminution of excreted sugar, he found remnants of the pancreas; the diabetes was incomplete. But when the pancreas was totally extirpated, and sugar elimination was highest, no diminution of the sugar output took place in spite of muscular work.

Aside from these two aspects of the problem of sugar combustion the question must be put in a third and further form. In principle it is not so very important whether a part of the sugar which is usually eliminated can again be oxidized by work or other causes, but rather whether or not in the extreme form of diabetes some quantities of sugar are *always* oxidized. This, in other words, is whether or not in these cases life is possible without carbohydrates. In cases of slight diabetes some sugar is certainly always catabolized, and the same is true in cases of moderate severity, which on a strict diet yield only a few grams of sugar. Here no doubt more sugar is formed than eliminated. This follows from the fact that the blood contains unusually large quantities of grape sugar. A depancreatized dog of Lüthje's, also one of Mohr's, had 0.3 per cent. of sugar in the blood and none in the urine. On the other hand the striking regularity in the elimination of sugar in the severest cases of pancreas diabetes leads to the supposition that all the sugar formed is also eliminated, and that thus life is sustained without carbohydrates.

There are two methods of approaching this prob-

lem. One consists in respiration experiments, especially in regard to the control of the respiratory quotient, in a similar way to that which Zuntz adopted with healthy fasting men. Reckoned for an average of 24 hours, the respiratory quotient must amount in depancreatized dogs to about 0.05 on account of the sugar split off from protein and fat. When besides the eliminated urinary sugar still further quantities of sugar were formed but again catabolized, this would not be recognized in a 24-hour experiment. Nor would it be in shorter experiments if the formation and break down of sugar should occur at the *same* time. But if, as in Zuntz's experiments, sugar be formed and stored up in the organism to be catabolized later, then the respiratory quotient at the time of the sugar formation must fall below 0.65, the average value for the whole day, and must rise above this average during the combustion of the sugar. This manner of proceeding is in principle correct.

Mohr, who has worked along these lines, is of the opinion that he has found corresponding changes in the respiratory quotient, thereby proving formation and combustion of sugar at different hours of the day. But important objections arise on more detailed criticism to almost all of Mohr's experiments, so that I am unable to regard them as convincing.

There is still one more possibility of approaching the problem, namely the comparative analysis of the sugar content in the arterial and venous blood.

Permit me to make a few preliminary remarks. If an organ makes use of a substance brought to it in the circulation, as for instance the muscles do of grape sugar, or if a gland secretes a substance like uric acid, or hydrochloric acid, then of course the venous blood must contain less of this substance than the arterial blood. But it has usually been overlooked that the loss of substance, even when very great, gives extremely small percentage values in the blood, considering the large quantities of blood from which it was given off. If a healthy man burns 500 grams of grape sugar per day he must for this purpose pass from 5,000 to 7,000 liters of blood through his capillaries. This quantity of blood yields 500 grams of sugar. Accordingly each 100 c.c. of blood would lose only from eight to ten milligrams in one single passage. So instead of 0.1 per cent. of sugar in the arterial blood we should find 0.09 per cent. in the venous blood. This difference, however, is almost within the limits of error of chemical analysis. (I will only point out in passing that with other materials which are catabolized in smaller quantities in the organism, such as uric acid, etc., the absolute and relative diminution is naturally much smaller than that of grape sugar.)

But the above difficulty can be overcome, particularly in the case of grape sugar, by a special mode of procedure in which the blood is passed many times through the organ. Care must be taken that the used-up sugar is not replaced. In this method we should have to deal with the aggregate of the repeated sugar losses and this would be analytically recognizable. For this purpose the liver, which replaces the used-up blood sugar, must be removed from the circulation in the living animal. If this be done the blood sugar in the healthy animal sinks in about three hours to 50 per cent. or less of the original value.

This method, which is correct in principle, has been used by Chauveau and Kauffmann with depancreatized dogs. They report that they have found a decided diminution in the blood sugar in the course of several hours. But in every single case it remains open to question whether these animals had been really in the state of maximal sugar elimination at the time of the beginning of the experiment. The results of these French authors are directly contradicted by the extremely careful experiments of their own countryman Hédon, who has never found such a diminution of the blood sugar. Accordingly, a positive decision cannot yet be arrived at. For my own part, however, I should like to accept the theory adopted by our most distinguished German investigators of diabetes that together with maximal sugar elimination still more sugar is always formed in the body and also catabolized.

VARIATIONS IN THE EXCRETION AND IN THE TOLERANCE OF SUGAR.

The principle of the diabetes treatment of to-day consists in sparing the enfeebled functions on which the sugar metabolism depends, the aim being to strengthen them. You are aware that we sometimes fail in removing all the sugar from the urine of patients suffering from slight diabetes, so long as small quantities of carbohydrates are still given. Such patients, for instance, on being fed with fifty grams of bread still continue to eliminate ten grams of sugar, and the sugar output does not cease even by keeping this diet up for a length of time. But as soon as a strict diet is adhered to for several days, not only does the sugar immediately disappear from the urine, but it does not return if the patient be given a gradually increasing quantity of bread up to 100 to 200 grams.

This restoration of an impaired function by allowing it to rest for a short time has many analogies.

In the therapy of diabetes we have to deal with all the forces on which sugar tolerance depends. We have already discussed several points. At present I will mention only the influence of food proteids and food carbohydrates on sugar tolerance. Immoderate and prolonged feeding on carbohydrates in many cases of diabetes not only causes an elimination of sugar itself, but also damages the normal tolerance for sugar for a considerable period after the excessive ingestion of carbohydrates has ceased. In this sense an immoderate use of starchy and sweet food is to be looked upon as one of the accidental causes which provoke diabetes. It is difficult to recognize with certainty this influence in a single case. It was distinctly apparent in a case mentioned by Langstein. An infant of six or seven months without hereditary disposition was brought to the physician suffering from severe diabetes. The history of the case showed that the child had received for months enormous quantities of cane- and milk-sugar with its milk.

But unlimited consumption of proteids also acts harmfully on the tolerance in the same fashion as does immoderate use of carbohydrates. Here again, not only does more sugar originate from the large quantity of protein, but also the functions of the protoplasm become permanently damaged. The question accordingly runs: is the protoplasm damaged more by an excess of carbohydrates or by an excess of proteids?

But this question has generally been put in a somewhat different form. It has been asked whether sugar formed from protein or preformed

sugar is more easily combustible. The formulation of the question in either form is meaningless for therapeutics, the only point of importance being whether diabetic subjects thrive better on a limitation of carbohydrates or of proteids. From a theoretical standpoint, however, the question as to whether protein sugar or preformed sugar is more easily burnt seems to me wrong, for the following reasons: The molecule of protein-sugar differs in no way from dextrose, which is formed from starch. I agree that it could be assumed that the newly formed sugar, if in a nascent state, is more easily broken down than preformed sugar. If the combustion of newly formed sugar followed immediately on its formation, and if it occurred in the same place where it was synthesized, then perhaps the conditions for the catabolism of the protein sugar would be more favorable. But our knowledge up to the present is not in favor of such a supposition. From experiments made by Embden on the extirpated liver of depancreatized dogs it seems to follow that the sugar formation from protein, or at any rate its last phase, takes place in the liver. But this organ certainly takes only a very small part in the utilization and combustion of sugar which it had built up. It delivers its product to the other organs and here the sugar formed from protein arrives in the same condition as the sugar molecule, which has been derived from food starch. Accordingly, I cannot acknowledge any difference in the combustibility of protein sugar and of the preformed sugar molecule. So if a diabetic patient, besides ingesting 30 grams of sugar, forms 30 grams from protein, and if from these 60 grams of sugar 30 are eliminated, then it will be difficult to say whether these 30 grams of urinary sugar correspond to the carbohydrates of the food or to the sugar which was formed from protein. In my opinion they will have been derived partly from both. The protein sugar could behave more favorably as to consumption only in so far as its formation and passage into the blood take place more slowly and constantly than that of the food sugar, which causes a more rapid inundation of the organism. At present it does not seem possible to me to go further into details with these ideas. The practical establishment of the fact whether a restriction of protein or of starch is more suitable for a particular diabetic patient is essentially independent of theory.

It seems that the break down of the body protein is less harmful for some patients than that of ingested protein. Indeed, we know that fasting induces a sudden decrease in the loss of sugar. It has been thought that in this case less sugar was formed from the body than from the ingested protein. But it is not possible to establish an exact comparison, because the nitrogen elimination is usually higher when protein is given than when this is totally avoided or strictly limited. It might be exclusively a question of *quantitative* differences; but qualitative differences are equally possible. The protein of the food is not chemically identical, even when only meat is given, with the protein which is catabolized in the fasting organism. Possibly the differences in sugar formation might be essentially explained by differences in chemical composition. But on the other hand it might also be possible that the synthetic processes necessary for the building up of the split-up food protein make too heavy claims on the function of the protoplasm, thus damaging the tolerance for sugar. If the same side chains—to use Ehrlich's terminology—which are involved in the breaking down and the synthesis of protein are also concerned in the sugar decomposition, then it could be understood that the introduction of large quantities of protein interfered with sugar utilization.

I have already mentioned in my other lectures the influence of fat, alcohol, and muscular work on the sugar output, and I will only add a few words on the influence of drugs. We cannot doubt that occasionally some drug has appreciably diminished the sugar output of a diabetic patient. But since the efficacy of salicylates, antipyrin, and other drugs is not to be relied upon, these possibilities do not at this time require experimental investigation. Only opium has been shown to exercise a reliable, although limited, influence. If glycosuria resists a strict diet, adhered to for weeks, and all other measures as well, the use of opium has proved to be of great benefit. Unfortunately no experiments have yet been made to explain the mechanism of its action. It may be an action on the brain, and from there on the liver. The influence might be transmitted by the suprarenal capsules. We can also conceive an action on the kidneys in such a manner that these, under the influence of opium, retain the sugar circulating in the blood, although its percentage in the circulation is not diminished. I mention these points only in order to encourage experimental investigations. The same is also true of atropine, which some time ago was recommended by Dr. Rudish of the Mount Sinai Hospital, as being extremely efficacious. My own experiments with this remedy up to the present, although they have extended only over a short time, have shown me that this recommendation is justified, and that atropine has a part to play in the therapy of diabetes.

PATHOGENESIS OF DIABETES. UNITY OF DIABETES MELLITUS.

The conception of diabetes mellitus as a concrete disease is justifiable inasmuch as the metabolic disturbance itself and its intensity dominate the pathological process. However, it has always been considered necessary to assume different forms. This view is based on the great number of etiological factors and on the number of organs involved. Besides, the question of the unity of diabetes may also be raised from a metabolic standpoint, the question being whether or not the sugar elimination is always due to the same chemical and biological processes.

Science is not able as yet to give a definite and satisfactory answer to this question. Personally, I do not venture to take up a definite position in regard to all the points of the problem, a consideration of which always leads to a point where further speculation is impossible. The aim of such discussions can only be to find the point where new experimental or clinical inquiry has to set in and to determine new solvable questions.

Formerly only the brain and the liver were regarded as diabetogenetic organs, that is to say as organs that in some way or other cause diabetes. Mehring, who discovered phlorhizin diabetes, added the kidneys, Mehring and Minkowski the pancreas. In the last two decades the thyroid, the suprarenal glands, and the hypophysis have also been accepted as organs involved in the pathogenesis of diabetes, and it is not unlikely that in the future the range of organs will be still further extended. From a certain point of view all organs play a part in the etiology of diabetes, because they

all burn carbohydrates. If generally the muscles have not been considered responsible in this connection, it was because they were not thought to play an *active* part. It may be doubted whether this is completely justified.

If, as is probable, the greater part of the organs are involved in diabetes, the association between them can be based either on purely nervous connections or on mutual chemical influences. The old distinction between humoral and neural pathology is still alive and will be so in future, also in regard to diabetes.

The brain plays no primary part in the processes of sugar combustion. By means of the nerves, however, it exercises an influence on the liver and perhaps also other organs either automatically or by reflex action. The influence of the liver is probably a passive one. But as a storing place for the carbohydrates of the food and as a producer and supplier of newly formed sugar, the liver is of great significance, although probably only in a passive sense. Naunyn is the only author who considers the liver a truly diabetogenetic organ, responsible for the primary formation and accumulation of glycogen, and thus for the causation of diabetes. But I do not think that his opinion is shared by the majority of investigators. In opposition to the liver the kidneys rightly deserve to be called diabetogenetic organs. The brilliant experiments of Zuntz and of Pavy have shown that sugar is actively eliminated by the kidneys. But this activity of the kidneys is confined to phlorhizin poisoning. It has not been definitely established that renal diabetes also exists in human beings, and if it does, such occurrence is rare. Thus, there remain to be considered the pancreas, the thyroid, the hypophysis, and the suprarenal capsules with the chromaffine system.

After the discovery of Mehring and Minkowski we were inclined to attribute to the pancreas a dominant position in the pathogenesis of diabetes and to regard it as the organ chiefly responsible for it. The next conception was that this gland produced a substance necessary for the combustion of sugar. Recently, however, Falta and his collaborators have formulated another theory which they have tried to support experimentally. Their opinion is that the pancreas, thyroid, and suprarenal glands form a system which is responsible for the sugar metabolism. The suprarenal gland effects by the adrenalin a mobilization of the carbohydrate stores. This has been proved by the severe glycosuria following an injection of adrenalin. A similar function was ascribed to the thyroid. Since a substance which, similarly to adrenalin, induces glycosuria cannot be isolated from this gland, we must rely upon the clinical fact that diabetes is often associated with Basedow's disease, and that sugar elimination may also be caused in healthy individuals by overfeeding with thyroid substance. According to Falta the pancreas acts in contrast to these two organs, which effect a mabilization of sugar, by *preventing* such mobilization. Its removal permits the diabetic power of adrenalin to come completely into action. Accordingly, diabetes is essentially to be ascribed to the activity of the suprarenal gland, which is no longer interfered with by the restricting powers of the pancreas. Kraus also is inclined to attribute to the suprarenal gland a central position in the production of diabetes.

The mutual relations of the above three organs, both to each other and to the liver, do not necessarily depend on direct nervous connections. If the tail of the pancreas, after removal of the head, is transplanted under the skin, its antiglycosuric efficiency is conserved, although all direct nervous connections between the liver and the rest of the pancreas have been cut off. The active principles of the pancreas and of the other organs, the so-called hormones, perhaps do not act *directly* on the liver cells, but indirectly by the intervention of the nutritive nervous system. This would mean a combination of neural and humoral pathological conditions.

According to my views the experiments of the Viennese investigators were neither carried out in sufficient numbers, nor with sufficient accuracy. Some of their conclusions have also been contradicted by other authors. The weakness of their theory seems to me to lie in the fact that it considers only a single *aspect* of diabetes, namely the mobilization of the carbohydrates, while the new formation and the using up of sugar have not been taken into account.

Accordingly the necessity arises of throwing light upon the unity of diabetes and its pathogenesis from another, namely, the metabolic, point of view. The decisive question here is this: Is diabetes caused by increased sugar formation which exceeds the needs of the organism, or is it caused by deficient sugar combustion? (Phlorhizin diabetes, which stands in a class by itself, need not here be considered.) The expression of "increased sugar formation" in the alternate sense as here applied ought to be replaced by the expression "increased sugar supply." This expression includes both the formation of new sugar from proteids and fat, and at the same time the mobilization of preformed sugar molecules. I do not doubt the existence of glycosuria produced by an increased sugar supply without interference with disturbed combustion. Its prototype is puncture or *piqure* diabetes. Analogous phenomena are found in human beings. Many cases of transitory glycosuria in nervous patients are to be regarded as such. Furthermore, I consider it highly probable that mobilization of glycogen may increase glycosuria owing to deficient combustion. Adrenalin injected into depancreatized dogs acts in this way. But the question is whether the symptoms of severe diabetes can be exclusively explained by increased mobilization and formation of sugar.

In order to realize the extreme consequences of this idea, let us imagine that the using up of sugar is absolutely undisturbed so that there is not the least difference between healthy and diabetic beings. In this case the sugar is excreted simply because more sugar is passed into the blood than the normal organs can make use of. But, if their function is really undisturbed, they would still catabolize the same quantity of sugar as normally.

This conception may be examined best by a numerical example: A healthy man will just cover his loss of energy of 2,400 calories by being given 100 grams of proteids and 500 grams of carbohydrates. The diabetic patient will in this case eliminate 500 grams of sugar and will replace the lacking 2,000 calories by combustion of body fat. According to the conception that the combustion of sugar was not at all disturbed, the diabetic subject would burn 500 grams of grape sugar, just like a normal man; but at the same time he would be obliged to have another 500 grams newly formed, and of this at least 400 grams from 200 grams of

fat. For chemical reasons this is as good as impossible. And if indeed such a surplus production of newly formed sugar should take place, it would be highly curious if just as much sugar were formed as is introduced in the shape of preformed sugar. If 100 grams of starch be given then the formation of new sugar would have to amount to exactly 100 grams; if 300 be given then 300 would be formed. This seems to be absolutely impossible.

I will put forward a further argument against the doctrine of undisturbed sugar combustion by reason of the relations in muscular work. The working muscle of a healthy man, on being given a sufficient quantity of carbohydrates, prefers this material almost exclusively. According to the doctrine of undisturbed sugar combustion, this would also be the same in diabetic patients. We will say that a walk of one to one and one-half hours brings about, in a healthy man living exclusively on protein and on carbohydrates, a combustion of 40 to 50 grams of sugar. A diabetic subject who loses 10 or 15 grams of sugar per hour in the urine ought, accordingly, if he behaved like a healthy man, also to use 40 to 50 grams carbohydrate for the production of his mechanical work, since sugar is placed at his disposal in even greater quantities than in healthy persons. Since he eliminated 10 to 15 grams of sugar in the preceding hour of rest, we ought to expect that his sugar excretion would disappear, if he really used 45 to 50 grams of sugar for the mechanical action of an hour's walk. But, as a matter of fact, the sugar elimination sinks only inappreciably by several grams. If the diabetic patient, like the healthy man, had used up 50 grams of sugar for his muscular work, then he must, strange to say, have formed in this hour in surplus just the same quantity of sugar, that is to say 40 to 50 grams more than in an hour of complete rest immediately preceding his walk. The surplus of formation would have been determined by the amount of the muscular work. This is improbable.

For both these reasons which I have put forward, I feel compelled to assume a primary disturbance of the sugar splitting up in diabetes, as the essential and primary process in severe cases of this disease. The complete working out of the view according to which diabetes is based *only* on an increased formation and mobilization of sugar would lead to the conclusion that each molecule of protein and of fat also in normal life was quantitatively transformed into sugar. This view of Seegen's has not the slightest justification. I concede the possibility of a cooperation of an increased mobilization in diabetes. I acknowledge also in a certain sense the existence of an increased formation of new sugar, but I consider this increase in sugar formation and mobilization to be only the consequence of disturbed combustion. I can recognize it only as a secondary result. In spite of the fact that sugar is wasted in the body, those organs which need sugar do not cease in their demands for sugar. They behave just the same as in a normal organism. The liver and the other producers of new sugar strive to fill these requirements; thus they form new sugar and send it to the other organs, but without any advantage for the organism.

This disturbance in the using up of sugar will in cases of severe diabetes increase in the course of time, yet it never need be absolute. As I have already explained, some of this newly formed sugar will probably always be catabolized. Even in severest pancreatic diabetes the sugar elimination may decrease or even disappear before death. This seeming reappearance of an apparently quite lost function has been put forward as a principal reason against the doctrine of the disturbed breakdown of sugar. I cannot recognize this argument. For if according to the present conception the power of sugar combustion be never quite lost, then it could also be revived under certain circumstances. But the decrease in the sugar elimination before death might also depend on a decrease in the formation of new sugar and this conception is much more probable.

According to this conception the muscles as the principal organs implicated in the combustion of sugar would come more into the foreground of the disease. The mobilizing organs, such as the suprarenal capsule and the thyroid, lose their primary part. It must not be said, however, that a *primary* muscle diabetes exists in which the muscular system is involved exclusively. The view that it needs the other organs to make use of the energy of the grape sugar has again and again been shown by the action of pancreas extirpation. And also even if the attempts to isolate the pancreas-hormone and to prove the cooperation of the pancreas and muscles have not as yet succeeded, still I believe that the solution of the problem lies in this direction.

OCCUPATION AS A THERAPEUTIC AGENT IN INSANITY.*

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The subject of occupation for the insane has no claim to novelty. In describing a visit to York Retreat in 1798 Dr. Delarive of Geneva says, "As soon as the patients are well enough to be employed they endeavor to make them work." He makes special mention of basketry as among the occupations employed.

In the "Case of Percival," published in 1838—a book similar in some respects to Mr. Beers' "A Mind That Found Itself,"—the writer says (of himself as a patient in a hospital for insane), "My need of wholesome exercise and occupation was denied. My want of exercise produced a deadly torpor in the moral functions of my mind." We can enter somewhat into his feelings when he exclaims in another place, "In the name of humanity, in the name of wisdom, I entreat you to place yourselves in the position of those whose sufferings I describe before you attempt to discuss what course is to be pursued towards them."

In the *American Journal of Insanity* for October, 1846, Dr. Isaac Ray reviews a curious poem devoted to the subject of insanity, written by an insane patient at Duddeston Hall, England. The following quaint verses will bear quoting:

"So far thy care in each particular course
Is well bestowed;—but neither physic's aid
Nor diet treatment, thou mayst here enforce
Will health restore, if maniacs are not made,—
Aye, urged by means resistless—to walk the shade,
Or strike the bounding ball, or use the arms
In labors healthful, and with hoe or spade

*Read at a joint meeting of the American Society of Superintendents of Training Schools for Nurses and the Nurses' Associated Alumnæ of the United States, at Teachers' College, Columbia University, May 18, 1910.

Clear well the recreant weed, or fence from harms
The tender plant, and screen the exotic's embryo charms.

"Sayst thou that storms and winter's blast deny
The walk, the game, or exercise in field?—
Think not therefore that his powers should lie
In dormant sloth,—nor day-rooms' areas yield
Full exercise; and be it ne'er concealed
That spacious rooms, alike for light and air,
Are needed here; but most that uncongealed
The torpid blood may motion's blessings share:—
And sure within the mansion's bound such boon is there.

"These various games, or such as these, we need,
To rouse the dormant sense, and stir its fires;
And though 'tis not in mortal hands to speed
A cure, 'tis well if sport some joy inspires."

In recent years strong papers have been written on this subject by several writers, among them Dr. Marie in France, Dr. Tomlinson, Dr. Cohn, and Dr. Hall in the United States, and Dr. Moher in Canada.

But much as the benefits of employment have been extolled, no one will venture to say that the most has been made of this remedy. Too often those who uphold the theory have not overcome the practical difficulties that prevent its application. I recall the chagrin of a medical friend who traveled some hundreds of miles to visit a hospital whose superintendent wrote eloquently of the benefits of occupation, only to find the same pathetic rows of idle patients as those on whose behalf the journey had been made!

It would seem almost superfluous to emphasize the extreme injury that idleness produces. We know that an idle child will usually become mischievous and incorrigible. We know that an idle young man will probably become vicious and dissipated. We are not surprised when an idle woman becomes hysterical and neuropathic. We are familiar with the fruits of idleness shown in vagrancy and crime, as well as in the follies of "the idle rich." The same condition that is so pernicious that a normal person cannot withstand its fatal blight, is surely a deplorable one for those already abnormal.

Yet the duty of classing idleness with hunger and thirst and physical abuse, which humanity forbids us to allow with any class of dependants, has not yet received the recognition that must in time be given it.

In the practical carrying out of our theories, the most desirable plan is to have occupation an integral part of the daily life of the patient on the ward or grounds. Like the Kingdom of Heaven it should come "without observation." It is as unpsychological to say to a patient—in words or conduct—"you are now about to be occupied" as to say "you are now about to be amused." The announcement in either case tends to defeat its own object.

The patient who fits into the industrial departments of the state institution is provided for, so far as mere employment goes, but should be carefully included in all plans for amusement, to counteract the monotony of routine work. Patients who are already skillful, and but slightly deteriorated mentally, are, of course, easy to occupy, and many of them have enough initiative to occupy themselves if materials are supplied. These two classes, therefore, may be eliminated from the number of those who constitute our real problem. This consists of the patients unskilled in handicrafts of all kinds, absorbed in their own troubles, and often already trained to habits of inaction and apathy. There is a wide gulf between the patient who can be useful in the sewing room or laundry and the patient who is absolutely unable to do anything; yet those who fall short of being able to work several hours a day to some purpose will too often have no other resource, and what little skill they have will ultimately be lost.

If segregation is unavoidable in providing occupation, the question of classification into groups must be considered. Where a limited amount of work only can be done it is often necessary to choose between the attempt to rescue chronic cases of long standing, and to spend the same time and effort in fitting into institutional life the patients who are just passing over from the acute to the chronic stage, so as to prevent deterioration as much as possible. The latter seems the more fruitful and compelling task, yet when one finds on a chronic ward a patient ravelling out a stocking and knitting up the threads with a hair pin, the appeal is almost too strong to resist.

The chronic insane with some skill, the acute patient with increasing mental grasp, the disturbed or exhausted case who can only be amused, the chronic case who must be patiently led to take up very simple tasks, must each be differently environed and instructed. Whatever plan or classification is followed, a regular schedule of occupation, rest, and exercise, which provides properly for every hour of the patient's time, is essential. This schedule should be posted in each ward of the hospital.

In devising such a schedule the various aptitudes and acquirements of different officers, nurses, attendants, and patients can be skillfully utilized.

The question of occupation should neither be decided by the patient nor left to the initiative of the attendant. Dr. Meyer says "Occupation is a matter of prescription"—and again, that in certain forms of mental disorder "a training in normal activities and a cultivation in fruitful interests is the surest and only efficient point of attack."

The motives to be employed in interesting patients are various. Praise will influence some, competition will reach a few, an appeal to the esthetic sense will be effective with a limited number. On others, simple rewards will have a constraining influence. Altruism and affection can be appealed to to a large extent—probably as largely as with children, and many patients will embrace an opportunity to make small gifts for relatives or friends. Some will enter into preparations for an entertainment—making decorations for Christmas trees calls forth almost universal interest. Many will gladly do charity work, which, in this case, will not begin at home, but will be for dependants of some other class, such as orphaned or crippled children. Some will take their first steps toward a more normal life by forming the audience which merely watches the activities of patients already able to respond to stimulation. Later some of these spectators will develop a desire to participate in the work they have watched.

The personal note, so easily lost in dealing with large groups of people, should be used repeatedly and to the fullest possible extent. It is far better for a patient to be asked to hemstitch a particular cover for the bureau of a nurse to whom she is

attached than merely to give her a cover and tell her that it is to be hemstitched. If we will put ourselves in the place of the patient for a moment we will see the force of this distinction very clearly. One of the most successful experiences we have had was interesting patients in making little gingham aprons and other small articles of clothing for the children in an orphan asylum. The children themselves came occasionally to the hospital to sing, either on the wards or in the amusement hall, and every response to the request that some small garments be made for these children was as unanimous and hearty as would have come from a group of people anywhere. Here the appeal was made to the deeply-rooted feminine instinct of caring for children, the personal note was used in asking them to work for someone they had seen and already felt an interest in, and no doubt the longing to be of some use in the world, which the more intelligent inmates of institutions frequently feel keenly, was somewhat satisfied. The work itself, moreover, was interesting, was more or less familiar, was easily done, soon finished, and of obvious use—all most desirable features.

The last of these—its obvious use—is an essential element in all occupation work. Work for the sake of work appeals to abnormal people just as little as to normal people. Trumped-up occupations that are evidently merely a perfunctory carrying out of the idea of occupation, will prove valueless. A certain amount of institutional work, however, can be utilized, especially if a personal note is added.

The articles to be made, besides being of obvious use, should be such as are quickly finished, so that results are not too long delayed. They should, whenever possible, have color and form to give them some esthetic value. They should not require very fine muscular co-ordination. This is an important point, too often overlooked. Very simple forms of embroidery, crocheting and featherstitching are practical, if not carried on until the patient has lost interest. The signs of fatigue should be watched for in all work with great care.

Basketry appeals to a somewhat limited number. Those who are satisfied with monotonous work will frequently work week after week at basketry. By varying the colors and styles and by limiting the basket work to certain days in the week, the great objection to basketry, which is its monotony, can be minimized. Where practicable, it is one of the most useful aids in furnishing occupation.

In the use of reading matter great skill can be shown in fitting the book to the patient, in bringing it at the psychological moment, or in reading aloud the opening chapters until the patient's interest is secured. A persistent campaign in this respect will multiply the number of reading patients many fold. No dependence should be placed on the initiative of the patient here or elsewhere.

In the way of amusements music in various forms is always available, the phonograph, pianola, or music box supplementing lack of talent. Home talent programs are most desirable, in which every patient with even slight ability to entertain is utilized. Afternoon card parties where patients who wish to learn to play cards have the opportunity to do so, have been successful. Many patients have never had the "play sense" developed, and much can be done along this line. Evening card parties for both sexes in amusement hall are a pleasant addition to the usual weekly dance. A "kindergarten party" with wooden tooth-picks and soaked peas for equipment, with a prize for the best design, is one of many simple plans for evening entertainment. Tissue paper parties, shadow plays, and old fashioned games of all kinds are entirely practical.

Now and then patients will have some unusual interest or capacity that will make them easily occupied. One patient had studied millinery and for several weeks amused herself and entertained the other patients by making doll hats from cast-off straw hats, ribbons, flowers, etc., contributed by employees. Another had been employed in making stock collars and stock collars she insisted on making. As the demand was limited the supply was soon more than could be disposed of and it was with the greatest difficulty that any other occupation would be accepted. Some will prefer to work along the lines of established habit, while some will wish for constant novelty and change.

The beginnings of occupation on the acute ward of one hospital were in the room of a convalescing patient who formed a little circle around her which she called the "Sunshine Club," urging the other patients to forget themselves and do all they could for others. An "esprit du corps" grew up in this little group that was remarkable. Convalescing patients are frequently most helpful in such ways.

Dr. Tomlinson calls attention to the fact that there is the same need for actual teaching in hospitals for the insane as in schools for the feeble-minded. The same methods that a successful kindergartner would use, or a capable mother in keeping her children busy and happy, are needed on the wards of a hospital.

Preliminary training for such work is provided in the admirable courses for attendants in institutions for the insane and mentally defective as outlined in the programs of the Summer Sessions of the Chicago School of Civics and Philanthropy and the New York School of Philanthropy. Too much cannot be said in praise of such courses, nor in emphasis of the desirability of having hospitals avail themselves of their advantages.

In furnishing motives for work, we must bear constantly in mind that our patients are deprived of the ordinary stimuli of life. The stimulus of necessity is taken away, as well as that of ambition, of competition, of love of adventure, and of expressing affection by working for dear ones. Custodial care practically deprives them of all these powerful normal stimuli. It is, therefore, necessary to utilize to the greatest possible extent those remaining. The play sense must be appealed to wherever possible. One of Gelett Burgess's clever sayings is this, "There is work that is work; there is play that is play; there is work that is play, and there is play that is work; and in only one of these lies happiness." It is only in furnishing work that is play that we can fully accomplish our object.

Play has certain very definite characteristics. It imitates the spontaneous activities of childhood, where we do what we want to do. The desire to perform an activity gives it largely its psychological and therapeutic value. Play should involve as little inhibition as possible, and as large a degree of motor response. It should substitute passive attention for active, and call for a certain degree of emotion, which must be sustained throughout. It should foster objectivity and thus lessen self-consciousness, than which there is no greater menace to a healthy mental life. Any occupation that makes a person forget himself entirely is a beneficial

thing. Interesting work is, psychologically speaking, play—and in furnishing this will success lie.

In planning work for insane patients many limitations must be considered. The first is in regard to expenditure of money and the second, expenditure of time. Work requiring one nurse or teacher to devote herself entirely to one or two patients is obviously impracticable in a State hospital. There are, of course, times when it is quite worth while for a nurse to give her entire attention to one patient for a few hours, or even a few days, in order to interest her in work that will later give her permanent employment, but many beautiful and interesting kinds of handicraft require a degree of supervision that makes it impossible to use them in a State institution. Occupations producing noise, or requiring sharp instruments, or demanding constant fitting and planning, or many decisions in the course of their development, are almost entirely impracticable. It is within these limitations then that occupation methods must be devised and carried out.

Some obstacles that at first seem real can be easily overcome if the interest in the object sought is genuine. These are lack of suitable places, furnishings, and equipment, the slight expense involved, and the deadly order that often creeps into an institution—not the order that *subserves*, but that which *subverts* the uses of a home. Between these two very different things a clear distinction should be made.

Less easily set aside are some more essential difficulties. The degree of ability required to supervise various forms of work with patients of varying degrees of intelligence is not easy to secure. The teaching of an ungraded country school in the old days when the teacher had to devise and make his own apparatus required the same sort of ability. The supervising, moreover, must be done by some one in an official position that enables him to correlate all the departments of an institution or his energies will be wasted in obtaining permissions, writing requisitions, filling in reports, and paying tribute in numberless ways to that Divinity that shapes the end of usefulness too often in institutional life—Red Tape.

The custodial features of an institution and the routine which is unavoidable are often serious obstacles, which must be compromised with when they cannot be overcome. The constant changing of nurses from ward to ward, which seems more or less inevitable, greatly hinders occupation work, which depends for its success on the nurse becoming personally acquainted with and interested in each patient.

The disposition of articles made will raise many questions. Some the patients may keep, some can be utilized on the wards, some may be given or sold to employees, some may be sent as presents.

In some hospitals patients are allowed to sell their work. Work may also be allowed to accumulate and a bazaar held occasionally, the proceeds to be used in some way that will stimulate the patients to further effort. Whatever disposition is made of it, it must seem to the patient to be worth while to make the article, or interest will flag. The sending of such articles as scrapbooks, dolls' clothing, etc., to children's hospitals has been one of the most satisfactory solutions of this problem of disposing of finished work.

Patients should not be allowed to work too long at any one thing, and the day should be properly broken by exercise and amusements.

Some of the best occupations and entertainments will require the cooperation of friends of the hospital in order to make them a success. This last factor is not difficult to secure and contributes effectively to the establishment of the proper relation between the public and the State hospitals.

A card index of the patients who are to be occupied is of great value. On the cards can be noted the patient's preferences, skill, and limitations.

Furnishing of work will require a wide knowledge of handicrafts, great resourcefulness, and a large amount of preparation in buying, selecting, and arranging. Yet the work is so stimulating and fruitful that once entered upon it will not fail to hold the interest of the worker. To the executive ability required must be added the subtler gift of being able to inspire and sustain the interest of the patient. And here we find the paramount obstacle to this work—the difficulty of obtaining in the hospital service people not only of ability, but with the spirit of social service. Yet this discouragement will be overcome as the need of this work is realized. To quote from Dr. Moher, "Once that the facts that occupation is an important remedy in the treatment of insanity and that it must be administered in an intelligent and systematic manner are firmly impressed on the minds of the attendants, little difficulty is found to keep patients employed."

It is to be deplored that this subject of occupation has not received due attention in textbooks on nursing. In Dr. Clara Barrus' book on "Nursing the Insane," however, there is an admirable chapter devoted to this subject.

In carrying out personally the supervision of occupation work failure came in unexpected quarters. It was expected that reading aloud and calisthenic exercises would prove two great resources. Both were for some reason of little help to us, though this does not seem to be the case elsewhere. Perforated brass work and hammock making were tried and given up. Both these could be fitted to individual patients but did not seem suitable for group work. The reason for failure in work such as designing rugs and quilts would seem to be more obvious, since this has to be done almost entirely by those who supervise. The offering of small prizes for competitive work produced negligible results and was given up.

For outdoor games a liberal supply of rubber balls and bean bags have been used. Ringtoss, pass ball, and basketball are available, and much enjoyed. A "gymkhana" on a small scale, including obstacle races, tug-of-war, etc., has been entered into very well. The folk dances, which the Manhattan hospital has employed, are an unqualified success and most interesting to the spectator as well as to the participant. Badminton would be admirable for a yard game, requiring little training and engaging a large group.* A liberal supply of folding tables and chairs, available for use on the wards, in the Amusement Hall, or on the lawn; and of small light rockers for sewing parties has been one of the most helpful features of our equipment. A set of dishes for afternoon tea, which the patients themselves prepare, is a highly prized feature. Many of the cups and saucers have been contributed by friends of the patients. Picture postcards, to be written at any time, are accessible, with ink and pen, and give much pleasure. Such

*This game is not well known in America, but is easily learned and far more useful than tennis or basketball.

trifling things may seem hardly worthy of mention to those who have not attempted this work, but it seems to the writer that just such trifles give the *atmosphere*, so to speak, to occupation work. In the same way the simplest and crudest handcrafts are often the best, therapeutically.

The tangible results of occupation methods, while difficult to estimate in the laboratory sense of estimation, are sufficiently evident to be convincing. Large numbers of chronic patients can be reeducated to some degree of usefulness or at least contentment, and occasionally buried talents are discovered that are surprising. The deterioration of patients in the post-convalescent period is often very rapid and can certainly be obviated to a large extent. The degree to which convalescence may be hastened by securing for patients happiness and wholesome employment, instead of allowing them to struggle unaided out of depressing or confused habits of thought, is not to be accurately estimated, but is surely considerable. Shortening of convalescence, of course, means, in a purely monetary way, a saving of expense to the State and of labor to the nursing staff. How far, in certain border line cases, the prognosis would be influenced by rescuing a patient from the introspection and unhappiness that accompany illness, and substituting a more nearly normal life is not to be accurately determined. Yet it is very easy to believe that there are not a few cases where the outcome would hinge on the wise and persistent use of occupation as therapy.

A superintendent of a Canadian hospital where good progress in occupation work has been made says: "I have no hesitation in stating that the cure of a large number of patients may be attributed to occupation." Several of the superintendents in our own State have also testified to the actual curative value of occupational therapy as well as to its benefit in chronic cases.

From the humane point of view no further appeal is needed than that which is made by a ward filled with idle and miserable creatures. No more ghastly sight can be found than the rows of such patients which are to be found in many State institutions. In being deprived of an outlet for their energies they almost inevitably develop mischievous habits, taking off and putting on their clothing, hammering, clapping their hands, screaming, etc. These outbursts of unutilized nervous energy are not so often symptoms of their disease as the fruit of the conditions in which they are placed. To restore to these people an agreeable and natural way of carrying on a normal amount of activity is certainly contributing as much to lessen the sum total of human misery as any charity that we could mention. Many cases which have at various times come under my personal observation have been transformed from unhappy creatures to cheerful and contented inmates of a hospital, which they then come to consider somewhat in the light of a home. In a record of visits to some twenty-five hospitals for insane, public and private, which the writer has kept, nothing is more noteworthy than that the general condition of the patients varies in close ratio to the amount of occupation that is provided.

Never before the present—unless in the golden age of Greece—has the value of happiness been so emphasized. This emphasis lies at the foundation of several of the modern semireligious cults, and permeates the philosophy of the day. No therapeutic agent is greater than happiness. Happiness will produce added blood corpuscles; happiness will stimulate metabolism; happiness will inhibit the growth of bacteria; happiness will restore sleep and renew the powers of digestion; it will improve the functioning of every organ in the body. One of the best definitions of happiness is: "The normal functioning of every faculty and organ." This is not possible without normal stimulation and the furnishing of this is a task alike for our humanity and our medical and psychological skill. When we speak of the value of occupation as a therapeutic measure we are reflecting some of this spirit of the age, for what we are practically doing is to bring about once more the normal functioning which is, in itself, happiness, and thereby calling to our aid, as physicians, the most powerful of all therapeutic agents.

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VENTILATION OF CARS.

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The number of people who spend a considerable part of their time in cars is small compared with the number of people who ride on cars. Practically all of those who are on cars a considerable percentage of the time are adults. For these reasons the harm done by cars is principally in the line of air-borne infections, rather than air-caused conditions.

In the case of trains, the engineer and fireman get excellent air under ideal conditions. They sit at the windows of an open cab with the wind whistling by their faces and bodies. The smoke of the engine never comes into the cab while it is on the road. Around stations, and especially in covered sheds, the engineer and fireman participate in the use of the generally fouled air.

The baggageman and the expressman work in a badly ventilated car. They usually go to work a half hour before the car starts, and remain in the car for a half hour after the train stops. The number of occupants of the car is very few and at stops the doors are wide open, and the activity around the doors serves to change the air. Conditions, therefore, are not especially bad.

The mail clerk is in an especially bad position. His car is illy ventilated. It is usually hot and dusty. He goes to work in the car hours before the train starts. A mail car standing in a station will not ventilate. It is hot, offensive, and dangerous. The government should not tolerate the health conditions which prevail on mail cars.

The conductors and brakemen on passenger coaches spend hours each day in bady ventilated cars. The caboose of a freight car is more open, leaks more air, than passenger coaches; it contains fewer people. The conductor and brakemen are

in and out more. For these reasons the train crew of a freight train is better off than the train crew of a passenger train.

On an electric, interurban, street, or elevated car with an enclosed platform the motorman and conductor, remaining on the platforms have healthier places than the passengers. If the front vestibule is used as a smoking compartment the motorman loses some of this advantage.

The majority of the inhabitants of cars are the passengers, and the arrangements for passengers deserve especial consideration.

The ventilation of cars is of importance only in the late fall, the winter, and the early spring. As soon as the outside temperature is high enough the passengers take advantage of the easily secured currents through doors and windows and get comfort and health. It is only when the outside temperature is so low that unwarmed currents are uncomfortable that the passengers close all the openings which they possibly can and the air becomes fouled.

A car in use is being hurled rapidly and violently through the air. In consequence, leakage around doors and windows is much more of a factor in car ventilation than in any other installation. It is as though you were building a room expecting the air to blow against it at twenty to eighty miles an hour all the time. You would not need any ventilation except by windows and doors in the late spring, the summer, and the early fall, and it would be necessary to figure on heavy air leakage in your heating calculations for cold weather.

Even the tightest of cars, such as Pullman sleepers, while running rapidly, will leak enough air to take care of a small passenger load.

Another point which must be borne in mind in car ventilation is that the passengers are from many sources. You cannot assemble a hundred men together without finding that a heavy percentage of them have pneumococci in their mouths; a certain percentage will have tubercle bacilli; some will have ordinary cold bacteria; some influenza, and occasionally one will be a diphtheria carrier. When these men are jammed closely together, as they are in a street car during the rush hours, they can certainly be expected to infect the air of the breathing zone. Many will cough and do other violent expiratory acts during a ride of thirty to forty minutes. This still further adds to the harm which results from bad car ventilation. Many will smoke. The air of a smoking car always has a high CO_2 content when the car is in use. This, however, is of minor consequence compared with the spitting and concomitant acts which can be expected with smoking.

From the standpoint of pollution of the air by odors, no other room approaches the vestibuled day coach, loaded with passengers, and making a night run on a train with infrequent stops, say at intervals of two hours. The passengers remove their shoes, loosen their clothing, and go to sleep in all sorts of postures. Their mouths are open and dry, and there are breath odors. The shoeless feet contribute feet odors. There is an addition of body odors. The food in the lunch baskets—often a day or more old—adds to the bouquet. The vestibule prevents the relief that formerly came from the exposed door.

In a sleeping car the circulation of air is impeded by curtains, and every resource is employed to make the car tight, but conditions are much better than in the day coaches. The number of passengers is less, the passengers are sleeping in natural positions, and their bodies are cleaner.

There are two general types of ventilation in cars as elsewhere—the plenum and the vacuum systems. The vacuum system is that in which there is a vacuum in the outlet duct which sucks the foul air from the car and fresh air comes in to take its place. The plenum system is that in which fresh air is forced into the car and the foul air driven out.

In cars running in the open country it would seem foolish from the mechanical standpoint to employ any other than the plenum system. In surface and, possibly, subway street cars a vacuum system with free inlets properly located has its advantages, and may be best.

A railroad car (passenger, Pullman, baggage, express, or postal) hurling through the air at the rate of fifty miles an hour has an air pressure of ten pounds per square foot. This furnishes more power than any blower fan in use. If a ventilating duct has its open face exposed to this current of air a volume will drive in many times the need of the inhabitants of the car.

The requiremets, then, are these: (1) To regulate the volume of air taken in for the different car speeds; (2) to keep down the dust content of the air taken in; (3) to warm the air before it is introduced into the car; (4) to introduce it at the right place; (5) to provide proper exits for the foul air, properly located.

1. Discussing the first of these points: Sometimes the amount of air taken in is regulated by cut-offs operated by the brakeman. Such is the case on the Pennsylvania Railroad. Here the brakeman sets the ventilation soon after the car leaves the station. A better system is that in use on the Northwestern Elevated, in Chicago. They use a small cut-off device in their intake. When the car is standing still the blade hangs vertically and the duct is fully open. As the car speeds up, the blade rises toward the horizontal and diminishes the size of the duct proportionately. There is never any question as to getting air enough when the car is under way. The provision must be to keep the quantity down.

2. In a railroad train the dust is from two sources. The smoke tends to hang along the top of the car. Ducts at this level are liable to catch a good many cinders and much smoke. The pounding of the cars raises a good deal of track dust. The Pennsylvania Railroad takes in its air above the roof of the car and uses screens to keep out cinders. Such an opening has the additional advantage of being out of the way. A disadvantage is the amount of friction from the length of the ducts. In the case of elevated trains the ducts are advantageously located in the floor of the car and take air in from below the floor line. The question of the location of the ducts in surface street cars is somewhat more difficult. The short ducts, when the inlets are below the floor level, present great advantages. The only disadvantage is the dust. The swirl of dust raised by a street car can be seen to hang a little in the rear of the car, except when it is stopping. The dust at the floor line of the car is far less than superficial observation would indicate. Opening through the floor can be provided with cheesecloth dust arresters when this is found necessary.

3. The keynote of car ventilation is warming the

air as it is taken in. A street car jammed with passengers will have only ten cubic feet of air per passenger. If, then, 2,000 cubic feet of air per passenger per hour is furnished the air must be changed two hundred times per hour, or, say, three times per minute. No passenger will allow such a volume of air on a cold day without the air having been previously warmed. Even if these figures are markedly diminished, the passengers will not tolerate the air if it is cold. On the other hand, the radiation in the car is usually placed under the seats or in out-of-the-way corners of the car. The result of this is that the seats are usually scorching hot and the remainder of the car is uncomfortably cold. The efficiency of the radiation is at a minimum because there is no provision for heat distribution. The proper solution is to introduce the fresh air into the car through the radiation. In this way the air is warmed to a point where the passengers will tolerate ventilation. The radiation is cooled and the cold parts of the car are warmed; the car temperature is made more nearly uniform; the efficiency of the radiation is increased.

4 and 5. In the installations commonly in use, the air is theoretically taken in through the deck sash. The most efficient intakes we have found in such installations are the leaks around doors, windows, and joints. We think that the air entering through such openings when the car is crowded, when it is moving rapidly and when the outside temperature is around 10° F. above zero, will amount to 10,000 cubic feet per hour. Deck sashes we have found to be very unsatisfactory for ventilation purposes, either as inlets or outlets. They will sometimes act as inlets, sometimes as outlets, and sometimes as neither, according to the direction and force of the wind, and according as the car is gaining speed, speeding, or losing speed. The great volume of air which comes in through those sash openings which are acting as inlets will flow straight across and out of other sash openings acting as outlets. The best results in deck sash ventilation are had by opening the sashes forward on the windward side of the car for inlets and opening the rear sashes of the lee side of the car backward to serve as outlets. The theory of the use of deck sashes for inlets is that the cold air will mingle with the warm air and will therefore be somewhat warmed before it strikes the passengers. But no dilution system is ever safe with less than 1,800 cubic feet of fresh air per passenger per hour, and in the case of crowded passengers from miscellaneous sources 3,000 to 5,000 cubic feet is a necessity.

Now, cold air must be heated by something. The heating agencies in a car are the passengers and the radiation. Putting the air in at the deck sash and having the heat of the car heat it before it reaches the passenger may add to the passenger's comfort. It does not save any in the expense of heating. If the fresh air is warmed enough to keep it from being uncomfortable and is then discharged into the car below the seat level and the foul air is taken out through ducts around ceiling lights, a somewhat uniform upward flow of air is maintained in the car. The partial separation of the fresh from the foul air makes it possible to reduce the volume of air required for each passenger. With such an arrangement of inlets and outlets, the Chicago Department of Health thinks it safe to reduce the air requirements to 400 cubic feet per passenger per hour, and has had ordinances drawn along these lines.

Satisfactory results cannot be had with so low a quantity of air per passenger if cross currents and consequent dilution are to be brought about by open deck sashes. As car builders usually build deck sashes in cars, they should be closed in cold weather or only used in such a way that they will be outlets, *i. e.* by only opening those which are on the rear end of the car and on its lee side. A distinct gain in car ventilation will be made when cars are no longer built with deck sashes.

The most valuable contribution to the subject of car ventilation is to be found in the Master Car Builders' report for 1908. There are but two points which in my judgment should be changed or supplemented. The first suggestion is a change; the second a supplement.

The statement is made that suburban cars do not need any planned ventilation. This is because of the frequent stops and frequent opening of doors. We have made many observations and CO_2 determinations to ascertain the accuracy of this conclusion. It is not correct. It probably was with old-styled, open-platform cars, with doors opening directly forward; with vestibule platforms and side doors it is not true. Suburban cars and street cars with more than two inmates between stops need planned ventilation.

The second point relates to passenger coaches and sleepers standing in stations or moving slowly in narrow rights of way in cities. The proper ventilation of day coaches and sleepers makes use of the force of the car through the air to drive fresh air into the car and foul air out of the car.

But a car at rest is deprived of this force. Therefore, force should be otherwise supplied, else the car quickly gets hot, humid, close, and its CO_2 content rises. Such cars should be provided with fans in the inlet ducts; these fans so adjusted that they will start as the car stops and stop when it starts.

A most important question is: Does a surface street car need fans to get fresh air into the car or to take foul air out of the car? I am sure that fans would give a more even supply of air and will be found more satisfactory, but I am not prepared to say that there can be no satisfactory street car ventilation without them.

To summarize:

1. Bad car air is very prone to cause infections with (*a*) colds; (*b*) influenza; (*c*) pneumonia; (*d*) consumption; (*e*) possibly diphtheria, scarlet fever, and cerebrospinal meningitis.

2. Postal clerks, railroad men, and street car men, and other habitual riders are prone to the bad air intoxications: (*a*) headaches; (*b*) sluggishness; (*c*) flabbiness; (*d*) sleepiness; (*e*) anemia; (*f*) proneness to infections.

3. Jammed, crowded cars are most dangerous.

4. Ventilation should always be through air entering low down, passing over or through radiators and flowing into the car below the seat line, and foul air leaving through the ceiling by ducts arranged around the lights.

5. The air should enter the car at 50° or above.

6. Street cars when heated should not have the temperature pass 55° F.

7. In sleeping and passenger cars the temperature should not pass 65° F.

8. Deck sash ventilation is never satisfactory.

9. The air inlets should be so placed and so screened as to minimize the entrance of cinders and road dust.

10. The inlet ducts should be as short and with as few angles as possible.

11. In sleeping cars and day coaches there should be fans in the inlet ducts. These should run only when the car is standing.

12. Greater uniformity is had in street car ventilation when fans are used to move the air.

The work upon which these conclusions are based has been done by men in the Chicago Department of Health and under the direction of Dr. F. O. Tonney, Director of the Municipal Laboratories.

DIAGNOSIS AND TREATMENT OF OSTEAL TUBERCULOSIS WITHOUT ABSCESS FORMATION.

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In the winter of 1886-7 Dr. Christian Fenger resected a knee for tuberculosis of the epiphyses of the femur and tibia. The operation was done in a private house and it was my duty as his assistant to prepare an operating room and sterilize instruments and dressing. It was my great privilege to hear him argue with himself for several days previously, making the diagnosis and setting down the indications for treatment. It is to quote one of his expressions of primeval professional verities that this long preamble is undertaken. He said in the most serious judicial and oracular manner, as if translating from deep conviction, "It is a crime to amputate for joint tuberculosis any longer."

During the succeeding twenty-five years surgical diagnosis has made further strides into the jungle of the unknown. The mystery of tuberculosis has been explored and solved. The confusing acceptance to our hypothetical predictions have come under thoroughly understandable laws. Now it is possible to say with equal solemnity and judicial finality, "Typical resection for joint tuberculosis is a surgical apology, if not a professional crime."

The tendency of surgery during the past twenty years has been from desperate adventure to rational opportunity. Drainage of abscesses of the brain, so interesting and awe-inspiring, is now rarely undertaken, because so many antecendent mastoid antrums are obliterated with the hammer and chisel. The dramatic performances of Estalnder and Schede have given way to the simple procedure of resecting an inch or two of rib under a five-minute anesthesia. The drainage of abdominal abscesses and the treatment of general peritonitis are exceptionally undertaken because so many appendices are removed at the first attack of appendicitis and so many gall bladders are evacuated before calculi have produced pressure atrophy necrosis of the wall of the cystic duct. Mammoth ovarian tumors are no longer extracted because little ones are recognized and taken out through an inch and a half opening. Stones are exceptionally removed from the common duct because they are attacked while they are still in the easily managed gall bladder. To drain an abscess of the brain, to resect the chest wall, to drain the periappendiceal abscess, to remove the mammoth ovarian tumor, and, which is the point, to resect the tuberculous joint are all, and each of them, the surgeon's apology for the inefficiency of our general professional service. *The surgeon's opportunity is passed when joint resection is necessary.*

Joint tuberculosis is always a metastatic process. The bacilli reached the joint and bone through the circulating blood.

Joint tuberculosis has two distinct primary anatomical forms: Osteal tuberculosis and synovial tuberculosis.

The curve of frequency of joint tuberculosis has its point of greatest frequency in the second decade of life, but the peak for primary synovial tuberculosis is eight years earlier. The peak of maximum frequency in tuberculosis of males is seven years in advance of that of females. The sexes as might be supposed from the early appearance of the disease are almost equally affected (52:48). Heredity plays an insignificant part in etiology, although Vogel found tuberculosis in the families of 55 per cent. of his 349 cases of joint tuberculosis.

Trauma is often referred to in the history of osteal tuberculosis, but careful consideration of the best studied cases leads one to think that injuries had little etiological significance and gained their prominence only because they first attract attention to an inflamed spot. The acute infectious diseases, grippe, pneumonia, bronchopneumonia, and the whole line of children's diseases play a much larger part by diminishing the resistance of the body through the saturation of the germicidal power of the blood and through the errors of nutrition which follow the indoor confinement, the loss of appetite, and the diminished secretion. The influence of house dwelling, and especially house confinement, is obvious in the retarded peak of frequency in the curves of women.

In order to make my subject manageable, it is restricted to osteal metastasis. The primary focus is in the respiratory or alimentary tract. The patient has long been tuberculous. The diseases may or may not have been recognized. Some one or several of the predisposing factors have diminished the germicidal power of the blood and the tubercle bacilli invaded and are carried through the circulation to many parts of the body. Just as every plant has its habitat on mountain, in valleys, in the woods, or in open marshes, so has the tubercle bacillus its habitat in the human body, even in distinct and limited parts of the bones themselves. Clinical experience and experimental research have shown that the habitat of the tubercle bacillus is in the epiphysis, and in that part of it in which the capillary circulation is most liable to fluctuations in two or more directions. If we take, for example, the epiphysis of the femur, which is supplied with blood from the periostium and from blood vessels entering it at the crucial ligament, and is completely shut off from nutrition from the shaft by the epiphyseal cartilage, then we will note that there are two points in this epiphysis receiving blood from practically every direction, except from the shaft side and the joint side. In this hub the blood streams are apt to flow first one way and then another, thus giving time for a while blood corpuscle containing tubercle bacilli to become lodged permanently in a capillary and thereby setting up a focus of tuberculosis.

Every epiphysis is similarly supplied with blood from variously limited sources and each one furnishes one or more loci which may eventually become foci of tuberculosis. About the knee, for example, there are two such points in the femur, two in the tibia, one or two in the patella, and one in the apophysis of the tibia.

The foci themselves are found in two physical conditions which are of great clinical significance.

and this fact is an added indication for such study of osteal tuberculosis as will lead to its early recognition. In the one case, the focus is composed of a mass of granulation tissue, half a centimeter in diameter or, if longer neglected, still larger size. In the other case the focus is composed of a mass of perfectly firm dead bone, surrounded by a thin wall of granulation tissue containing the tuberculous infection.

In both cases the epiphysis has undergone a most significant and diagnostic vascularization, which is termed osteoporosis, or fatty degeneration of bone. In both cases the periosteum surrounding the epiphysis and even all the other elements of the joint capsule have undergone the same vascularization and have become thick, firm, edematous, and appear to be tender.

If each of these forms of osteal disease are neglected and allowed to take the most fortuitous course, they will each make a perforating channel in the direction of the joint capsule and eventually produce a periarticular abscess in tissues of less hydraulic pressure than the interior of the epiphysis. The materials composing the granulation focus will gradually be extruded into the periarticular abscess by this difference in hemostatic pressure, and when all the tubercle bacilli and all the detritus and all the granulation tissue have been forced out of the cavity in the bone into the cavity in the soft parts, and at last evacuated, recovery of the bone tuberculosis may result. Such a fortunate termination, however, cannot be expected under any circumstance when the focus is of the sequestrum sort. The dead bone will always remain in the epiphysis. It is because this result is so disastrous that I would urge the need of the earliest possible diagnosis and the obliterating operation, which I here propose.

The difficulties of a clinical diagnosis at so early a stage seem at first almost insurmountable, especially when we consider that the patients are frequently children and always in the early decades of life. When the osteal disease comes on in the later decades, the diagnosis is clouded by the very fact of the age of the patient. Not much reliance can be placed upon the negative portion of the history; the fact that there is no injury, no primary infection which would diminish the vitality of the patient is of trifling significance. The onset of pain, especially in the morning and going away with the use of the extremites, the slow onset of loss of function of the adjoining joint, the rigidity and at last the atrophy of the muscles about the joint are much more significant. Such a condition follows any disease or injury in the neighborhood. To determine the tuberculous nature of the affection, we must rely upon all the constitutional and laboratory findings of the disease, and upon the local findings of the osteal focus. These are the tenderness on slow deep pressure with the ball of the thumb immediately over the focus, and later the edema of the overlying periosteum, and the evidence of rarifying osteitis of the epiphysis, which the *x*-ray photograph ultimately shows. In a very few instances the sequestrum focus itself makes a distinct shadow in the midst of the fatty degenerated epiphysis. Great reliance can be placed upon the combination of these local findings with a leucopenia, 4,000 to 6,000, an adequate atrium of infection, a consistent manner of life, and the Pirquet or other tuberculin reaction.

It must not be understood that the diagnosis is to be made at a single sitting. The clinical observations should be continued over a number of weeks. The temperature and pulse reactions, the repeated blood examinations, and the careful local study of the affected part must exclude the less serious and more diffuse infections. It would consume too much time to go into the differential diagnosis, but the hysterical joint, the trophic degenerative process, the gonorrheal periostitis, the affections of arthritis deformans, the albuminose periostitis of Schlange, the syphilitic periarticular diseases, and, in acute cases in children, the pneumococcus infections must all be eliminated by processes that are sufficiently obvious.

During this diagnosis the hygienic treatment should be carried out in the most rigid manner; the patient should be on the best possible diet with all corrective measures used to promote the best nutritive conditions. He should be in the open air and be restrained from exercise as long as there is any fever, and be encouraged to take such exercise as will promote his nutrition. During all this time the condition of the epiphysis should receive the most discrimnating attention. If it gives less trouble, if the rarifying process is arrested, diminished, or disappears the cure may be left to nature, but if the pain, the loss of function, and the periostitis increase, if the sequestrum shows itself in the skiagraph, then a more vigorous method and one which I will illustrate by an example must be considered.

In 1894 a physician brought his sister to me with the diagnosis of a tuberculous knee. She had already been sick for two years and had been on her crutches most of the time. Part of the time the knee had been in a cast. It was evidently a very chronic manifestation as it had appeared first when she was seventeen years old and apparently subsided for two years and then came on again, after an unusual hardship and exposure in the mountains. The pain and loss of function were the prominent symptoms. She had moderate nutrition, but the fickle appetite of a house-kept person. My first investigations led me to discover the primary lesion in the upper part of her left lung. This was apparently an arrested disease, which had been successfully combated by her residence in Colorado. The osteal disease had gone on so long that there was a general periarthritis and some effusion into the joint. A few weeks of massage and elevation of the leg removed this impediment to diagnosis. It then appeared that there was a sensitive point on the inside of the leg just opposite the location of the focus in the epiphysis of the femur and in the adjoining location of the epiphysis of the tibia. These two points of tenderness were consistently present for several weeks. At the end of four months' observation, and at a time when we had fewer means of confirming the diagnosis, I undertook an extra articular évidement of the foci. The operation was done under the strictest antiseptic precautions, the skin incised above the epiphysis, the periosteum reached, and pushed away from the bone and held downward by the retractor so as not to open the joint capsule. Then with a Volkmann sharp spoon the rarefied bone was dug out to the location of the focus. The very rarification of the bone confirmed the diagnosis. After the focus had been removed, which was rather uncertainly distinguished by the difference in density between it and the osteoporotic surroundings, the cavity was filled with sterilized iodoform, a small bone, drain-

age tube placed down to the periosteum, the periosteal flap turned back against it and the skin wound closed, except for the end of the tube. The same operation was done upon the epiphysis of the tibia, and the whole leg placed in a dressing and immobilized with a plaster cast. After five weeks the cast was removed and the bone drainage tube found almost completely extruded, leaving an extremely small tuberculous sinus. This scabbed over and disappeared after a few subsequent dressings. The patient was required to walk with crutches a few days after the first operation and was kept out of doors most of the time. During the two months following the closure of the wound massage and passive motion of the joint were kept up until a relative restoration of its function appeared. Then she was required to walk without crutch or cane.

Six years afterwards I had the privilege of examining this knee and finding the limitation of motion very slight, but the patient had suffered a relapse of her pulmonary disease and was then undergoing treatment for that condition.

In a recent number of the *Lancet-Clinic*, March 12, 1910, I reported a case which had been similarly operated upon fifteen years ago. In that case an *x*-ray picture made of the bone fifteen years after operation showed absolutely no deformity of the epiphysis; the measurements of the knee and the function of the joint had remained perfect during the whole time. I have operated upon patients for a similar osteal focus in the bones above the ankle, about the elbow, at the shoulder, and at the wrist, and have had uniform success. My youngest patients have been less than five years old, and the oldest one was a man forty-five years old with a primary osteal tuberculosis of the olecbronon.

Evidement of an osteal focus before abscess formation should be undertaken when hygienic and dietetic measures have proved ineffectual.

The duration of such preliminary treatment as is necessary to make the diagnosis must extend over months, but should not permit the perforation of the cartilage and the initiation of a synovial tuberculosis, which makes the apologetic operation of joint resection necessary.

92 State Street.

THE TREATMENT OF THE MORE COMMON DISEASES OF THE SKIN.*

By EDMUND LINDLEY COCKS, M.D.,

NEW YORK,

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The session before the last I had the pleasure of reading a paper on the diagnosis of "The More Common Diseases of the Skin," promising you to take up the treatment at some future time. Of this promise, I was reminded by your worthy President, just two weeks ago, and on account of this short notice, I shall ask your indulgence.

Acute infantile eczema, among the many variegated diseases of the skin, is probably the condition that presents the most pitiful aspect and most urgently appeals to the physician for immediate relief. While promptly responding to suitable management, this dermatosis exhausts not only the strength of the little patient, but severely taxes the patience of physician and attendants, unless a systematic course of treatment is followed. The entire evening might be profitably devoted to the study of this important subject. At the Fordham Medical University two lectures are assigned to this disease. Given a case of infantile eczema, it is necessary to ascertain in the first place whether the patient is a breast-fed or a bottle-fed baby. This question of the milk supply in all its particulars must be minutely inquired into, not taking anything for granted. It is a subject that bears the most detailed investigation, and includes the correcting of faulty conditions on the part of the nursing mother, such as worry, malnutrition, overnutrition, constipation, dyspepsia, abuse of tea, coffee, or beer. Your little patient's sufferings will be further aggravated until these various irregularities have been rectified. Artificially nourished infants must have their milk modified, so as to meet individual requirements. The majority of these bottle babies are too fat, and need a reduction in the supply of cream and sugar. All instructions given to the mother will have to be repeated over and over again. The same remark applies to the local applications. My experience in consultation practice shows that the physician with his professional mind finds almost the same difficulty in remembering directions as do the untrained parents; and surely our nurses are entitled to forbearance when the physician's inability to grasp all the important points is kept in mind. The eczematous baby does not vomit, and this safety valve failing, it does not get rid of an excess of food. The condition is relieved by Phillip's milk of magnesia, half a drachm to a drachm twice daily. At the same time, the remedy acts gently on the bowels, diminishing flatulency and curds, and lessening the frequency of the stools. In case the little patient is nursed at the mother's breast, she should be given a mixture of acetate of potassium, tincture of nux vomica, and fluid of cascara sagrada in the rhubarb and soda mixture.

Treatment.—A principal rule is this: Not one drop of water externally, but water in abundance internally. Sweet oil, or rose water ointment, in gentle topical applications, suffices for the removal of the daily accumulations. If there is a pouring out of serum, a lotion of phenic acid ℥xv, ichthyol ʒi, zinc oxide ʒii, magnesium carbonate ʒii, and lime water ℥iv, should be applied with a piece of gauze or a handkerchief every hour if needed, or until the oozing subsides. In the presence of crust formation, especially on the face, a cap is made of unbleached muslin, with holes cut out for the eyes, mouth, and nose. Then an ointment consisting of salicylic acid gr.iv, ichthyol, ℥xx, zinc oxide gr.xxx, and rose water ointment ℥ii is spread over the outside of the cap; the back of the cap is then placed against the child's face, and the cap is turned outside in. The tape strings sewed to each corner of the cap are now tied. The oozing promptly ceases, the pruritus is relieved, and the patient sinks into his first refreshing sleep. Lesions elsewhere on the body are to be treated after an analogous fashion. Varnishes exclude all the air and hold back the secretions. I am not especially in favor of their use in children. A light splint applied to the flexor surfaces of the arms will prevent the child from scratching.

Eczema ani in the adult is often a sequela of fistula, hemorrhoids, or constipation. In these cases an application just before retiring of very hot water, immediately followed by an ointment of ol. rusci ʒii, in ung. zinci oxidi ʒii often acts like

*Read before the Harlem Medical Association May 4, 1910.

magic. A series of varicose ulcers were treated at the Harlem Hospital by first getting the leg surgically clean, followed by an ointment of scarlet red (2 per cent.), changed once in three days. The effects of this treatment proved little short of wonderful. Eczema in the adult in its different stages must be treated according to the conditions present when the patient first comes under observation. A soothing lotion of calamine and zinc may be all that the case requires. The pruritus may be relieved by an addition of phenic acid. A dusting powder of bismuth, tannin, salicylic acid, and starch may be very acceptable. Dry eczematous patches require a stimulating application, such as ol. cad., pix liquida, or ol. rusci, which are very helpful in relieving the pruritus. These remedies, moreover, are parasiticides and stimulate the parts to a healthy action.

Erythema multiforme and the urticarias are groups of skin diseases most benefited by a general bran bath. All rubbing of the body surface should be avoided, as further increasing the irritation. After this bran bath the patient is placed between sheets without drying, covered lightly, and a lotion of magnesium carbonate ʒii and zinc oxide ʒii in lime water ʒiv is applied freely until the pruritus is relieved. Menthol is sometimes recommended, but in my experience the patient is apt to be chilled by its use. It must be kept in mind that these manifestations are merely the external evidence of an internal derangement. The patient should be treated accordingly. It goes without saying that all opium derivates are to be avoided. The vasomotor complication is relieved by pilocarpin gr. 1/6, hypodermatically; but the patient must be carefully watched, as a severe bronchorrhea may follow. Occasionally, spoiled little Johnnie is brought to you with urticaria lesions almost the size of a cart wheel, and, eliciting the information that Johnnie is allowed to eat of everything, in your righteous indignation you deliver a lecture on dietetics to the mother; but on looking for approval or watching the effect of your harangue you may behold to your discomfiture the deeply impressed parent shaking her finger at her dutiful offspring, and asking him if she has not time and again told him exactly what the doctor is saying now. Such a case looks indeed hopeless and you feel that it is one of love's labor lost. To bring it to a successful issue necessitates a new mother or an inexhaustible stock of forbearance on the part of the physician. In mapping out a diet list in these cases, eggs and peanuts or peanut butter must be particularly avoided.

Scabies, in private practice, is found to be no respecter of persons. Pediculosis, corporis, capitis, and pubis are not so frequently met with. It is advisable in these cases to keep the diagnosis sub rosa, especially in the case of female patients. The correctness of the diagnosis will invariably be questioned, and the patient's confidence will be lost. The parasite of scabies, or the itch mite, is positively destroyed by the following measures: The patient is soaked for half an hour in a hot bath to which have been added tincture of green soap ʒiv, and the same amount of borax, giving particular attention to the webs between the fingers and making vigorous use of nail brushes. He is then dried, and an application of equal parts of balsam of Peru and vaseline is rubbed into the entire body, except the scalp, for ten minutes. After this the patient is put to bed, and the cleansing bath is followed by a restful sleep. The mite does not survive this treatment; soothing applications may still be necessary, however, to relieve the dermatitis due to scratching.

Pediculosis capitis is usefully treated by means of crude oil, one ounce night and morning. A rubber bathing cap is continually worn, and the scalp may be shampooed twice a week. The pediculi are generally killed by the first application, and the nits fail to hatch after the second or third repetition. The nits should be removed by stripping the hairs to which they are adherent toward the scalp. Pediculi pubis are destroyed by beta-naphthol ʒi, saponis viridis ʒii, in vaseline ʒi. Patients suffering from pediculi corporis are cured by a complete change of clothing, plus a bath.

Tinea tonsurans, or ringworm of the scalp, and its sequelæ belong to the most serious skin eruptions of childhood, on account of the extreme contagiousness, keeping the patient out of school, and in fact confining him to his home. At times the affection proves destructive to the hair follicles. The most stubborn case will yield to persistent epilation, preceded by a bichloride shampoo, and followed by the topical application of ung. hydrarg. ox. rubr. ʒii, ung. sulph. ʒi, ung. zinci ox. ʒv twice daily with a stencil brush. The constant wearing of a muslin skull cap is advisable. Ringworm of the body is successfully treated by means of formaldehyde, tincture of iodine, and the above ointment.

Alopecia Areata.—In the treatment of alopecia areata very good results have been accomplished by means of applications of pure carbolic acid. The application is made quickly, not neutralized; postponing the second application until the phenic reaction has subsided. The use of general tonics is indicated in these cases.

Impetigo Contagiosa.—This affection seems to be the source of considerable trouble to the practitioner in regard to its diagnosis as well as to its treatment. It is a skin disease characterized by a discrete eruption, consisting of vesicles which may become pustules as the result of inoculation with pus germs. Antiseptic measures are called for, and the treatment should be attended to by the physician himself. The child is held in the arms of the nurse, and the pustules are opened, or the dry crust is removed, as the case may be. Then the base is cleaned with peroxide of hydrogen, and the parts are dressed with an ointment of ichthyol, 2 per cent., in white precipolate ointment, 2 per cent., to be changed twice daily. In a few days your patient should be well.

Intertrigo.—The secretion of intertrigo, in adults as well as children, is always acid in character, resulting in excoriation. This factor must be taken into consideration for the treatment, and a careful examination be made of the urine, feces, and perspiration. The parts should be separated and a dusting powder kept constantly applied, made up of tannic acid, Bismuth subnitrate, powdered boric acid, and starch, or ichthyol ʒi in the calamine and zinc lotion. If the buttocks are involved, a diaper should be placed under the child and another above it, not to project between the legs and to be changed at once as soon as soiled. All the moist parts must be kept separated.

Eczema seborrheicum, another annoying lesion which especially affects the gluteal region in the infant, promptly responds to a solution of resorcin ʒi, in liquid albolene ʒiv. In adult cases ung. hydrarg ammonatii, full strength, is very serviceable.

Tinea barbæ, or ringworm of the beard, is a dis-

ease the treatment of which is apt to prove very tedious and at times painful. From fifteen to twenty hairs are to be epilated at each sitting. The ung. hydrarg. ox. rub. is to be applied by the physician, if the patient is able to afford it. The relief secured by it is rapid, almost magical. Sycosis nonparasitica does not call for epilation, unless the hair is floating in pus. A 4 per cent. ichthyol solution in equal parts of lanolin and rose water ointment is my favorite prescription.

Tinea versicolor, or liver spot, is due to a vegetable spore. It is treated by soaking the patient in a hot alkaline bath for half an hour, with thorough scrubbing of the parts, followed by drying. A saturated aqueous solution of sod. hyposulphite is applied with friction every day during one week. The patient must be instructed to cleanse the pubic region very faithfully, or a relapse is sure to follow.

Leucoderma or vitiligo is not particularly benefited by any known measures, and little can be done beyond retarding the progress of the disease. Chloasma is the opposite condition, and in these cases the patient may secure cosmetic relief for several months by means of a strong ointment of salicylic acid or the salicylic plaster, which causes an exfoliation of the pigmentary layer. Repeated courses of this treatment may of course be instituted.

Urticaria, dermatitis medicamentosa, erythema multiforme are disfiguring cutaneous eruptions due to the absorption of intestinal toxins and their effect on the vasomotor system. Hence the treatment must be both systematic and symptomatic. All demonstrable causes must be removed, and the intestine be cleaned out. Extreme restlessness on the part of the patient may be treated by tincture of cannabis indica, ten drops every three hours, increasing if necessary, which will relieve both the pruritus and the excitement. Menthol, phenic acid, and liquid albolene are very soothing local applications.

Acne.—Although one of the most stubborn cutaneous affections, acne will yield to persistent and judicious treatment. Hearty cooperation of the patient is the first essential toward a cure. Strict rules are laid down in regard to avoidance of all cakes, pies, or pastries, and salt meats as well as fish are absolutely prohibited. There must be no ice cream sodas or eating between meals. The flabby, indolent, obese patient must be aroused and forced to take an active interest in life. The constipation and general sluggishness of these individuals are greatly benefited by a mixture of potassium acetate ℥v, fl. ext. of casc. sagr. ℥ii, fl. extract of rumex ℥iii, one drachm to be taken half an hour before meals in half a glassful of cold water. Anemic patients should receive the best of food, eggs, milk, cream, rice, farina, hominy, nourishing soups, and meats. Light feeding between meals is admissible. Outdoor exercise must be insisted upon, in spite of the patient's reluctance to cooperate in this direction. My favorite prescription is: R. Ferri citrat. ℥ii, magnesi; sulphatis ℥v, strychn. gr. i, syr. zingiberis ℥i, aq. ℥iv. This is a good tonic, acting on the bowels, and is promptly followed by visible improvement. If the case is one of comedos or pustules, a rapid impression can be made by an application of green soap ℥i, resorcin ℥i, salicylic acid gr. v, rose water ointment ℥ii at night, washed off in the morning, to be reapplied at night, or until a fair desquamation has been obtained. A slower method consists in the expressing of all comedos and incising of the pustules, the bases to be touched with hydrogen peroxide, followed by carbolic acid. The outcome is primary union without a scar. The lotio alba—sulphureted potassium and zinc sulphate—is usefully applied at night, following the employment of hot or cold water, according to the result desired. Slight friction with a towel is very serviceable. It is necessary to keep these cases under close observation, repeating the instructions at each visit until the patient is not only thoroughly familiar with them all, but has become convinced of the advisability of carrying them out.

Psoriasis.—The treatment of this skin disease—the last to be considered to-day, but not the least in order of importance—is both external and internal. The former is preceded by an alkaline bath, and the scabs are then removed while the patient is still in the tub. After he has been carefully dried, an ointment consisting of salicylic acid gr. i, green soap ℥ii, chrysarobin ℥ii, oleum rusci ℥i, and vaseline ℥ii is applied by means of a stencil brush to all lesions below the clavicle. Those above the clavicle are to be treated with the ammoniated mercury ointment. Of late I have been pleased with a solution of ℥ii of chrysophanic acid in chloroform. Each lesion is touched, using absorbent cotton which has been twisted around an applicator. The chloroform evaporates and leaves behind the chrysophanic acid which is covered with a light coat of ichthyol. In this way a varnish is formed which prevents the clothes from becoming soiled. The internal treatment consists in the administration of Sig. potassæ arsenitis, or Fowler's solution in an alkaline medium. Stubborn cases without exception yield to injections twice weekly with arsenic iodide, ten minims of a 1 per cent. aqueous solution at each session. With special reference to the regulation of the diet each case is a law unto itself.

156 West 119th Street.

Study of a Family of Heredosyphilitics.—A Barré and P. Gastel present a study of a family of heredosyphilitics, which has much of interest in it. The disease is manifested in one of the family very lightly, and only the comparison of the history of the other members would have caused the diagnosis to be made in him. In the mother there was only presumptive evidence of syphilis, from the existence of general paralysis. The father was undoubtedly syphilitic. She was pregnant eight times, the first with a child that died at birth. All the other pregnancies gave normal births. The different degrees of infection, each child showing it in some way, are explained by the bilaterality of the infection and the entire absence of treatment in all cases. Tuberculosis was present in two of the children and in the father. To the effect of this taint may be added the extreme poverty of the family. The stigmata were mostly ocular and nervous. One child at the age of eighteen had nervous, otitic, palatine, and ocular manifestations of heredosyphilis. He entered the hospital for meningitis, the other affections not having seemed to merit treatment. All symptoms disappeared under mercurial treatment. In two members of the family only ocular manifestations and in one only very slight ones were shown. The reaction of Wassermann was positive in every member of the family with the blood serum and with the cerebrospinal fluid. Lymphocytosis was positive in only two members of the family. It was the laboratory reactions alone that permitted of a diagnosis of syphilis in one of these patients, in whom the clinical manifestations were almost negative. This shows the value of these reactions in diagnosis.—*La Presse Médicale.*

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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THE PRESENT STATUS OF THE CANCER QUESTION.

THE second International Conference for the Study of Cancer was held in Paris early in October last, the first of the series having taken place at Heidelberg and Frankfort in 1906. During the interim important committee work has been carried out, the matter of research has been organized throughout the world, and now in this second meeting we are in position to understand something of what has been done along the lines projected during the past four years. The special papers read and the transactions as a whole will naturally be slow in reaching the public. But the *Münchener medizinische Wochenschrift* of November 1 last published von Czerny's inaugural address. This was delivered before a large and distinguished audience of laymen and physicians alike. Official Paris also was largely represented.

Statistics, despite their fallaciousness, were first discussed by the speaker. The disease *seems* to be on the increase among all cultured folk. But certain limited localities report a notable decrease. This discrepancy is highly significant, for it involves the whole subject of the incidence of cancer. Thus we find say a thirty per cent. increase in recent years in certain countries; yet if we consider only restricted localities we may be justified in concluding that the disease is not only on the wane, but actually extinct (for example, in many restricted localities, not a single cancer death has occurred for twenty-five years). Surely this absence of cancer in certain out-of-the way localities cannot be an accident. From such data nearly every theory of cancer might receive support—especially those of contagion, food, soil, inheritance, not to mention many others. Of great significance in the collection of statistics is the anatomical incidence of the disease; but to this is opposed the fact that in localities where cancer is especially prevalent we are likely to find all locations of the disease.

Von Czerny admits the cogency of a parasitic theory of cancer as long as we follow statistics. If we pursue this plan there is as much support of such a theory as in the case of any infectious disease. Aside from the argument furnished by statistics the bulk of the evidence tends to antagonize a parasitic theory. We find a wide line of demarcation between two groups, each of which is histologically and clinically malignant. The former may be described as superficial, external, slowly growing, originating in epidermal tissues—with an antecedent stage of inflammation or irritation—causing local metastases only, and hence largely amenable to prompt surgical treatment. But the other type consists chiefly of deeply placed cancers, attacking the viscera, bones, etc., rapidly growing, and highly disposed to cause metastases and cachexia. Treatment of such cases is impotent. The two types of cancer cannot be sharply separated clinically. Many growths which are technically superficial and epitheliomatous may, according to their location, grow rapidly, and with the aid of their acute local metastases may quickly wear out the patient. Certain growths technically local, but inaccessible because of location, may interfere with life indirectly by causing stricture and the like. In fact what would be termed a relatively mild, localized, and operable cancer on the surface may have the most dire effects if it occur deep in the digestive tube. It may completely interrupt the digestive processes, cause stricture of the digestive tube, and its metastases, even when local, will be of an inoperable and fatal character.

Our victories over cancer through surgical procedures apply purely to one of these general types, to wit, that which is of slow growth and externally located, without tendency to more than accessible metastases. But cancers which come thus to operation represent an insignificant minority. The remainder are made up of neglected operable cancers and those which were inoperable from the outset. Histological distinctions between epithelioma, carcinoma, and sarcoma also fall to pieces in this connection. A most virulent sarcoma may yield to simple remedies. A growth technically epitheliomatous may show high malignancy, etc. All this is well known, trite, and contained in textbooks. But, as v. Czerny repeated with emphasis, in a crusade against cancer as a whole we must never forget these old lessons.

To come back to the original subject, it is well to forget all we know and go back to school. In very recent years it has been shown that with appropriate nutriment cancer tissue may attain huge development. These cultural peculiarities are checked up in part by the rôle played by marked local irritation in ordinary tissues. It must not be forgotten that many irritants may cause the same or a similar effect. Hence a special germ, or any germ at all, might at times cause a phenomenon analogous to cancer proliferation. The most modern experiments seem to assure us that any microorganism may by chronic irritation set up cancer-like growths. That immunizing bodies may be produced seems assured. Cancers tend to form lethal toxins, and such should be overcome by antitoxins. Radium therapy and *x*-ray treatment are alleged to be powerful against many primary cancers. This is the summation, in fact: many agencies may cure localized cancer, but when once the disease has become generalized it is beyond the power of our present resources to overcome.

THE VANISHING INCOME OF THE PHYSICIAN.

It is a melancholy fact that as the cost of living has increased in this country so have the earnings of the medical profession decreased. This phase of the situation was dealt with at some length in an editorial which appeared in the Medical Record, February 26 of this year. The whys and wherefores of the decrease of income of American physicians are fairly obvious and, perhaps, until the causes are removed, it is somewhat futile to discuss the matter. The overcrowding of the medical profession is doubtless the chief cause, and the abuse of medical charity is another cause which must be considered. Furthermore, the effects of modern preventive medicine in lessening disease have reduced the possibilities of earning money by curative and remedial efforts. It is an easy matter to prove that the medical profession in America is overcrowded. In France, which has a population of 37,000,000 or so, there are only 17,000 medical men all told, and in England, with a population of more than 40,000,000, there are about 32,000 medical men, while this country and Canada, with perhaps nearly 90,000,000 people, have more than 120,000 physicians. This proportion is preposterous and the natural consequence is that a considerable proportion of American practitioners have hard work to keep the wolf from the door.

It is not the intention at this time to debate remedies for this parlous condition of things, but the statement is reiterated that pari passu with an increase in the cost of living the physician earns less than he earned some few years ago. There is also another aspect of the case which deserves attention. In all countries the medical man has more difficulty in collecting his just dues than has the member of any other profession or trade. This statement may be applied with greater aptness to America than to other countries. It is more customary here for general practitioners to give credit than for those of England or France, for instance. The entire practice of medicine here is based on the credit system. When a person is sick the practitioner is sent for without, as a rule, a thought of the expense. The physician generally goes as a matter of course. The individual recovers or dies, as the case may be, and when the bill for attendance is delivered, it not infrequently happens either that it is not paid promptly or that attempts are made to evade payment. When a person is ill no trouble or expense is too great to ensure or aid his recovery, the doctor then is his rock of refuge, but when he gets well both his illness and the doctor alike are liable to be forgotten. There are some who even shamelessly evade payment; these are those who in the euphonious and pertinent slang are termed "dead beats."

It may then be taken as proven that medical men are very often the prey of careless or designing patients and it might not be an overestimate to assert that of a general practitioner's annual earnings almost 25 per cent. will never be collected. The physician is precluded to a great extent by the etiquette of his profession from enforcing payment of his dues in the same manner as members of other professions and trades would enforce payment and therefore he would seem to be almost hopelessly handicapped. The most bitter feature of the position is that those least able to bear loss are the ones who are usually mulcted. The city consultant or specialist in surgery or medicine does not lose much by bad debts, or he does not lose so much in proportion to his income as do the hard-working members of the rank and file. Consultant's fees are paid at the office and it is also the custom to pay for big operations at the time or soon after. But the general practitioner must give credit, oftentimes long credit, and as said before there are some who never pay him and do not intend to pay him.

Sulphurous Acid in White Wines.

The subject of pure foods and drinks is one of international importance; it often becomes a matter that affects importations from foreign countries, and the decisions of some of our officials are severely questioned when it is a matter of excluding from this country some of the products of a sister country, which are deemed adulterated according to our pure food laws. A case in point is that of the importation from France of white wines which contain a small amount of sulphurous acid. This, it is claimed by the makers of the wines, is of benefit rather than injury to the consumers, inasmuch as it is added to the wine to prevent certain kinds of fermentation that would injure the taste of the wines and that would also be injurious to the human system. P. Carles, in the *Journal de Médecine de Bordeaux*, for August 21, 1910, gives an interesting explanation of the value of the sulphurous acid in certain fine white wines. They are made when the grapes are very ripe, in fact, somewhat withered and dry, since their fine taste is due to the large amount of sugar contained and developed in drying. Along with this sugar there are a large number of bacteria that invade the grapes, and the addition of the acid stops the action of these bacteria, and thus is of value to the consumer. J. Gautrelet, writing in the *Gazette Hebdomadaire des Sciences Médicales de Bordeaux*, for September 4, 1910, gives the results of an investigation of the effect of this small amount of sulphurous acid on the human body, which was undertaken by a commission presided over by Professor Gayon, director of the Station agronomique et œnologique de Bordeaux. Wiley, in the United States, had investigated the effects of sulphurous acid with his poison squad, and had pronounced it injurious on account of its causing vomiting, burning in the stomach, and general malaise. He made use of capsules of sulphite of soda taken on an empty stomach, which the French investigators claim was not the correct way to conduct the experiment. The Commission kept nine men in a separate dwelling, working in a garden, under the best hygienic conditions, for thirty days. They were given an ordinary diet and the wine to be tested containing the amount of sulphurous acid that is usually found in it was given them to drink with their meals. At the end of the thirty days the urine, blood, etc., being examined daily, it was found that they were still in the best of health, and showed to the most critical examination no diseases of stomach, liver, or kidneys, or diminution of blood corpuscles. Such an

investigation, guarded as it was in every possible way from fraud, and with no possible element of psychic effort in the test, since the men did not know what they were taking nor what it was for, would indicate that small amounts of sulphurous acid in white wines are not injurious, at least not immediately injurious, to the drinkers of it.

The Sense of Smell of the Blind Deaf.

It has generally been believed that the deprivation of one sense tends to increased development of the other senses, renders them more acute, and it is a matter of common knowledge that the blind deaf possess a most penetrating sense of smell, the reason for which is held to be the over-development of that sense. But all our long-cherished ideas are being overthrown almost daily, or rather attempts are being made in that direction. M. Kunz of Illzach-Muhlhausen published a paper some little time ago, which is quoted in the *Annals of the Deaf* for November, 1909, setting forth his view that the destruction of one sense impairs all. William Wade of Oakmont, Pa., writing in the *Annals of the Deaf*, while agreeing in the main with Kunz's conclusions "that the deprivation of one sense is measurably balanced by increased development of the remaining senses is a thorough fallacy," takes exception to the statement 'that the destruction of one sense impairs all.' Wade gives some remarkable proofs from his own experience of the acutely discriminating sense of smell possessed by some blind deaf persons. It has been proven that deaf blind persons do possess a sense of smell which is absent from the normal person, and Wade contends that such persons should be permitted to use this sense as much as they please. It appears that there are individuals who endeavor to prevent the blind deaf from using their preternatural sense of smell because it is considered nasty. The people who object to the blind deaf using their sense of smell for the purpose of distinguishing animals, men, and natural objects of a clean or unclean nature must be hypercritical on the subject of nastiness. Indeed Mr. Wade argues that it may not be a preternaturally keen senses of smell that the blind deaf and seeing deaf possess but that they may have developed a greater concentration of mind on these senses than the seeing-hearing have, and thereby recognize odors imperceptible to others.

News of the Week.

City Death Rate.—For the week ending November 19 the number of deaths in New York City was considerably decreased, being 1,264 or 125 less than for the same week of last year. The rate was 13.77 per thousand of population, as compared to 15.87 in 1910. Pneumonia caused 169 deaths, a decrease of 53, and tuberculosis 155, a decrease of 26. Typhoid fever caused 15 deaths, diphtheria and croup 22, and diarrheal diseases 61. The only increases were in the deaths from heart disease, which numbered 152, from Bright's disease and nephritis, 128, and from violence, 73.

Hospital for the Ruptured and Crippled to Move.—The New York Society for the Relief of the Ruptured and Crippled has applied to the courts for permission to sell its hospital property at Forty-second street and Lexington avenue to the New York State Realty and Terminal Company for $1,350,000. A part of the property will be used for the new terminal of the New York Central Railroad. The society will use a part of the money in building a new hospital in the city and the balance in establishing a convalescent home out of town.

The Holman Association.—The first meeting of this association, which has for its purpose the promotion of rural nursing, hygiene, and social service all over the country, held its first meeting in New York on November 22. Dr. William H. Welch of Baltimore is the president. The association is the outcome of the efforts of Miss Lydia Holman, a trained nurse, who has worked for some time among the mountaineers of North Carolina.

War on Tuberculosis.—The New York State Federation of Women's Clubs in convention at Ithaca recently passed resolutions declaring its unqualified support of the campaign which the State Charities Aid Association is conducting in cooperation with the State Department of Health. The Federation represents a total of 260 clubs with a combined membership of 125,000.

Dr. Kenneth W. Millican, formerly of the editorial staff of the *New York Medical Journal*, sailed for London on November 24 to take a position on the editorial staff of the *Lancet*.

For Medical Research.—The Medical Department of Northwestern University, Chicago, has received a gift of $250,000 from Mr. James A. Patten of that city to be used in establishing a chair for the study of infectious diseases.

Gaynor Hospital Fund.—At a meeting of the trustees of the fund, held on November 25, it was announced that gifts to the amount of $13,208 had been received for the Thanksgiving offering to St. Mary's Hospital, Hoboken. It was decided that the subscription list should remain open until December 1, when the entire amount subscribed will be presented to the hospital.

Hospital Bureau of Standards and Supplies.—The first annual report of this bureau, which has its office at 381 Fourth avenue, New York, covers the work of the seven months ending on September 30, 1910, and shows substantial results in standardization and savings in the purchase of hospital and institutional supplies. The membership is composed of fourteen of the largest New York hospitals, and it is expected that others will join. A non-resident membership, for the benefit of institutions located outside of New York City, is contemplated.

Cholera Reaches Canada.—On the arrival of the steamship *Royal George* at Quebec recently one of the steerage passengers was found to be ill with cholera. As a result all the steerage passengers were detained at the Grosse Isle quarantine station about thirty miles below the city.

Typhoid Fever at the Naval Academy.—Up to November 23 twenty-two midshipmen at the Naval Academy at Annapolis were reported ill with typhoid fever. The source of the infection has been traced, it is thought, to a supply of milk which was received for three weeks when the regular dairyman was not able to supply the full quantity. The use of this milk was stopped on November 9.

Street Disinfection.—In Poughkeepsie, N. Y., a plain is on foot to test the efficacy of disinfection of the streets by sprinkling with a solution of corrosive sublimate.

Hospital Troubles.—Following the suspension of one of their number because of an infraction of the rules, five members of the house staff of the J. Hood Wright Memorial Hospital in New York resigned their positions on November 21 and left the hospital in a body. Only one member of the staff, the house surgeon, remained at his post. The work of the hospital was done by the visiting physicians until new internes could be secured.

In Paterson, N. J., five internes at the General Hospital were suspended from the service on November 24. This action was the culmination of a long series of disagreements between the managers of the hospital and the internes, the latter complaining of the quality and quantity of the food provided for them and alleging lack of cleanliness in the quarters which they occupy.

Diphtheria in Chicago.—Approximately 800 cases of diphtheria were reported in Chicago during November, and the Finance Committee, recognizing the gravity of the situation, voted an extra $10,000 to the Department of Contagious Diseases with which to fight the epidemic.

Ambulance Service Head.—The Rev. Dr. Daniel C. Potter, formerly head of the Division of Charitable Institutions of the Department of Finance, was on November 26 appointed Director of the Board of Ambulance Service of New York. The appointment, which was made by the Board, will not become effective until it is confirmed by the Municipal Civil Service Commission.

Bequest to a Hospital.—By the will of the late Patrick Curran of Philadelphia the sum of $3,000 is bequeathed to the Free Hospital for Consumptives at White Haven, Pa.

To Enlarge a Hospital.—Howard Hospital of Philadelphia is to be enlarged by an addition occupying the space of four adjacent buildings that have been purchased for the purpose.

The Fifth International Congress for the Blind will meet in Cairo from February 20 to February 25, 1911, under the patronage of the Khedive. Eight questions are announced for discussion. 1. When can a person be considered as blind? 2. How to prevent the spread of ophthalmia? 3. Has Esperanto been of any use as a universal language for the blind? 4. What is the best method applicable to all languages of teaching stenography to the blind. 5. What are the best trades and professions for the blind? 6. What are the best games and bodily exercises for blind school children? 7. Can the Braille method be improved? 8. Could the blind be employed in telephone and telegraph exchanges? The Congress will meet only in the mornings and the afternoons will be devoted to excursions to museums and places of interest. The entrance fee is the usual one of 20 francs (or $4), and intending members should write to the Secretary General of the Congress at the University buildings, Cairo.

Tri-County (Mich.) Medical Society.—At a meeting held in Cadillac on November 3 the following officers were elected: *President,* Dr. V. F. Huntley, Manton; *Vice-President,* Dr. R. Broduer, Cadillac; *Secretary and Treasurer,* Dr. W. J. Smith; *Delegate to State Convention,* Dr. S. C. Moore.

The Pee-Dee (South Carolina) Medical Association met at Charleston on November 9. The following officers were elected: *President,* Dr. A. M. Brailsford, Mullins; *Vice-President,* Dr. E. T. Wannamaker, Cheraw; *Secretary-Treasurer,* Dr. J. C. Lawson, Darlington. The next annual meeting will be held in Florence on the second Wednesday in November, 1911.

The Petersburg (Virginia) Medical Faculty at its annual meeting on November 17, elected officers for the ensuing year as follows: *President,* Dr. W. P. Hoy; *Vice-Presidents,* Dr. J. R. Beckwith and Dr. R. A. Gamble; *Corresponding Secretary,* Dr. H. A. Burke; *Secretary-Treasurer,* Dr. W. C. Powell.

Gifts to Preventorium.—The Tuberculosis Preventorium for Children, which last year, after protest from the citizens of Lakewood, N. J., was removed to Farmingdale, has recently received a gift of 64 acres of land at the latter place together with a free lease for twenty-five years of the Windsor stock farm adjoining, comprising 240 acres under cultivation. The gift was made through Mr. Arthur Brisbane by the estate of Albert Brisbane. Mr. Brisbane will present to the preventorium 20 acres of land in addition, from a farm which he has recently purchased. Cows, wagons, furniture, and other accessories are also included in the list. Mr. Nathan Straus has already contributed $50,000 for model buildings to be constructed on the farm, and the Board of Health Auxiliary connected with the Association of Tuberculosis Clinics has subscribed $4,500 to build an additional open shack, for which they will select the children, and which they will support. The institution has for its object the prevention of tuberculosis among children, and will treat only those who have not contracted the disease, but who give evidence of susceptibility. By wise supervision, good food, and pure air it is hoped that many children may be saved.

Rockingham County (Va.) Medical Society.—At the annual meeting of the society held in Harrisonburg on November 9 the following officers were elected: *President,* Dr. J. F. Wright, Keezletown; *Vice-President,* Dr. A. C. Byers, Harrisonburg; *Secretary-Treasurer,* Dr. J. M. Biedler.

Fond du Lac County (Wis.) Medical Society.—The annual meeting of the society was held in Fond du Lac on November 9, officers for the ensuing year being elected as follows: *President,* Dr. G. T. McDougall; *Vice-President,* Dr. P. J. Calvey; *Secretary-Treasurer,* Dr. Flora A. Reed; *Delegate to State Convention,* Dr. S. E. Gavin.

The Ocean County (N. J.) Medical Society.—At a meeting held on November 11, the following officers were elected to serve for the coming year: *President,* Dr. W. G. Lawrence; *Vice-President,* Dr. A. M. Heron; *Secretary,* Dr. W. G. Schauffler; *Treasurer,* Dr. I. H. Hance.

The Late Dr. Ransom.—At a regular meeting of the West End Medical Society, held October 22, 1910, the following preamble and resolutions were adopted: This Society, having learned of the recent death of our esteemed fellow member, Dr. Charles C. Ransom, desires to place on record a formal expression of our appreciation of the great loss resulting to us, both individually and collectively, from his death. Connected by membership with this Society almost from its inception, honored with the office of President, he maintained a never flagging interest in its welfare and actively labored to promote its best interests. His contributions to the Society proceedings were many and always upon a plane of dignified scientific value. A man of culture, of pleasing personality and address, he was

held in high personal esteem by all his associate members. Therefore, be it resolved, that in the death of Dr. Ransom the West End Medical Society recognizes with sorrow and profound regret the loss of a most esteemed member; that we beg to extend to his grief-stricken family our deep sympathy; that a copy of these resolutions be spread upon the minutes, and that the secretary be instructed to furnish a copy to the medical press for publication.

Signed: W. B. Pritchard, M.D.
E. J. Ware, M.D.
A. H. Travis, M.D.

Obituary Notes.—Dr. Samuel Alexander of this city died Wednesday morning of this week at the New York Hospital of gangrenous appendicitis, for which he had been operated on on Saturday. Dr. Alexander was born in New York City on April 2, 1858, and was graduated from Princeton in 1879 and from Bellevue Medical College in 1882, subsequently spending a year at Bellevue as interne. In 1883 he studied in London, Leipsic, and Vienna, and upon his return to America was appointed attending surgeon at Bellevue Hospital. In 1887 he became professor of genitourinary surgery in the Bellevue Hospital Medical College and in 1898 he was made professor of clinical surgery in the department of genitourinary diseases in Cornell Medical College.

Dr. Charles Butler Stiles of Hill View, N. Y., a graduate of the University of Edinburgh in 1887, died at his home on November 19, aged 48 years.

Dr. James Ross Waggener, Medical Director in the United States Navy, a graduate of the Jefferson Medical College in 1872, died at his home in Brookline, Mass., on November 17, aged 64 years. Dr. Waggener, who was retired from active service, served at the Mare Island Navy Yard during the Spanish war.

Dr. Samuel M. Reid of Muncie, Ind., a graduate of the College of Physicians and Surgeons of Keokuk, Ia., died at his home on November 7.

Dr. William S. Chenoweth of Tacoma, Wash., a graduate of the Northwestern Medical College of St. Joseph, Mo., in 1883, a member of the American Medical Association, and the Washington State and Pierce County Medical societies, physician-in-charge of the Fern Hill Hospital, Fern Hill, and a veteran of the Civil War, died at his home on November 1, aged 61 years.

Dr. Stephen G. Cook of New York, a graduate of the Medical Department of the New York University in 1857, a veteran of the Civil War, and a police surgeon in New York from 1873 until his retirement in 1907, died at his home on November 21, aged 78 years.

Dr. William Robert Bross of New York, a graduate of the College of Physicians and Surgeons, New York, in 1881, a member of the New York State and County Medical societies, and medical director of the Equitable Life Assurance Company of New York, formerly Port Health Officer at Port Limon, Costa Rica, and later consulting commissioner on yellow fever in South America, died suddenly at his home in Babylon, L. I., on November 21, of apoplexy, aged 56 years.

Dr. Alvah C. Van Syckle of Hackettstown, N. J., a graduate of the Medical Department of New York University in 1878, a member of the American Medical Association and of the New Jersey State and Warren County Medical societies, at one time president of the latter, and formerly Mayor of Hackettstown, died suddenly of heart disease on November 22 while attending a meeting of the Warren County Medical Society at Hackettstown, aged 57 years.

Dr. George F. Marsden of Red Bank, N. J., a graduate of the Hahnemann Medical College of Philadelphia in 1886, died at his home of stomach trouble on November 22, aged 64 years.

Dr. Thomas Robinson Little of Greensboro, N. C., a graduate of the Medical Department of the University of Pennsylvania in 1900, and a member of the North Carolina State and Guilford County Medical societies, and of the Greensboro Academy of Medicine, died suddenly at his home on November 15, aged 36 years.

Dr. David N. Kinsman of Columbus, O., a graduate of the Medical College of Ohio in 1863, and a member of the American Medical Association and of the Ohio State and Franklin County Medical societies, died at his home of heart disease on November 24, aged 76 years.

Dr. John R. Chatham of Tamms, Ill., a graduate of the Washington University Medical School, St. Louis, in 1873, died at his home on November 14.

Dr. William F. Waite of Kansas City, Kan., a graduate of the University Medical College of Kansas City in 1893, a member of the Kansas State and Wyandotte County Medical societies, and a veteran of the Civil War, died at his home on November 12, aged 63 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

MEMORIALS TO KING EDWARD.—PROPOSED ENDOWMENT OF TROPICAL MEDICINE AND RESEARCH.—CYSTIC DISEASE OF BREAST.—CANCER OF OVARIES.—ACROMEGALY. — CAIUS QUATERCENTENARY.—GREEK MEDICINE.—MALARIA, MIAN MIR REPORT.

London, Nov. 11, 1910.

Memorials to King Edward have been projected in all directions and everywhere the question has been discussed as to what is the most suitable form in which to commemorate his reign and personality. Considering his deep interest in hospitals and charities not a few towns have decided on an addition to such as the local tribute. London has awaited a report from the committee of a Mansion House Fund started to consider the matter and on Monday the executive reported that they had dealt with no fewer than 164 suggestions. Most of these were obviously impracticable and they reduced them to four, guided by the considerations that the memorial was to be a London as distinguished from an imperial one, that it ought to be such as King Edward would himself have approved and worthy of his country and suitable as an expression of London's devotion to his memory. They decided that whatever else might be added a statue in the metropolis should be erected at a cost of between £50,000 and £70,000. With regard to further extension it would seem that it should appeal to the whole empire. This would rule out three other proposals which found favor, viz., a new bridge and embankment, a museum and a central hall for the London University. I doubt if any of these will kindle enthusiasm; but there is a fourth which has been urged within the last

few days by a very long list of influential men representing a wide range of interests and which, if adopted, would be imperial in scope. That is a scheme for research on tropical diseases and for coping with the protection of life in the tropics. This is of special interest to the profession, and from the point of view of the interest taken by the late king in hospitals for the sick and the prevention of disease would seem a suitable memorial. Moreover it would be beneficial to the numerous races throughout the empire, with its 330 millions living under tropical conditions.

It is true we have a school of tropical medicine in London and another in Liverpool, but it can hardly be argued that they meet in full the responsibility of the country, and they are not due to government but to private support. The Liverpool school owed its origin and maintenance to the munificence of the late Sir Alfred Jones, and it has sent out twenty-one research expeditions to the tropics during the ten years of its existence. The London school also owes its establishment to private generosity, but now gets a government grant of £1,300 —quite insufficient. There is also a bureau for sleeping sickness supported by the government at a cost of £1,200 a year and the university receives £750 to assist work dealing with tropical medicine. The Royal Society has a committee on this subject, but the eminent experts who compose it give their work gratuitously.

The total amount which the British Government has contributed to tropical medicine is paltry indeed considered as an addition to private effort. They should take an example from the United States' action in Havana and in the Panama zone.

Cystic disease of the breast was the subject of an interesting discussion at the first meeting for this session of the Harveian Society. It was opened by Mr. D'Arcy Power who pronounced the state of classification of cystic diseases as chaotic and offered a scheme distinguishing noninflammatory, inflammatory, congenital, and parasitic, each of these having their subdivisions. Mr. Shaw offered another scheme in which he endeavored to retain the terms in common use. Mr. Power in his paper considered the several classes but found those more or less connected with inflammatory changes of more diagnostic interest and more difficult to treat. Chronic mastitis led to an important group of cystic tumors. The cysts might be single and simple or the whole gland might present the appearance of a sponge when examined after removal. The single sometimes had a thick wall and was so deeply placed that it might be mistaken for a solid tumor. It was, therefore, a cardinal rule to incise every breast before amputating it. A mere puncture would not do as it might not find an intracystic growth. The most difficult cases were those of many small cysts resulting from chronic lobular mastitis.

Mr. Shaw showed a series of lantern slides illustrating the appearances (macro- and microscopic) of several varieties of the serous or simple cysts which he held to be due to chronic mastitis. He and other speakers were against puncture. He showed specimens of cancer in the walls of cysts. In many cases solid adenomata projected into cysts and were better called intracystic adenomata.

Mr. W. G. Spencer said little was known as to the pathological development of these growths. The contents of serous cysts seldom corresponded with blood serum. Kanthack regarded papillomata as connective tissue and though this view was not generally accepted it was supported by the fact that these cysts mostly consisted of connective tissue stroma. Circumscribed cysts should not be shelled out but removed with a zone of healthy tissue. If that zone were diseased he excised the breast, leaving the nipple.

Mr. Crisp English said these cysts were almost always secondary to mastitis and in all doubtful cases exploratory incision should be made. He did not believe the ordinary form predisposed to malignant disease.

Mr. Gask said when the condition called for operation the whole breast should be removed, for a partial excision did not free the patient from neuralgic pain and in certain cases carcinoma followed.

Mr. Clayton Greene remarked on the similarity of adenoma, fibroma, and interstitial mastitis, suggesting an inflammatory origin. As to its relationship to malignant disease he had observed two classes—one with large cysts, two or three in number seldom more, the other when the whole breast was riddled with cysts. The latter should be always operated on. The former he had not regarded as dangerous, but after this discussion he was inclined to revise his opinion.

At the Medical Society of London cancer of the ovary was the subject of a paper by Mr. Bland Sutton. This he regards as always secondary, or, at any rate, he is convinced that primary carcinoma of this organ remains unproven. Many cases thought to have arisen primarily in the ovary were metastatic. In cancer of the stomach, cecum, or gallbladder, the cancer cells permeated the muscular and serous coats and found their way into the peritoneal cavity and were conveyed by the peritoneal fluid into the recesses of the pelvis or lodged on the ovaries, Fallopian tubes, and uterus. He thought when these cells implanted themselves on a normal ovary, a solid tumor resulted, but if they fell on the walls of an ovarian cyst they quickly grew into formidable masses. Primary cancer of the Fallopian tube was very malignant and operative treatment rarely resulted in enduring success. If the ostium of the tube remained open cancerous particles were poured out, cornucopial fashion, into the pelvis and soiled the organs and tissues. Implantation on the walls of an ovarian cyst was no rarity. In the last eighteen months he had had seven such cases, the primary foci being: in the stomach 2 cases; in the hepatic flexure of the colon 1; sigmoid flexure 1; uterus 1; Fallopian tube 1; undetermined 1.

At the annual meeting of the Royal College of Surgeons to be held next Thursday, the report, already in type, will be presented.

Professor Arthur Keith gave a demonstration at the college last week on acromegaly. After mentioning the increase of size and the signs of this first noticed by the patients, such as the necessity for larger gloves, boots, collars, etc., Mr. Keith said that since Marie drew attention to the disease in 1886, above 400 cases have been reported. He estimated that there are probably fifty or more at present in London. It has been suggested that the prototype of Punch was a subject of acromegaly but that diagnosis was wrong, said the professor, for though the nose, jaw, chin, and dorsal hump favor it, the small hands, thin lips, and good teeth are against it.

There is no example of acromegaly in the British Portrait Gallery or in the National Gallery, but one of Rowlandrous caricatures is an example. The

pituitary body was usually enlarged in the disease and its secretion evidently concerned in regulating and coordinating the growth of various parts of the body. A study of the effects of overgrowths of this gland will perhaps furnish a key to many of the factors which determine the physical conformation of the body, said the professor, and lead to the establishment of physical anthropology on a scientific basis.

In connection with this subject I may quote a case shown on the 27th ult. at the Liverpool Medical Institute by Mr. C. G. Lee. It was that of a man of 32 who had recovered from diabetes insipidus and then developed a marked increase of adipose tissue with optic atrophy. His weight had increased from 11 stone 7 pounds to 13 stone 10 pounds, but this seemed to be only due to fat, as there were no signs of acromegaly. Skiagraphy showed enlargement of the sella turcica and Mr. Lee attributed the symptoms to diminished function of the pituitary body.

At the meeting of the Royal College of Physicians the president reported that he and other officials were entertained at Caius College, Cambridge, on the occasion of the 400th centenary of Dr. Caius, and this hospitality was returned by inviting the Master and Fellows of Caius to the Harveian oration and banquet. Their portrait of Glisson was also presented to Caius. The president also reported that the medical staff of Guy's Hospital had offered to present to this college a portrait of Sir Samuel Wilks. This was accepted by the meeting with acclamation and the thanks of the college directed to be returned. The audited accounts for the year were adopted and other formal business transacted.

The Fitzpatrick lectures at this college for 1910 were delivered on the 3d and 8th of this month by Sir Clifford Allbutt who took for his subject Greek Medicine in Rome.

In writing of malaria last week I referred to the Mian Mir Committee's Report. It seems, however, that this must be received with considerable reserve pending full criticism from Ronald Ross who has meantime published in the *Lancet* a summary of his objections to its statements. The object of the experiment was said to be to test the doctrine that malaria can be banished by mosquito reduction at little cost anywhere. But this proposition in its bare statement is laid down by no one. What Ross taught was that mosquito reduction was easy under very favorable circumstances. It appears now that these did not exist at Mian Mir, and as to cost the government's allowance was absurdly insignificant —only a few pence a head being officially held to be more than could be devoted to mosquito reduction. Considering the monetary cost of the soldier in India to the mortality and invaliding from malaria it would seem that striking medical and preventive work must be the most inexcusable extravagance.

Tuberculous Cavities in a Nursling of Three Months.—Collet and Delachanal detail the history of an infant of three months of age, who had a healthy mother, but a tuberculous father, which died of miliary tuberculosis with meningitis, and in whom there were found *post mortem* two cavities in the right lung which were entirely independent of the bronchial glands. The child died with the symptoms of an acute pulmonary trouble, with intense dyspnea, cough, and vomiting. The bronchial glands on the right side were caseous. There were no ulcerations in the intestine, which the author takes to mean that the tuberculosis was not from drinking tubercular material, but came by inhalation. The cavity seemed to have been formed by a rapid pneumonic process, not by a slow fibrocaseous one.—*Lyon Médical.*

OUR CANADIAN LETTER.

(From Our Special Correspondent.)

THE ISOLATION HOSPITAL IN TORONTO—NEW MEDICAL OFFICER OF HEALTH FOR TORONTO—MEDICAL INSPECTION OF SCHOOLS IN TORONTO—ANNUAL REPORT OF THE PROVINCIAL BOARD OF HEALTH OF ONTARIO—THE GENERAL HOSPITAL, TORONTO —ADDITION TO ST. MICHAEL'S HOSPITAL, TORONTO—INFANT MORTALITY IN ONTARIO—DR. LOUIS WICKHAM OF PARIS IN TORONTO—PUBLIC HEALTH CONFERENCE IN OTTAWA—SPEECH BY DR. CHAS. A. HODGETTS—GRADUATION OF NURSES AT THE SICK CHILDREN'S HOSPITAL, TORONTO—ACUTE POLIOMYELITIS IN ONTARIO—APPOINTMENT OF A LAY SUPERINTENDENT TO ORILLIA ASYLUM.

Toronto, November 15, 1910.

The Isolation Hospital in Toronto has been the subject recently of much discussion both in medical and lay circles. An inquiry was held a few weeks ago into its management, and although no definite conclusion was reached, it was decided that more stringent control should be exercised over the institution. The evidence given at the inquiry was quite conflicting, the majority of the medical men who were examined as witnesses declared that all reasonable care was taken to avoid the spread of infection, while many of the lay witnesses stated that the authorities were careless in the extreme. However, the evidence of non-medical persons must always be taken with a grain of salt in such cases, as people generally seem ever to be prejudiced against any attempts to curtail the freedom of themselves or families even if these be in the interest of the whole community. There can be little doubt that if isolation hospitals are to efficiently fulfill the purpose for which they have been established, the regulations laid down must be stringently carried out. Dr. Charles Sheard has again resigned the post of medical officer of Toronto, to which he had been reelected but two or three months ago. Dr. Charles Hastings, a well known practitioner of Toronto, has been appointed to the vacant position. Dr. Hastings has been an earnest worker in the field of public health for many years and is an enthusiast for clean milk and especially for pasteurized milk. A new departure has also been made by the Toronto City Council in connection with the Board of Health by the appointment of Dr. G. G. Nasmith, late chemist to the Provincial Board of Health, to the post of bacteriologist to the city Board of Health. The city Board of Health will now have for the first time a fully equipped department of bacteriology and in charge of the same a thoroughly competent man.

The medical inspection of schools in Toronto is likewise a new departure. Two inspectors were appointed a short time ago, one of these being a lady doctor. The appointment had just been made when a bolt from the blue was launched by the lady. In a long letter which she addressed to the daily papers, she complained that her hands were so tied by the methods of control that her work was practically of no avail. She argued that as in New York, the medical inspection of schools should be in the hands of the Board of Health and that the medical inspectors should be given a considerable amount of power and authority. The City Fathers of Toronto were not of the same mind and reprimanded Dr. Helen MacMurchy for publishing the letter and decided that matters should be left *in statu quo*.

The annual report of the Ontario Board of Health for 1909 has been issued recently. Among other subjects of interest it contains full reports on the Howard-Bridge ozone system of water purification as installed at Lindsay, Ontario. Dr. Nasmith made the chemical and general report and concluded that the system installed at Lindsay was an absolute failure so far as purifying the water was concerned and Dr. Geo. R. Philip, who made the bacteriological report, came to a similar conclusion.

Dr. Chas. A. Hodgetts, late chief health officer of Ontario, writes in the report an instructive article on the growth of the tuberculosis movement in Ontario and describes the erection of two sanatoria for the treatment of tuberculosis, one in St. Catherines and the other in Ottawa.

Tenders for the principal buildings of the Toronto General Hospital have been accepted and, weather permitting, the work of construction will proceed as rapidly as possible. A large addition is being made to St. Michael's Hospital, which, when completed, will nearly double the capacity of that institution. Infant mortality in Ontario and in Canada generally is larger by far than conditions would seem to warrant. In 1907 the mortality in England and Wales under one year of age was 117.62 per 1,000 births; in 1900 the mortality in Ontario under one year of age was 132. In 1907 the number of deaths in Ontario was 33,502 and the infant mortality was 29 per cent. of this amount. In Quebec the infant mortality is even higher and the death rate of infants born of French-Canadians in Montreal is so high that the authorities have become seriously alarmed. It is a somewhat curious coincidence that in Great Britain, in which more than three-fourths of the inhabitants live in large cities, the infantile mortality is considerably less than in the United States and in Canada in which the great majority of the population live in far less crowded localities.

At the end of September Dr. Louis Wickham of Paris gave an address on cancer treated by radium in the Hall of Physics of Toronto University, illustrated on the screen by specimens chosen from among his patients. Dr. Wickham is not one of those who claims that radium is a specific or in the nature of a specific for cancer. He is very modest in his claims and only argues that in certain forms of cancer radium acts beneficially and that it is, at any rate, a valuable adjunct to the knife.

Dr. Chas. A. Hodgetts, who is now medical adviser to the Canadian Commission on Conservation, delivered an address at the Public Health Conference held in Ottawa in the second week of October in which he urged the creation of a federal department of health to cooperate with the various provincial health departments. After referring to the pollution of water which is so prominent a feature in the causation of disease in the United States and in Canada, Dr. Hodgetts declared that it required some other authority than provincial, viz., that of the federal government, to solve international and interprovincial sanitary problems. The conference recommended the establishment of a federal council of health to deal with larger questions of disease prevention by the federal and provincial governments in cooperation. It was also recommended that a federal laboratory be established for the purpose of experimental work, to manufacture serums and antitoxins, and generally to supply aids in fighting disease as well as to prove of value in education. The conference urged that both federal and provincial governments should encourage still further the establishment of sanatoria for the care of consumption, particularly among the poorer classes.

Representatives of the health departments of the various provinces and federal government officers, at a meeting held October 13, organized the Canadian Health Association. The object of the association will be to interest the public in the spread of information relating to matters affecting the public health. Officers were elected as follows: *Honorary President,* Sir James Grant, Ottawa; *President,* Dr. J. A. Starkey, McGill University; *Treasurer,* Dr. George D. Porter, Toronto; *Secretary,* Major Lorne Drum, Ottawa.

In connection with the Sick Children's Hospital, Toronto, is probably the most magnificent nurses' home in the world. This beautifully fitted building was erected by Mr. John Ross Robertson, the proprietor of the *Evening Telegram.* On October 14 the graduating exercises took place at this building, when twenty-two nurses were presented with diplomas. There are at the present time in the training school fifty-seven nurses, while one hundred and fifty applied for admission during the year, fifty of whom were accepted. Acute poliomyelitis which has been more or less prevalent in several districts of Eastern Ontario seems now to have disappeared. Hamilton was the center of the epidemic, if it might be so called, and in that city there were many deaths among infants and some deaths among adults. The appointment by Sir James Whitney of a lay superintendent to Orillia Asylum for the Feeble Minded gave rise to much adverse discussion among medical men and in lay papers of opposing politics. It has been pointed out that although it is generally the custom in the United States and in Canada to have medical superintendents of hospitals and of institutions for the insane, in Great Britain such superintendents are almost always not medical men but good business men. It is argued there that medical men are not, as a rule, good business men, and furthermore, that it is not well that the entire control of a hospital should be in the hands of medical men. Although friction has occurred in Great Britain between the laymen of the hospital boards and the medical staffs, on the whole the British system of hospital control is said to work satisfactorily. It is far more economical than in either Canada or in the United States.

Progress of Medical Science.

Boston Medical and Surgical Journal.

November 17, 1910.

Operative Treatment of Atresia of the Vagina. W. P. Graves.
Cancer of the Scrotum. R. M. Green.
Clinical and Bacteriological Researches on Mikulicz's Method of Rendering the Peritoneum Resistant to Surgical Infections. Prof. E. De Paoli.
The Technique of Arthrotomy. C. F. Painter and A. P. Cornwall.
Some Cases of Sudden Death During Pregnancy and the Puerperium. H. G. Myrick.

Atresia of the Vagina.—W. P. Graves states that this condition is either acquired or congenital. In the former instance the majority of cases are the result of a plastic gonorrheal vaginitis acquired before the age of puberty. Adhesions take place usually at the junction of the anterior and middle third of the vagina. Acquired atresia of the vagina also occurs in adult women and may be the result of adhesions forming after a vaginitis following severe lacerations at childbirth, in which case atresia occurs higher up and may involve the cervix. Senile vaginitis is not an uncommon cause of atresia. Symptoms are not ordinarily manifested until puberty, when men-

strual blood accumulates behind the adhesive membrane and makes a tumor. The operation for atresia is attended with considerable danger of fatal sepsis. In the operation for acquired atresia, after the septum has been incised and the contents of the space beyond have been removed, there should be a thorough cleansing of the parts. The edges of the septum should then be trimmed flush with the walls of the vagina. All scar tissue should be removed so as to prevent a future contraction. When the septum has been completely cleared away it will be found that there remains a denuded area which extends like a ring around the inner circumference of the vagina. The mucous membrane of the upper portion of the vagina should then be drawn down and approximated to that of the lower portion by interrupted catgut sutures. Such an operation should restore perfectly the normal caliber of the vagina and should not be followed by a tendency to the development of a stricture. The use of antiseptic douches twice or three times daily should be begun the day after the operation and should be kept up until the discharge completely disappears. In congenital atresia the following technique has been based upon the operations of Burrage and Abbey. Through a superficial transverse incision made just below the urethra, the bladder and rectum are slowly dissected apart with the finger. The forefinger of the left hand should be kept in the rectum and some blunt instrument like a urethral dilator should be held in the bladder by an assistant. In this way an artificial opening can be made of the exact proportions of the normal vagina. The next step is to line this cavity with a pouch of skin made up of flaps turned in from the surrounding parts. To accomplish this the two labia minora are dissected off, from above downward, in such a manner as to leave a pedicle sufficiently large to furnish good circulation. The two surfaces are then split apart so that two paddle-shaped flaps remain. There should then be dissected from the inner side of the thigh two similar flaps which have their bases at the two lower corners of the artificial opening. All four flaps are then sewed together over a glass form. Before the flaps are sewed together several catgut sutures, with the ends left long, should be placed in the vault of the artificial cavity. When the skin pouch has been nearly completed, the glass form is removed and the catgut sutures are brought out through the skin pouch. The pouch is then inverted and the sutures are tied in such a manner that the pouch fits snugly into the artificial cavity.

Cancer of the Scrotum.—R. M. Green presents copious extracts from the early writers on this condition, which has also been known as chimneysweep's disease. This was first described in 1775 by Pervicall Pott.

Mikulicz's Method of Increasing Peritoneal Resistance.—Prof. E. De Paoli states that he has practised this method in all cases in which celiotomy had been performed. It consists in the injection of nucleinate of sodium, which causes a pronounced hyperleucocytosis and also serves to measure with precision the natural powers of resistance of the patient who is about to be operated upon. If after the injection there is a satisfactory hyperleucocytosis this is the proof that the powers of resistance are sufficient; if, on the contrary, hyperleucocytosis does not follow injection of the drug, one knows that the means of defense against infection are decidedly lowered. In the first case one may operate with confidence; in the second one should abstain from operating, if possible, until the patient is in a better condition. Bacteriological studies of the blood of patients before and after the injection of nucleinate of sodium have shown an increase in the bactericidal power of the blood serum with reference to the culture of the *Bacillus coli*. This result is very remarkable because it serves to show how the drug must act in protecting the peritoneum against the germ very commonly found in septic peritonitis. The method finds its chief application in cases in which there is danger of postoperative sepsis, as in operations on the intestinal tract, and also in those cases in which the conditions for perfect asepsis are lacking, for instance, when one cannot operate in a well-appointed hospital. It is probable that the method will not prove of great advantage in those cases in which the abdominal lesion is not in the digestive tract, provided always that asepsis is perfect; in these cases, of course, sepsis is quite unusual in any event.

The Technique of Arthrotomy.—C. F. Painter and A. P. Cornwall continue their discussion of this subject, particularly with reference to the treatment of infectious arthritis in female patients.

Sudden Death During Pregnancy and Puerperium.—H. G. Myrick states that among the chief causes of sudden death in pregnant and puerperal women are cardiac disease, embolus, cerebral hemorrhage, grave intoxication, as eclampsia, and hemorrhage from various sources, placenta previa, rupture of the uterus, ectopic gestation, or abortion. The author details three of her own cases as follows: cardiac disease, eclampsia, and cerebral hemorrhage

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A Series of Studies of Nervous Affections in Relation to the Adjustments of the Eyes. Second Study, a Case of Epilepsy. G. T. Stevens.
Pathogenesis of the Toe Phenomenon. A. Gordon.
Extramedullary Spinal Cord Glioma. D. Inglis, T. Klingman and M. Ballin.
The Proper Method of Administering Ether. A. D. Young.
Anesthesia Dangers. I. D. Frescoln.
Local Anesthesia in General Surgery. L. F. Watson.
The Determination of the Dose of Stovaine in Spinal Anesthesia by Blood Pressure Observations. M. Salmon.
Tonsil Grasping Forceps. H. M. MacWhinnie.
What is the Direct Cause of the Seizures of Epilepsy? N. P. Levin
Reveries of a Young Practitioner. F. M. Bell.

Nervous Affections in Relation to the Adjustments of the Eyes.—G. T. Stevens presents the results of his study of this subject with reference to epilepsy. He states that his later experience has led him to believe that idiopathic epilepsy is, in a great proportion of cases, the result of the condition of tilting of the meridians of the eyes which he has called declinations, and for some years past his efforts toward relief of these cases have been directed toward the correction of this defect. Although such a correction is sometimes extremely difficult and demands much patience and infinite care, the results have been on the whole most satisfactory.

Pathogenesis of the Toe Phenomenon.—A. Gordon concludes on the basis of experiments made upon patients under the anesthetic influence of chloroform, as studied by Marinesco, that the toe phenomenon is the most sensitive of all the cutaneous reflexes, disappearing even before the corneal reflex. The most important evidence in favor of its encephalic origin lies in its absence in complete transverse lesions of the cord at the level of the cervical or dorsal segments. He states that any involvement of the cerebrospinal motor pathway is therefore expressed in the toe phenomenon. But whether the latter is a spinal or encephalic reflex must be decided in favor of the latter in view of the previously mentioned Marinesco's and others' observations with hemiplegics and paraplegics under chloroform in view of the appearance of the reflex shortly after the onset of hemiplegia, finally and mainly in view of its absence in cases of total compression of the cord which means total suppression of encephalic influence on the spinal cord which contains a center for the extensors of the toes.

Extramedullary Spinal Cord Glioma.—D. Inglis, T Klingman, and M. Ballin report a case of this condition in which the early and seemingly complete restoration of function in the cord after removal of the tumor established at least the physiological integrity of the cord. The course of the disease was that of a slowly progressive segmental

lesion in the earlier stage of development unilateral, giving the clinical aspect of the Brown-Séquard symptom complex. The characteristic pain, distinctly localized, due to nerve root irritation, was prominent from the very beginning and at no time seemed the diagnosis of a spinal tumor doubtful.

Administration of Ether.—A. D. Young states that because the margin between complete anesthesia and a fatal dose of chloroform is so narrow he believes that ether is the only general anesthetic that should be used. All the armamentarium an anesthetist needs is a hypodermic syringe, morphine and atropine, inhaler, ether, and a couple of small towels. Thirty or forty minutes before beginning the administration of ether the patient should be given a hypodermic injection containing one-sixth grain of morphine and 1/120 grain of atropine. The patient should never be moved after being anesthetized until the operation is completed. The practice of anesthetizing in the patient's room should be abandoned, as moving to the operating room may tend to awaken him and cause vomiting, and, in addition, the anesthesia will last just that much longer. There is no sign by which one may learn when the patient is ready. One must be guided by the amount of ether used and by the breathing of the patient. When the respiration is deep and regular, accompanied by slight snoring, the patient is usually ready, but not always. However, the surgeon may now begin, and if there is slight resistance on the patient's part a few more breaths will have him completely under. The author has investigated many of the elaborate forms of apparatus advocated by various men, and believes they possess no advantages over the simple wire mask which should be covered with gauze, eight to twelve layers in thickness, according to mesh. This covering should never be thick enough to in the least interfere with the respiration.

Anesthesia Dangers.—L. D. Frescoln reports two cases of anesthetic shock occurring in patients anesthetized with chloroform for forceps delivery. He concludes that before giving an anesthetic one should choose a good inhaler to prevent interference with respiration; keep the mouth free from mucus; remove false teeth or other foreign bodies; have oxygen ready for emergency; sometimes it is well to begin by using atropine and morphine before giving chloroform and atropine before ether; he prefers ether in cases with heart disease or kidney trouble and chloroform in pulmonary cases if one or the other must be given.

Local Anesthesia.—L. F. Watson believes that local anesthesia should be selected whenever a choice of anesthetics is possible, because of the greater safety and comfort afforded the patient. To those using the cocaine method the advantages are apparent and the field continually enlarges as the technique improves. The importance of local anesthesia has never been sufficiently appreciated in America, due probably to inexperience in the method and a certain deep rooted fear of poisoning traceable to the days of strong cocaine solutions. The strong solutions are equally or more dangerous than general anesthesia, while the weak solutions are the safest of all methods of analgesia. Success in the use of local anesthesia depends on patience, an intimate knowledge of sensory nerve distribution, and special training in the method. The technique of the injection is always delicate; it varies with each region, each operation, and in each patient. The technique must be learned with a knowledge of its application and adaptation to each individual case. Because of the slower appearance of complete anesthesia with the weaker solutions, surgeons that begin operating as soon as the injection is finished will often fail with local anesthesia. This can be employed in any part of the body where the nerve supply can be controlled. With a proper selection of cases the majority of surgical operations can be performed under local anesthesia. A one-fifth per cent. cocaine solution is used for the skin and nerve trunks; elsewhere a one-tenth per cent. solution is employed.

Dose of Stovaine in Spinal Analgesia.—M. Salmon states that it has been found that the changes which take place in blood pressure during spinal anesthesia are very marked and important. There is a marked fall of blood pressure, and this to a certain extent bears some relation to the amount of drug used and the level at which it is injected. That the dose can be gauged by the blood pressure readings at once becomes evident if one but reflect for a moment upon the mechanism concerned in the maintenance and regulation of normal blood pressure, namely the continuous activity of the vasomotor system whose center is located in the medulla.

Tonsil Forceps.—H. M. MacWhinnie describes a new instrument for grasping the tonsil, consisting of a three-catch locking device arranged so that greatly hypertrophied tonsils as well as the submerged forms and stumps, when once accurately engaged, may be securely held.

Cause of Epilepsy.—N. P. Levin assumes that vascular phenomena precisely similar to those occurring in asthma and agioneurotic edema, occur in the brain with each epileptic seizure. If sudden exudations can occur from the vessels of the skin, bronchi, or intestines, they may also occur in the viscera and in the brain. The violent symptoms occurring during an epileptic fit are explained by the sudden increase in the intracranial pressure entailed by this exudation within the unyielding walls of the skull. As soon as the pressure within the cranium has readjusted itself the symptoms pass off. The author suggests that possibly a decompression operation as practised by Cushing, would be of service in this disease. To remove a good section of the cranial vault is such a simple procedure that it is worth trying on many epileptics. By removing a portion of the unyielding skull and substituting instead an expansile diaphragm in the shape of the scalp one will allow of quicker adjustment of intracranial tension, and thus, perhaps, diminish the frequency or severity of epileptic seizures.

The Young Practitioner.—F. M. Bell contributes an article interspersed with humor and philosophy, on the early years of waiting in the physician's practice. He states that the conquest of disease comes not by intuition but by earnest labor. Reticence, indecision, and lack of self-confidence are three of the greatest obstacles to success, and it is these failings which are wont to make the young practitioner seek paths of ease and irresponsibility. Just as long as he shirks responsibility, so long will he remain a nonentity in the medical world.

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Operative Treatment of Simple Fractures. A. F. Jonas.
Clinical Results of Gastroenterostomy for Non-Malignant Diseases. J. D. Dunham.
Blood-Letting in Children. H. Stern.
An Original Method for Prevention of Perforation in Submucous Resection. R. M. Nelson.
Practical Mechanical Method of End-to-End Anastomosis of Blood Vessels, Using Absorbable Magnesium Rings. V. D. Lespinasse, G. C. Fisher and J. Eisenstaedt.
Absence of Hydrochloric Acid, with Blood in Stomach Secretions as a Symptom of Chronic Gastritis. J. T. Pilcher.
Place of Hebosteotomy as an Aid to Delivery. C. W. Barrett.
Influence of Perigastric Lesions on Gastric Secretions. A Study Based on Clinical and Experimental Observation. M. J. Lichty.
Treatment of Acute Anterior Poliomyelitis. A. L. Skoog.
Metastasis and Tumor Immunity with a Transmissible Avian Neoplasm. P. Rous.
Diagnosis and Treatment of the Earlier Changes in the Larynx in Pulmonary Tuberculosis. C. L. Minor.
Antityphoid Vaccination. An Instance Illustrating Its Efficacy. G. E. Foster.

Operative Treatment of Fractures.—A. F. Jonas discusses the open method of treating simple fractures. He states that experience has shown that with open operation the external retention and fixation appliances must be of the same design and must be applied with the same care as

in cases in which no incision is made. He formulates the following rules: 1. All fractures that can be adjusted manually and can be fixed in a position that will insure a good functional result, even though the Röntgen rays indicate a lack of perfect end-to-end approximation, are to be treated by the closed method. 2. In all fractures with a marked deformity, such as overlapping, angulation, lack of contact of fractured surfaces, when it is apparent that union will not take place, an open operation is done. 3. In all cases in which there is an interposition of soft structures or loose bone fragments an open operation must be done. 4. All compound fractures are treated by operation if the broken ends do not fall into easy apposition. 5. All depressed cranial fractures are cases for an open operation. 6. All spinal fractures showing symptoms of compression are cases for an open operation. The Röntgen ray must be employed whenever possible to aid in a proper estimation of the extent and location of the fracture. It must determine whether bone approximation is sufficient after the fixation appliance, internal or external, has been applied. Having determined at the earliest possible moment that manipulation is fruitless to replace the broken bones, an immediate operation should be done before the physiologic rarefying process has begun, or at least before it is very far advanced. Regarding technique, nothing is introduced into the open wound that has touched the skin. Finger contact is avoided. All parts of the wound are handled with sterile instruments. In all cases in which an open operation is found necessary three forms of material are used to insure bone coaptation, viz., the silver plates of Sick, bronze-aluminum wire, and chromic gut: the latter only to reinforce the metallic appliance.

Gastroenterostomy for Non-Malignant Diseases.—J. D. Dunham reports the results of analysis of 48 cases of gastroenterostomy for ulcer of the stomach. There were 15 deaths. He draws the following conclusions: 1. Hyperchlorhydria as a symptom of chronic gastric ulcer is inconstant and should be disregarded. 2. Perfect recovery may occur when atony of the stomach has existed before the development of ulcer and motor insufficiency persists. 3. Many of the fatalities cited in his report would have been averted had the family physician made a diagnosis before serious complications had developed. Forty patients in his series of cases gave a history of ulcer covering five years or more before the diagnosis was made. 4. Pylorectomy offered a better prognosis for recovery in 5 of the fatal cases. Three of the patients were lost by fatal hemorrhages from the ulcer area, and 2 died as a result of carcinomatous transformation of the pyloric ulcer. 5. The legitimate field for gastroenterostomy in benign diseases of the stomach is a chronic ulcer near or below the pylorus, with stenosis.

Bloodletting in Children.—H. Stern sketches the history of bloodletting, especially in the nineteenth century and the advocacy of its use in children by certain authors in the later years of that century. The opinion prevails among most of those who have contributed to the subject since the revival of bloodletting in the beginning of the nineties of the last century that early age *per se* offers no specific contraindication to this procedure. The author gives a table of the amount of blood that can be safely extracted at different ages, but says that bloodletting in children is distinctly contraindicated in chronic hydermia and in cachectic conditions. It goes without saying that general depletion is a much more energetic measure in children than in adults and the infant needs every drop of blood as soon as the acute condition demanding depletion has subsided. The author believes that bloodletting in proper cases is probably the most potent single remedial measure that one possesses, and he wishes to arouse interest in the clinical study of this old remedy under modern conditions and modern means for observation.

Submucous Resection.—R. M. Nelson has devised the following method for prevention of perforation in submucous resection of the nasal septum. After making the first incision through the mucous membrane down to the cartilage, and separating the membrane from it as far back as necessary, instead of cutting through the cartilage at the same line of incision followed in going through the membrane, the cartilage is carefully cut through from one-eighth to one-fourth inch posterior to the incision through the mucous membrane. The rest of the operation is done after the usual methods. At the close of the operation, instead of the cartilage being cut off flush with the incision through the mucous membrane, there is left a projecting ledge of cartilage extending from one-eighth to one-quarter of an inch posteriorly from the line of this incision. In bringing the raw surfaces of mucous membrane together this projecting ledge of cartilage is found not only to be completely covered over, but also to appear to aid very materially in holding the edges of the wound in close apposition, acting somewhat as a natural splint.

Blood-Vessel Anastomosis.—V. D. Lespinasse, G. C. Fisher, and J. Eisenstaedt describe the use of magnesium rings for blood-vessel end-to-end anastomosis. The physical qualities of magnesium include its solubility in saline fluids and the body fluids and the non-toxic character of the products. The authors describe the technique, in which several methods are employed, each of which is described. The method of repair of a longitudinal slit in a blood-vessel is also described. The period in which the magnesium rings are absorbed varies from 80 to 100 days for complete absorption. There is nothing inside the lumen of the vessels after the operation is completed, and if trauma to the intima is avoided and the vessel washed free from all clots and not tied tightly enough so that the rings cut the intima where it bends outward to form the flange, thrombosis will not occur. Secondary thrombosis, such as occurs in the Payr operation, is impossible. Primary stricture cannot occur if the vessel is accurately measured and a proper sized ring is at hand with which to make the anastomosis. Secondary stricture has never occurred in any of the experimental operations. Primary hemorrhage could not occur and there is no danger of embolus unless there is thrombosis. The following principles must be kept in mind in making blood-vessel anastomosis with magnesium rings: 1. The vessel must be accurately and cleanly dissected. 2. All wound hemorrhage and oozing must be checked. 3. All clots must be removed from the ends of the blood-vessel. 4. A proper sized ring must be used. 5. The rings must be tied together under more than six-pound pressure. 6. Traumatism to the intima behind the line of union must be avoided absolutely. 7. Gentleness and accuracy in all manipulations are absolutely essential. 8. Perfect asepsis must be maintained. The authors believe that the operation is well within the skill of the average surgeon, is safe, certain, and easy, and should be done in all wounds of the large vessels, both venous and arterial, and in all false aneurysms and arteriovenous aneurysms. Under these conditions, a short piece of vessel, including the lesion, can be removed and an end-to-end anastomosis made.

Achlorhydria Hæmorrhagica Gastrica.—J. T. Pilcher states that there is a definite entity presented in the stomachs of some patients suffering from various intraabdominal and extraabdominal pathological conditions, which is characterized by the absence of hydrochloric acid and the presence of occult blood. This condition is probably effected through the agency of a reflex nerve stimulation inhibiting first the production of free hydrochloric acid to only a moderate degree. This so modifies the inhibiting factor of the gastric juice that the necessary conditions for the growth of pathogenic bacteria are furnished, chief among which are to be reckoned the streptococci and colon group, which are present in striking numbers. These direct

irritants, either themselves or in conjunction with a primary irritative factor, *e.g.* gallstones, appendicitis, pancreatitis, etc., perpetuate the pathological process until there is an achlorhydria produced. It is most probable that to the ulcerative erosion following this irritation the presence of blood may be ascribed. In the 100 stomachs examined at operation atrophy was never present, nor was there, except in one case, any evident insufficiency of the pylorus. There is a general symptomatology accompanying this condition which is very suggestive. The test meal recovered is indicative of the pathological process in the stomach. There were indications in but seven cases observed that there was no secretion from the stomach mucosa. In others the presence of mucus, the biuret reaction, and coagulation after activation would tend to show that there was still a moderate degree of enzymatic action. The cases are therefore not "achylia gastrica." Proof of the etiological factors has been deduced from the prompt and permanent recovery of the patients operated on. The condition is so common, approximately one in every fifteen stomach cases in which the patients were examined, and the indication it gives of irritation in other organs is so firmly established, not to mention the potential factor for future trouble which it itself contains, that it merits more frequent consideration in the study of possible gastric conditions.

Hebosteotomy as an Aid to Delivery.—C. W. Barrett presents this paper which was reported in the MEDICAL RECORD, Vol. 78, page 37.

Influence of Perigastric Lesions on Gastric Secretions.—M. J. Lichty describes his observations, which were reported in the MEDICAL RECORD, Vol. 77, page 1073.

Treatment of Poliomyelitis.—A. L. Skoog states that when the diagnosis is made and prodromal symptoms can be treated there is no objection to the moderate use of laxatives, and one of the most important therapeutic means is rest. Lumbar puncture may be of value therapeutically as well as for diagnosis. Hexamethylenamin may be used in the treatment of these cases. It is probably best to give the drug in as large doses as is safe for a period of a few hours and then to discontinue it for about twenty-four hours. His practice is to give from 0.12 to 0.24 grams to a child from two to four years of age, giving a dose every hour until three doses have been given, then giving no more until the following day at the same hour, when the course is repeated. This repetition may be employed as long as the acute symptoms persist. Thus one suddenly loads the body with the chemical and then allows a short period of rest. One might give from 3 to 8 grams of the drug to the adult during a daily three or four hour period of its administration. During the past months he has used this method in five cases in the prodromal stage. Three patients recovered without any paralysis, one died, and another, whose case was of the foudroyant type, developed paralysis. Hexamethylenamin has also been given to a few children in families in which there was a fear of others acquiring the disease. In patients suffering from much pain and hypersensitiveness he has used the salicylates, of which aspirin was found most agreeable to children, and he has also obtained relief by applying heavy cotton dressing to the involved extremities. Partial immobilization may have been a factor in producing the results obtained. In his practice he employs isolation of patient and sterilization and disinfection of articles and excretions.

Metastasis and Tumor Immunity.—P. Rous states that the conclusion seems justified that resistance to tumor growth can no longer be considered to depend primarily on a failure of the host to provide a stroma and vascularization for the neoplastic cells. Both may be provided by the resistant host, and yet the tumor dies. Whether the lymphocytes or some factor unknown is responsible for this result has yet to be investigated.

Laryngeal Signs of Tuberculosis.—C. L. Minor finds that the symptoms of early laryngeal tuberculosis are limited in number and not as valuable as the signs. The earliest is usually a mere weakening of the voice, which may appear long before hoarseness is noted. Next to this he would note a sense of dryness in the throat followed by a localized tickling or pricking. Pain on swallowing is not usually an early symptom in his experience. The subjective symptoms, however, are relatively unimportant as compared with the objective signs. He has not found pallor of the mucous membrane often as an early sign, and he believes that catarrh with hyperemia is usually the first sign, though it is not diagnostic. It is only when it becomes unilateral and persistent that it becomes really suspicious. An obstinate patchy catarrh confined to one cord is highly suspicious, and in a patient whose lungs are tuberculous may be safely counted as tuberculous itself. Next to this he would note as significant a grayish wrinkling of the posterior commissure, which he thinks is the commonest early finding, but it is not diagnostic. The earliest real diagnostic symptom is a table-like elevation of the mucous membrane in the posterior commissure, and this is pathognomonic. This tends to break down into ulcers and, with their abundant granulations, they may pass for tuberculomata. Next as a site of early changes is the vocal process, the posterior insertion of one cord or the body of the cord itself, where ulcers tend to appear which may be scattered along the edge. He finds some involvement of the arytenoid region very early in the disease, localized congestions or thickenings. Thickening of the aryepiglottic folds is a more advanced change, but when present is pathognomonic. Another early change, though a rare one, is the protrusion of a small point of red granulation beneath the anterior commissure, and when seen its diagnostic value is great. In the therapeutics of this stage the author insists first on absolute rest of the voice, not allowing even whispering; next, the avoidance of all irritants, especially smoking, and third, cleanliness; fourth, the use of astringents. He warns untrained physicians against resorting to endolaryngeal applications with the cotton-tipped laryngeal sound in cases of ulceration.

Antityphoid Vaccination.—G. B. Foster states that protective inoculation against typhoid fever was instituted in the United States Army in March, 1909, and over 12,000 persons have been inoculated up to October 1, 1910. About one-seventh of the personnel of the regular army have now been vaccinated, and a regulation requiring the vaccination of all recruits and all those presenting themselves for reenlistment would result, within three years, in a regular army practically immune to typhoid fever. Furthermore, in the event of hostilities, should the vaccination of the reserve army—militia and volunteers—be made compulsory before mobilization, it is reasonable to prophesy that the medical history of our land forces in past wars, as regards the incidence of typhoid fever, would not repeat itself.

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Greek Medicine in Rome. Sir T. Clifford Allbut.
A Case of Multiple Myeloma, with Some Observations on the Nature of the "Bence Jones" Protein Found in the Urine. O. T. Williams and E. R. Evans. With a Pathological Report by E. Glynn.
A Radical Operation for Malignant Disease of the Testis. F. Howard.
The Treatment of Pulmonary Tuberculosis by Intravenous Injections of Chinosol with Formaldehyde. J. McElroy.
Notes on the Operative Treatment of Papilloma of the Bladder. J. W. T. Walker.
On Chronic Bronchitis and Emphysema as the Result of Acute Pneumonia. S. West.
Aortic Regurgitation. W. Broadbent.

Greek Medicine in Rome.—Sir T. Clifford Allbut, in the second lecture on this subject, discusses the doctrine of the pulse, the ancient conceptions of sexual generation, the influence of pneumatism on medicine, the hygienic and therapeutic doctrines of the pneumatists, and the eminent physicians of this period.

Multiple Myeloma.—O. T. Williams and E. R. Evans report a case of this condition associated with the presence in the urine of "Bence Jones" protein. The patient was a collier thirty years of age, who for several months had had feelings of weakness, pains in the chest and between the shoulders, and anorexia. He emaciated rapidly and developed a prominence on the right fifth rib. Later there developed rigidity of the upper dorsal spine, retraction of the head, extreme muscular weakness with marked emaciation of the thenar and hypothenar eminences of the hands. The spinous ligaments between the last cervical and first dorsal and between the latter and the second dorsal vertebræ were far less resistant than in any other part of the spine, and pressure over this region caused pain which was local and not referred to any other part. The urine showed the characteristic reactions of Bence Jones protein. A little later, spontaneous fracture of several ribs and of the sternum occurred. The left sternoclavicular joint became disorganized. The patient lost the use of his legs completely, and also all sensation below the level of the loin. There was loss of control of both micturition and defecation, and in a short time death ensued. The protein found in the urine of this case gave on most occasions the characteristic reactions of the Bence Jones protein. The reactions of the protein varied from time to time. On all occasions when a thorough examination was made the protein yielded a phosphorus-free carbohydrate-containing radicle. The percentage of sulphur in the protein was found to be different on two occasions. This variation was found to be synchronous with an alteration in the output of ethereal sulphuric acid. A possible explanation of these findings is that the chondromucins of the bones and tendons are broken down in different degree at various stages of the disease. A piece of rib two inches long containing a myelomatous tumor was examined microscopically. This demonstrated conclusively that the tumor was not only a true myeloma, but was also practically identical with the plasmocytic type of growth already described.

Malignant Disease of the Testis.—R. Howard states that the question of a radical operation for malignant disease of the testis has come more and more to the front in recent years. In other parts of the body the operations for malignant disease have been progressively elaborated until it is an axiom that extirpation of the growth, with the lymphatic glands the part drains into and the intervening lymphatics, is the only radical form of operation, and that this should be done in all cases. In the case of the testicle, however, the deep situation of the involved lymphatics and the important structures which lie near them have appeared to negative the usual operative procedure, and surgeons on the whole have been content to perform castration and to trust that the lymphatics are not already infiltrated. The very few cases that escape subsequent recurrence in the glands show on what feeble grounds this hope rests, and a radical glandular operation appears to be the more urgent as local recurrence in the scrotum is rare. The author reports a case of sarcoma of the epididymis and testicle occurring in a ten-year-old boy. The latter had complained of a painless swelling of the left testis that had been present for ten weeks and that was increasing in size. The case was perhaps a fortunate one as a first operation in that it occurred in a thin boy, but that a truly radical operation on the lymphatic area in malignant disease of the testis is possible could not be disputed. In fact, the operation went a step further than Jamieson and Dobson's ideal operation, in that it cleared the whole of the external iliac artery and vein, instead of the upper third only, and their dictum that the operation "is exceedingly difficult and dangerous, if not impracticable," does not hold good in boys, at any rate.

Intravenous Medication in Pulmonary Tuberculosis.—J. McElroy reports good results in three cases of pulmonary tuberculosis in which he employed intravenous injections of chinosol with formaldehyde. Fifty c.c. of a 1 to 2,000 solution of formaldehyde plus a 1 to 4,000 solution of chinosol were injected into the median basilic or median cephalic vein—the usual precautions being taken—and this was repeated daily, the strength being gradually increased.

Operative Treatment of Papilloma of the Bladder.—J. W. T. Walker states that two probable and important causes of recurrence of vesical papillomata are the incomplete removal at the time of the operation and the implantation of fresh papillomata during the operation.

Chronic Bronchitis and Emphysema Resulting from Pneumonia.—S. West alludes to the serious nutritive changes in the lung associated with and following pneumonia. The signs of bronchitis associated with pneumonia in its acute stage have a different significance according as they have preceded the attack of pneumonia or developed in the course of it. Where the pneumonia is subsequent—*i.e.* occurs in the course of bronchitis—the association of the two affections is awkward but not necessarily of very grave significance. Where, on the other hand, the physical signs of general bronchitis develop in the course of the pneumonia they indicate not a mere bronchitis or complication of the pneumonia but pulmonary failure, a very serious condition and almost necessarily fatal. True emphysema frequently follows pneumonia as the result of atrophic changes in the alveolar walls.

Aortic Regurgitation.—W. Broadbent states that dilatation and hypertrophy of the heart are carried to a greater extent in aortic regurgitation than in any other valvular disease. The systolic blood pressure is very high but the diastolic is low. The pulse is the most important factor in estimating the amount of regurgitation.

British Medical Journal.

November 12, 1910.

Greek Medicine in Rome. Sir T. Clifford Allbut.
Four Cases of Pneumonic Plague. H. P. Sleigh.
The Recent Plague Cases in Suffolk. H. H. Brown.
Radium Thrapy in Eye Disease. A. Lawson and J. M. Davidson.
Serum-Anaphylaxis: A Case Illustrating Its Possible Gravity. A. B. Sloan.

Greek Medicine in Rome.—See abstracts of articles in the *Lancet*, November 12, 1910.

Four Cases of Pneumonic Plague.—H. P. Sleigh describes these cases that recently occurred in the County of Suffolk, England. True to description, the disease had picked out two very dirty households. Three nurses who attended to the sick escaped infection. The incubation period was definitely five days. Prodromal symptoms were not well marked. All the patients complained of being "not well" a few hours before the onset of illness; and in one case—that of the child—there was vomiting. The invasion was sudden, and in one case at least the illness was ushered in by a rigor. All complained of severe frontal headache. The features were drawn, the expression vacant, and mental ineptitude was well marked. The temperature was high from the commencement, the thermometer registering 105° in two of the cases and 103° in the other two within a few hours of the onset of the illness, and remained high till within twelve hours of death, when in each case the temperature fell a couple of degrees. Respirations in all four cases were quickened from 30 to 40 per minute. In only one case was there definite lobar pneumonia; in two there were evanescent patches, and in the fourth no signs of pneumonia were detected. The case with definite pneumonia had no expectoration at any time of the illness; the other three had thin dark blood-stained expectoration. The pulse in all cases was feeble and fluttering, and ranged from 120 to 140 per minute. The tongue in each case was red at tip and edges, but the dorsum was covered with a thick

yellowish fur. In two of the cases there were vomiting and diarrhea. The spleen in one case at least was enlarged, but no other glandular enlargement was detected. In the child there was delirium, but in the others consciousness was unimpaired till the end, and in one case the patient gave thoughtful and intelligent instructions within ten minutes of her death. It was at once recognized that this was a highly contagious disease, so that prompt measures to isolate contacts were adopted. From specimens of sputum and blood taken from the last three cases the *Bacillus pestis* was ultimately discovered in all the specimens, but this was not demonstrated till too late to administer serum treatment. Investigation showed that many rats in the neighborhood were dying from plague.

The Recent Plague Cases in Suffolk.—H. H. Brown contributes his own description of the same cases described by H. P. Sleigh in this issue.

Radium Therapy in Eye Disease.—A. Lawson and J. M. Davidson state that they can endorse more fully now the opinion that radium is likely to prove of great service, both in the treatment of external diseases of the eye and in those of the eyelids. The results are in many ways most encouraging, and the field of utility for radium in eye disease has widened considerably since the time it was first shown to be a specific for rodent ulcer. The cases selected for treatment are divided into four groups, as follows: 1. Ulcerations of the cornea. 2. Non-ulcerative acute inflammations of the cornea and sclerotic. 3. Affections of the lids. 4. Corneal scars.

Serum Anaphylaxis.—A. K. Sloan reports a case of diphtheria in which a second attack followed six weeks after the initial seizure. The chief point of interest in the case was the occurrence of sudden collapse after the injection of serum at the onset of the second attack. At the time the cause of this was a mystery. In the light of further knowledge, however, and for the following two reasons, the author has no doubt that the grave condition was due to serum anaphylaxis: (1) The collapse occurred within two hours of the injection without other apparent cause and while the child was lying quietly in bed; (2) the collapse was accompanied by the almost simultaneous appearance of a marked serum rash of the urticarial type. Apart from the twenty-four hours' urgent illness following the injection, the author thinks that the prolonged febrile period thereafter and the slow convalescence were chiefly due to the serum phenomena. It is of the greatest moment from a clinical point of view that one should know more about the exact conditions under which the phenomena are likely to occur. This is specially important in view of the fact that foreign serums are now being put to such diverse uses. Anti-diphtheritic serum in addition to being used as a curative agent in diphtheria, is used as a prophylactic agent for the same disease, is recommended as an antituberculosis measure (Montgomery Paton), is used by some for asthma, and finally (a special serum) is used by a Paris physician for the treatment of diphtheritic paralysis. The latter proceeding, in view of the possibility of anaphylaxis occurring, would suggest itself to one as being specially open to objection when one remembers the weak condition of many patients suffering from diphtheritic paralysis.

Berliner klinische Wochenschrift.

November 7, 1910.

Internal Secretion of the Generative Glands.—Münzer begins a serial article which, from the very bulk of its detached information, is very much unsuited for abstraction. The subject differs somewhat from that of mere castration, as far as theory goes, but the phenomena induced in the economy by castration are due purely to the removal of certain cell groups in the interstitial tissue of the testicle and ovary. The relationship first noted is that between the cells just mentioned and the tegumentary structures, which appears to be very intimate. The author obtains his material from castrated animals of many species and from castrated men and women. The latter are readily obtainable from the clinic, but the male castrates are represented chiefly by eunuchs and members of a certain religious sect. The body of data secured is much larger than was formerly available and the individual cases vary greatly, whereas formerly they were placed in a few types. To return to tegumental changes in man. Recent writers state that human castrates look younger after the operation, but there is a larger and older literature which states that the very converse is true. A woman whose badly diseased ovaries are removed might for a time at least look younger and fresher. The reporters do not state how long these changes last. Those who have studied the Russian castration-sect state that the castrate looks either younger or older than he is. A withered, yellowish skin is, doubtless, sufficiently common in male castrates. There seems little doubt that the generative glands preside over the development of the tegumentary structures, so that their removal signifies an arrest of development. The result of such arrest seems to depend largely on the particular quality of the individual skin, the age of the subject, etc. But whether the patient looks younger or older, there are common symptoms present. The skin is abnormally thin, pale, etc. According to the circulation of the patient the complexion might seem lighter, the color higher, etc.; or in a darker, sallow skin the latter would be merely pale and yellowish. The great distinction between the complexions in health could hardly be without influence after castration. The writer, however, does not base any types upon these so that, for all we know, a sallow person may become more youthful looking and one of blooming appearance may look older as a result of castration. This is, in fact, directly stated of the male religious castrates. The marked loss of energy in both human and animal male castrates is believed to rest on a direct relation between the generative glands and the muscles, a certain loss of muscular tonus resulting. In an economical sense this loss, of course, represents a gain. The castrates have less muscular power, but the very loss enables one to use them for draft purposes, etc. This change in muscularity makes the flesh of certain animals more tender; but there is no universal law at work here. Thus the capon is by no means always a castrated cock, but one that has been crammed by force feeding. Skeletal growth seems also under the control of the internal secretions to some extent. Eunuchs are notable for their size, and castration of women for osteomalacia is distinctly curative. The earlier castration is done, *i.e.* during the period of tegumentary, muscular, and skeletal development, the more marked are the results. Many data are on record in regard to the skeletal changes in castrated animals, and those in savage races of men. Those who mature early sexually are usually very short of stature. The pelvis of a castrate, man or animal, is said to assume the female type, but otherwise there is no movement in this direction. The atrophying effect of castration or the arrest of development in either sex on the other genital organs has been abundantly studied. The effects of castration on the growth of the hair are complex. The head hair is not disturbed or may be increased. Women may develop a beard after castration, while men lose theirs. But hair anomalies are so common that the majority of them do not appear to depend on disturbance or removal of the generative glands.

Münchener medizinische Wochenschrift.

November 8, 1910.

Prevention of Epilepsy, Idiocy, and Psychopathy by Treatment of Nurslings and Young Children.—Thiemich discusses a possible connection between bottle-fed

and breast-fed infants in respect to relative cerebral development. Examination of the best endowed and efficient school children often shows a superior development of the head while the converse is also true. But too many exceptions occur to justify the setting up of laws. The author proposes to discuss only the disturbances of nutrition which affect mental development, leaving the effects of infectious disease to Hoppe. The subject leads into many bypaths, and the conclusions of the author as to his department may be stated: Of great importance for epilepsy is the elimination of an alimentary factor; or, in other words, there is not sufficient evidence to show that infantile convulsions and the so-called spasmophilic diathesis are forerunners of epilepsy. On the other hand, there is a marked connection between alimentary traumatisms during the first year and imbecility, as well as neuropathy, in general. There is reason to believe that a full diet of good breast milk prolonged a sufficient length of time might be of considerable prophylactic value. Such a diet, with general hygiene, should lead to a strengthening of the organism, with incidental normal quality of cerebral functions. Hoppe, discussing the possibility of preventing the sinister effects of infectious diseases upon the cerebrum of the nursling, states that some cases of meningitis, polioencephalitis, etc., appear to be directly due to measles and scarlatina. Some of the earliest cases of epilepsy seem to be due to infectious disease. There is little to be said of tuberculosis at this time of life. The bulk of Hoppe's article is therefore bound up in the effects of hereditary syphilis, which may be made responsible for a number of cerebral lesions. Suspicious cases may be treated as syphilitic (the authors make no reference to the claim that 606 is contraindicated in nurslings). Studies like the preceding are naturally weakened by omission of all considerations of antenatal pathology, but the authors are openly dealing with the born child only.

Pulmonary Tuberculosis and the Muscles of the Chest.—This antiquated subject has received considerable attention for the past twenty years or more, new problems arising from time to time which concern the walls of the chest in connection with the intimate nature of the *habitus phthisicus*. Fischer seems to confine himself to the state of the muscles directly over a tuberculous focus. The muscle first shows a state of paresis, which is best demonstrated by testing its mechanical excitability, the latter being increased. The primary condition is followed by degenerative atrophy. The only way of explaining these phenomena is that they are due to the absorption of the tuberculous toxin.

Successful Treatment of Pyorrhea Alveolaris.—Sachs, a practising dentist, writes this article in the interest of the medical practitioner. The condition is purely local, and due to local irritation. It is aggravated by numerous constitutional disorders which may represent a predisposing element, but is common enough in the most healthy subjects. The treatment is complicated, and varies with the duration and general state of the individual. Any constitutional disorder must be removed and the patient's health brought to the highest possible point. All local disturbances due to dead tissue and granulations must be removed, including salivary calculus, etc. Lactic acid 50 per cent. should be introduced into the alveoli. The teeth should be kept clean and, as a preventive measure, one must remove all fresh deposits of lime, which are generally promptly infected. The presence of fresh infection is shown by strong pressure over the alveolus, which is followed by a drop of pus. The measures used at first for combating the disease are, in fact, to be continued for at least a year. When all signs of pus have disappeared for several weeks the patient may be well, but it is mostly a matter of months, for considerable time is required for Nature to fix firmly the loosened teeth. Only in desperate cases does the author resort to reimplantation and bridgework, which often fail outright and may even aggravate the condition.

Deutsche medizinische Wochenschrift.

November 10, 1910.

Vaginal Operative Methods in Obstetrics.—Jung sums up his article as follows: Bossi's rapid and powerful dilatation with his dilator must be rejected, save in cases where the cervix is effected and regular strong pains are taking place. The method should never be used in a primipara, and no one should resort to it save a skillful and experienced obstetrician. Placenta prævia furnishes a strict contraindication. Metreurysis is the best resource for the gradual hastening of labor, and for placenta prævia with living child. Colpohysterotomy is the best resource for the placenta prævia centralis, but can be used only in the clinic. Metreurysis is the best way to cause premature labor. In placenta prævia with dead child combined version is the best resource. Whenever immediate delivery is necessary colpohysterotomy is indicated if the pelvis is normal. If the woman cannot be taken to the hospital metreurysis should be employed as an emergency measure. Dührssen's deep cervical incision is too bloody an operation to be done outside the clinic. The indications for typical cesarean section and Porro's operation are those usually given.

Treatment of Laryngeal Tuberculosis.—Schroeder tabulates his own experience as follows. He refers naturally to early cases. The patient should be in an institution and the kernel of the treatment is treatment of the patient, for the larynx usually improves with the improvement of the lungs and general state. When fever or complications are present these must first be treated. In certain cases with definite indication the various operative resources may be employed. Results from tuberculin treatment are dubious.

Treatment of Cancer of the Upper Third of the Esophagus.—Pernice, first discussing a cancerous stricture at this point, or rather a stricture suspected of being cancerous, would make a trial esophagotomy; but should the patient chance to be still vigorous would continue the intervention to radical operation. He would use Kocher's incision with two longitudinal incisions dropped from either end. If the cancer is found to have involved parts of the respiratory system these would have to be removed as well, and before attacking the esophagus. The stump of the trachea must be sutured to the skin, if it has been necessary to remove the larynx, etc. The mediastinal pouch must also be tamponed before removing any tissue. After extirpation of the diseased esophagus the lower extremity must be sutured into the skin as far as possible from the tracheal opening; that is the latter occupies the upper, while the former occupies the opposite angle of the wound. The upper stump of the esophagus is sutured completely submucous. Small, frequent meals must be given at once.

Subcutaneous Infusion in Eclampsia.—Fränkenstein believes that the known injurious effects of the saline infusion in kidney diseases eliminates it from the treatment of eclampsia. He suggests various substitutes without much seeming confidence, since any kind of infusion is dangerous if there is danger of cardiac collapse. Instead of the normal saline infusion may be substituted the infusion of 4 per cent. sugar solution.

Treatment of Myomata with Röntgen Rays.—Schnidler, who has recently published a monograph on this subject with some favorable results, has since added others to his list and now believes that these results justify the advice to the practitioner to subject his patient to treatment with the rays before surgical removal. Especially does he give this counsel in severe cases in which the prognosis of recovery under surgery is not good.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Section on Obstetrics and Gynecology.

Stated Meeting, Held October 27, 1910.

Dr. S. M. Brickner in the Chair.

Congenital Transverse Septum of Vagina Complicated by Pregnancy.—Dr. Max Rosenthal presented a woman, 23 years of age, who had consulted him three weeks after her marriage because of an irritation of the external genitals, a bad discharge, and pain in coitus. Examination showed an eroded and injected introitus. The vagina was about one and one-half inches long and formed a pouch in which there were no traces of the fornices. At the apex of the sac was a small opening which scarcely admitted a probe. The uterus could not be felt distinctly through the vagina. He had the impression that the cervix lay just above the opening of the sac. Three weeks after first seeing her she again presented herself and her symptoms indicated that she had become pregnant. They had therefore to deal with a pregnancy complicated by a congenital partial atresia of the upper part of the vagina. Neugebauer in his monograph on congenital and acquired stenoses and atresiæ of the vagina mentioned 57 cases of congenital transverse occlusion of the vagina and Brickner, six or seven years ago, published four similar cases in the *Zeitschrift für Geburtshülfe und Gynäkologie*. Several theories had been advanced to explain these malformations. Transverse partitions of the vagina were found normally in the chimpanzee and some regarded these deformities as atavistic manifestations. This anomaly might also be accounted for by an invagination of the Wolffian duct into the duct of Müller after the formation of the genital cord. Perhaps the most likely explanation was some irregularity of absorption of the Müllerian ducts during that part of embryonal life when these ducts became absorbed to form the vagina. According to Neugebauer Cesarean section had to be resorted to in 56 cases in which this deformity existed, including 28 Porro operations. In one of Brickner's cases he was able to effect a delivery by the natural passages by simply making crucial incisions into the membrane which presented in front of the protruding head. Inasmuch as pregnancy had supervened before he had decided upon what plan to pursue in order to correct the deformity he had decided not to interfere for the present, as he did not care to risk inducing an abortion by surgical manipulations and he had further decided that an excision at the present time might result in stenosis from the cicatrization of a circular wound, which might be an even more impassable barrier than the present condition. He intended to wait until labor set in and act according to indications.

Dr. Simon Marx said that during the past twenty years he had seen three cases of a similar nature. In one case the vagina was one and a half inches in length and the cervix could be felt behind it. He inclined to the belief that it was a transverse hymen. When this patient became pregnant and went into labor the septum stretched out; an incision made into it permitted the baby to promptly appear. In another case labor was practically normal. In a third case the transverse partition was torn, the vagina and perineum were torn, dissecting the vagina entirely away from the rectum.

Dr. James N. West reported an instance of transverse septum of the vagina in a woman who had aborted at the third month. She had retained secundines and it was necessary to curette her. The vagina was so narrow that it was impossible to introduce a speculum. So he divided the septum and introduced a clamp on each side, suturing them in place with catgut. He then curetted her. She made an uneventful recovery.

Dr. S. M. Brickner believed that the patient presented by Dr. Rosenthal had a congenital malformation of the vagina, a condition which he had met with about twenty-five times. In all the cases they were able to demonstrate some vestiges of the hymen. The condition itself presented nothing of importance until the woman became pregnant. In speaking of the etiology of the condition he referred to some anatomic work and what he had found in the whale, sheep, and other animals. He demonstrated upon the blackboard the different transverse septa as they appeared in different animals. They acted as barriers to the seminal fluid. These transverse septa represented he thought a reversion of type.

Dr. Rosenthal said that his first impression was that he was dealing with an imperforate hymen. The cervix could be felt on top of the opening. This was in all probability a congenital transverse septum of the vagina.

Large Fibroma of the Ovary with Twisted Pedicle.—Dr. Louis Friedman reported this case, an Italian girl nineteen years of age. She had begun to menstruate at the age of sixteen. Two years ago menstruation stopped for ten months, when it again became regular. About six months previous to her admission to the hospital she had noticed a hard mass in the abdomen. She was taken with sudden colicky pains, which were not relieved by morphine; she vomited several times and had some temperature. On admission to the hospital she had a pulse of 158 and a temperature of 104.2. The entire abdomen was rigid; there was a tender mass in the McBurney region and evidence of some fluid in the abdomen. The symptom complex was presented of an appendix abscess with peritonitis and the usual Kammerer incision was made. The tumor proved to be a fibroid of the right ovary with a pedicle twisted one and one-half times. The pathologist's report was read which showed the growth to be a pure fibroma of the ovary, measuring 22 x 14 x 12 cm.

Dr. Robert T. Frank said that such tumors required operation because they were so often followed by massive ascites. Even in cases of comparatively small fibroma of the ovary, attention would be called to the condition because of the marked ascites.

Dr. H. D. Furniss reported the case of a girl, seventeen years old, who had a growth which was diagnosed dermoid of the ovary. It was found to be a fibroma of the ovary. There was about one pint of free fluid in the abdomen.

Puerperal Pyonephrosis.—Dr. Ralph Tousey reported this case, a woman, forty-four years of age, who had always enjoyed good health up to the time of the birth of her second child, twenty-four years after the birth of the first. The child was born without instruments, but the placenta did not come away readily and was manually extracted an hour later. On the fifth day post partum there was a sudden rise of temperature of 103° F., and the uterus was explored without finding any retained potions of the placenta or membranes. The bladder was catheterized and from this time there was slight bladder discomfort and increased frequency of micturition. Five weeks after labor these symptoms became more marked and the health of the patient began to fail. Three months after labor she had a gnawing pain in the left lumbar region. Blood examination showed a low hemoglobin percentage and a high leucocyte count. At the end of four months after labor the woman had lost thirty pounds and passed urine hourly by day and by night with vesical tenesmus. The left kidney was painful, tender, and presented a fluctuating tumor reaching to the navel, and pushing the enlarged spleen toward the median line. The right kidney was palpable but not tender. The urine from the bladder and from the left kidney was full

of pus, but without casts or kidney elements. *Staphylococcus pyogenes aureus* was alone present. The cystoscope showed a general cystitis without ulceration. Treatment with urotropin, abundant fluids, bladder irrigations with boric acid lessened the discomfort. At operation an incision was made over the fluctuating tumor and several pints of creamy pus evacuated from the pelvis of the left kidney. Slight adhesions to the descending colon were separated and the pelvis and an abscess in the cortical portion of a kidney were drained with rubber tubing; gauze drainage surrounded the mass and the wound was partly closed. Relief from all disease symptoms was immediate, the temperature only once rising above 100° F. The tube was removed on the tenth day, the tumor mass disappeared, and the urine gradually approached normal. After eight weeks in bed the patient regained her health and strength. Urotropin and abundant fluids were continued. At present, four months after operation, the patient had a granulating wound one inch long with a urinary fistula through which leaked a half ounce of urine daily. The bladder urine still showed a slight trace of pus.

Toxic Hematoporphyrinuria, Complicating Septic Perforation of the Uterus with Peritonitis.—Dr. S. Wiener reported the case of a woman, twenty-five years of age, admitted to Mount Sinai Hospital on July 31, 1910, after having taken repeated doses of saffron for the purpose of inducing abortion, and after having used hot vaginal douches, inserting a hard rubber tube about six inches. This was followed immediately by severe abdominal pains and bleeding; the blood passed was bright red. The general condition of the patient on the morning of her admission was poor, facies anxious, pale, and lips cyanotic. The eyeballs were icteric, tongue dry, temperature 102° F. Pulse was 124, regular, soft, and compressible. The white blood cells were 15,000 and polynuclears 87 per cent. The abdomen was lax and tympanitic in the upper half, while the lower half was rigid with dulness on percussion. Tenderness extended over the entire abdomen, but was most marked in the iliac regions. The cervix was soft and admitted the tip of the finger and the uterus was enlarged to the size of a two months' pregnancy. A small quantity of port-wine colored urine was obtained by catheterization and aroused a suspicion of injury to the bladder. Urinalysis showed no red blood cells, no hemoglobin, a few granular casts, amorphous urates and a trace of albumin. The reaction was acid. A further specimen showed the presence of hematoporphyrin. The patient was operated upon and eight ounces of fluid blood was found in the abdomen. All the visible peritoneum was injected and on the posterior surface of the uterus there were two small irregular perforations. A panhysterectomy was done. Both tubes and ovaries were intensely congested; the ovaries were cystic and the corpus luteum of pregnancy was found in the right ovary. Murphy irrigation was started and camphor and morphine injected hypodermically. The pulse and general condition grew worse; the lips and extremities at first were deeply cyanotic, then of a remarkable purplish black hue. The patient sank into coma and died. Autopsy was refused and a blood culture taken *intra vitam* was negative and there was no growth in the tube inoculated with peritoneal fluid. It was a difficult matter to say to what extent the drug toxemia contributed to the fatal issue. The peculiar discoloration and the rapid onset of coma seemed to indicate that the immediate cause of death was saffron poisoning and not peritonitis. The hematoporphyrinuria must be attributed to the ingestion of saffron. The cases of saffron poisoning reported by Garrod and Corvey which Dr. Wiener reviewed showed blood in the intestines and in the stomach, and in Ferraris' case the urine was reported as "bloody." Garrod had shown that intestinal hemorrhage might give rise to hematoporphyrin.

Dr. Max Rosenthal said that saffron had first been used as a coloring matter in the making of bread. Some years ago there appeared a report of a large number of cases in which death was due to saffron which had been taken to procure abortion.

Four Cases of Ureteral Calculi.—Dr. H. D. Furniss reported these cases. He stated that his reason for bringing them before the section was because they gave very different clinical histories and for this reason were instructive. They taught that renal calculi might exist with few, if any, of the typical text-book symptoms.

Case I.—Mrs. H., aged fifty-seven, whose previous history was negative, experienced pain in the left renal region for the first time a year before Dr. Furniss had seen her. The pain did not radiate to the front, upward, nor downward, nor was it referred to the opposite side. It lasted twelve hours, during which time there was no frequency of urination; but a month later she began to be troubled with frequent micturition. Physical examination revealed nothing abnormal except a small elongated mass in the region of the left ureter, to the left and behind the cervix. The two ureteric orifices were alike but a catheter inserted into the left met with an obstruction three-quarters of an inch up. A radiograph showed a shadow at this place. The patient refused an operation.

Case II.—Mrs. E. R., aged fifty-three years, whose history was negative, had been in good health until five years ago, when she began to have attacks beginning with lassitude followed by a sensation of lameness in the outer side of the right thigh. There was pain in the right renal region which radiated to the front and downward along the course of the ureter. Then followed frequency of urination. After about twelve hours the patient was relieved of the pain, but was prostrated for a week. The day following the attack the urine was quite turbid. These attacks had occurred at intervals of from eight to ten weeks. An attempt was made to catheterize the ureters and an obstruction was met with three and one-half inches from the vesical orifice. A radiograph showed two shadows at this point. The urine flowed only from the left ureter. The patient was operated upon and made a good recovery.

Case III.—This woman, forty-one years of age, gave a history of an instrumental delivery, puerperal fever, phlebitis of both legs, after which she had attacks of pain, associated with temperature, in the right kidney region during a period of three years, which terminated after the discharge of a large amount of pus through the bladder. Two months after this she began to have pains in the left kidney region associated with nausea and temperature. During attacks the urine would be clear, but between attacks pus was found constantly. During the past year each attack had become more severe. There was no frequency of micturition except at night. Catheters were passed easily to the pelvis of the kidney on both sides. The urine from the right kidney was clear, while that from the left was turbid from the presence of pus. A radiograph showed the presence of two stones in the pelvis of the left ureter. A radiograph taken with the bougie inserted showed that the bougie passed them.

Case IV.—Mrs. L., twenty-six years of age, whose previous history was negative, was four months' pregnant, had severe crampy pains in the left lumbar and inguinal region lasting for eighteen hours. She was ill with the pain and temperature for a week; after this she had pain in both inguinal regions. Three weeks after her labor she passed an oval stone, experiencing pain only when the stone passed the urethra. Three weeks later she passed another stone and had some frequency of urination before the pain. Cystoscopy showed a normal bladder. The catheter in the left ureter was obstructed three inches up the ureter. Radiographs showed that there were two stones in the left kidney, a stone in the left ureter opposite

the transverse process of the third lumbar vertebra, two stones in the pelvic portion of the left ureter, and a stone opposite the transverse process of the third lumbar vertebra in the right ureter. The urine from the right side was clear, while there was a moderate amount of blood from the left.

The Value of Local Treatment in Gynecological Cases.—Dr. JOHN VAN DOREN YOUNG read this paper in which he expressed the opinion that the value of local treatment of gynecological cases, in both private and hospital practice, was much underestimated by surgeons and was not fully appreciated by the physician in general practice. It was his object in this paper to bring out discussion which might more clearly define the dividing line which separated those cases which should receive local treatment and those which were amenable only to operative procedures. At present there was danger of expecting too much from surgery; it was the combination of surgery and local treatment that gave the best result. Dr. Young divided local treatment into three groups: The first, hygiene and general care; the second, treatment applied directly to the affected parts; and the third, treatment which might be carried out by the patient in her home. Under the first head Dr. Young emphasized the importance of proper hygiene, clothing, exercise, proper sleeping quarters, dietary, and especially the care of intestinal toxemia and constipation. If the general health was neglected little could be expected even from a most skillful operation. Tonics looking toward the improvement of the appetite, digestion, and anemia were most important. He had obtained very satisfactory results from the use of glycerophosphate of soda in fifteen grain doses in a glass of hot water one hour before meals, combined with calomel one tenth of a grain, and with three grains of soda every four hours. He urged the importance of sleeping in a well ventilated room or outdoors, if possible. The mental conditions and surroundings should also be taken into consideration as they often had a decided influence on the progress of the case. In considering the second head, local treatment, Dr. Young called attention to the importance of taking a careful history and stated that the examination should be made on a proper examining table with the patient properly prepared, bowels and bladder emptied, corsets removed, and all waist bands loosened. Inspection of the external genetalia should be made first, followed by digital examination, examining the right side of the pelvis with the right hand and the left side with the left hand. Dr. Young outlined the routine treatment which he carried out in both private and hospital practice as follows: The external genitalia were cleansed by a boric acid solution and dried. If an acute inflammatory condition was present the same solution was used on a cotton swab and the vaginal canal was cleansed. Crude pyroligneous acid was then applied to the external genitalia and to the vaginal canal. The speculum was then introduced and the cervix cleansed with boric acid solution and crude pyroligneous acid applied up to the internal os. Iodine was applied to the cervix ulcerations and carbolic acid and iodine where a more active agent was required. Pure carbolic acid or the actual cautery might be used. Cysts of the cervix were punctured. Tampons were of actual value and might be divided into alkaline, antiseptic, specific antiseptic, hygroscopic, and hygroscopic with analgesics. He recommended the use of ichthyol 10 to 20 per cent. in glycerin, also 10 to 20 per cent. in boroglyceride. The combination of boroglyceride with ichthyol, iodine, carbolic acid, and hydrastis had given him excellent results. Pipe clay with glycerin or combined with glycerin and ichthyol he used as a serviceable supporting tampon. His method of tamponade was to apply the medication upon absorbent cotton and to hold the cotton in place by tampons of lamb's wool. Applications, either by applicators or syringe, might be made in the uterine cavity with great advantage. Irritant applications should be intermitted if the treatment was frequent or the vaginal mucosa would be damaged. Electricity had its advantages. All treatment, vaginal or intrauterine, should be carried out with surgical precautions. In discussing the third factor in local treatment, those measures which the patient could carry out herself, Dr. Young mentioned the douche, which should be given in the recumbent posture, from two to twelve quarts being used at a temperature of from 100° to 120° F. As so frequently used the douche was valueless. He advised rest after taking a prolonged douche. Postural treatment might be advantageously carried out by the patient to rest an anteflexed and anteverted uterus by assuming the Trendelenburg position. In cases of retroversion rest upon the face or the knee-chest position would often give relief. Dr. Young was sceptical in regard to tampons and suppositories introduced by the patient herself. The cases in which local treatment was of value might be outlined as follows: Inflammation of the external genitalia, infections of the urethra and bladder, many conditions of the rectum and anus, inflammatory and infectious conditions of the vagina, cervix, and endometrium, erosions, ulcerations or cystic degeneration of the cervix, cervical stenosis, uterine and pelvic congestion, local peritonitis, tubal infection, retroversion, and the inoperable uterine prolapse in elderly patients. Local treatment had a field both as preparatory to operation and for the relief of postoperative conditions.

Dr. SAMUEL BANDLER called attention to two or three points which he said had been impressed upon him as being important in the treatment of cases other than operative. He believed that drugs applied locally or in douches much above the external or internal os were not very effective. Their action upon the higher areas was purely a mechanical one. It should be remembered that water at a certain temperature would produce anemia, while at another it would produce hyperemia. One should bear in mind the mechanical principles involved and bring about an anemia or a hyperemia according to indications. Dr. Bandler said that he was a great believer in electricity in nonoperative cases. With this agent one could produce anemia or hyperemia according to his wants. Another factor which was of great value was the substitution of gauze for cotton for vaginal packing. He rarely used cotton tampons as they were not valuable in supporting the uterus. Where operation was not urgent the patient should be prepared for it beforehand. He had adopted the principle of applying postoperative treatment before the operation.

Dr. JAMES N. WEST said that if there was any condition in which local treatment was of value it was in diseased conditions of the cervix. It was very important that the cervix should be treated before operation. A cervix filled with small cysts, erosions, etc., to such an extent that amputation seemed necessary, was many times relieved of the diseased condition and then operation became a matter of simple trachelorraphy, which retained fecundity. With regard to the treatment of retroversions, Dr. West recalled several instances in which the retroverted uterus was in the hollow of the sacrum and abortions occurred about the third month in each case. In two of these cases operation was refused and by packing the vagina to support the uterus and hold it above the pelvic brim until the natural enlargement of that organ from the growth of the fetus kept it up had enabled the women to go to term. It was surprising to note the relief that could be afforded patients with inflammatory conditions or retroversions. When he assisted Dr. Emmett at the Woman's Hospital they had used lamb's wool for packing, and cotton only for medication. Such tampons could remain in the vagina two or three days without irri-

tating the patient at all and there was no odor. He had applied argyrol, silver nitrate, and other medicaments to the interior of the uterus, but never got satisfactory results. He felt that local treatment so far as inflammatory conditions were concerned was limited to the cervix, the vagina, and the vulva.

Dr. JOHN O. POLAK said that it was surprising how little the general practitioner knew about the introduction of the pessary at the present time. Unless properly placed the vagina would not tolerate this foreign body. Dr. Skene had suggested that the vagina should have preliminary treatment before the pessary was introduced. If tolerance was once obtained it was amazing how long a patient could wear a pessary without discomfort. He agreed with what had been said in regard to intrauterine applications. They did no good. In gonorrheal cases nature in time would kill the gonococcus inside the uterus. He had followed cases with pus tubes for years, five or ten, and then opened the abdomen and found them intact. Every tube containing the gonococci did not always form a pyosalpinx. The douche worked well in cases of leucorrhea, especially when a dilute one-half to two per cent. lactic acid solution was used.

Dr. CHARLES GARDNER CHILD called attention to the vagueness of the description in text books as to how to make applications through the vagina and to the vagina. The proper method was to have the patient in the knee-chest position, retract the perineum, with the finger or speculum, and when the vagina bulged out from the in-rush of air to make the application. The only field for the use of a pessary was in displacements with a freely movable uterus and one which was replaceable. The less tamponing that was done the better for the patient. The vagina should always be prepared before the introduction of the pessary.

Dr. ROBERT T. FRANK said that there were two classes of cases which were particularly difficult to treat, especially in dispensary practice. The first class consisted of those young women who developed rectocele and cystocele with leucorrhea after child-birth. While an operation would relieve the condition it was contraindicated because if the woman had more children the operation would be nullified. The second class consisted of those cases of diseased adnexa in which pains were comparatively slight and the acute stage of the disease passed, but in which malpositions were present. Tamponing and other mechanical measures relieved these patients to a certain extent. Frequently when these patients came to operation a more radical operation was found necessary than had previously seemed to be indicated. In these two classes of cases medical treatment was very unsatisfactory but was, nevertheless, preferable to operative interference in young women.

Dr. SOLOMON WIENER spoke of another form of local treatment, the use of the hot-air cabinet. This treatment relieved pain. Two applications of twenty minutes each were often made, after which patients would state that pain was much relieved.

Dr. JOHN VAN DOREN YOUNG said that he had seen many patients at the clinics for whom something should be done; it seemed a pity not to try to help them. Dr. Young commended the interesting nonoperative gynecological work that Cabot of Boston had done.

The Small Cystic Ovary.—Emile Forgue and Georges Massabuau state that the cardinal symptoms attributed to the microcystic ovary are pain, hemorrhage, and general nervous symptoms. Many sclerocystic ovaries do not cause pain. Others are accompanied by inflammatory symptoms due to pelvic peritonitis and adhesions, and it is the removal of these ovaries that brings relief of the pain. There are also small, free ovaries that are very painful, and their removal brings with it little relief. Hemorrhage seems to be caused much more frequently than pain by the sclerocystic ovary.—*Revue de Gynecologie.*

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

STATE BOARD OF MEDICAL EXAMINERS OF NEW JERSEY.

June, 1910.

ANATOMY.

Answer any ten questions on this paper, but no more.

1. Describe the coccyx. Name the muscles attached to it.
2. Describe the ileocecal valve. What is its function?
3. Give the coverings of a femoral hernia from within outward.
4. Give the minute structure of the kidney.
5. Describe the inferior radio-ulnar articulation.
6. Describe the suprarenal glands. State their function. What would be the effect of their removal?
7. Describe the glands and villi of the intestines.
8. Give the foramen of exit, the distribution, and the function of the oculomotor nerve.
9. Where does the glossopharyngeal nerve rise, and what structures are supplied by this nerve and its branches?
10. Locate and describe the lymphatics of the front of the thorax.
11. Give the origin, course and branches of the temporal artery.
12. Name the principal centers of organic function in the medulla oblongata.
13. Locate the respiratory center.
14. From what portions of the cortex cerebri do the arm, face and leg receive their motor impulses.
15. What would be the effect of a transverse section of (*a*) the anterior root, (*b*) the posterior root of a spinal nerve?

PHYSIOLOGY.

Answer any ten questions on this paper, but no more.

1. What is blood pressure?
2. Name six factors that influence it.
3. Compare woman's and cow's milk.
4. State the functions of the facial nerve.
5. What kind of digestion occurs in the duodenum?
6. Where do the products of digestion actually get into the blood?
7. What is a proteid?
8. Name the ductless glands and give their function.
9. How is the bodily heat maintained?
10. What is muscular co-ordination, and by what centers is it controlled?
11. What disturbances would follow ligation of the renal arteries?
12. What is the actual cause of death when induced by asphyxiation, and where is the damage localized?
13. Compare voluntary and involuntary muscle. State one exception to the general rule of their differences.
14. State the properties of pancreatic juice.
15. Compare physiologically, mucous, serous, and synovial membrane.

CHEMISTRY.

Answer any ten questions on this paper, but no more.

1. Discuss arsenic and mention its properties, uses and compounds. Give antidote for poisoning by arsenic.
2. Name three elements in the potassium group, with their symbols and atomic weights.
3. Give the symbol and quantivalence of sulphur. What are the principal oxygen compounds of sulphur? In what form is it used as a germicidal and disinfecting agent?
4. (*a*) State the normal reaction of urine. (*b*) To what is it due? (*c*) State the variations in normal specific gravity. (*d*) What pathological conditions are indicated by a very high or a very low specific gravity?
5. Give the chemical formula and derivation of acetic acid. Mention the most important acetates.
6. Give the names and formulas of three gases used for producing general anesthesia.
7. What are enzymes? Mention those of animal origin and where found.
8. Give test for the detection of bile in the urine.
9. Which are the principal opium alkaloids and with what acid are they combined in opium.
10. What is cholesterin? In what pathological condition is it found?
11. Give the chemical formulas and common names of magnesium hydrate and magnesium sulphate.
12. (*a*) What is tartar emetic? (*b*) What are the symptoms of poisoning by tartar emetic?
13. (*a*) What is hemoglobin? (*b*) In what pathological condition is hemoglobin found in the urine?

14. (*a*) What is the ammonium radical? (*b*) Give chemical formula of the ammonium compound contained in aromatic spirit of ammonia.

15. (*a*) Give the source and chemical formula of common salt. (*b*) How are chlorides chemically recognized in urinary analyses?

MATERIA MEDICA AND THERAPEUTICS.

Answer any ten questions on this paper, but no more.

1. Name (*a*) the source, (*b*) the preparation, and (*c*) the effects of ergot.

2. Differentiate the symptoms of atropia and morphia poisoning.

3. (*a*) By what drug, and (*b*) by what method may local anesthesia be induced?

4. Explain the theory of the action of antitoxin.

5. (*a*) Mention five preparations having antiseptic properties; (*b*) give adult dose of each.

6. Describe (*a*) the method of administration, and (*b*) the results to be accomplished by the hot pack.

7. State (*a*) the source, (*b*) the action, and (*c*) the therapeutic uses of strychnia.

8. (*a*) What remedies may be used in septic condition of the alimentary canal? (*b*) Give dose of each.

9. Outline a dietary in (*a*) chronic rheumatism, and (*b*) chronic interstitial nephritis.

10. Write a prescription for any ailment in which iodide of potassium may be used.

11. Specify (*a*) three official preparations of aconite; (*b*) adult dose of each.

12. Give (*a*) the source, (*b*) the physiological action, and (*c*) the infantile dose of santonin.

13. (*a*) Prescribe in proper form for diarrhea in a child four years of age; (*b*) explain the action of each ingredient.

14. Give (*a*) the therapeutic uses, and (*b*) the adult dose of terebine.

15. Define (*a*) alteratives, (*b*) antipyretics, and (*c*) mydriatics.

HISTOLOGY—PATHOLOGY—BACTERIOLOGY.

Answer any ten questions on this paper, but no more.

1. Describe the rôle of uric acid in gout.

2. Give etiology of valvular heart disease.

3. How does aortic insufficiency affect the circulation of the blood?

4. Define anemia.

5. Define immunity.

6. Describe a microscope and such accessories as you would use in histologic work.

7. Describe preparation of objects for microscopic examination.

8. Describe the cell body.

9. Describe the process of mitotic cell division.

10. Define chromatolysis.

11. What are bacterins?

12. What is the effect of an injection of bacterial vaccine?

13. Describe preparation of and varieties of culture media.

14. Give technique of making plate cultures.

15. Give method of examining sputum for detection of tubercle bacilli.

PRACTICE OF MEDICINE.

Answer any ten questions on this paper, but no more.

Differentiate:

1. Acute pericarditis and acute endocarditis.
2. Apoplexy and acute alcoholism.
3. Cancer and ulcer of stomach.
4. Chancre and chancroid.
5. Diabetes and acute glycosuria.
6. Epilepsy and hysteria.
7. Hemoptysis and hematemesis.
8. Intestinal and hepatic colic.
9. Organic and functional heart disease.
10. Pneumonia and pleurisy with effusion.
11. Pyelitis and cystitis.
12. Scurvy and purpura.
13. Typhoid fever and acute tuberculosis.
14. Edema glottidis and retropharyngeal abscess.
15. Cerebral concussion and cerebral compression.

OBSTETRICS AND GYNECOLOGY.

Answer any ten questions on this paper, but no more.

1. Give a comparative description of the virgin uterus and the uterus after child-bearing.

2. State procedure in case the head refuses to engage the pelvic brim.

3. How may rupture of the uterus complicating delivery be recognized? How should such a condition be managed?

4. Under what circumstances during labor may obstetric anesthesia become advisable? Mention an appropriate anesthetic for this purpose and describe the method of its administration.

5. What may cause delay in the second stage of labor? How should such a condition be managed?

6. What are three most dangerous forms of uterine hemorrhage?

7. Outline your treatment of the foregoing types of uterine hemorrhage.

8. Describe toxemia of pregnancy and state what may be done to prevent or to relieve this condition.

9. Under what circumstances is induction of abortion permissible and how is it safely performed?

10. Name the varieties of salpingitis and give briefly the etiology and diagnosis.

11. What are the causes of pelvic abscess. Describe method of surgical treatment.

12. Mention the causes and state the management of cystitis in the female.

13. Mention the prodromal symptoms of puerperal eclampsia. Describe the management of puerperal eclampsia.

14. Give the causes, diagnosis, and treatment of prolapse of the ovary.

15. What is ophthalmia neonatorum? How prevented? How cured?

SURGERY.

Answer any ten questions on this paper, but no more.

1. Give diagnosis and treatment of intracapsular fracture of the femur.

2. Give technique of posterior gastroenterostomy.

3. Etiology and treatment of senile gangrene.

4. Give causes, symptoms, and treatment of phlebitis.

5. Mention the causes of non-union of fractures.

6. Give causes, diagnosis, and treatment of abscess of the liver.

7. How would you treat a penetrating wound of the trachea?

8. Describe acute suppurative osteomyelitis of the tibia.

9. Gonorrheal arthritis; diagnosis and treatment.

10. Differentiate between fracture of the neck of humerus and subcoracoid dislocation.

11. Discuss etiology of thrombosis.

12. Symptoms and treatment of acute pancreatitis.

13. Diagnosis of floating kidney.

14. Mention the conditions that may necessitate amputation of an extremity.

15. Etiology and treatment of cystitis.

HYGIENE AND MEDICAL JURISPRUDENCE.

Answer any ten questions on this paper, but no more.

1. Describe the methods usually employed for the sterilization of drinking water.

2. (*a*) What conditions of soil tend to promote health? (*b*) What conditions tend to impair health?

3. State (*a*) the main source of infection in tuberculosis; (*b*) what personal hygienic measures may be employed to prevent its spread? (*c*) what disinfectants and what method of application will tend to prevent house infection?

4. Outline in detail the precautions that should be taken in the treatment in scarlet fever to prevent the spread of the disease.

5. What diseases spread by infection from person to person?

6. What temperature should be maintained in the sick room in the treatment of (*a*) croup, (*b*) pneumonia, (*c*) typhoid fever?

7. Name the diseases regarded as quarantinable.

8. Define food and name two which are in themselves complete or perfect foods.

9. What are the legal obligations between physician and patient?

10. What are the essentials of a thorough medical examination of an applicant for life insurance?

11. What constitutes expert medical testimony?

12. Name the post-mortem signs external and internal of recent drowning.

13. In signing a certificate of insanity what facts relating to the patient should be recorded?

14. Define a wound in its medicolegal sense.

15. In witnessing a will what facts should satisfy the physician as to the mental competency of the testator?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

STATE BOARD OF MEDICAL EXAMINERS OF NEW JERSEY.

June, 1910.

ANATOMY.

1. See Cunningham's "Anatomy" (1909), page 87; or Gray's "Anatomy" (1908), page 65.

2. See Cunningham's "Anatomy" (1909), page 1077; or Gray's "Anatomy" (1908), page 1315. The *function* of the ileocecal valve is to prevent the contents of the large intestine from passing backwards into the small intestine.

3. *The coverings of a femoral hernia from within outward* are: Peritoneum, subperitoneal areolar tissue, septum crurale, crural sheath, cribriform fascia, superficial fascia, and skin.

4. See Cunningham's "Anatomy" (1909), page 1138; or Gray's "Anatomy" (1908), page 1426.

5. See Cunningham's "Anatomy" (1909), page 282; or Gray's "Anatomy" (1908), page 317.

6. See Cunningham's "Anatomy" (1909), page 1213; or Gray's "Anatomy" (1908), page 1437. The *function* of the suprarenal glands is not definitely settled; they produce an internal secretion which is probably necessary to life; it is supposed that they are able to destroy or remove some toxic substance produced elsewhere in the body. *Removal* of both suprarenals causes death very soon; removal of one suprarenal is not necessarily fatal.

7. See Cunningham's "Anatomy" (1909), page 1062; or Gray's "Anatomy" (1908), page 1300.

8. The oculomotor nerve leaves the skull through the sphenoidal fissure, and is distributed to the levator palpebræ superioris, rectus superior, rectus inferior, rectus internus, and obliquus inferior muscles of the eye. It is the *motor* nerve of these muscles.

9. See Cunningham's "Anatomy" (1909), page 689; or Gray's "Anatomy" (1908), page 1066.

10. See Cunningham's "Anatomy" (1909), page 923; or Gray's "Anatomy" (1908), page 807.

11. See Cunningham's "Anatomy" (1909), page 809; or Gray's "Anatomy" (1908), page 612.

12. The special centers located in the medulla oblongata are: (1) Center for mastication, (2) for secretion of saliva, (3) for sucking, (4) for deglutition, (5) for vomiting, (6) for voice, (7) center for expression, (8) cardiac centers, (9) respiratory centers, (10) vasomotor centers.

13. The respiratory center is situated at the tip of the calamus scriptorius, in the gray matter in the floor of the fourth ventricle.

14. The *motor areas* are located and arranged on the cerebral cortex, immediately in front of the fissure of Rolando. At the upper part of the convolutions in front of this fissure are areas connected with the movements of the lower extremities; then from above downward are located the centers for movements of the shoulders, arms, wrists, fingers, face, lips, tongue, and larynx and pharynx.

15. Transverse section of the *anterior root* of a spinal nerve causes loss of motion and degeneration of the peripheral portion of the anterior root fibers; the sensory fibers of the posterior root are not affected.

Transverse section of the *posterior root* of a spinal nerve causes loss of sensation and degeneration, which latter differs according as the section is made on the proximal or peripheral side of the ganglion. If the section is made between the cord and the ganglion, degeneration only occurs in the piece severed from the ganglion, but connected with the cord. If the section is made beyond the ganglion, degeneration occurs in the fibers peripheral to the lesion.

PHYSIOLOGY.

1. *Blood pressure* is the pressure of the blood against the walls of the blood vessels, due to the ventricular systole, the elasticity of the walls of the arteries, and the resistance of the capillaries.

2. In addition to the three factors just mentioned in Question 1 are: (4) The frequency of the heart beat, (5) the quantity of blood in the circulation, (6) vasomotor influences.

3. Human milk contains less proteids and fats and salts than cow's milk, and at the same time contains more sugar and more water.

4. The facial nerve is the motor nerve of the muscles of expression, also of the platysma and the buccinator; it also supplies the muscles of the external ear, the stylohyoid, and the posterior belly of the digastric. Through the chorda tympani it is a nerve of taste and a vasodilator of the vessels of the submaxillary and sublingual glands.

5. In the *duodenum*, proteids, fats, and starches are digested.

6. The products of digestion get into the blood: (1) In the portal vein, and (2) where the thoracic duct enters the venous circulation, at the junction of the left subclavian and internal jugular veins.

7. A *proteid* is a complex organic substance, of unknown constitution, composed of carbon, hydrogen, oxygen, nitrogen, and sometimes containing also sulphur, iron, or phosphorus. It has distinct chemical properties, and is the chief constituent of muscles, glands, nerves, blood, lymph, and serum. It is indispensable to all animal and vegetable life.

8. The *ductless* glands are: The spleen, thymus, thyroid, parathyroids, suprarenals, carotid, cocygeal, pituitary, and pineal glands. The *function of the spleen:* The following theories have been held: (1) It is a source of production of the white blood corpuscles; (2) it is a source of production of the red blood corpuscles during fetal life; (3) it is a place where the red blood corpuscles are destroyed; (4) uric acid is produced in the spleen; (5) an enzyme is produced in the spleen and is carried by the blood to the pancreas, where it converts the trypsinogen into trypsin. The *function of the thymus* is not settled; it is said: (1) To be a blood forming organ; (2) to have influence on growth and nutrition; (3) in hibernating animals it is supposed to store up materials which can be utilized during the period of inactivity. The *function of the thyroid* is not definitely settled; (1) it has some trophic function; (2) it is supposed to antagonize toxic substances; (3) it produces an internal secretion. The *function of the suprarenals* is not definitely settled; they produce an internal secretion which is probably necessary to life; it is supposed that they are able to destroy or remove some toxic substance produced elsewhere in the body. The *function* of the *other* ductless glands is unknown. They all, or nearly all, furnish an internal secretion.

9. The heat of the body is *maintained* by the thermotactic centers in the brain and cord, keeping an equilibrium between the heat gained or produced in the body and the heat lost. *Heat is produced in the body* by: (1) Muscular action; (2) the action of the glands, chiefly of the liver; (3) the food and drink ingested; (4) the brain; (5) the heart; and (6) the thermogenetic centers in the brain, pons, medulla, and spinal cord. *Heat is given off from the body* by: (1) The skin, through evaporation, radiation, and conduction; (2) the expired air; (3) the excretions—urine and feces.

10. By *muscular co-ordination* is meant the harmonious working of various related muscles to produce a definite result. The *centers* are in the cerebellum and spinal cord.

11. Ligation of both renal arteries is fatal.

12. The actual cause of death in asphyxia is paralysis of the respiratory center by the prolonged action of the venous blood. The damage is chiefly found in the right side of the heart, the pulmonary arteries, and systemic veins, all of which are gorged with venous blood; the left side of the heart, pulmonary veins, and systemic arteries, are empty.

13. *Voluntary muscle* is under the control of the will; *involuntary* is not. *Involuntary* muscles have alternate periods of rest and activity, or are characterized by rhythmicality; involuntary muscles are also characterized by peristalsis. *Voluntary* muscle is striated, has long narrow fibers with cross striations and many nuclei beneath the sarcolemma. *Involuntary* muscle is non-striated, has spindle-shaped fibers, one nucleus centrally located, and no sarcolemma. The great exception is cardiac muscle, which is involuntary and also striated.

14. The *pancreatic juice* is a viscid, alkaline fluid. It contains four ferments: Trypsin, which converts proteids into proteoses and peptones and afterward decomposes them into leucin and tyrosin; amylopsin, which converts starches into maltose; steapsin, which emulsifies and saponifies fats; and another ferment which curdles the casein of milk. It also contains: Leucin, tyrosin, xanthin, soaps, chlorides of potassium and sodium, phosphates of calcium, sodium and magnesium, sodium carbonate, and water.

15. *Mucous membrane* lines those parts which communicate with the exterior of the body; it contains glands, basement membrane, connective tissue support, blood and nerve supply, and epithelium.

Serous membrane lines closed cavities (except peritoneum in the female); it contains a basement membrane and endothelial cells, but no glands.

Synovial membrane is in connection with joint and tendons, and has no glands, but a basement membrane with connective tissue cells.

CHEMISTRY.

1. Arsenic has symbol As, atomic weight of 75, molecular weight of 300, valence of three or five, generally occurs in combination with sulphur; is a brittle, crystalline solid, or an amorphous powder, insoluble in water. It is poisonous. If pure it has no odor or taste. It is used in the manufacture of fly poison, rat poison, shot, pigment and fireworks. Its chief compounds are: Hydrogen arsenide; arsenic trichloride; arsenic trioxide, and pentoxide; arsenous, arsenic, metarsenic, and pyroarsenic acids; arsenic bisulphide, trisulphide, and pentasulphide. The antidote is freshly prepared solution of ferric hydroxide.

2. Lithium, Li, 7; Sodium, Na, 23; Potassium, K, 39.

3. Sulphur, symbol S, quantivalence 2 or 6. Principal oxygen compound: Sulphur dioxide SO_2, and trioxide SO_3. The yellow sulphur is generally used as a disinfecting agent; it is burnt, thus forming the oxides of sulphur.

4. (*a*) Acid; (*b*) acid sodium phosphate; (*c*) about 1015 to 1025; (*d*) *very high specific gravity* may denote: Diabetes mellitus, glycosuria, heart disease, and acute fevers; *very low specific gravity* may denote: Albuminuria or Bright's disease.

5. Acetic acid, CH_3COOH. It is produced by the dry distillation of wood. *Most important acetates:* Ammonium, iron, lead, potassium, and zinc.

6. Chloroform, $CHCl_3$; ether, $(C_2H_5)_2O$; nitrous oxide, N_2O.

7. *Enzymes* are hypothetical substances, produced by living cells, and capable of causing definite chemical changes in certain substances. Their chief characteristics are: "(1) They are capable of causing change in a large amount of the materials upon which they exert their specific actions, while they themselves remain unaltered. (2) Prolonged contact with alcohol destroys the activity of most enzymes. (3) For each there is a definite temperature at which the action is most energetic; and all are destroyed at 75 to 80 degrees. (4) Each produces its best action only in a medium of a certain reaction. (5) Their action is hindered by accumulation of their products."—(Witthaus' *Essentials of Chemistry.*)

Animal enzymes: Ptyalin, in saliva; pepsin, in gastric juice; trypsin, amylopsin, and steapsin, in pancreatic juice; glucase and lactase in the intestinal mucus; thrombase, in the blood.

8. Test for *bile:* Put 3 c.c. HNO_3 in a test tube, add a piece of wood, and heat until the acid is yellow; cool. When cold, float some of the urine to be tested upon the surface of the acid. A green band is formed at the junction of the liquids, which gradually rises, and is succeeded from below by blue, reddish-violet, and yellow.

9. *Principal opium alkaloids:* Morphine, narcotine, papaverine, codeine, narceine, and thebaine. These alkaloids are in combination with meconic, lactic, and sulphuric acids.

10. *Cholesterin* is a monoatomic alcohol of unknown constitution. It is found in biliary calculi.

11. Magnesium hydrate, $Mg(HO)_2$, milk of magnesia; magnesium sulphate, $MgSO_4$, Epsom salt.

12. (*a*) *Tartar emetic* is antimonyl potassium tartrate. (*b*) *Symptoms of poisoning:* "These are seldom delayed more than half an hour. Nausea, violent and continual vomiting, burning pain in stomach and bowels, with an acrid, burning sensation in the throat, are usually the first symptoms. Then purging, intense thirst, feeble, rapid pulse, cramps in legs, and general lowering of the temperature, with great prostration, follow. The coldness extends even to the internal organs. The bowels become tympanitic. The spinal centers are greatly depressed. The urine is generally increased, but sometimes diminished or suppressed, and may be bloody and passed with difficulty and pain. Delirium and convulsions may precede death, or the patient may sink into coma, or die from exhaustion."—(Riley's *Toxicology.*)

13. Hemoglobin is a very complex, organic substance, which forms the coloring matter of the blood, and is the oxygen carrier; it contains iron. It is found in the urine in Blackwater fever.

14. The ammonium radical is NH_4; it has never been isolated, but it enters into several compounds. Ammonium carbonate, NH_4HCO_3, is contained in aromatic spirit of ammonia.

15. (*a*) NaCl; obtained from rock salt, sea water, or salt springs. (*b*) Chlorides are recognized in the urine by the addition of a few drops of nitric acid, and then a solution of silver nitrate; a white curdy precipitate is produced.

MATERIA MEDICA AND THERAPEUTICS.

1. Ergot. *Source:* The sclerotium of claviceps purpurea. *Preparations:* Fluidextract, extract, and wine of ergot. *Effects:* Ergot stimulates and causes contraction of involuntary muscle fibers, hence it is a vasoconstrictor, hemostatic, and oxytocic. It is also a cardiac sedative; it raises the blood pressure, it increases peristalsis, and is an emmenagogue.

2. In poisoning by *atropine*, the pupils are dilated, the pulse is rapid, and respiration is increased; in poisoning by *morphine* the pupils are contracted, the pulse and respiration are slowed.

3. (*a*) Local anesthesia may be produced by cocaine. (*b*) See Rose and Carless' "Surgery" (1908), page 1318; or Da Costa's "Surgery" (1908), page 1047.

4. *How* antitoxin produces immunity and effects cure is not known, but *theories* deduced from observed facts are as follows: "As the various pathogenic bacteria produce the causative toxins of their respective diseases, so the organic cells of the body, reacting under the stimulus of the poisons thus introduced, immediately proceed to elaborate defensive bodies, which if produced in sufficient quantity will neutralize the effects of the toxins. Residual antibodies remaining in the blood after recovery render the animal immune for a time against the disease. The immunizing and curative effects obtained by the injection of the blood serum of an immunized animal into the circulation of another animal are due either to direct chemical neutralization of the toxins themselves by the antibodies so introduced (Behring, Kitsato), or to a particular influence exerted by the antibodies upon the living cells of the orgamism which, being affected in two opposite directions, remain neutral to the disease (Buchner). Some authorities hold that these results are due to the conjoint action of leucytic and chemical forces. Ehrlich's side-chain theory assumes that every toxin contains toxophore molecules having direct toxic action, and haptophore molecules which combine the toxophores with a similar combining group of molecules in the tissue cell of the attacked organism. The tissue cell molecules being destroyed by the toxophores, a rapid and profuse regeneration of similar molecules occurs in side chains, and these molecules overgrowing are carried into the circulation, becoming the antitoxin, which acts by combining with the haptophores of newly arrived toxin, using up their combining power before they can reach the tissue cells."—(Potter's *Materia Medica*, etc.)

5. Mercuric chloride, dose gr. 1/20; mercuric iodide, dose gr. 1/20; silver nitrate, dose gr. 1/5; creosote, dose ♏v to xx of the carbonate; and salicylic acid, dose gr. vij.

6. The hot-pack "is used, not only to cause sweating and so relieve the patient of poisons and fluid in renal diseases, but also to relax muscle spasm and to relieve nervous excitement and nervous insomnia. It is particularly efficacious in the nervous insomnia of severe chorea in children.

"A bed is prepared by covering it with a rubber blanket. Over this is placed a dry woollen blanket. A large, heavy blanket is now dipped in very hot water and then wrung out, and the naked patient quickly wrapped in it, the dry blanket being folded over him after several hot-water bottles have been placed alongside the patient. Finally the sides of the rubber sheet are drawn around and over the patient and an ice-cap placed on the head. A thermometer should be placed in the mouth every half hour, and if the patient's temperature becomes febrile (101°) he should be taken out of the blankets and rubbed dry."—(From Hare's *Practical Therapeutics.*)

7. Strychine. *Source:* Strychnos nux vomica, and strychnos ignatia. *Action:* Strychnine is a bitter tonic, stimulates appetite, secretion, and digestion, increases peristalsis stimulates the vasomotor centers, and so raises arterial tension; it stimulates both accelerator and inhibitory nerves of the heart. All the functions of the spinal cord are exalted by strychnine, reflex, motor, vasomotor, and sensory. Large doses cause dilated pupils, irregular and jerky respiration, increased reflexes. *Therapeutic uses:* For indigestion, intestinal torpor, heart disease, pneumonia, amenorrhea, dysmenorrhea, paralysis, impotence, and as a cardiac and respiratory stimulant.

8. *Gastrointestinal antiseptics:* Carbolic acid, dose gr. j; creosote, dose ♏xij; guaiacol, dose ♏vij; salol, dose gr. x; resorcin, dose gr. iij; thymol, dose gr. vij; silver nitrate, dose gr. 1/5; sodium sulphocarbolate, dose gr. xij; betanaphthol, dose gr. vj; salicylic acid, dose gr. xij.

9. (*a*) "In the dietetic treatment of chronic rheumatism, especially if the patient is anemic, animal food cannot be excluded, but the basis of the diet should be farinaceous food with a few fresh green vegetables. Fish, eggs, and fowl may be eaten, but dark meat is not desirable. Sweets and alcoholic beverages should be omitted, and all foods should be plainly cooked and eaten in moderation."—(Thompson's *Practical Dietetics.*)

(*b*) See Osler's "Practice of Medicine" (1909), page 700.

10. ℞. Potassii iodidi 3iij.
Syrupi sarsaparillæ q. s. ad 3ij. ℥.
Signa: Take one teaspoonful after each meal.

11. Aconite, gr. j; fluidextract of aconite, ℥j; tincture of aconite, ℥x.

12. SANTONIN. *Source:* Santonica, flower heads of Artemisia pauciflora. *Action:* Anthelmintic to round worm and thread worm. *Dose for an infant:* Gr. ⅛-¼.

13. ℞. Olei ricini, 3j.
Sig. Take at once.

Its action is to remove the irritating material in the intestinal canal. This can be followed by other treatment if necessary.

14. TEREBINE. *Therapeutic uses:* For cough, emphysema, dyspepsia, phthisis, chronic bronchitis, bronchiectasis. Dose, ℥vij.

15. *Alteratives* are remedies which modify the nutritive processes, and so promote metabolism. *Antipyretics* are agents which reduce body temperature. *Mydriatics* are agents which dilate the pupil of the eye.

HISTOLOGY—PATHOLOGY—BACTERIOLOGY.

1. See French's "Practice of Medicine" (1907), page 925; or Osler's "Practice of Medicine" (1909), page 398.

2. See French's "Practice of Medicine" (1907), pages 572, 576, 580, 583, and 588; or Osler's "Practice of Medicine" (1909), pages 796, 802, 804, and 808.

3. See French's "Practice of Medicine" (1907), pages 574 and 584; or Osler's "Practice of Medicine" (1909), pages 793 and 798.

4. *Anæmia* is a condition in which there is a reduction in the quantity of the blood, or of the number or hemoglobin contents of the red corpuscles.

5. *Immunity* is non-susceptibility to disease, or the power of resistance of cells and tissues to the action of pathogenic microorganisms.

6. See some good text-book on Histology or Microscopy.

7. The object is first placed in some fixing fluid, then it is washed, then hardened by immersion in alcohol, then treated with some clearing agent, then placed in paraffin; it is then ready for the section cutter. After the sections are cut, the next process is staining, after which the object is ready for examination.

8. See Cunningham's "Anatomy" (1909), page 8.

9. See Cunningham's "Anatomy" (1909), page 9.

10. *Chromatalysis* is the disintegration of the coloring matter or chromatin of a cell, or the breaking down of the nucleus of a cell when the latter dies.

11. *Bacterins* are bacterial vaccines.

12. After bacterial vaccines have been injected into the tissues, there is first of all a diminution in the amount of opsonin in the serum; there is no appreciable rise of temperature; the patient complains of malaise, and local lesions may become temporarily worse. Then additional opsonin is made and turned into the serum, the opsonic index rises, fever diminishes, the patient feels well. This is followed by a slight diminution of all these latter symptoms, and a position of equilibrium is reached. Later, there is a period of decline.

13. See French's "Practice of Medicine" (1907), page 1212.

14. See French's "Practice of Medicine" (1907), page 1214.

15. The sputum must be recent, free from particles of food or other foreign matter; select a cheesy-looking nodule and smear it on a slide, making the smear as thin as possible. Then cover it with some carbolfuchsin, and let it steam over a small flame for about two minues, care being taken that it does not boil. Wash it thoroughly in water and then decolorize by immersing it in a solution of any dilute mineral acid for about a minute. Then make a contrast stain with solution of Loeffler's methylene blue for about a minute; wash it again and examine with oil immersion lens. The tubercle bacilli will appear as thin red rods, while all other bacteria will appear blue

PRACTICE OF MEDICINE.

1. In *endocarditis:* The murmur is soft, not harsh; it is systolic or diastolic; it may be transmitted; it is heard loudest at definite points; it is not followed by signs of effusion; the apex beat may be strong.

In *pericarditis:* The murmur is harsh; is not in connection with the heart sounds; is heard loudest at the base of the heart and over the precordium; is followed by (or accompanied with) signs of effusion; the apex beat is generally feeble.

2. In *acute alcoholism* the coma is not usually absolute; there may be an odor of alcohol on the breath, the patient can generally be aroused by shouting in his ear; there is no paralysis; the pupils are normal or dilated; respiration is practically normal; the pulse is first rapid and later feeble, and the skin cool. In *apoplexy* there is generally paralysis of the head and upper limbs, and in left-sided lesions there may be aphasia; the pulse is slow and full; the respirations are at first slow, regular, and stertorous, later on becoming of the Cheyne-Stokes type.

3. *Cancer of stomach* does not usually occur before forty years of age, is more common in males, the pain is localized and constant, vomiting is copious and occurs some time after eating; the vomitus contains "coffee ground" material; hemorrhages are common; a tumor may be palpated, and examination of the gastric contents shows absence of free HCl and presence of lactic acid; there is progressive emaciation; severe anemia and cachexia are also present.

Ulcer of stomach is generally caused by injury or bacteria, is most apt to occur between the ages of twenty and forty-five; after eating there is pain localized in the stomach, vomiting occurs soon after eating, hematemesis is common, there is localized tenderness over the stomach, and examination of the gastric contents shows an excess of free HCl.

4.

CHANCRE.	CHANCROID.
First lesion of a constitutional disease, viz., syphilis.	A local disease.
Due to syphilitic infection.	Due to contact with secretion from chancroid.
Generally a venereal infection.	Always a venereal infection.
May occur anywhere on the body.	Nearly always on genitals.
Period of incubation never so short as ten days.	Period of incubation always less than ten days (generally about three).
Generally single.	Generally multiple.
Not autoinoculable.	Autoinoculable.
Secretion slight.	Secretion profuse and purulent.
Slightly or not at all painful.	Generally painful.
As a rule only occurs once in any patient.	May reoccur in same patient.
Buboes are painless and seldom suppurate.	Buboes are painful and usually suppurate.

5. See French's "Practice of Medicine" (1907), page 943.

6.

EPILEPSY.	HYSTERIA.
1. No apparent cause.	1. Cause, emotional.
2. Sudden and rapid onset.	2. Onset gradual, usually after some mental excitement.
3. Aura generally present.	3. Globus hystericus or palpitation.
4. Consciousness lost.	4. Consciousness generally preserved.
5. Pupils generally dilated.	5. Pupils normal.
6. Tongue often bitten.	6. Tongue never bitten.
7. Patient very liable to hurt himself.	7. Patient not liable to hurt himself; may injure others.
8. May be involuntary bladder and bowel discharges.	8. Never.
9. Of short duration.	9. Duration longer.

7. See Osler's "Practice of Medicine" (1909), page 489.

8. See French's "Practice of Medicine" (1907), pages 813 and 852.

9. In *organic* heart disease the murmurs are due to stenosis or incompetency of one or more of the valves of the heart.

In *functional* heart disease the murmurs are not due to valvular disease.

Organic murmurs may be systolic or diastolic; may be accompanied by marked dilatation or hypertrophy, and there will probably be a history of rheumatism or of some other disease capable of producing endocarditis. Whereas a murmur, usually systolic, soft, and blowing, heard best over the pulmonic area, associated with evidences of chlorosis or anemia, and affected by the position of the patient, is a *hemic* or *functional* murmur, and denotes as a rule an impoverished condition of the blood.

10. See French's "Practice of Medicine" (1907), pages

172 and 698; or Osler's "Practice of Medicine" (1909), page 652.

11. See French's "Practice of Medicine" (1907), page 908; or Osler's "Practice of Medicine" (1909), page 706.

12.

SCORBUTUS.	PURPURA HÆMORRHAGICA.
Occurs in those subject to lack of vegetable food and to bad hygiene.	No such etiological relationship.
Definite antecedent symptoms: weakness, impaired circulation, etc.	Antecedent signs slight or absent.
Onset slow.	Onset sudden.
Gums spongy, swollen, and bleeding; teeth loose.	Gums often bleeding but not swollen.
Severe muscular pains.	Less marked.
Brawny infiltration of lower extremities.	Not present.
Hemorrhages from mucous membranes not as a rule profuse.	Hemorrhages from mucous membranes often so severe as to prove fatal.

—(From Schamberg's *Diseases of the Skin.*)

13. See French's "Practice of Medicine" (1907), pages 101 and 104; or Osler's "Practice of Medicine" (1909), pages 93 and 299.

14. See French's "Practice of Medicine" (1907), pages 646 and 718; or Osler's "Practice of Medicine" (1909), pages 444 and 598.

15.

CONCUSSION OF THE BRAIN.	COMPRESSION OF THE BRAIN.
Unconsciousness is incomplete; patient can be made to answer, though it may be briefly, and in simple words.	Complete unconsciousness; may scream into patient's ear at the top of the voice, but will receive no answer.
Special senses, though greatly blunted, are not abolished.	Special senses entirely suspended.
Power of movement not destroyed; if the position of a limb be changed the patient will resist or bring it immediately into the original position.	Complete or partial paralysis; in most cases hemiplegia.
Respiration is quiet and feeble.	Respiration full and noisy.
Pulse feeble, frequent, and intermittent.	Pulse full and slow, and sometimes laboring.
The stomach sickens and rejects its contents.	The stomach is insensible to any impression; no nausea or vomiting.
The feces may be discharged incontinently, as may also the urine, though not usually.	Bowels are torpid, and the bladder incapable of emptying itself, though the urine may escape by overflow.
Deglutition little impaired.	Deglutition difficult or impossible.
Pupils variable, though generally contracted; the eyelids somewhat open.	Pupils variable, though generally much dilated, and the eyelids closed.
Temperature of the body less than natural.	Temperature almost natural, a little below the normal standard.

—(From Treves' *Manual of Surgery.*)

1. OBSTETRICS AND GYNECOLOGY.

VIRGIN UTERUS.	UTERUS OF MULTIPARA.
The cavity is of normal length—about two and a half inches—and normal (triangular) in shape.	The cavity is increased in length—three inches or more, and is oval in shape.
The cervix is small, hard, and cartilaginous, and of the same length as the body.	The cervix is large and soft; it is nearly one inch in length, while the body of the uterus measures nearly two inches.
The external os appears as a transverse slit or pinhole orifice with smooth edges.	The external os is irregular and its edges are fissured.
The uterine sound shows that the sides of the cavity of the body are convex inward.	The sides of the cavity of the body are convex outward.
The uterus is normally anteflexed.	The axis of the uterus is apt to be straighter, or the uterus may even be retrodisplaced.
There is more or less flattening of the anterior and posterior uterine surfaces.	The contour of the body of the uterus is more rounded, while its diameters are increased.
The fundus is nearly flat.	The fundus is convex.
The internal os is closed.	The internal os is partially patulous.

—(From Dorland's *Obstetrics.*)

2. Empty the bladder and rectum; determine if there is a faulty presentation, as bregma, brow, or face. Measure diagonal conjugate and height of symphysis, and determine the true conjugate. If this latter measures less than 2¾ inches in a simple flat pelvis, or 3 inches in generally contracted pelvis, the contraction is absolute, and only cesarean section or craniotomy is possible. Ascertain by palpation whether there is serious disproportion between head and pelvis. Malpresentations must be corrected with one hand in vagina pressing upward on the fetal anterior portion of the presenting part, and if possible drawing down in the occipital pole, aided by external manipulation. Press the head downward into the pelvis; this maneuver may be aided by Walcher's position. If there is marked disproportion, cesarean section and craniotomy must be considered. If disproportion is apparently not insuperable, rupture the membranes just after the acme of a pain, when the cervix is fully dilated, keeping the patient in Walcher's position. If the head thereupon engages during the next few pains, allow spontaneous delivery, or aid with forceps if necessary. If the head still refuses to engage, apply axis-traction forceps in Walcher's position, tentatively; if unsuccessful, perform podalic version by combined or internal method. If membranes have already ruptured, note whether there is marked retraction ring. If not, podalic version is proper, subject to limitation of slight disproportion; but if the uterus has retracted markedly, forceps, and that failing, only cesarean section, symphyseotomy, or craniotomy is admissible.—(From Scott's *State Board Obstetrics.*)

3. See Williams' "Obstetrics" (1909), page 837; or Hirst's "Obstetrics" (1909), page 597.

4. ANESTHETICS are used in labor to lessen suffering produced by labor pains; to lessen the pain attending obstetric operations; to relax the uterus when its rigid contraction interferes with version; to promote dilatation of the os uteri; to reduce excessive nervous excitement which may interfere with progress of early stage of labor; to relieve eclamptic convulsions and mania; in cases of uterine inversion to relax the constricting cervix and so facilitate replacement; in bipolar version to lessen pain of introducing the hand into vagina; in precipitate labor to suspend action of voluntary muscles and retard delivery; in all cutting operations upon the abdomen; and sometimes in sewing up a lacerated perineum when many sutures are required.—(From King's *Obstetrics.*)

And see Williams' "Obstetrics" 1909), pages 321 and 663; or Hirst's "Obstetrics" (1909), page 320.

5. See Williams' "Obstetrics" (1909), page 660; or Hirst's "Obstetrics" (1909), page 439, etc.

6. Postpartum hemorrhage, hemorrhage due to placenta prævia, and that due to premature separation of placenta.

7. See Williams' "Obstetrics" (1909), pages 821, 815, and 808; or Hirst's "Obstetrics" (1909), pages 587, 577, and 585.

8. See Williams' "Obstetrics" (1909), page 507; or Hirst's "Obstetrics" (1909), page 263.

9. Conditions that justify the induction of premature labor: (1) Certain pelvic deformities; (2) placenta prævia; (3) pernicious anemia; (4) toxemia of pregnancy; (5) habitual death of a fetus toward the end of pregnancy; (6) hydatidiform mole; (7) habitually large fetal head. The methods that may be employed are: Partial dilatation of the cervix and the introduction within the cervix (and vagina) of a tamponade of sterile gauze; (2) dilatation of the cervix; (3) puncturing the membranes; (4) introduction of a soft rubber bougie into the uterus; (5) intrauterine injection of glycerin, water, or some other fluid. For description of method, see Williams' "Obstetrics" (1909), pages 381 et seq., or Hird's "Obstetrics" (1909), page 799.

10. SALPINGITIS. *Varieties:* Acute and chronic; catarrhal and purulent. *Etiology:* Septic infection, gonorrhea, menstrual congestion, taking cold at the menstrual periods.

Diagnosis: Pain in ovarian region; fever; rapid pulse; local tenderness; pain on moving, walking, defecation, coitus, and during menstruation; menorrhagia and sterility; the enlarged tube may be palpated by vaginal examination.

11. Pelvic abscess. *Etiology:* Pelvic cellulitis, rupture of tube (in ectopic gestation or pyosalpinx), pus from neighboring tissues, gonorrhea. *Treatment:* The abscess should be opened and drainage instituted, generally through the vagina. And see Williams' "Obstetrics" (1909), pages 863 and 888.

12. Acute cystitis. *Etiology:* Various pathogenic bacteria, foreign bodies, traumatism, retention of urine, unclean catheters, cold. *Treatment* includes: Rest, administration of plenty of cold water or milk, diuretics, bland and mild food, laxatives, hot sitz baths or vaginal douches, irrigation of the bladder with antiseptic solution followed by solution of nitrate of silver.

13. See Williams' "Obstetrics" (1909), pages 525 and 541; or Hirst's "Obstetrics" (1909), pages 630 and 635.

14. *Prolapse of ovary:* "Downward displacement without displacement of the tubes and uterus may result from prolonged congestion, inflammation, subinvolution, elongation, and stretching of the ligaments, or violent strain. The symptoms are constant and severe pain, which is increased by movement and at the menstrual period, nausea and indigestion, headache, and nervous disturbances. Bimanual examination reveals enlargement, tenderness, and the abnormal position of the ovary. In uncomplicated cases the ovary may be restored to its proper position by directing the patient to assume the knee-chest posture for ten minutes two or three times daily, or the infundibulopelvic ligaments may be shortened through an abdominal incision. Pelvic congestion will require the use of saline laxatives, hot vaginal douches, the application of iodin to the cervix and vaginal vaults, and the use of glycerin tampons. Diseased ovaries should be removed and uterine displacements should be corrected."—(Gould and Pyle's *Pocket Cyclopedia.*)

15. *Ophthalmia neonatarum* is an infectious, purulent inflammation of the conjunctiva in the new-born. It is due to the gonococcus or some other pyogenic germ; and is produced by contact of the eye with the vaginal secretion of the mother during labor, or infected fingers, or instruments, etc. The *treatment* is: (1) *Prophylactic:* Whenever there is the possibility of infection, or in every case, wash the eyelids of the new-born child with clean warm water, and drop on the cornea of each eye one drop of a 1 or 2 per cent. solution of nitrate of silver, immediately after birth. (2) *Remedial:* Wash the eyes carefully every half hour with a saturated solution of boric acid; pus must not be allowed to accumulate. Two drops of a 2 per cent. solution of nitrate of silver must also be dropped on to the cornea every night and morning. The eyes must be covered with a light, cold, wet compress. The patient must be isolated, and all cloths and compresses used must be burnt.

SURGERY.

1. See Rose and Carless' "Surgery" (1908), pages 537 and 540; or Da Costa's "Surgery" (1908), pages 514 and 516.

2. See Rose and Carless' "Surgery" (1908), page 1007; or Da Costa's "Surgery" (1908), page 935.

3. See Rose and Carless' "Surgery" (1908), pages 102 and 105; or Da Costa's "Surgery" (1908), pages 170 and 172.

4. See Rose and Carless' "Surgery" (1908), page 348; or Da Costa's "Surgery" (1908), page 340.

5. See Da Costa's "Surgery" (1908), page 460.

6. See Rose and Carless' "Surgery" (1908), page 1053; or Da Costa's "Surgery" (1908), page 877.

7. See Rose and Carless' "Surgery" (1908), page 895; or Da Costa's "Surgery" (1908), page 766.

8. See Rose and Carless' "Surgery" (1908), page 570; or Da Costa's "Surgery" (1908), page 440.

9. See Rose and Carless' "Surgery" (1908), page 653; or Da Costa's "Surgery" (1908), page 564.

10. See Rose and Carless' "Surgery" (1908), pages 501 and 621; or Da Costa's "Surgery" (1908), pages 488, 589 and 500.

11. See Rose and Carless' "Surgery" (1908), page 344; or Da Costa's "Surgery" (1908), page 185.

12. See Rose and Carless' "Surgery" (1908), page 1064; or Da Costa's "Surgery" (1908), page 808.

13. See Rose and Carless' "Surgery" (1908), page 1159; or Da Costa's "Surgery" (1908), page 1103.

14. *Conditions which justify amputation of a limb* are: "Any injury, disease, or malformation rendering retention of the limb incompatible with life or comfort; avulsion of limb; compound fracture; compound dislocation; fracture with great comminution of bone; laceration of important vessels; extensive contusion; extensive laceration; gunshot injuries; aneurysm; effects of heat and cold; gangrene; extensive bone disease; tumors; elephantiasis; tetanus; snake bite; deformities."—(Bickham's *Operative Surgery.*)

15. See Rose and Carless' "Surgery" (1908), pages 1190, 1192, and 1193; or Da Costa's "Surgery" (1908), pages 1134, 1135, and 1137.

HYGIENE AND MEDICAL JURISPRUDENCE.

1. By boiling and filtration. *Two types of water filter:* (1) Those which aim at acting chemically on the water as well as straining off the grosser suspended impurities; (2) those which act mechanically, having pores sufficiently fine to strain off all microorganisms. 1. The first type have a filtering medium of carbon (charcoal), or iron. Such filters strain off the grosser suspended impurities and make the water more palatable through aeration. The best, when new, slowly oxidize organic matter, lessen hardness, diminish nitrites and ammonia, and increase nitrates. They do not remove disease germs; but may, after a few days' use, increase the number of bacteria. 2. The second type provides bacteriologically pure water, but has no effect on the chemical constituents in solution; its pores are so fine as to strain off all microorganisms. Of this class are the Pasteur-Chamberland filter of unglazed porcelain, and the Berkefeld filter of infusorial earth. They should be occasionally sterilized by heat; to obtain rapid filtration pressure is necessary; muddy water should have the grosser impurities removed by a preliminary filtration.

2. "The healthiness of a soil depends chiefly on the following factors: (1) Considerable slope and permeability, so that water runs off readily and regularly, rendering both the soil and the air above it dry; (2) vegetation not excessive; (3) absence of organic emanations; (4) purity of water supply."—(Notter and Firth.)

3. (*a*) Sputum; (*b*) hygienic precautions to be taken in treating a case of tuberculosis: "The patient's quarters should be free from dust, and admit of spending many hours daily in the open air in all weathers, properly sheltered, and, if very ill, lying wrapped in a hammock or reclining chair. His bedroom should be well aired at night, draughts being avoided. The room should be uncarpeted and free from hangings. It should be often cleaned and periodically disinfected. All sputum should be collected in paper spit-cups, which should be burned daily. Smoking should be forbidden. Harm is done by any exercise which results in fatigue, and while fever exists it should not be attempted at all. Patients should be taught the necessity of practising lung gymnastics and breathing only through the nose, which should be kept clear and free from occlusion by secretions, or an hypertrophied catarrhal mucosa. . . . The clothing should be woolen, but not too heavy, or sweating is increased; and a flannel nightgown and loosely knit leggings should be worn at night in cool weather. The skin should be cleansed by daily spongebaths of lukewarm alcohol and water."—(Thompson's *Practical Medicine.*) (*c*) The sputum should be burnt; the house should be disinfected with formaldehyde.

4. See French's "Practice of Medicine" (1907), page 324.

5. Typhoid, typhus, influenza, cerebrospinal meningitis, pneumonia, diphtheria, whooping cough, mumps, scarlet fever, measles, chickenpox, smallpox, gonorrhea, syphilis, erysipelas, tuberculosis, yellow fever, leprosy.

6. (*a*) About 70° F.; (*b*) about 65° to 70° F.; (*c*) about 65° or 68° F.

7. *Quarantinable diseases:* Cholera, yellow fever, smallpox, plague, typhus, leprosy, diphtheria, scarlet fever, measles, mumps, chickenpox, erysipelas. For *length of time*, see index in French's or Osler's "Practice."

8. Food is material which when taken into the body is capable of being absorbed and then replenishes the tissues which have been consumed in the metabolism of the body. Two complete or perfect foods are milk and eggs.

9. The physician is not bound to attend a case, but having accepted he cannot leave without giving sufficient notice to enable the patient to procure another physician; the patient, however, can dismiss the physician when he chooses. The physician undertakes to use proper skill, care, and judgment in diagnosing and treating the case, and also to give full instructions as to how the patient may be best cared for. The patient undertakes to allow the physician ample opportunities to make his diagnosis, to give him all information in his power, to obey instructions, and to pay a proper fee. The physician is not allowed to divulge anything that he learned while in professional attendance, provided such knowledge was necessary to the successful conduct of the case.

10. The physician should record the assurer's answers to the questions designated by the company. He then examines the assurer with regard to actual present conditions (pulse, heart sounds, chest development, respirations, murmurs, condition of tongue, urine, rupture; traces of paralysis, syphilis, jaundice, gout, rheumatism, dropsy, and any other point indicated by the company).

11. In *expert* testimony, the witness may give his *opinion* on facts or supposed facts as noted by himself or asserted by others. *Theoretically*, this can be done only by those perfectly familiar with the subject in question; but *practically* any (or almost any) physician with a license to practise is accepted as an expert witness.

In *ordinary* testimony the witness testifies to *facts* which he has seen, or heard, or with which he has become acquainted by personal observation.

12. In *death by drowning:* The surface is pallid, the face appears tranquil, the eyes and mouth being partly open. The skin often has the appearance known as gooseskin, and, if the body has lain upwards of twelve hours in the water, that of the hands and the feet is sodden by imbibition. The most important external sign is the presence on the mouth and nostrils of a fine froth (possibly blood stained) composed of air, mucus, and the medium in which drowning took place; if the body remains three or four days in water the froth disappears. Exceptionally, fragments of weeds or other small objects may be found tightly grasped in the hands. On opening the thorax the lungs, gray in color, with reddish staining, are seen to be very voluminous, a condition known as ballooning, partly due to infiltration of the lung tissue with some of the medium in which drowning took place, and partly to true edema. The lung substance is inelastic and pits on pressure. On section, fluid and froth resembling that found on the lips exude from the divided air passages. Minute subpleural hemorrhages are not infrequently present, and the pleural cavities may contain fluid. The stomach often contains water or other liquid which was involuntarily swallowed during attempts at respiration. Occasionally some of this fluid is forced by vital action into the intestines. With one exception, the remaining appearances are those met with after death from aphyxia. The exception is constituted by the blood, which is not only dark colored and fluid, as is usual after death from asphyxia, but is also diluted by the imbibition of water from the stomach and lungs.—(From Quain's *Dictionary of Medicine.*)

13. The following "scheme" is suggested by Frederick Peterson. I. "*Physical condition:* (1) Height, weight, nutrition, circulation, pulse, temperature. (2) Cranial measurements. (3) Stigmata of degeneration. (4) Condition of heart, lungs, alimentary canal, genitourinary organs. (5) Reflexes, pupillary and tendon. (6) Condition of cranial nerves. (7) Motor symptoms—paralysis or morbid movement, gait. (8) Common sensory symptoms—paresthesia, hyperesthesia, anesthesia. (9) Special sensory symptoms—sight, hearing, smell, taste, field of vision. (10) Speech disorders—stammering, syllabic articulation, paretic speech, motor or sensory aphasia, agraphia, apraxia, verbigeration. (11) Sleep. (12) Expression, gesticulation, attitude.

II. "*Psychic condition:* (1) Mode of speech—accelerated, retarded, mute, incoherent. (2) Conduct—Does patient care for his person and dress? Does he attend to his ordinary duties? Is he excited and active, or depressed and quiet? (3) Illusions or hallucinations? (4) Mood—Is the fundamental mood depressed, exalted, irritable, changeable, apathetic? (5) Ethical feelings—What is the state of his moral conceptions and judgments? (6) Attention—Does the patient note what goes on about him, etc? (7) Memory—Weakened or increased as regards long past and recent events. Test mathematical, geographical, and historical knowledge. Test dates, ages, and names of members of family, the events of the past few days, etc. (8) Idea-association—Is there apraxia or parapraxia? Does the patient orient himself as to place, time, and objects and persons about him? Is the flow of ideas accelerated, retarded, or incoherent? (9) Judgment—How does he explain his own morbid condition and his relation to his surroundings? What does he busy himself with now, and what are his plans and purposes for the future? (10) Delusions and imperative ideas."

14. A wound (in the medicolegal sense) is defined as any injury or lesion which has been caused by mechanical or chemical means.

15. In absence of strong evidence to the contrary, it may be assumed that the testator is quite sane. If the will is clear in language, intelligible, and written in the absence of the beneficiary (so as to preclude undue influence), the testator was probably sane. .....

Medicolegal Notes.

Prohibition of Sale of Opium by Retail.— A druggist was prosecuted under the Kentucky statute, Section 2630 (Russell's St. §5067), for selling at retail, not on a physician's prescription, a quantity of opium, with the knowledge that it was intended for smoking purposes or for habitual use. The statute provides that no person shall sell at retail certain poisons to any person without satisfying himself that such poison is to be used for legitimate purposes, and not on a physician's prescription. He was convicted, and appealed. It was agreed that the appellant was a retail druggist; that he sold the opium to the purchaser for the purpose of allowing the latter to smoke it; that it was not sold on a physician's prescription; that it is a poison, destructive to adult human life in quantities of five grains or less. The offending charge was that the appellant sold the drug by retail without a prescription to a person addicted to the use of it; and, this being so, the sale was not made for a legitimate purpose. A reversal was asked upon the ground that the statute is invalid because of uncertainty in not defining with sufficient precision the words "retail" and "legitimate purposes," and because it makes an arbitrary and unreasonable discrimination in excluding from its provisions manufacturing chemists and druggists selling by wholesale, and has the effect of depriving the appellant of his ability and property without due process of law. With regard to the appellant's first objection it is well settled that a penal statute creating an offense must be sufficiently plain and exact to enable persons of ordinary intelligence to understand its provisions. The appellant argued that the legislature should have defined the meaning of the words "retail" and "legitimate purposes," so that a druggist might know what quantity would constitute a sale by retail, and what would or would not be considered a sale for legitimate purposes. The court held, however, that it would be absurd to say that a person who had intelligence enough to conduct a drug store did not know when he was selling a drug by retail, and there ought not to be any difficulty in understanding the meaning of the words "legitimate purpose" as used in the statute. If he does not know or has any doubt about the legitimate purposes for which the drug may be used he must in good faith exercise reasonable care to find out the purpose for which it is bought. Whether or not this degree of care is used is a question of fact to be determined, if put in issue, from the evidence. On the trial the commonwealth introduced a number of physicians to show that the sale of opium for smoking purposes or to an habitual user of the drug was not a sale for legitimate purposes. Their testimony was objected to, but was held to be admissible, since the words "legitimate purposes" when applied to a sale of drugs or poisons by druggists have a technical meaning that may not be clearly known or understood by courts or jurors. The court also held that the failure of the legislature to place in this statute restrictions around the sale of opium or other drugs by wholesale did not leave it open to the objection that it is discriminatory, arbitrary, or unreasonable. The purpose of the act was to correct the evil following the illegitimate use of opium and other drugs usually bought at retail, and all persons within its scope were treated exactly alike.—Katzman v. Commonwealth, Kentucky Court of Appeals, 130 S W. 990.

Revocation of Licenses for Advertising Ability to Cure Chronic and Incurable Diseases.—The Arkansas Acts 1909, p. 637, authorizing the State Board of Medical Examiners to revoke a license to practice medicine on certain specified grounds has been held not to be invalid, as depriving a licensed physician of his property without due process of law. And that section of the statute authorizing revocation of a license for publicly advertising special ability to treat or cure chronic and incurable diseases is not invalid because of indefiniteness. Chronic and incurable diseases are specifically named and discussed in medical works, and are known to physicians possessing a sufficient knowledge of their profession to practice medicine; the word "chronic" being the antithesis of "acute," and a "chronic and incurable disease" being generally understood to be one of long standing and unyielding to treatment. It was held that the State Board's action in consulting standard medical works naming and discussing chronic and incurable diseases would not be to use them as evidence, as contended by the plaintiff, who sought to enjoin it from interfering with his practice, but rather as an aid to the memory and understanding of the members of the board.—State Medical Board of Arkansas, v. McCrary, Arkansas Supreme Court, 130 S. W. 544.

Malpractice in Application of X-Rays.—A patient sued a physician for damages for malpractice, alleging that he negligently, carelessly, and unskillfully applied the *x*-rays to the plaintiff's hand, and also caused the hand to be exposed to the rays eight or nine times, and for such length of time as to cause the skin and other tissues of the hand to be severely burned. It appeared that the plaintiff, who was a machinist, while working at his trade, sustained a supposed scratch in the palm of his hand. Later a red spot, about the size of a half dollar, appeared in the center of the palm. The plaintiff's evidence showed that he consulted the defendant about it and was told by him that he had dry tetter, or eczema. He employed the defendant to treat him and the defendant commenced to do so by applying a salve to the spot. The treatment, by various applications, was continued for more than a year without relief. The defendant then told him he would have to use the *x*-rays on the hand, that this would cure him and would not interfere with his work. The *x*-ray treatment was applied. The defendant told him to hold the palm of his hand about half an inch from the energized tube. He exposed the plaintiff's hand to the rays nine times in eleven days, each time directing him to hold his hand about half an inch from the tube. The exposures varied from 10 to 35 minutes. After the eighth treatment the plaintiff complained to the defendant that his hand was burning and paining him and afterward the defendant gave him another treatment of 10 minutes' duration. Plaintiff claimed that his hand became badly swollen; that the defendant scraped the skin until he got it nearly all removed from the palm; and that he scraped the hand to remove the parts which appeared to have been burned or cooked by the *x*-ray; that he suffered great pain and could not sleep nights, although the defendant administered 25 drops of laudanum. The hand was exhibited to the jury, showing that the injuries had resulted in a "claw hand." The defendant testified that the hand was exposed the number of times claimed, but that it was protected except over the spot to be treated, and that the hand was placed not closer to the tube than six inches, and the plaintiff was cautioned to keep it at that point. A number of physicians and surgeons testified that the *x*-ray at the time (1902) was a proper treatment for injuries such as the plaintiff had. Their testimony showed that the proper treatment was to place the hand at from six to twelve inches from the tube, and to leave it thus exposed for different periods of time to be determined from the result of the treatments. The witnesses were agreed, therefore, that if the hand was treated as claimed by the plaintiff the defendant was guilty of negligence, and if it was treated as claimed by the defendant he was not guilty of negligence. Under these circumstances the court held that the issue was plainly for the jury, who in the court below returned a verdict for the plaintiff for $5,583.33 damages. Although the plaintiff's evidence as to the manner ofapplying the *x*-rays stood alone and that of the defendant was corroborated by two other persons the plaintiff was also corroborated by some of the physical facts in the case. The expert testimony tended to show that, if the hand had been treated with the *x*-ray as defendant claimed it was, there was not much likelihood of it being burned as it was. The court considered that the plaintiff's case was supported by substantial evidence. It was held that the circuit court judge had properly declared the law defining the duty of a physician in charging that where one holds himself out to the public as a physician, the law implies a promise that he will use reasonable skill and diligence in the treatment of those employing him and that a physician need not exercise extraordinary diligence or care in treating a patient, but only reasonable care, and that he is not responsible for errors of judgment or mistake in matters of doubt.—Hales v. Raines, Missouri Court of Appeals, 130 S. W. 425.

Medical Opinion Evidence May Be Given Without Stating Facts.—An insanity expert, like any other medical expert who has made the proper professional examination of his patient, may express an opinion, though he may not yet have stated the scientific facts or external symptoms upon which it is based. But the party offering him as a witness may require him to specify in detail the observations upon which the opinion is based, so as to show the strength of the opinion. And the opposite party, in cross-examination, may call for the observations and probe the underlying facts to the fullest extent for the purpose of affecting the strength of the opinion. The jury are entitled to the facts on which an insanity expert bases his opinion, if these are sought by the prosecution or the defendant.—People v. Faber, New York Court of Appeals, 92 N. E. 674.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of November 26, 1910.

	Cases	Deaths
Tuberculosis Pulmonalis	499	151
Diphtheria	211	29
Measles	120	4
Scarlet Fever	160	5
Smallpox	—	—
Varicella	94	—
Typhoid Fever	64	5
Whooping Cough	24	7
Cerebrospinal Meningitis	2	4
Malarial Fever	—	—
Totals	1,174	205

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, during the week ended November 25, 1910.

CHOLERA

PLACE	DATE	CASES	DEATHS
Arabia: Aden	Oct. 22-25	3	1
From s. s. Himalaya from Port Said.			
Maskat	Oct. 23	5	4
Canada: Quebec	Nov. 18	1	..
A Russian immigrant from s. s. Royal George, from Bristol.			
China: Hankow	Oct. 2-8	2	1
India: Bombay	Oct. 12-18	..	2
Calcutta	Sept. 25-Oct. 1	..	16
Madras	Oct. 8-14	..	4
Italy: Provinces—			
Caserta	Oct. 23-29	30	18
Lecce	Oct. 23-29	3	2
Naples, exclusive of City of Naples	Oct. 23-29	4	1
Naples	Oct. 23-29	9	3
Palermo	Oct. 23-29	..	..
Palermo	Oct. 23-29	4	..
Rome	Oct. 23-29	..	..
Rome	Oct. 23-29	4	1
Terracina	Oct. 23-29	3	..
Salerno	Oct. 23-29	3	2
Japan: Moji	Aug. 13-Oct. 19..	44	25
Including previous reports.			
Nagasaki	Oct. 9-19	2	..
One case from s. s. Chicago Maru.			
Nagoya	Sept. 25-Oct. 8	1	1
Java: Batavia	Oct. 2-8	8	5
Persia: Badjurian	Sept. 13	8	3
Churne-Sou	Oct. 1	..	Present
Entzeli	Aug. 21-Sept. 14..	4	3
Ghazian	Sept. 21-30	3	2
Ghechlagh	Oct. 1	4	..
Ghol-Joughan	Oct. 1	..	Present
Imam-Goli	Sept. 28	..	Present
Kotcham	Sept. 13	2	1
Meshed	Sept. 13-27	160	80
And vicinity.			
Turkestan	Sept 28	..	..
On the frontier.			
Philippine Islands: Manila	Sept. 26-Oct. 8	8	6
Provinces—			
Ambos Camarines	Oct. 2-8	19	13
Batangas	Sept. 26-Oct. 8	193	126
Bulacan	Sept. 26-Oct. 8	16	13
Cavite	Sept. 26-Oct. 1	2	1
Ilocos Sur	Sept. 26-Oct. 8	7	4
Mindoro	Sept. 26-Oct. 1	9	8
Nueva Ecija	Sept. 26-Oct. 8	37	30
Pampanga	Sept. 26-Oct. 1	2	2
Pangasinan	Sept. 26-Oct. 8	5	5
Rizal	Sept. 26-Oct. 8	14	12
Tarlac	Sept. 26-Oct. 8	4	3
Tayabas	Sept. 26-Oct. 1	31	18
Russia: Total for all Russia	October 2-8	1,677	858
City of St. Petersburg	October 2-8	118	31
City of Cronstadt	October 2-8	6	3
Tripoli: Tripoli	Oct. 11-29	85	58
Turkey	Oct. 31	30	14
Among troops from s. s. Garb. Cases detained at lazaretto of Touzla.			
Constantinople	Oct. 11-31	25	19
Turkey in Asia: Bagdad, vilayet	Oct. 6-23	199	148
Basra	Oct. 21-25	11	9
Erzerum, vilayet	Oct. 16-26	30	26
Smyrna	Nov. 21	..	Present
Trebizond	Oct. 17-23	23	21
Zongouldak	Oct. 17-23	20	7
And vicinity.			

YELLOW FEVER.

Brazil: Manaos	Oct. 16-22	1	1
Para	Oct. 16-29	20	13
Mexico: Campeche	Nov. 6-12	1	1

PLAGUE.

Great Britain:			
Preston (Suffolk County)	Sept. 16-29	4	4
Egypt: Alexandria	Sept. 30-Oct. 14..	1	..
India: Bombay	Oct. 12-18	..	14
Calcutta	Sept. 25-Oct. 1	..	8
Kurrachee	Oct. 9-15	10	9
Indo-China: Saigon	Sept. 26-Oct. 2	1	..

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Original Articles.

I. ELECTRIC SLEEP AND ANALGESIA BY MEANS OF FREQUENTLY INTERRUPTED DIRECT CURRENTS APPLIED THROUGH CLOSED WIRED CIRCUITS.

II. ELECTRIC SLEEP IN PATHS OF DISPLACEMENT CURRENTS: UNIPOLAR AND WIRELESS METHOD. ANIMAL MYOGRAM EXPERIMENTS.*

(A PRELIMINARY COMMUNICATION.)

BY LOUISE G. ROBINOVITCH, B. ès L., M.D. (Paris),

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THE distinction between electric "sleep" and "analgesia" is one of degree and will be explained below. The history of brain electrization is given in our thesis.[1] A brief history of electric "sleep" and "analgesia" follows below.

In 1890 d'Arsonval found that high frequency currents above 2,500 and not over 10,000 periods per second caused a certain degree of anesthesia. In 1892, or earlier, Dr. Hutchinson of Providence, R. I., found that induction currents frequently interrupted with the ribbon vibrator that he had invented caused anesthesia.† In 1901 Mlle. Pompilian, director of the laboratory at the Boucicaut Hospital, Paris, produced anesthesia in frogs by subjecting them to induction currents frequently interrupted by means of a revolving wheel with twelve insulated segments designed by herself.‡ In 1902 Professors Leduc and Rouxeau experimented with direct currents interrupted by means of a revolving wheel designed by them. This wheel had four insulated segments.§ There were two contact levers; one lever was fixed and the other adjustable. By changing the relative position of the movable lever it was possible to change the period of the passage of the current. One-tenth of the entire period during a revolution was found to be the most favorable condition for producing what they called electric "sleep" or "anesthesia."

In 1905 we found, while working in the laboratories of these two professors, that an induction current obtained by an induction apparatus in which the primary coil was run by means of a frequently interrupted direct current, 6,000 times per minute, period 1/10, produced deep anesthesia in rabbits. While working out the details of the physiology of electric "anesthesia" we pointed out the dangers of using induction currents on animals[1], especially when the head was included in the circuit. In 1906 we presented researches into the blood pressure, temperature, respiration and duration of electric "sleep," as well as studies of the effects of the two polarities and of various electric currents.[1] In 1907-1908 we perfected the interrupter, general instrumentation and technique of application.[2] In 1909 we pointed out that a certain degree of analgesia and sleep could be obtained in rabbits with currents generated by a Vreeland oscillator, the preferred form of current being a pulsating one.[3]

December, 1909, we found that "sleep" could be produced by unipolar and even by wireless methods in paths of displacement currents. In 1910 Dr. F. M. Law of New York and ourselves obtained myogram traces showing muscle-nerve reaction in paths of displacement currents both by the unipolar and wireless method. After we had registered these myogram traces, Dr. Law found a valuable reference to Professor B. Danilevsky's remarkable experiments on muscle-nerve reaction in the vicinity of powerful electromagnetic fields.[4] In our experiments we worked in the vicinity of very feeble displacement currents.

The first physiological researches into electric sleep, or anesthesia, were made by Dr. Rouxeau, Professor of Physiology, Nantes, France.[5] The detailed physiologic researches into this sleep and anesthesia were made by us in Professor Rouxeau's laboratory. We were the first to utilize this anesthesia in laboratory surgery; we made the first announcement of this practical application in animal surgery July, 1906, before the jury of our Paris thesis.[1] Professor Raymond presiding. To eliminate the muscular rigidity caused by the earlier models of interrupter, we perfected the wheel interrupter in every detail and pointed out the danger of using the city current, alternating, rectified, ordinary wet battery, and all sorts of irregular currents.[6] We were the first to apply electric sleep and anesthesia in clinical work, in Dr. Mangan's service, Bureau of Admission, Ste.-Anne Asylum, Paris,[7] January 25, 1910, electric analgesia was applied by us locally to a patient at the St. Francis Hospital, Hartford, Conn., Dr. M. M. Johnson amputating the great toe of one foot and the great, second and

*Read in the Section of Pathology and Physiology of the American Medical Association, at the sixty-first annual session, held at St. Louis, Mo., June, 1910. This is part of a paper read under the title "Electric Anesthesia and Electric Resuscitation After Heart Failure under Chloroform or Electrocution." The part on resuscitation will be published in the *Journal of the American Medical Association*.

†Verbal information given by the manufacturers of coils with the ribbon vibrator.

‡Personal communication. According to Mlle. Pompilian, her paper appeared in the Comptes rendus de la Société de Biologie. We found two models of her wheel in two different firms of instrument makers in Paris; one wheel had some twelve insulated segments and two contact levers; the other had less segments.

§Professor Rouxeau did not know of the existence of Mlle. Pompilian's models when he designed this wheel.

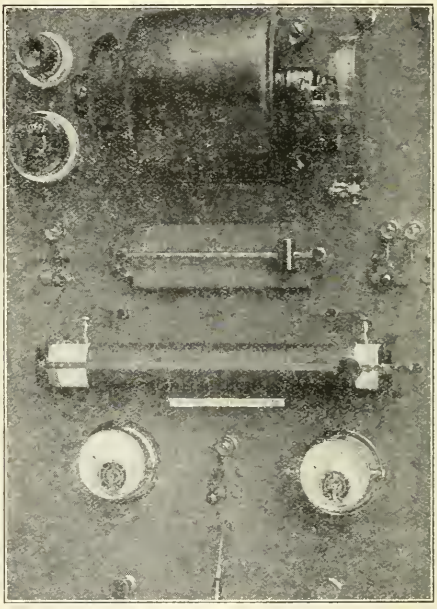
third toes of the other. The operation was published in the MEDICAL RECORD, April 23, 1910.*

Electric Source and Technique.—At this late date, when we present to you myograms showing muscle-nerve reaction by unipolar and by wireless methods in paths of displacement currents, it seems tame and crude to speak of reaction of living tissue under the influence of wired and closed circuits. But pending further investigation of our findings and practical application of wireless electricity for producing sleep in man, we may once more go over the matter dealing with currents in wired circuits in relation to sleep and analgesia, as we have applied it in clinical work as well as in animal and in human surgery.

None but storage batteries of large capacity, 100 to 200 amperes, should be used.[6] The current used for the patient and the motor should come from two separate sources. The current to be used for the patient is connected with the inlet binding posts of a graphite rheostat. A wire potentiometer should not be used because it brings troublesome inductance into the circuit, as is explained in myograms Nos. 1, 2, 3 and 4. The current is interrupted on the negative pole; this pole is connected as follows: a wire connects the outlet binding post of the potentiameter (negative pole) with the wheel interrupter, a milliamperemeter, a switch, and finally a resistance box (Wheatstone bridge or any graded resistance). The other binding post of the potentiameter (positive) is connected directly with the bridge. The resistance put into the circuit is from 300 to 500 ohms. The resistance represents the patient or the animal. The circuit is then closed by means of the switch. A voltmeter is connected in shunt, all the other instruments are in series. Now, the wheel interrupter is put in a position allowing the passage of the direct current without interrupting it (the wheel is not revolving).

*In view of this history of electric "sleep" and "analgesia," with interrupted direct currents it is to be regretted that the *Journal of the American Medical Association* states editorially, January 15, 1910, p. 211, that Drs. Tait and Russ were the first to apply the "current to practical surgical work," the practical surgical work of these physicians, according to their own account in the same journal, November 13, 1909, having consisted of pricking patients with the point of a pin, and of having made "an extensive skin incision for a phlegmon of the hand." The same editorial states that "prior to their work the problem had been studied principally from the physiologic point of view by Leduc," who, according to this editorial, is professor of physiology, and whose experiments we are said to have repeated. Apparently inspired by this authority, the *Post-Graduate*, March, 1910, also remarks editorially that Professor Leduc is professor of physiology, etc. In justice to this professor, and to Professor Rouxeau, both of whom have shown us every courtesy in promoting the progress of our personal researches into the practical applicability of electric sleep and analgesia to animal and human surgery as well as in clinical work, we wish to be allowed to state that Dr. Leduc is not professor of physiology, but of physics; that he has never manipulated any physiological instruments, and that he has never performed any surgical operations on animals subjected to this sleep; that, consequently, we could not have repeated his experiments either as regards the physiology or the surgical application of the anesthesia. The two California physicians certainly do not make any claims of priority in this matter; in a friendly conversation both stated to us frankly that they knew our works "by heart," because of frequent consultation while repeating our experiments on the surgical application of the "current." It is to be regretted that these two physicians speak of the bad results they have obtained, but do not point out the causes responsible for their bad results, as we explained these causes to them in our opening discussion appended to their paper. With our method and apparatus we never caused any untoward symptoms either in man or in animals.

The voltmeter indicates, say 40 volts; the milliamperemeter indicates, say, 20 milliamperes. Now the wheel interrupter is made to revolve by means of the motor, say, 1500 to 2000 times per minute. Whatever the amperage is while the wheel is in-interrupting the direct current, it is your aim to regulate the period of the passage of the current so as to have it pass only one-tenth of the time, nine-tenths being lost. This is accomplished by changing the position of the adjustable contact lever in relation to the fixed lever on the wheel, while the latter is revolving. Keep on adjusting the movable lever until the milliamperemeter that registered 20 milliamperes when the wheel was stationary now registers only two milliamperes, while it is revolving. The period of the passage of the current is now one-tenth. The period is of the utmost importance in this work and should be regulated every time before an experiment is commenced.* Now reduce the current to zero with the potentiameter, break the circuit by opening the switch, take out the bridge and substitute for it an animal or a patient. The wheel is made so that it can interrupt the current from 6,000 to 12,000 times per minute, according to the speed of its rotation.

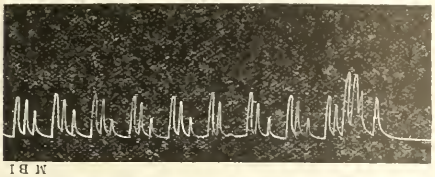


The author's latest model of apparatus for obtaining frequently interrupted direct currents for electric sleep and analgesia. Exclusion of inductance from the circuit intended for the patient is one of many details improved in this model. The rheostat controlling circuit for patient is made of graphite.

It is dangerous to use any other current than that indicated above. Alternating, induction, rectified, or currents supplied by ordinary wet batteries are dangerous for this work. See our thermometric, myographic, and manometric experiments with induction currents.[1] Irregular direct currents are equally dangerous. Dr. Brewer's bad results, obtained while repeating our experiments in animal

*A leading firm in New York has constructed, under our direction, an interrupter with a fixed period of the passage of the current. See figure

surgery, were caused in part by the irregular current generated at the College of Physicians and Surgeons; laundries and elevators are run by power taken from the same main line as is that supplying the laboratories. The current is markedly uneven and we demonstrated its unevenness in this



I R N

Myogram No. 1.—Direct current interrupted with metronome forty times per minute. Current from two "dry cells" controlled with wire potentiometer in the circuit. Current so small that the meter does not register it. Muscle nerve preparation in damp chamber. M, reaction at make of circuit by metronome; B, reaction at break of circuit by metronome; I, reaction caused by inductance. Last part of trace shows irregular effect of inductance that is increasing.

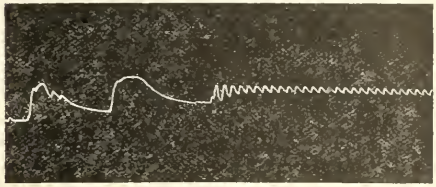
college, at a meeting of the New York German Medical Society, January 3, 1910. Unsuitable apparatus combined with such a current accounts for death and convulsions in animals, especially when too high amperage is used through error. Correct technical construction of the apparatus is of utmost importance.

Application in Dogs.—The fur is shaven on the head and over the loins. The head electrode is 9 x 9 centimeters, made of zinc, covered with absorbent cotton, wet in a 7 per 1000 salt solution of water. A similar electrode, 15 x 20, or 25 cts., is fastened over the loins. The negative pole is connected with the head electrode. It is dangerous to apply the positive pole to the head.[1] The positive pole is connected with the electrode over the loins. The current is at zero. The wheel is revolving, causing either 6.000 or 7.000 interruptions per minute; when the current is turned on; period of the passage of the current, one-tenth.

The interrupted current is turned on slowly, gradually, by means of the potentiameter. The animal begins to react vigorously and attempts to dislodge with its forepaws the head electrode when the meter registers one milliampere or thereabout. More current is turned on, and the animal makes a supreme effort to escape; still more current is turned on; when the meter registers about 2 milliamperes the animal falls on its side, there is evacuation of the bowels and emptying of the bladder; if the animal has milk in the breasts the milk spurts for a few seconds. In pregnant animals abortion

Myogram No. 2.—Muscle nerve preparation in lamp chamber. Current used for electric "sleep" and "analgesia" (direct, interrupted 6,000 times per minute, period 1/10). Current turned on gradually with wire potentiameter until reaction is seen, then current remains same during whole trace. Current so small that meters do not register it. The irregularity of muscular contraction is caused by inductance of the wire potentiometer.

may take place within from a few hours to a day after the experiment. The current is decreased a bit, say, to 1.5 milliamperes; the animal may attempt again to raise itself; the current is increased again to some 1.7 milliamperes, and the animal remains in a condition of muscular relaxation and in apparently comfortable position. If there are signs of uneasiness the current is increased again to 2 milliamperes, and the animal is ready to be operated upon. As a rule, it is useless and dangerous to increase the current above 2 milliamperes, because muscular rigidity is caused by currents



Myogram No. 3.—Consists in two parts: First part is irregular caused by inductance. This inductance was regulated by the operator until the registered muscular contraction of the same muscle resembled in form the wave form of a vibrating tuning fork. The direct-current was interrupted with a metronome 204 times per minute. If the trace is correctly interpreted, a muscle in an electric circuit with inductance acts as a capacity, and the proper tuning of this capacity to the inductance is indicated in this myogram, in its second part, showing equal reactions during make, break and inductance.

above 2 milliamperes when applied centrally in dogs. Besides, respiratory and cardiac disturbance and even difficulty may be caused by a current above 2 milliamperes. Only in rare cases is higher amperage necessary for dogs, as high as 2.5 or even 3 milliamperes; but these exceptions are about one in a hundred animals.

Consciousness is not abolished and hearing is preserved during this condition. The eyes are open and vision seems to be good. The animal may lift its head from time to time and even make an attempt to raise itself; but it falls on its side again and remains quiet. If let alone the animal closes its eyes and falls into a sleep; but if a surgical operation is performed on it the animal keeps its eyes open all the time; but there is apparently no reaction to pain; there is no sudden withdrawal of the limb operated upon even when the tissues are being torn; sudden withdrawal of the limb would be expected if pain were caused by cutting with the knife or by tearing of the tissues. The sense of touch seems to be preserved with from 1.5 to 2 milliamperes, and the animal may stretch out its limb slowly while the tissues are being touched or torn. Sometimes it is necessary to regulate the amperage during the operation, increasing or decreasing a fraction of a milliampere above the initial 1.5 or 1.7 milliamperes. It is possible that when only 1.5

M B

Myogram No. 4.—Taken with a graphite rheostat and shows total absence of inductance. A direct-current was interrupted with a metronome, 204 times per minute; reaction was recorded only with makes and breaks of the circuit. M, make; B, break.

milliamperes of current are sent through the body centrally, pain is not completely abolished, but it is sufficiently so to make it possible to operate on the animal without causing it to react in any way indicative of pain. When properly managed the animal never whines or shows any signs of distress.

The operation is generally bloodless. This condition is in accord with our manometric studies, showing increased blood pressure, apparently due to vasoconstriction. As soon as the wound is closed and the current turned off the animal arises to its feet

M B

Myogram No. 5.—Unipolar method. Reaction at make and break of direct-current feeding field coils. At break of current reaction is more marked than at make. M, make; B, break.

and does not show any resentment; it cheerfully accepts a piece of cheese or sugar offered to it.

During the last four years we have used this analgesia instead of ether and chloroform in all our laboratory surgery; we have performed hundreds of operations, but have never had any untoward accidents happen to animals as a consequence of this analgesia.

Application in Man.—Professor Leduc was the first man who submitted himself to electric sleep, Professors Rouxeau and Malherbe applying the current; but the experiment was not pushed far enough to produce complete anesthesia; 35 volts and 4 milliamperes were used centrally. In our work we distinguish between electric sleep and analgesia. We produce electric sleep in patients suffering from insomnia by applying to the forehead the negative electrode shaped to the forehead and the positive electrode to the palm of the right hand. The current is turned on slowly, gradually, some five minutes being consumed in turning on ¾ of a milliampere. Currents above this amperage are not liked by patients. When this amount of current is reached the patient feels a tingling sensation through his head and falls asleep within a few minutes. A small flag mounted on a little block of wood is placed upon the patient's chest; the flag moves with the movements of the chest that are watched all the time while the patient is sleeping. We generally let the current course through the body during one hour, then we turn it off. But the patient continues to sleep. On awaking the patient feels refreshed; if he is very sensitive he may remark that he feels "a bit chilly." This chilly feeling is probably caused by the vasoconstriction during the passage of the current.[1] We believe, on the basis of these experiments, that during natural sleep there is also vasoconstriction, and consequently decreased energy of osmosis through the vascular walls in the cerebral arteries.

Electric sleep or analgesia should not be combined

M A B

Myogram No. 6.—Reaction at make of direct-current feeding field coils, at make of arc and at break of direct-current feeding field coils and vacuum tube. M, make; A, arc; B, break.

with morphinization, chloroforming or any other soporific agents.[7]

Locally.—In clinical work we have applied electric anesthesia in numerous cases.[8]. The chosen part of the body or limb is included in the circuit, the cathode always being nearer the central nervous system, the anode the distal electrode. If the chest is in the circuit, the amperage should be governed judiciously, as may be judged from all our published papers dealing with electric sleep and resuscitation.[9]

Surgical Application in Man; Locally.—We ap-

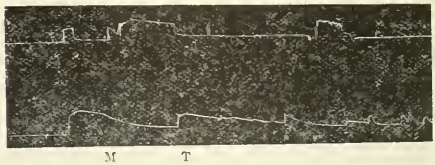
Myogram No. 7.—Upper trace: wireless; one end of wire connected with binding post of damp chamber. Other end of this wire held at a distance of fifteen centimeters from field coils and arc in vacuum tube; these coils and arc in vacuum tube in operation. No weight on muscle.

Lower trace: End of the wire three centimeters from tube anode. Reactions take place at make and break of arc in vacuum tube.

plied locally electric analgesia in man for surgical purposes January 24, 1910; the patient, a man twenty-three years old, was at the St. Francis Hospital, Hartford, Conn. Dr. M. M. Johnson operated and was assisted by Dr. Edward Herr. The leading physicians and surgeons of that city witnessed the operation.[10] The patient talked with those near him while his toes were being amputated. The great toe of one foot and the great, second and third toes of the other were amputated. The operation was bloodless. Four milliamperes of current and 54 volts were used in this case. Other surgical cases in which we applied electric analgesia locally are not yet published. One of these was a major operation of the lower limb and was also bloodless. The vasoconstriction accounts for this.

In some cases we used 9 milliamperes for amputation of the toes (one in a man, another in a woman) and 18 milliamperes for resection of the leg in a man. Neither of these patients withdrew their limbs during the operation, although the surgeons urged them to do so if the patients felt pain. But they complained of the tingling sensation caused by these strong currents. We believe, therefore, that 4 milliamperes of current, applied with electrodes of the dimensions reported by Dr. Johnson, are most favorable.

Local analgesia depends entirely on proper technique of application of the electrodes. In the lower extremities application of the electrodes is quite easy, because the anterior crural nerve and its accompanying vessels in Scarpa's triangle are readily



M T

Myogram No. 8.—Lower trace: Primary coil only. "Wired" circuit with "gap" of five centimeters. *M*, reaction as soon as ribbon vibrator is in operation and magnetic flux brought into play. *T*, reaction while operator was touching base of stand holding muscle-nerve preparation. Rest of trace, spontaneous irregularity, while free end of wire was held in magnetic flux.

Upper trace: With a circuit "gap" of five centimeters and end of wire held near magnetic flux. No reaction when wires withdrawn from field.

reached with an electrode; so are the anterior and posterior tibial nerves in the leg. In the upper extremities it is rather difficult to locate the large trunks of nerves and vessels. When the electrodes are properly applied to them the analgesia is good; but it is difficult to keep the electrodes in their

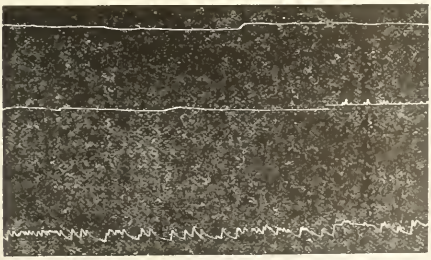
proper places. For this reason we recommend patience until we perfect a technique that will make this application simple and easy. The advantage presented by local over central analgesia is self-evident. Locally, the amperage may readily be increased above 4 milliamperes; we do not recommend higher amperage than 4 milliamperes of the interrupted current; but 5 or 6 milliamperes may sometimes be necessary. Centrally, 4 milliamperes is as strong a current as we should like to apply. Slightly stronger currents than this should be used by none but the expert in this work. The major advantage of this analgesia is that it is not dangerous when properly applied, with proper instruments and proper currents.

Myogram No. 9.—"Unipolar." Primary coil only (10 inches long, six layers of wire, of which diameter is 12/10 mm., condenser in circuit. Core one inch in diameter. No weight on muscle); reaction when one end of the single wire is connected with damp chamber, the other end touching any part of the metal frame near magnetic flux. M, reaction when end of wire touches any part of metal frame; T, operator touching with hand base of drum on which trace is registered; S, operator touching base of stand holding muscle-nerve preparation.

Contraindications.—Electric sleep, and particularly analgesia, when applied centrally, causes abortion in pregnant animals. The current is contraindicated in cases of high arterial pressure, in the apoplectic and in the epileptic, because this current increases arterial tension.

II.

November 4, 1909, we presented the results of a new variety of electric current obtained with a Vreeland oscillator.[11] Rabbits and dogs were subjected to the effects of this current and a certain degree of analgesia and sleep was produced. In one rabbit we even cut through the tissues of the back of the chest and scraped with a knife the bones of the spinal column without causing any reaction to pain. But in dogs we could not produce any analgesia for operative purposes. The more interesting feature of the effects of the pulsating current used by us was in regard to sleep. December, 1909, a dog was put into a closed wired circuit of this current. The animal remained stretched out on its side, in a condition of muscular relaxation, during a period of three hours, when one of the electrodes was disconnected and fell to the ground; but the animal remained in a condition of somnolence. The circuit was broken during a period of one-half hour, but the animal remained motionless on its side upon the table. A pin was thrust through its skin and the animal arose to its feet. We repeated similar experiments of unipolar connection with the working current of the oscillator and similar results were obtained. We then disconnected both electrodes and still the dog remained on its side in a drowsy condition upon the table, awaking only when shaken vigorously.

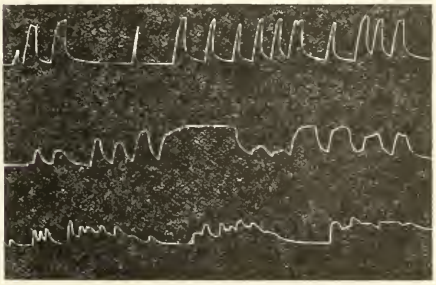


Myogram No. 10.—"Wireless." No weight on muscle. From below upward; lowest line; Tesla high frequency. Preparation grounded; no spark across Tesla terminals; apparatus one foot away from preparation.

The two upper traces; oscillations conducted to preparation by operator's body, as explained in the text. Spark across Tesla terminals.

While the animal remained in a drowsy condition the oscillator was in operation. The oscillator's important features in relation to this sleep were not the working current supplied by the apparatus, but the two field coils and rapid electric oscillations in the vacuum tube of the apparatus made for the purpose of supplying the working current. The magnetic flux and the arc in the vacuum tube caused displacement currents in the air, as will be shown in the myogram studies.

In our experiments the continuance of electric sleep in dogs by means of displacement currents was practised after the animals had been subjected to the effects of the pulsating current conducted through a closed wired circuit during periods of from two to three hours. We are not in a position to affirm that this sleep could be caused to take place in all dogs without the preliminary effect of the pulsating current in a wired circuit. But myograms obtained demonstrate the decided effect of displacement currents on living tissues; these studies seem to indicate that in cases of failure to produce sleep with displacement currents at our disposal it was because these currents were not sufficiently strong for the purpose.



Myogram No. 11.—"Wireless." Weight on muscle. From above downward: 1, reaction at a distance of 2 meters; each end of solenoid screwed into respective binding posts on disc of damp chamber. 2, reaction at a distance of 2 meters, one end of solenoid being free in the air. 3, reaction at a distance of 2½ meters, solenoid with one end free in the air reinforced.

In these experiments the muscle-nerve preparation is in a damp chamber, covered with a glass globe; the nerve lies across two nonpolarizable electrodes; these electrodes are filled with a saturated solution of zinc sulphate; wires connect these electrodes with binding posts on the disc of the damp chamber.

Myogram No. 5, taken by Dr. F. M. Law and ourselves. Unipolar method. One wire connected one binding post of damp chamber with the oscillator. Properly speaking, this wire made no connection with the oscillator, because the working current was not used. The single wire simply helped the displacement current to bridge over

space. Field coil excited by direct current, but arc of vacuum tube not in operation. Makes and breaks indicate closure and opening of switch controlling direct current that feeds the field coils and the vacuum tube (but in this case the vacuum tube was not in operation). The muscle-nerve preparation reacted to these makes and breaks. The reaction at closure was less marked than at opening of circuit. Weight on the muscle.

Myogram No. 6, unipolar method, as in myogram No. 5, shows a decided effect of the make of the arc in the vacuum tube following reaction already obtained with excitation of field coils.

Myogram No. 7 shows wireless reaction as follows: Damp chamber holding muscle-nerve preparation is at a distance of 85 cm. from field coils. One wire connected with binding post of damp chamber; end of this wire at various distances, 10, 15, and 20 centimeters from field coils and vacuum tube. Muscular reaction at make of direct current that excites field coils; additional reaction at make-and-break of arc in vacuum tube.

These muscular reactions are certainly caused by displacement currents in the air.

The effect of other electric sources were then tested. Reaction was obtained from the effects of the magnetic flux of an ordinary small-sized core of a primary coil as follows: Wires were screwed into each of the two binding posts on the disc of the damp chamber; the free end of one of these wires was screwed into one side of a switch; a piece of wire connected the other end of this switch with any binding post on the frame of the primary coil, as near the magnetic flux as possible; the free end of the other wire of the damp chamber was made to touch any metallic part in the magnetic flux, while the ribbon interrupter vibrated; the blade of the switch was in the air; in other words, the open switch made a gap, of from 3 to 5 centimeters. Properly speaking, there was no circuit here; the gap was only one of the gaps in this circuit. Muscle-nerve reaction was obtained every time the free end of the wire touched metallic parts in the magnetic flux; there was also reaction when this end of the wire touched either of the binding posts of the switch controlling the direct current feeding the primary circuit. While the ribbon vibrated and the free end of the wire was in the magnetic flux or touching one of the binding posts of the direct current, additional reaction was obtained when the operator touched or grounded the metallic registering drum or the metallic stand that held the muscle-nerve preparation. The registering drum and the stand were in touch by means of a metallic lever that served as a pen for recording the contractions. A layer of thick-coated paper separated the drum from the recording lever. (Myogram No. 8.)

When a larger sized magnetic flux was used (core 10 inches long, 1 inch in diameter, within a primary coil of six layers of wire, 12/10 mm. in diameter, and condenser on the primary, source 110 volts) reaction was obtained with only one wire screwed into one of the binding posts on the rim of the disc of the damp chamber, the other end of the wire being placed within the magnetic flux or else touching any part of the metal frame near the flux, while the ribbon interrupter was vibrating. Reaction was also obtained when touching with the free end of the wire either of the binding posts of the direct current feeding the primary circuit, while the ribbon was vibrating. It was also noticed that a direct current (the street current) placed near, but passing through another part of the apparatus and having no connection either with the coil or with the vibrator, increased the effect of the displacement current. (Myogram No. 9.)

It seems that the vibrator in the primary circuit acts in relation to the magnetic flux in a manner similar to that in whch the arc in the vacuum tube of the oscillator acts when added to the effect of the field coil considered in myograms Nos. 6 and 7.

With the Tesla high-frequency currents reaction was obtained by wireless means; the maximum working distance with the smallest portable Tesla apparatus at our disposal was 1 foot.

Myogram No. 10, taken by Dr. Law and ourselves. Wireless method. The smallest portable high-frequency Tesla apparatus gave the following results: Maximum working distance for oscillations causing visible muscular reaction was 1 foot. Other conditions showing reaction: Oscillations conducted to preparation by operator standing near point of discharge and holding wire leading to preparation, so that there was a gap in circuit between operator and discharge, about 8 inches.

Conclusions.—Living beings and muscle-nerve preparations react to displacement currents. A muscle-nerve preparation may react to currents that an ordinary telephone receiver does not detect. A muscle-nerve preparation seems to be a sensitive detector of displacement currents. If our interpretation of the tuning-fork reaction in myogram No. 3 is correct, the muscle-nerve preparation may be considered as a capacity.

An electromagnetic flux of an ordinary portable small-sized primary coil with a ribbon vibrator in operation causes muscle-nerve reaction in circuits with gaps of from 3 to 5 centimeters. A larger electromagnetic flux (core 10 inches long, 1 inch in diameter, primary coil six layers of wire, diameter 12/10 mm., with condenser on primary) causes marked reaction by unipolar methods.

The experiments here recorded show that it is possible to produce effects on animal and living tissue by means of unipolar and wireless methods. The question of producing sleep in man by these means in paths of displacement currents is one for further study.

In view of the above experiments, the laboratory method of using closed-wire electric circuits for demonstrating muscle-nerve reaction at makes and breaks of circuits of secondary currents seems to be cumbersome. In our experiments the operator is relieved of the annoyance caused by bad contact in the secondary circuit, because we obtain reaction without secondary circuits and without contact.

Since the presentation of this paper we have made further studies of wireless effects of displacement currents on living tissue; positive results were obtained without grounding the muscle-nerve preparations and even when everything connected with the experiment was insulated on a platform. This proved that reactions could be obtained by reason of free displacement currents in the air. These results were published in the MEDICAL RECORD, August 13, 1910, under the heading of "Electric Sleep in Paths of Displacement Currents: New Findings."

Studies made since last August, with a view to utilizing displacement currents for producing electric sleep and other effects, enabled us to obtain wireless effects on living tissue at distances of from 2 to 2½ meters. These effects are recorded in

myogram No. 11, weight on muscle. Reading the tracings from above downward, the conditions were as follows: Each end of a small solenoid was screwed into each of the two binding posts on the disc of the damp chamber. A brush discharge from a special high-frequency apparatus caused reaction at a distance of 2 meters. Instant reaction took place at the moment of electric discharge; then reactions were caused to take place every time the operator touched with his finger the metallic recording drum or the metallic stand holding the preparation. The floor was of concrete. Reaction was also obtained by changing the distance between the brush discharge and the preparation.

In the second or middle tracing one end of the solenoid is unscrewed from the binding post in the damp chamber and remains free in the air. Reaction is obtained as above, at a distance of 2 meters.

In the lower tracing reaction was obtained at a distance of 2½ meters; one end of the solenoid was free in the air, but the solenoid was reinforced by a mechanical device.

Reaction was also obtained as follows: The operator conducted the current through his body by placing one hand near brush discharge, while the other hand touched one of the binding parts of damp chamber.

The presence in the air of these displacement currents can also be detected by vacuum tubes or lamps placed within the active field; the tubes or lamps light up with a brilliancy corresponding to the intensity of the electric discharge.

These effects and newer findings on tissue reaction at longer distances will be the subject of a later contribution.

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THE NORMAL AND PATHOLOGICAL LIVER PULSES.

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THE presence of a venous liver pulse in normal individuals has not as yet been recognized, although the liver pulse accompanying various cardiac lesions has been described at length by Mackenzie. He recognizes two forms of pathological liver pulse, the auricular and the ventricular, and of these

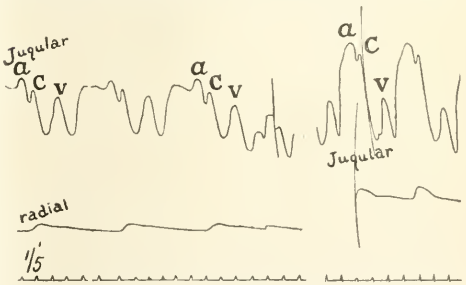

FIG. 1.—Jugular and radial tracing from normal individual taken before (a) and after (b) exercise, showing auricular venous pulse.

the auricular has been of doubtful significance, for while it has been present in a number of cases of tricuspid stenosis it has also been observed in other cardiac lesions. Whatever the form of liver pulse its prototype is found in the jugular pulse, for when both liver and jugular pulses are present in an individual they are always of the same kind. Mackenzie first pointed this out and my own experience has been similar. If then a normal liver pulse

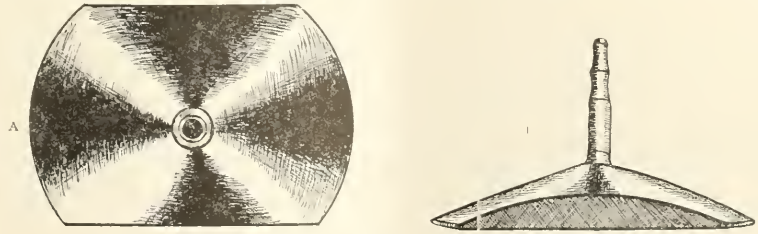

FIG. 2.—Liver cup, ⅔ natural size; A, top view; B, side view.

exists it must correspond to a normal jugular pulse.

In considering the question of a normal jugular pulse I find but little information as to its incidence in healthy persons and some doubt seems to exist as to its significance. Thus Mackenzie says,[1] "To a great extent we are even at this day quite at loss to explain all the conditions that give rise to a venous pulse. Some people in apparently good health show it, while in cases of marked heart failure it is entirely absent. Some people when in robust health show no signs of it, but if they become slightly debilitated the venous pulse may appear in the neck."

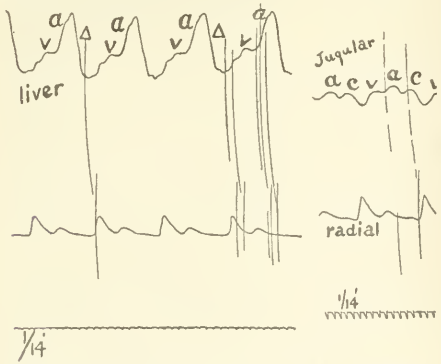

Fig. 3.—Jugular and liver tracing from a case of compensated double mitral lesion. The fall marked Δ represents the retraction of the liver caused by cardiac systole.

In a series of twenty-five young adults whose hearts were normal on physical examination, every one showed, however, a well-marked auricular venous pulse.* The waves were all prominent and after exercise (running up three flights of stairs) they became more so, but showed no other changes, except in one case, which developed a few auricular extra-systoles. Following is one of these normal jugular tracings, taken before and after exercise.

Before discussing the normal and pathological liver pulses the technique of obtaining a liver tracing and its interpretation will be considered. The cup used was one devised by Dr. Haven Emerson, which I have found more useful than the Mackenzie cup, and is shown in Fig. 2, p. 1041. At the end of expiration it was placed deep in the right hypochondrium with its face directed upward and backward, following which the patient held his breath.

The interpretation of a liver pulse tracing is sometimes difficult because its waves have to be distinguished from two normal epigastric move-

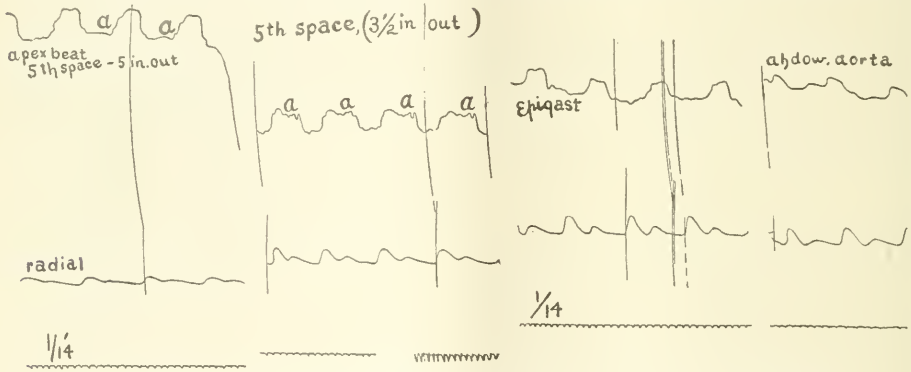

Fig. 4.—Tracings from the apex beat showing a normal cardiogram, and from the right ventricle showing a reversed cardiogram; from the epigastrium just below the ensiform, and from the abdominal aorta just above the umbilicus.

ments which may appear, viz.: (1) an up and down movement of the liver, due to the systole and diastole of the heart, causing a rise or fall in the tracing, and (2) the pulsation of the abdominal aorta, causing a systolic rise in the tracing. The epigastric pulsation, or better, retraction from a dilated right ventricle, is simply an exaggeration of the above-mentioned mechanical displacement of the liver. The movements of the right ventricle are transmitted to the epigastrium by the liver and this normal epigastric retraction may be considered therefore as due primarily to the systole of the right ventricle and secondarily to the liver movement. I have never seen a systolic outward pulsation in the epigastrium from an hypertrophied left ventricle and I am inclined to think that such a pulsation is always due to the abdominal aorta. The following tracings, from a case of compensated double mitral lesion, with marked right and left ventricle hypertrophy, have been selected to illustrate these various epigastric move-

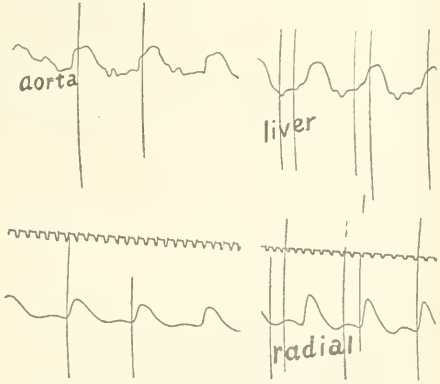

Fig. 5.—Tracings from liver and abdominal aorta in a case of aortic and mitral regurgitation.

*I attribute the ease with which it was demonstrated to the receiver used, which was fairly shallow and of a pattern different from the usual type.

ments, and their relation to the auricular liver pulse.

By comparing the times of the apex beat the radial and the liver fall (△) it will be seen that △ occurs just after the aortic valves open. The general resemblance between the liver tracing, the region resemble those of a ventricular venous pulse, but comparison with the abdominal aorta shows them to be transmitted aortic pulsations.

Liver tracings were also taken frow twenty normal individuals. It was most interesting to find

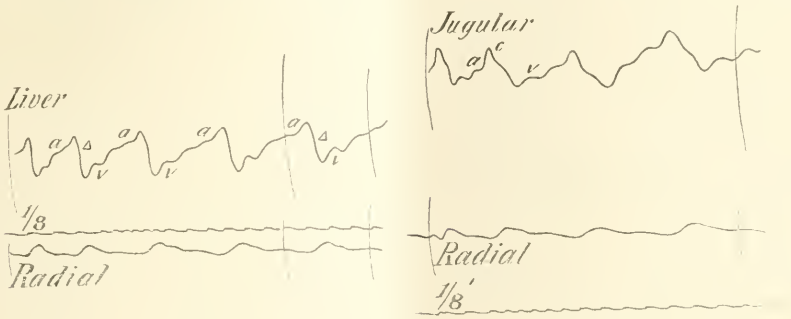

Fig. 6.—Tracings from jugular and liver of a normal individual.

epigastric tracing (which was taken just below the ensiform) and the tracing from the right ventricle shows that the fall in each case was due to the systole of the right ventricle (the systole of the left ventricle probably contributes somewhat to the epigastric fall.) The "a" and "v" waves in the jugular and liver tracings are often not quite synchronous, because of the longer distance that the jugular waves have to travel.

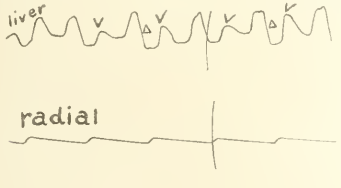

Fig. 7.—Jugular and liver tracings from normal individual.

There is only one certain way of distinguishing between the auricular wave of the liver pulse and the epigastric movement due to the ventricular systole, and that is by timing the fall in the liver tracing in relation to the apex tracing. In the auricular wave the fall begins *before* the aortic valves open, and in the other case *after* they open. In looking over liver tracings in the literature I have found these waves confused a number of times. Fig. 5 illustrates another condition which might lead to a misinterpretation. The pulsations in the liver

that in fourteen we were able to demonstrate a liver pulse of the auricular type. In each of those fourteen the "v" waves were more or less well

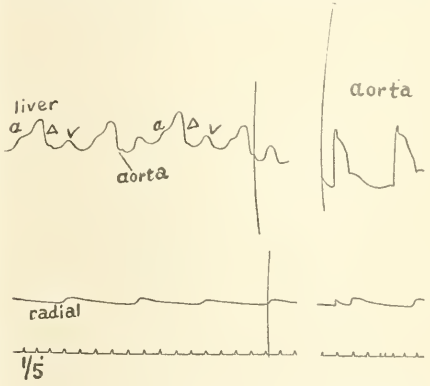

Fig. 9.—Liver tracing from a case of aortic and mitral regurgitation.

marked, while in many the "a" waves could be clearly distinguished. Fig. 6, 7, and 8 illustrate the character of this normal liver pulse.

In routine polygrams of the heart cases at the New York Hospital (House of Relief) I have frequently found an auricular liver pulse, illustrations of which are given below.

It will be noticed that the "a" waves in both the normal and abnormal cases are not very prominent.

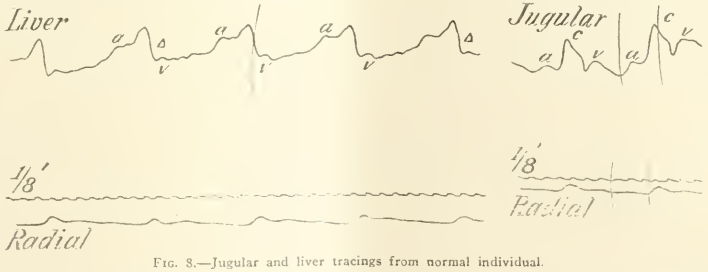

Fig. 8.—Jugular and liver tracings from normal individual.

Mackenzie has reported a number of cases showing liver pulse tracings with marked "a" wave in which the post-mortem examination revealed a tri-

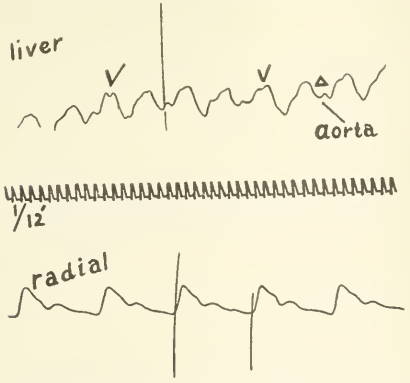

Fig. 10.—Liver tracing from a case of aortic and mitral regurgitation.

cuspid stenosis. I have seen only two such cases. In one the autopsy showed extreme cardiac hypertrophy and dilatation, with much widened tricuspid and mitral orifices, no valvulitis, and a narrow aorta.

The other patient, still living, had a complete heartblock with much hypertrophied heart and an aortic systolic murmur.

The following tracings are from the case of hypertrophy and dilatation.

They show a rather unusual type of ventricular venous pulse, the heart rhythm being regular. This

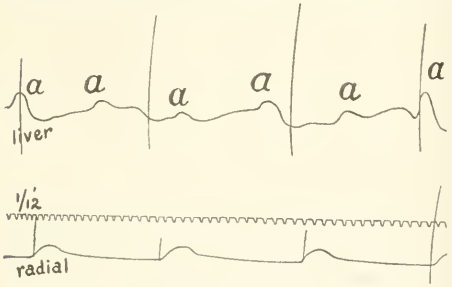

Fig. 12.—Liver tracing from a case of complete heartblock showing a marked auricular pulse.

form of venous pulse is accompanied as a rule by marked cardiac arrhythmia and an absence of "a" waves in the tracings, and then indicates the existence of the "nodal rhythm." The "s" wave (Bachmann), which Mackenzie[1] calls the "a" wave, and Hewlett the "p" wave, is absent or blended with the "v" wave because of the marked tricuspid regurgitation, and the "v" wave appears earlier than normal for the same reason. The "a" waves might be mistaken for "s" waves were it not noted that they always begin before the ventricular systole.

The following is a tracing from the case of complete heartblock.

The usual form of ventricular or positive systolic liver pulse is so familiar that no examples are given. It can often be detected in tracings with the liver cup when palpation fails to reveal it.

Conclusions.—The auricular venous pulse in the jugular veins is probably a normal event and has no pathological significance.

A large percentage of normal people show a more or less marked auricular liver pulse.

No deductions can be drawn from the presence of an auricular liver pulse in cases of cardiac diseases, unless the "a" waves are decidedly prominent.

I wish to thank Professors W. Gilman Thompson and Warren Coleman in whose services at Bellevue Hospital several of the heart cases were observed.

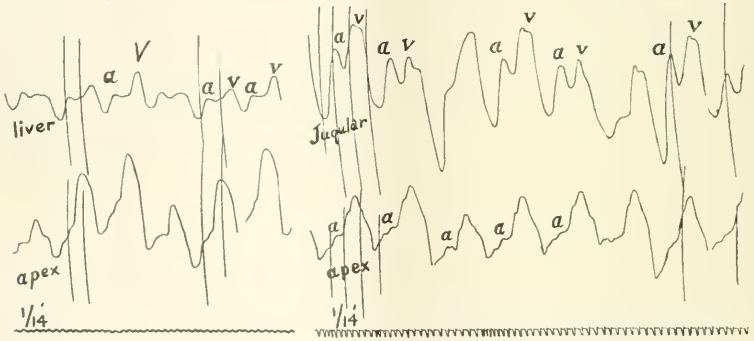

Fig. 11.—Liver, jugular, and apex tracings from a case of tricuspid and mitral regurgitation, showing marked auricular venous pulse.

A FURTHER REPORT ON THE TREATMENT OF FACIAL NEURALGIA BY ALCOHOL INJECTIONS.*

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I APPRECIATE the honor of having been invited by your president to read before this society a short paper as a further report on the treatment of neuralgia by alcohol injections. I regret to be unable to give exact statistics, as the time of two weeks allowed me for preparation was far too short to do this properly, but I hope to give more elaborate details in a paper on this subject, to be read before the Surgical Society in January, 1911.

As is probably known to most of the members of

[1] Mackenzie, Jas.: "Diseases of the Heart," 1908, p. 115.

*Read by invitation before the N. Y. Neurological Society at its regular meeting at the Academy of Medicine, Nov. 1, 1910.

this society, I employ Schlosser's method exclusively. Since my last publication in May, 1909, I have had sixty-eight cases of facial neuralgia. In all of these cases the treatment was successful, that is, in every case the patient was rendered entirely free from pain for a certain time. This result I ascribe to three causes. First, I am more careful than ever in making the diagnosis of trigeminal neuralgia. The more patients I see, and especially such, who are not sent by their physician, but who come of their own accord or at the instance of former patients, the more I recognize the necessity and difficulty of differentiating true facial neuralgia from so-called functional neuralgia, or from hysterical conditions, or from psychosis. Even with the greatest care it is sometimes extremely difficult to decide whether we have to deal with a severe facial neuralgia combined with deep mental depression resulting therefrom, or with a real psychosis due to other causes, aggravated by neuralgia. Only very recently I came near having a failure in such a case; I finally got the patient free of paroxysms, but not of the anxiety and fear of further attacks; the mental depression also was only partly improved.

The second cause of my better results is that I think I have improved my technique. Let me state at once that I had occasion to use the ganglion Gasseri injection only in one case; in all the others I made peripheral injections. There are several reasons for this; the injection into the foramen ovale according to Schlösser's method is difficult, but safe and sure. I am not convinced of this, if the injection is made according to the Levy-Baudouin method. The injection into the foramen rotundum proper, and not only near it, is, in more than 50 per cent., impossible according to any method, owing to individual peculiarities of the skulls. I do not venture to discuss the question where the seat of pain is in facial neuralgia, for the simple reason that I do not know it. I, therefore, leave aside the theoretical question, if it is not desirable to attack the nerve or its branches, either by injection or other operative procedures at the ganglion gasseri, or as near to it as feasible. I simply state the practical experience, that in all the cases I have treated since May, 1909, with the exception of one case where I injected into the ganglion gasseri, I have succeeded with the peripheral method. I have to add at once that among this new series of cases there was none that had been gasserectomied. In those cases the deep foramen ovale injection is of course necessary. By the peripheral method I do not mean only injections into the foramen or incisura supraorbitalis for the first branch, the foramen infraorbitale for the second, and the foramen mandibulare for the third, but, wherever necessary, other branches or their ganglia are injected, as especially the ganglion sphenopalatinum and the nervus palatinus anterior and nervus palatinus posterior. An injection into the foramen mentale may become necessary too.

The third cause is the greater clinical experience which I have acquired. For instance, second and third branch seem to be affected. On two injections into the second branch the pain disappears, not only in the region of the second, but also entirely in that of the third. The patient is then so satisfied that it may be hard to convince him of the necessity of making at least one injection into the third branch. If this is not done, a recurrence after twelve to fourteen months may be the result, but a recurrence not in the second branch, but in the third. *Vice versa,* I have seen cases where the pain was referred by intelligent patients distinctly to the region of the second branch alone, but would not subside until the third branch, which was apparently not affected, was treated also.

I have stated that all my cases in this new series got free of pain, while in my last publication I mentioned five failures. I cannot give you any reliable statistics on the lasting results, since it is much more difficult to get regular reports from all those patients distributed over the different States. While I had formerly reports, favorable or unfavorable, from all patients, this is not the case any more. Besides, neuralgia patients sometimes remain free of pain for a number of months or even years without any treatment at all, especially in the beginning of the disease. Any attempts, therefore, at statistics in this line are more or less futile. I must state, however, that most of my cases are very severe and usually of long standing. As far as I am able to determine, the average time of freedom from pain is about one year, and then the recurrence mostly slight, which is to say, that the patients usually come back if there is the slightest indication of a return of pain. If a recurrence appears sooner, I am inclined to think either that the treatment has not been thorough enough, or that not all the branches affected have been treated.

The intervals between recurrences seem to grow longer, with the exception of a few very obstinate cases, where multiple surgical operations had been performed before injection, and Schlösser, with whom I have conferred personally this summer, expects that the majority of cases eventually get entirely free of pain. Since I have a number of cases where the patients have stayed free of pain, three years after the original treatment or one or two recurrences, I am rather inclined to join Schlösser in his expectation. If such is the case, one would have to assume that the repeated injections of alcohol into these sensory nerves finally produce a state where they are unable to conduct pain, a state produced by a sort of severing the continuity of the nerve, as in resections, without the possibility of regeneration.

I have seen in my own cases no hemorrhage as an undesirable secondary symptom. One case has come to my observation where after an injection according to the Levy-Baudouin method (with no result as to the alleviation of pain) a hematoma occurred that reached from the temporal region down to the mamilla. I have seen no facial paresis in my own cases, but one where two Levy-Baudouin injections had been performed. No oculomotorius paresis has occurred, no herpes. Twice an ulcer on the lower lip appeared which healed in three and four days; this is due to trauma, the patient biting the anesthetic lip. In ten cases a drooping of the upper lip resulted from an injection into the second branch of the same side, lasting from three to ten days, in one case six months. This is due to paresis of the rami zygomatici of the facial nerve, which supply the infraorbital head of the quadratus labii superioris and the caninus. These nerve fibers are pierced in an injection into the foramen infraorbitale, and slightly paralyzed if some of the alcohol regurgitates out of the foramen or if the injection into the foramen was not perfectly accomplished.

One important point is trismus of the masseter, so that the patients cannot open the mouth prop-

erly; this has happened to me in about 6 per cent. of injections into the third branch. This may last from one to three weeks, and did persist in an out-of-town case for eleven months, where the patient was satisfied as long as she had no pain.

Trismus in neuralgia of the third branch without treatment is rather frequent, and in severe cases pathognomonic. I had always considered this a defensive cramp of the masseters and pterygoids, produced by the desire of the patients to avoid pain by not moving the jaw, until I found that in one case, where no operations or injections had been made, I could not open the jaw in considerably deep narcosis. I dare not decide whether this is a true spastic condition of the chewing muscles due to an irritation of the motor root of the third branch. This cramp disappears very soon if the pain subsides after an injection into the third branch. But on the other hand, this trismus occurs after injection into the third branch, where it did not exist before. There are two explanations possible for this phenomenon. One is that the muscles which depress the jaw are paralyzed. The lower jaw is moved downward principally by the musculus digastricus, and if the hyoid bone is fixed by the genio- and mylohyoideus; as the digastricus is supplied by the facial nerve, this has to be excluded as a source of paresis of these muscles, except where there are other symptoms of rather pronounced facial paresis. But the mylohyoideus is supplied by the mylohyoid nerve of the third division of the trigeminus, and the geniohyoid muscle is supplied by fibers from the first and second cervical nerves, which accompany the hypoglossal nerve and are thus in direct communication with the third branch. These last-named two muscles might, therefore, very well become paralyzed by an injection into the third branch. But it is much simpler to assume that the injection along the inner surface of the lower jawbone results in a myositis, followed by shrinking of the muscle and production of scar tissue. This assumption is supported by the clinical experience that massage and mechanical prying open of the mouth with a wooden wedge and the "Heyster" overcome the resistance. Schlösser informed me that a large number of injections of fibrolysin (30-40) is exceedingly helpful in those cases. My personal experience in this line is still too limited.

I have given you, in short, some of my experiences and views on this subject. While for several reasons I am not prepared to say positively that I have cured one patient definitely, I have achieved that all my patients got free of pain for such a long time that, even if a certain percentage got a recurrence, and had to be treated again, they were very happy over the results and nothing could have induced them to submit to any other kind of a treatment, especially not surgical operations, and least of all gasserectomy.

44 West Seventy-seventh Street.

Cough.—The causes of cough are exceedingly numerous, but it is useful to remember that a cough which wakes the patient up after he has been asleep is probably due to lung disease. In the treatment of cough in children one should remember that nearly all cough mixtures tend to upset their digestion. A simple febrifuge mixture should always be preferred, and will often prove sufficient throughout the illness, unless there is a clear demand to aid or diminish expectoration.

A PRELIMINARY REPORT ON THE IMPORTANCE IN SCARLATINA OF AN EARLY BACTERIAL EXAMINATION OF THE SECRETION FROM THE POSTNASAL REGION.

By ERNEST C. SCHULTZE.

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PHYSICIAN IN CHIEF, GOOD SAMARITAN DISPENSARY.

In view of the fact that English, French, and American investigators have produced scarlatina in healthy children by means of transferring secretions from the mucous membranes of the nose and throat by swab or hypodermically from children ill with scarlatina, the following report may prove of interest:

My investigations so far have extended over a period of three years and I am fully convinced that the danger of infection in scarlatina is harbored in the throat and nasal passages and not in the scales from the period of desquamation. While Acting Assistant Director of the Diagnosis Laboratory of the Department of Health, New York City, and making examinations of smears for Klebs-Loeffler bacilli my interest was aroused by the uniform appearance of smears made from certain cultures, especially those sent in by the Willard Parker Hospital, an institution for contagious diseases (scarlatina and diphtheria), where it is customary to take a culture from the throat of every patient admitted. These cultures are each accompanied by a report giving the name, age, duration of disease, and clinical diagnosis, *i. e.* scarlatina diphtheria, or both. The coccus which I describe I have found in 459 out of 555 cultures taken from the throats of patients clinically ill with scarlatina.

During six months I examined personally 2,000 cultures, 500 of which were taken from the throats of cases clinically ill with scarlatina. Immediate microscopical diagnosis corresponded with the clinical diagnosis in 301 instances and after an exhaustive search of the smears in other instances 108, making a total of 409. Sixty-one smears of the 2,000 cultures presented a microorganism closely resembling the one I consider characteristic of scarlatina, but clinically they had not been considered such. How many of these cases, if any, later developed scarlatina, I am unable to say. Three hundred and twenty-eight cultures from clinically true scarlatina, besides numerous other organisms, were complicated by a streptococcus in the majority of instances of a fine, short variety. It is worthy of note that 10 per cent. of these cultures—that is, from clinically true scarlatina—showed an organism morphologically identical with the Klebs-Loeffler bacillus. The balance of the 2,000 smears coming from the Willard Parker Hospital showed Klebs-Loeffler bacilli. This investigation having excited my interest in the possible presence of a distinct organism in scarlatina, the investigation was continued at the Good Samaritan Dispensary. Here a bacteriological examination of cultures from the throats of 100 children varying in age from 2 to 9 years, with no previous history of scarlatina, failed to show in the smears from a twenty-four-hour blood serum culture incubated at 37° C. the characteristic microscopical picture which had been observed in true scarlatina. (See the illustrations.)

Not satisfied with these observations, smears

from twenty-four-hour cultures were made from 100 throats of patients averaging in age from 3 months to 60 years and considered clinically as diphtheria, erysipelas, measles, rubella, autointoxications, erythemata, parotitis, varicella, pneumonia, and influenza without finding the microscopical picture found in smears from the throats of patients suffering from true scarlatina, although a coccus resembling the organism was occasionally found, especially in cases of parotitis. Fifty nasal cultures were secured from children varying in age from 3 to 6 years without a previous history of scarlatina, and but three showed an organism morphologically identical with the organism present in scarlatina. During the same period fifty-five children ill with scarlatina were studied and the organism found in fifty out of the fifty-five cases; in two as early as forty-eight hours before the appearance of the rash, and in one case six months, following discharge from the Willard Parker Hospital. A large number of cases simulating scarlatina—that is, presenting a rash, mild angina, temperature, rapid pulse, tonsillar exudate—but giving no history of vomiting, no marked angina, and from which twenty-four-hour cultures failed to show the organism, were investigated and found not to be scarlatina, although the rash, temperature, rapid pulse, and mild angina at the time of the first examination might have justified a positive diagnosis. The following cases will illustrate the value of an early bacteriological examination of all suspected cases of scarlatina.

Case I.—Child, aged 10 years. History: Illness of two days; conjunctivitis; general malaise; tongue heavily coated; left tonsil dark gray membrane; pharynx congested; no rash, but history of vomiting; temperature, 104°; pulse, 160; respiration, 40. Chest and abdomen negative. Twenty-four-hour growth on Loeffler's mixture showed a large coccus predominant. Thirty-six hours after the case had been seen at the dispensary a fine punctiform rash appeared about lumbar region. Pulse, 150; temperature, 104°; respiration, 36; marked angina; tongue strawberry appearance. At this time another child in the family, aged 6 years, complained of a sore throat and an examination revealed a coated tongue; severe angina; no other physical signs; temperature, 103°; pulse, 104; respiration, 30; no rash discernible. Direct smear showed the same microscopical picture found in the first case. Six hours later the cases were seen by a diagnostician from the Health Department and both cases sent to the Willard Parker Hospital with a diagnosis of scarlatina. The next morning I examined a twelve-hour culture from the throats of these children and found numerous typical organisms present.

Case II.—This culture was sent to the Department of Health from one of the city hospitals with a diagnosis of diphtheria. History: "Pus from the

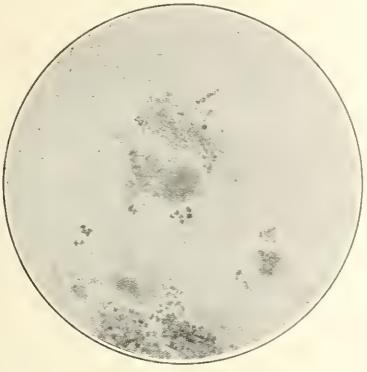

Fig. 1.

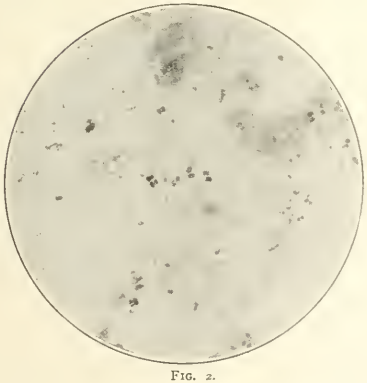

Fig. 2.

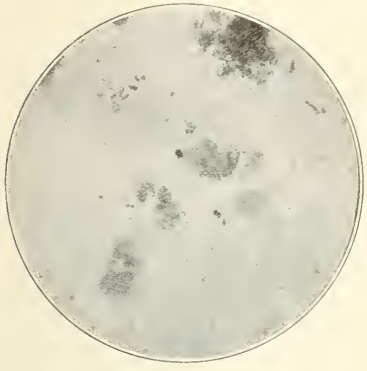

Fig. 3.

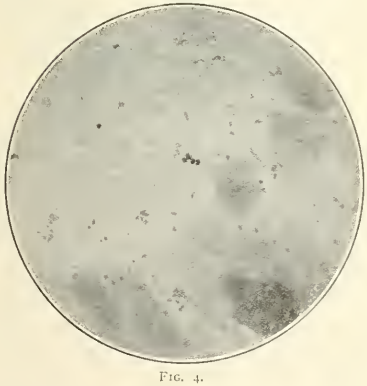

Fig. 4.

Figs. 1, 2, 3, 4.—Direct smears from the postpharyngeal space of a patient ill with scarlatina; stained with Loeffler's alkaline methylene-blue solution: x 1000. The coccus takes a much deeper stain than the rest of the field.

eye; examine for Klebs-Loeffler bacilli." Eighteen-hour growth on Loeffler mixture showed numerous typical organisms found in scarlatina with staphylococci. Upon investigation I found that the case had been one of scarlatina ten days prior to the taking of the culture. No Klebs-Loeffler bacilli were found.

Case III.—Culture was sent to the Department of Health by a private physician from the throat of a child aged 6; temperature, 106°; pulse and respiration not given; diagnosis, "meningitis." A twelve-hour growth showed a microrganism warranting a diagnosis of scarlatina. On communicating the facts to the physician the latter declared that during the night and twelve hours after the culture had been taken the child had developed a typical rash.

Case IV.—Child, aged 4 years; ill two days; temperature, 104°; pulse, 140; respiration, 30; no vomiting; tongue negative; slight angina; no rash; no other symptoms. A twelve-hour growth showed the organism found in scarlatina and bacteriologically the case was diagnosed as such.

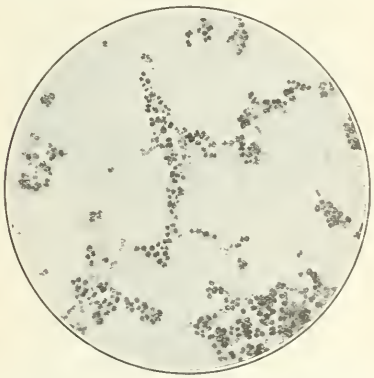

Fig. 5.—A twelve-hour culture in Loeffler's mixture, from a case of clinically pure diphtheria and scarlatina; stained with Loeffler's alkaline methylene blue solution: x 1000. The film is ten months old and shows how the coccus has retained the stain while the bacilli, streptococci, etc., are unrecognizable.

Twelve hours later signs of a rash appeared and the case ran a typical course, desquamating, etc.

Case V.—Child, aged 4 years; ill two days; tentative diagnosis "urticaria." Culture taken one week later showed in twelve-hour growth typical organisms found in scarlatina. Reporting the case to the institution as probably scarlatina, my diagnosis was not accepted. One week later the child profusely desquamated.

Case VI.—Boy, aged 14, a relative of one of the employees of the Good Samaritan Dispensary; ill one day; temperature, 106°. Physician in attendance declared he would be unable to make a diagnosis for at least forty-eight hours. Immediate culture taken by employee showed in a direct smear and a twenty-four-hour growth numerous organisms found in scarlatina. Twenty-four hours later the child developed a rash and ran a typical course of scarlatina.

Case VII.—Child, aged 11 years, brother of Case VI. Three days after the other child had developed scarlatina this boy complained of a sore throat. He was brought immediately to the dispensary, examined, but with the exception of a slight angina, physical examination negative; however, his temperature was 103°; pulse, 170; respiration, 30; culture taken; a twelve-hour growth showed typical organisms with numerous streptococci. The following day the child developed a rash and died on the fourth day of the disease.

Case VIII.—Child, aged 11 years. Had been treated for autointoxication at a dispensary. Five days later the dispensary physician who had treated the child primarily changed his diagnosis to scarlatina and reported the case to the Health Department. No subjective or objective symptoms being present in the child during the following week, the parents were inclined to doubt the correctness of the diagnosis. A twenty-four-hour culture was made from a smear, and its study showed numerous typical organisms. Ten days later the child began desquamating.

A culture from the throat in true scarlatina will not only help to confirm the diagnosis, but a bacteriological examination of the mucous secretion from nose and throat, especially the postpharyngeal space, will oftentimes clear a doubtful diagnosis, as the following cases will illustrate: Visiting a suspected case of scarlatina, but one which had not shown a typical organism, I was struck by the peculiarity of the rash, my visit being on the seventh day of the disease. Not satisfied that this was a true case of scarlatina, although it had been reported as such to the Department of Health, Dr. Lapowski, attending dermatologist to the Good Samaritan Dispensary, saw the case in consultation. On coming to the tenement, we mounted to the wrong floor, entering by a door that also had been labeled by the Department of Health as scarlatina, and here we found another case similar to the one I had examined on the floor above. Both cases were diagnosed by Dr. Lapowski as cases of erythema infectiosum.

The following case was of a girl aged 14, whose illness had been diagnosed in the dispensary as scarlatina and reported as such to the health authorities. This child presented a history of vomiting, rash; fever, 103; pulse, 120; respiration, 30, but no angina, no coated or strawberry tongue. A direct smear was found negative and a twenty-four-hour growth showed no typical organism, but chiefly streptococci. On investigating the case the next day I found the child up and around, no temperature, pulse normal, no rash, no fever. This case I followed very carefully for two months and no other sequelæ took place in that time.

Another case was a girl aged 13 years; temperature, 106°; pulse, 170; respiration, 40, with a pronounced punctiform rash covering the upper extremity and extending down the inner surface of thighs. This rash was so marked that a tentative diagnosis of scarlatina was made. The child did not give a history of vomiting, however, her throat was markedly hyperemic, the tongue heavily coated, but without so-called "strawberry" appearance. A direct smear showed a streptococcus infection and a twenty-four hour growth the same organism. When visited the following day the child had a normal temperature, no rash, and subsequent results proved the case not to have been scarlatina.

A number of other doubtful cases might be mentioned in which this coccus was not present and in which later developments showed the cases not to have been scarlatina, although they had been diagnosed as such by careful and capable dispensary physicians.

The following is the technique employed in obtaining the culture. With a sterilized cotton swab touch the posterior pharyngeal wall, not *the tonsils*, as this coccus is but rarely found on the tonsils or in the anterior part of the buccal cavity; then plant on Loeffler's blood serum and also make a direct smear on a clean glass slide. After the smear has been allowed to dry cover the film with a drop or two of Loeffler's alkaline methylene blue solution, heat gently for a minute, then rinse in sterilized water and dry with blotting paper, when the slide will be ready for examination. This same procedure is carried through with a twenty-four-hour culture, using a platinum needle to obtain the material and staining the same as a direct smear. "Direct smears" on account of numerous large cocci found in some normal throats are as a rule unsatisfactory.

Distribution of the Coccus.—A microorganism, morphologically identical with the coccus just described, I have recovered from the serum of a papule from the finger of a child that died of scarlet fever. Examinations of specimens of blood of five cases showed in one case a streptococcus and this microorganism. From the skin desquamation in seven cases I was unable to recover an organism identical with the coccus described. Pus from the eye and pus in five cases of otitis media following scarlatina showed a large, deeply stained coccus. Five cases of malignant scarlatina showed at the outset of the disease a preponderance of this organism and a fine, short streptococcus. As to the length of the infection period, I have found this coccus present in a number of cases from two to six weeks after the onset of the disease, and in one case I was able to demonstrate the organism at the end of six months, following the discharge from the Willard Parker Hospital. This might explain why in the fall of the year, when the schools reopen, scarlet fever shows a steady increase in the contagious Health Department Bulletin. Hypertrophied adenoids no doubt play an important rôle as harborers of these germs. It is a well-known fact that the Klebs-Loeffler bacillus lies dormant in the throats of healthy children, still infectious to others, for an almost indefinite period. Why, then, as both diseases begin with a sore throat, is it not possible for the organism that causes scarlatina likewise to remain virulent for months?

Conclusion.—Streptococci have been found in pure culture in pus, blood, and specimens taken from the organs of children who died from scarlatinal poisoning, but the investigators by further inoculations of these cocci never have succeeded in reproducing scarlatina in the animal or human body. Five pigs which have been inoculated with a pure culture of the coccus described have developed a rash, fever, general malaise, etc. A future report will tell subsequent results. Some recent investigations have shown a large coccus to be often present in the blood of children ill with scarlatina. Numerous observers of late, especially in England, have shown that by the cleansing treatment of nose and throat with a mild antiseptic healthy children could be kept in contact with children ill with scarlatina without contracting the disease. Personally, I have treated two families, six children in each family, where one member had contracted scarlatina, and by the simple process of cleaning the nose and throat three times a day for six weeks I have prevented any further spread of the disease.

240 West Seventieth Street.

FRACTURES OF THE SKULL.

By ALANSON M. POND, M.D.,

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In considering the features of fracture of the skull the injury to the bones of the head are of the least consequence. It is the damage done to the brain and its coverings, from hemorrhage of the injured cerebral vessels, the serious infections probable, and the compression of the brain by blood clots that puts the cases of fractured skull in a class far more grave than fractures elsewhere. From time immemorial skull fractures have been recognized and treated, and quite periodically some enthusiastic worker attempts to conform the skull to some mathematical body in order to better compute lines of fractures from force applied upon a given point. Attempts to lay rules for the lines of fracture have so far been futile except in the most general way. The term contracoupe, meaning contrastroke, originated by the French surgeons in the eighteenth century, and technically is improperly used when intending to describe an injury of the skull or brain as a result of a blow in directly opposite lines. This is possible only in a spherical body and, of course, the usual skull conforms more perfectly to the oblong spheroid type, which renders direct transmission of the force impossible.

There are two distinct classes of bone in the formation of the skull. All that forms the dome of the brain cavity is to a degree elastic and that which forms the base is dense and inelastic. Force applied to either side of the head produces fracture of the base before the vault will fissure. By reason of this difference force applied to the vault, such as a blow on the head, falling from a distance and striking the vault, or by some falling body, expands the diameter of the vault at its base and exerts a decided pulling influence upon the inelastic base, much as a bow pulls upon its string when pressure is applied to its center. This pulling is the direct cause of basilar fracture in these cases and is the transmission of force as is understood by the term contracoupe, but in fact is the result of the elasticity of the vault.

Lateral pressure produces fracture of the base by causing a fissuring usually extending to the bones which form the vault, and as soon as the fissure is complete through the rigid base immediate compensation is obtained by the elasticity of the vault. The capacity of the skull is rigidly fixed. Anything which increases its contents or decreases it disturbs the circulatory balance. A tin vessel may hold exactly a quart; but if a dent be made into it the contents of that vessel is diminished exactly to the extent of the area of the dent, and conversely so if the skull has a fixed capacity, a depressed fracture or hemorrhage is bound to increase the tension of the skull contents and the symptoms of coma, shock, or pressure is in proportion to the disturbance of circulation as determined by capacity necessary for that circulation to be normal.

The bones of the vault differ anatomically from the bones of the base in the fact that they are made up of two layers of dense structure with an interval of very porous bone between. In vault fractures it is the inner table that produces the trauma to the dura and brain. This damage is produced by the tendency of the inner table to splinter extensively; and where the fracture of the outer table might be insignificant, extensive splintering of the inner table

is reasonably certain and these sharp spicules of bone produce the laceration of underlying structures. This destruction of the inner table is explained in the same way as splintering occurs in long bones suffering a "green stick" fracture. The force is applied to the outer table, producing a clean cut or linear fracture, while the inner table forms the outer arc of the depression caused by the trauma and splinters in exactly the same way as occurs in the "green stick" fracture above referred to. The clinical features of fracture of the vault are depression of outer fragments, splintering of inner table causing more or less damage to the dura or brain, which give rise to the condition of brain pressure, and in cases where the fracture is compound and where wound of the scalp complicates the injury to the skull and its contents there is almost invariably an infection. This infection proceeds from the scalp which, by reason of its exposure to dust and air, with its covering of hair and the anatomical structure of this layer rich in hair follicles and sweat glands, is a veritable hotbed for bacteria, and it would be quite impossible to have a compound fracture of the vault without an infection possibility. The features of basilar fracture are expressed by the fissuring of the base, either single or multiple, which usually involve the vessels of the brain and becomes infected when communication with the ear, nose, or mouth occurs. The importance of this infection hazard cannot be overestimated; and any treatment which does not presume to prevent it is surely not along surgical lines and is prone to disappointment.

The person suffering fracture of the skull is usually rendered unconscious. There is commonly a wound of the scalp when the vault has been fractured and hemorrhage from the nose, ears, and mouth incident to fracture of the base. The rule concerning treatment of these fractures is "No wound, no symptoms, no operation." By "no symptoms" we mean no focal symptoms or after-effects of intracranial pressure. The first attention to be given this person is thorough examination. The hair of the scalp should be thoroughly shaved wide from the edges of the wound and in a direction away from the incision. The wound itself should be packed with sterile gauze until this shaving process is completed. The hands should be rendered as surgically clean as possible, and then only after such thorough preparation as the conditions will permit should examination of the wound be made. Foreign substances, hair, and clots are removed by very gently wiping them away or by irrigation with hot normal salt solution. Hemorrhages of the scalp are controlled by pressure or by the application of the forceps. The exploration of the wound should be done by the finger. A probe here is untrustworthy. An incised pericranium may give to an examining finger the sensation of a fissure fracture. By inserting the finger nail under its edge this membrane can be lifted and thus identify the character of the injury. A fissure of the vault may resemble a cranial suture. The line of fracture is always filled with blood and reappears after cleansing. Identification is not difficult. Oftentimes hair or other foreign bodies are caught between the two edges of the scalp. The fissure may be explored by a trephine button of bone at either extremity and the condition of the inner plate ascertained. The scalp should be incised to expose the entire fracture. A crack of the outer table is almost invariably accompanied by a serious condition of the inner plate, and all these fissures should be opened up. About the greatest danger in this class of fractures is their apparent innocence, which fosters the hope of recovery without an operation. The fissure may be explored by chiseling away scales of bone of the outer plate. This should be done in the direction away from the line of fracture. The chisel is placed in the thin slit and by gently striking it the outer table is made to scale or chip away, thus opening the wound only in the diploe. Repeat this process on the other side and then open the furrow until the inner plate can be observed and palpated. As the inner plate is approached dark blood escapes, which now shows the reddish irregular fragments of the splintered inner table. The outer opening should be enlarged sufficiently to permit of the removal of these thin pieces, and this should be accomplished by sliding them into the open space instead of by tilting or by a forcible extraction. These thin scales of bone are very sharp and their removal can produce serious damage. If the dura is torn and the brain exposed clotted blood with fragments of bone may be removed in the case of an extensive injury. Great care should be exercised in the removal of all of these particles of the inner plate.

Puncture fractures are caused by the penetration of the skull by some sharp instrument, such as fencing foil, a knife blade, or the sharp portion of a falling body. The wound through the scalp is insignificant in extent and oftentimes impossible to find, and the wound in the skull may be obscured by hemorrhage and perhaps occluded by some foreign body. The importance of recognition in this injury can scarcely be overestimated. There is sure to be splintering of the inner table with some degree of injury to the underlying part and a usual infection. It is better to make an unnecessary simple incision of the scalp than to overlook a serious puncture fracture of the skull. If the site of the puncture can be found there should be removed a button of bone which has the site of this wound at its center. The inner table can then be explored, and if serious fissuring has taken place it is better to turn down an ample flap of bone about the trephine opening and cleanse the wound thoroughly, inserting a drain which may emerge through the opening made by the trephine in closing.

In the more extensive fractures, with or without depression the wound of the outer table is usually comminuted. Fine lines of fracture extend from the circumference of the depression to the center. The fragments are triangular in shape with an apex forming a shallow cone. Frequently there is no opening to insert an instrument with which to pry these fragments up so that it may be necessary to use a chisel at the outer margin just enough to free the wide edge of one of these fragments. When this is accomplished it is easily removed by grasping the fragment of bone at its base with tissue forceps. Others follow readily because they are freed. Any tilting or lifting of these fractures may produce an injury to the brain and should be avoided. The damage to the inner portion of the cranium is always more extensive than that of the outer table and it is frequently adherent to the dura by laceration. Never use force to remove these pieces of bone. Grasp them at their broadest edge with forceps and free their under surface with a director and slide them out of the wound. It will be necessary at times to use a rongeur before they can be freed, perhaps even requiring a trephine

opening at their margin to protect their sharp edges from inflicting injuries. All blood clots are removed and a gauze wick inserted to the site of the greatest injury and brought to the surface at the angle of the most dependent end of the wound to favor drainage. Extensive defects of the skull occasioned by these large crushing fractures can be overcome by replacing the removed fragments of bone after sterilization. Experience shows that these fragments may be replaced safely even after boiling. If there should be fractures with serious splintering of the inner table the dura may present itself through the wound as a dark tense mass. If pulsation is absent a subdural hemorrhage is reasonably certain and that membrane should be incised and the blood clot removed, after which it is drained.

Fractures of the base occur along fixed lines. They partake of the fissure type and usually involve two or more fossæ. When the anterior fossæ suffer fractures there is usually a communicating fissure involving the middle fossæ. Hemorrhage of the nose, escape of meningeal fluid through the nose or mouth characterize fractures of this region. Hemorrhage of the ear should always be considered a fracture of the middle fossæ and thus treated. Not that every hemorrhage of the ear means a fracture of the base, but it is so constant a feature that it is always safe to so consider it. Basilar fractures are treated by the time honored methods of rest, ice, and supportives unless some very positive focal symptoms point to a site of pressure. Coma is relieved by modern methods of spinal puncture and the withdrawal of a few cubic centimeters of spinal fluid, which in case of a fractured base is always blood tinged, and hence is of value in obscure cases as a means of diagnosis. When compression exists operation is always indicated. The skull should be opened and the cause of pressure sought and removed. This rule applies as well to fractures of the base as of the vault. The presence or absence of focal symptoms will point to the site of operation. The constant danger of infection must always be uppermost in mind in the treatment of these cases. In basilar fractures the nares and the ears should be thoroughly cleansed and packed with sterile gauze or cotton. In fracture of the vault or in case of extensive operation the greatest danger is from infection by the scalp wound. This is usually due to streptococci and is very serious. I make it a practice to give antistreptococcic serum at the earliest possible moment where the skull and scalp have suffered injuries. This is as important in these cases as the use of antitetanic serum in the treatment of Fourth of July injuries or gunshot wounds and it is followed by just as favorable results. The tendency in the treatment of skull fractures is to rely too much on hope and do too little. All splinters of bone must be removed, all blood clots evacuated if possible, and all sources of infection guarded. Any treatment that will incorporate these requirements will render the most satisfactory immediate results and will be free of the many unfortunate sequelæ so common after these injuries.

Delirium Tremens.—Make sure that the kidneys are sound, then give opium boldly. Begin with 60 m. of laudanum, rather than with 20, and then 40 and then 60, the latter method is not only ineffectual but often dangerous, and may induce a tolerance which will defeat the object. Every effort must be made to get nourishment into the patient; until his nutrition improves progress will be slow and opiates likely to fail.

CARBOLIC ACID INJECTIONS IN PILES AND GOITER.

By HOSIAS SCHIEMANN, M.D.,

NEW YORK.

At a time when private practice is looked at as an inferior art, and there prevails a general belief that success in treatment can be obtained only in magnificent hospitals with the aid of complex and expensive apparatus, at such a time a plea for simpler methods would naturally invite derision. Nevertheless, in the interest of the public, especially the poorer working classes, as well as of many general practitioners, I feel constrained to remind my colleagues of a simple method which, in some instances, is able to compete successfully with the knife.

For the sake of brevity I shall omit details and shall allude merely to some of the most important features of the method.

Let it be understood at the outset that by piles is meant the uncomplicated kind, without prolapsus recti and other complications, and by goiter is meant the hard, hypertrophic variety of inflammation of the thyroid gland, affecting either one-half of the organ or the whole gland. Likewise it is of no importance whether or not this state is accompanied by the tachycardia and exophthalmos characteristics of Graves' disease. Before resorting to injections it is in goiter sometimes necessary to administer hematinics and to increase the patient's strength. The size of the enlarged gland or part of it, treated by me, did not exceed a large egg or a pear of medium size, but, as observation showed, the process was always in full development.

If a patient visits me after an acute paroxysm, and the history and inspection show that there are numerous piles, I advise the patient to wait until the beginning of the next attack, for this reason: In the acute state all the piles are well contoured and one will not make mistakes as to which tissue is to be injected. Every pile should be treated separately. The pain of the patient will guide one to the most sensitive elevations, which frequently are little swellings of the mucous membrane surrounded and covered by larger piles, but of less sensitiveness. This is a matter of the greatest importance. If one fail to properly attend to these trifling piles one's work may become useless, for the same pain experienced before may not be relieved. To subdue the pain at once and to make the piles disappear gradually is the object of the proposed method. Pain, to a certain degree, will continue for a short time after the injection. It is a pain of an itching, burning character caused by the injected solution, and is quite different from the sense of pressure and fullness in the rectum caused by the disease, which disturbs the comfort of the patient, interferes with the act of defecation, and causes nervousness and sleeplessness.

Treatment of enlarged thyroid gland: The practice of injecting this gland may be resorted to after all other remedies have failed to improve the condition. Hypertrophy of the thyroid gland in women is frequently caused by pregnancy. Especially is this so in weakened women, and for this reason the administration of iron and other tonics has been recommended.

I am unable to confirm this belief. Indeed, with advancing years and with repeated pregnancies the circumference of the woman's neck increases. In proportion to the whole neck the gland, either wholly or in part, may likewise be enlarged. But

it is difficult to conceive of pregnancy alone causing overgrowth of the gland, or even of a section of it.

On the one hand, in a fairly normal woman of good family history, I never have seen development of goiter during pregnancy, and, on the other hand, in cases attributed to pregnancy, I have never seen any good results from iron, arsenic, air, plenty of food, etc. For these reasons I believe that the cause of partial or complete hypertrophy of the gland is latent in the organism long before the occurrence of pregnancy. This can be considered responsible merely for awakening the disease earlier than it would have developed otherwise.

Finally, the fact that the male gland is likewise, though not frequently, subject to hypertrophy, also argues against the etiological roll of pregnancy, which can be considered merely as a stimulus, producing increased vital action of certain cells or favoring bacterial action.

In short, pregnancy repeats here the part which it plays in heart disease, tuberculosis, and other ailments. At any rate it is desirable to try first the "building-up cure," inasmuch as patients with hypertrophy of the gland are mostly persons of anemic type. If after a month or six weeks this trial has no effect, it is desirable to resort to the carbolic acid injection.

Where possible, for the greater comfort of the patient, I perform the injection in the latter's room. After the injection the patient is put to bed and on the following day, as a rule, is permitted to attend to his usual work.

The patient with piles is placed on a table or bed in the lithotomy position, or on his abdomen with pelvis elevated, the lower extremities hanging down the side of the table or bed. In case of hypertrophy of the thyroid, the patient lies on his back. It is of the greatest importance that the diseased area be at an adequate height with respect to the physician, who may work in the standing or sitting position, with good illumination.

The carbolic acid solution used should be of 5 to 10 per cent. strength. Stronger solutions are painful. This holds true even if the area of injection has been made painless by cocainization or freezing. It must be borne in mind also that the effect of carbolic acid is more profound and continues after other effects have disappeared. Besides, strong solutions are able to produce gangrene. To the carbolic acid solution I add, as a rule, glycerin in 5 to 10 per cent. strength. I am convinced that in the presence of glycerin the absorption of the injected solution goes on more easily and the tissue is less damaged. The solution should be of such consistency as to go through the thinnest needle. A fine needle, of course, saves pain to the patient and trouble to the attendant.

Having cleaned the instruments (razor, rectal speculum, blunt forceps for cases in which the speculum cannot be used, syringe, curved and straight fine needles for the same) and the hands of the physician, as well as the diseased area and everything that comes in contact with them in the usual surgical way, the rectum of the patient with piles is irrigated by means of a soft catheter. I inject into every pile separately 1 to 3 mm. of a ½ per cent. cocaine-adrenalin solution for anesthesia, and afterward, in the same order, a few mm. of carbolic acid solution. The same is done in the case of the enlarged thyroid.

The amount to be injected must be calculated so as not too tightly to distend the piles or to cause too great a tension on one part of the gland and in order to avoid gangrene. Into an enlarged gland a whole syringeful containing 15 to 16 mm. and even more, may be emptied, but the injections should be made in different places; 3 to 5 mm. being injected at each puncture.

If before the injection the piles were of cherry-like color and size, fluctuating and sensitive, after the injection they become dark colored, enlarged, hardened, but painless. You may handle them roughly, the patient scarcely feeling the manipulation. At least this is so if you have not failed to treat every painful spot separately. The bleeding from the punctures, if any, is easily controlled by the application of hot 5 per cent. boric acid with alum or adrenalin. The patient is now given a suppository of iodoform (if the odor of iodoform is not tolerated, tannin, antipyrin, or adrenalin may be used as suppositories). The anus is covered with a thick gauze pad, kept in place by the aid of a bandage. On the next day, as a rule, the patient attends work.

If a strange observer, who does not know of the injection, should accidentally see our patient a few days following the treatment, because of the dark colored, swollen tumors of the anus as well as of the bloody discharge, he would easily make the diagnosis of gangrene or malignant neoplasms. But proof against such a possible condition is furnished by the perfect feeling of the patient who is at work, the absence of pain, and bad odor. Most of all that encourages the patient is the restored normal defecation. This usually takes place on the second or third day, sometimes three to four hours after the injection, which occurrence can be taken as evidence that pain was the most important factor of the disturbance.

If the case is accompanied by bleeding from the rectum this ceases in a few days by itself; very seldom I administer Carlsbad salts for a couple of days. The use of suppositories and dressings is continued for eight to ten days, during which period the discharge becomes so trifling that the patient can neglect bandaging and substitute for it ordinary cleanliness. Partially by the discharge of a serum-like material, partially by absorption, the piles are slowly but constantly decreasing in size, until after four to six weeks only small, solid, warty like, perfectly harmless fragments are left. Frequently the process of healing takes this course. The injected wall of the pile comes off in a few days, leaving a deep, but clean and painless wound which granulates and cicatrizes in the usual manner, without any accidents. In such a case a linear scar is the final result. I had no recurrences.

In goiter, the hitherto painless gland, or part of it, after injection becomes swollen and sensitive, the pain radiating in the direction of the larynx, ears, throat, and tongue. Though the pain may be considerable, it can be controlled by the application of heat, or by the administration internally of the opium preparation. At any rate in six to twelve hours the pain subsides and the patient is able to return to his work.

The size of the gland, which after injection becomes even more enlarged, will now be observed to be gradually decreasing, at the expiration of one and one-half to two months reaching the normal. This can especially be observed if only one-half of the gland is affected, the other half being used for comparison and control.

If the injection is made carefully into every pain-

ful pile or in the center of the thyroid tumor, a single injection will suffice to overcome present conditions as well as prevent their future reappearance. This conclusion I may draw from eighteen years' observation.

I once observed in piles a triangular-shaped gangrene of the skin with a base of about an inch and an altitude of one and one-half inches. This happened, I think, because the injection was made too tensely and in a part too near the boundary of the skin.

Carbolic acid injection for piles was recommended long ago, and there is considerable literature upon the subject. I find it recommended in my university notes of twenty-one years ago. In regard to goiter, I do not recall having seen this method recommended in any literature or institution. After the valueless injections of the Lugol solution, which was in vogue some decades ago, I experimented with ferri sesqui chloride and obtained good results even in a shorter period than with carbolic acid. The pain was of a more acute character and of longer duration. This led me to the choice of carbolic acid.

Against the results, the cleanliness, neatness, and other ideal conditions of this method, those only can object who have never tried it. Several objections, however, seem to be not without foundation. Such are the poisonous character of the drug and the possibility of injecting a blood vessel, causing emboli and thrombosis.

If I recall the large amount of carbolic acid that I have injected into diseased parts of the human body with good results in combating anthrax and in applying high lavage with carbolic acid solution in dysentery and other cases, it seems to me very doubtful whether a trifling amount of the drug as I have been using in goiter and piles (less than one and one-half drops of the pure drug in a whole syringe), can have any serious consequences in adult people.

As to the possibility of injecting the solution into a blood vessel, the disconnected needle should first be inserted, and when no blood appears through its free end, the syringe containing the carbolic solution is attached and the injection is made slowly. Considering the frequency with which injections are made in the acute state of piles, I have never heard of any fatal results from emboli and thrombosis. This can be explained by the fact that the congested mass of the piles shows a tendency to become localized.

The method can be performed by any physician, at any place, upon any patient, without any help, trained or untrained. It is harmless and gives a sure and steady relief. It is for the patient less expensive than the treatment of a small abscess. The workingman is not compelled to stop work for a day nor to lose his position, which to a laborer is a very important matter. The patient is able to enjoy his usual comfort. The injection leaves no bad consequences, as fistula and impairment of the sphincters, and in the case of the thyroid saves the gland for the organism and the recurrent nerve is out of danger. Nobody knows exactly the function of the thyroid gland in the organism, but many scientists are inclined to hold that the removal of the gland is responsible for many grave changes observed in the body. In view of all these advantages I recommend the method for a broader clinical trial.

312 East One Hundred and Nineteenth Street.

PRELIMINARY REPORT OF A STATISTICAL ANALYSIS OF OVER THIRTY-TWO THOUSAND CASES OF SCARLET FEVER

By ABDULLAH K. SALLOM, M.D.,

PHILADELPHIA.

During the past twelve years there has occurred in Philadelphia, according to the official weekly report of the Bureau of Health, 32,317 cases of scarlet fever. Of this number 1,759 died, giving a mortal-

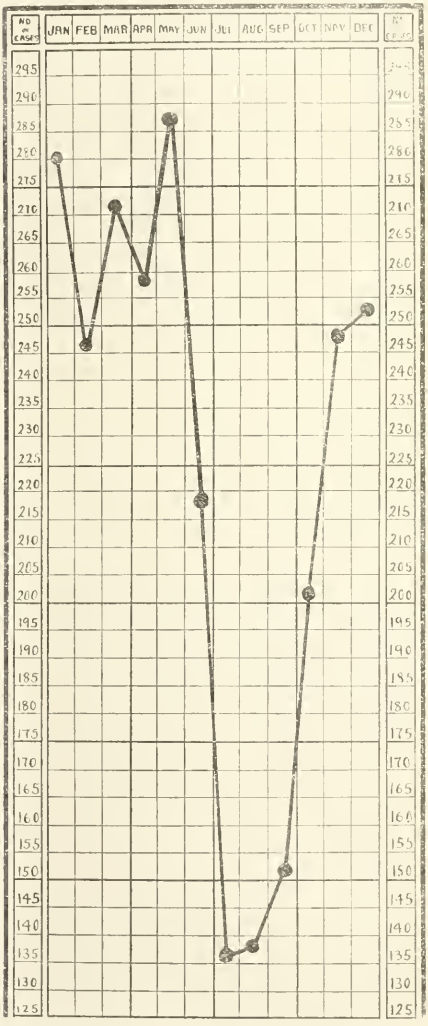

Chart 1.—Showing the average of cases of scarlet fever occuring during each month of the year; a statistical analysis of 32,317 cases.

ity of slightly over 5 per cent. The mortality, however, fluctuates considerably, as it will be noted in Table I that the mortality has varied from year to year from slightly less than 3 per cent. to a little over 7 per cent.

Table I gives the morbidity and mortality by

months and at the foot of each column the total number of cases and deaths as well as the percentage mortality for each year is given. To the right of the table the total and average number of cases and deaths for each month is given. On the extreme right the percentage mortality for each month of the year has also been added. A careful study

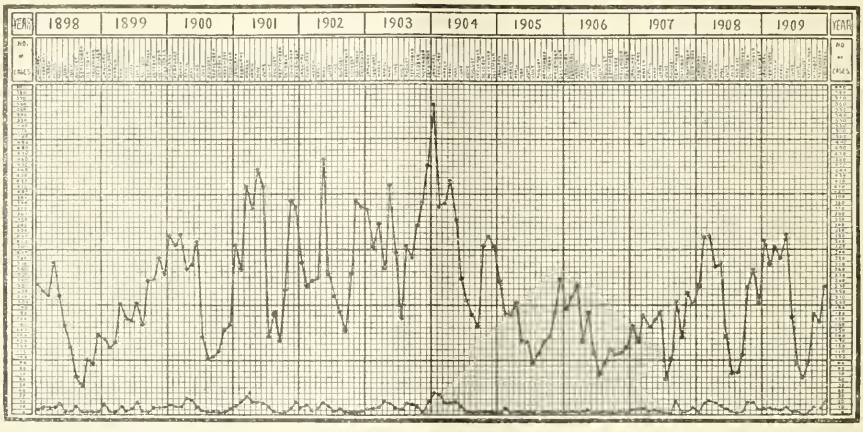

CHART 2.—Graphically showing the monthly number of cases and mortality of scarlet fever in Philadelphia from January 1898 to December 1909; a statistical analysis of 32,317 cases.

of this table in all its aspects reveals a few facts which are of the greatest interest and importance.

It is a somewhat curious fact in the history of medicine that the influence of season upon scarlet fever has been overlooked to a remarkable extent and yet the effect is so conspicuous that it is difficult to explain the oversight. As will be noted in

Chart II graphically shows the number of cases and mortality of the disease in Philadelphia from month to month and year to year. It reveals at a glance what long study of the numerical figures of Table I would probably fail to convey. It colaborates what has been stated in a few textbooks that epidemics are more frequent in winter than in sum-

YEAR	1898		1899		1900		1901		1902		1903		1904		1905		1906		1907		1908		1909		TOTAL		AVERAGE		%
MONTH	NO OF CASES	MORTALITY	NO OF CASES	MORTALITY	NO OF CASES	MORTALITY	NO OF CASES	MORTALITY	NO OF CASES	MORTALITY	NO OF CASES	MORTALITY	NO OF CASES	MORTALITY	NO OF CASES	MORTALITY	NO OF CASES	MORTALITY	NO OF CASES	MORTALITY	NO OF CASES	MORTALITY	NO OF CASES	MORTALITY	NO OF CASES	MORTALITY	NO OF CASES	MORTALITY	MORTALITY
JAN	237	10	137	20	312	19	308	15	279	14	370	12	561	41	242	7	191	4	163	10	236	9	319	12	3364	173	280	14	.0514
FEB	224	16	111	4	309	15	264	24	234	19	305	12	319	39	186	14	218	7	132	11	323	21	277	11	2962	193	246	16	.0651
MAR	219	14	120	6	328	16	416	36	243	10	341	17	361	21	181	5	232	6	180	12	325	27	301	10	3273	180	272	15	.0549
APR	278	19	200	16	263	30	312	24	248	13	268	26	425	22	201	7	137	8	162	7	210	23	287	10	3114	200	259	16	.0642
MAY	216	20	174	9	273	28	446	26	463	23	419	21	359	24	134	4	186	10	175	10	278	18	329	16	3447	209	287	17	.0606
JUN.	162	8	171	11	315	17	472	21	254	15	294	15	248	17	133	5	113	3	190	8	147	13	179	6	2618	142	218	11	.0542
JUL	122	5	202	23	190	9	143	16	218	9	177	12	209	6	98	5	78	4	69	2	87	8	96	7	1639	106	136	8	.0647
AUG.	69	17	169	7	103	5	185	8	188	11	303	21	187	7	111	0	96	5	103	3	89	5	70	0	1662	89	138	7	.0536
SEP.	51	4	243	8	109	7	137	3	157	7	281	20	163	7	134	3	120	4	201	27	110	8	98	3	1813	101	151	8	.0550
OCT.	100	7	246	13	119	3	228	6	255	6	343	15	301	9	142	5	110	1	141	6	233	24	186	14	2412	109	201	9	.0452
NOV	93	6	287	13	157	5	389	13	387	4	365	8	325	6	187	2	112	5	223	7	262	22	170	12	2977	103	248	9	.0346
DEC	147	7	255	14	266	11	375	27	230	9	451	25	363	5	249	3	122	2	201	16	202	10	235	25	3036	154			.0507
TOTAL	1918	128	2310	144	2709	165	3815	219	3156	143	3899	264	3810	209	2001	60	1715	59	1992	119	2552	188	2547	126	32317	1759			
% MORTALITY	.0667		.0624		.0610		.0596		.0453		.0517		.0531		.0299		.0344		.0613		.0734		.0455						

CHART 1.—Showing the monthly number of cases and mortality ofscarlet fever occurring in Philadelphia from January, 1898, to December, 1909.

Chart I, which graphically portrays the influence of season upon the disease, the average number of cases for January is rather high—280. During February this falls to 246 cases, only to rise during March and again fall during April. May claims the maximum number of cases, an average of 287 being recorded. It then rapidly falls and reaches the

mer. The upper line represents the number of cases, the lower the mortality. Reading from left to right, each space represents an interval of one month and each twelve spaces are blocked representing one year. Marked fluctuations are noted, especially as the disease becomes more prevalent.

1625 SOUTH FIFTEENTH STREET.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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New York, December 10, 1910.

REPORT OF THE SURGEON GENERAL OF THE ARMY.

THE annual report of the Surgeon General of the Army for the fiscal year ended June 30, 1910, has just been issued, and provides instructive, interesting, and on the whole satisfactory reading. It would be impossible within the limits of an article to review adequately the entire report, so that merely the most salient points will be chosen for comment. The mean strength of officers was 3,822, as obtained from the returns of the Medical Department. There were 2,404 admissions, 18 deaths, and 115.7 constantly non-effective from all causes equal to ratios of 628.99, 4.20, and 30.27, as compared with ratios of 575.47, 4.85, and 29.41 for the year 1908. The admission and constantly non-effective rates were a little higher than for 1908. The principal causes of admission in the order of their importance were influenza, 51.02; bronchitis, 40.55; diarrhea and enteritis, 33.23; sprains and muscular strains, 31.40; malarial fever, 26.69, and dengue, 24.33. The mean enlisted strength of the army, white and colored, for the year 1909, as reported on the monthly sick reports of the Medical Department, was 74,319. During the year 1909 American troops were stationed in the United States proper, the Philippine Islands, Alaska, Hawaii, and Cuba, from which island the army of Cuban pacification was withdrawn during the months of February and March, 1909. Native troops served in Porto Rico and in the Philippines, statistics for which were separately compiled. The constantly non-effective rate, which is the true measure of the loss in efficiency of the army from sickness and injury, was 41.48 per 1,000, as compared with 42.68 for 1908, 46.17 for 1907, and 49.79 for 1906. The total number of admissions to sick report was 79,000, equal to an admission rate of 1,062.99, as compared with 1,188.03 for the previous year, and 1,218.26 for 1907. The deaths from all causes numbered 370, of which 228 were from disease. The death rate for all causes was 4.91 and 3.02 for disease, as compared with 6.13 and 3.48, respectively, for the preceding year. The discharges for disability numbered 1,270, the rate being 16.84, as compared with 18.48 for 1908 and 20.15 for 1907. The ratio of admissions for disease was 865.92 per 1,000 mean strength; for the previous year, 962.88, and for the decade, 1,379.25. The health of the army has constantly improved since the year 1899, when its admission rate for disease alone was 2,125.74.

Perhaps the most instructive part of the report is that which attempts a comparison between the health of American troops and those of foreign armies. An exact comparison is impossible, chiefly owing to the fact that in most foreign services many of the minor ailments which in the United States Army are treated in quarters and recorded with the same accuracy and care as in hospital cases are not made of record in the foreign armies' medical reports. However, these tables show that the United States Army holds the unenviable distinction of having admission rates for alcoholism and venereal diseases taken together much higher than in any foreign army included in the tables. This is also true of venereal diseases, with the exception of syphilis, for which the admission rate is 35.1 in the British Army, as compared with 26.85 in our army. For malaria the admission rate, as compared with the United States, is higher in the British, Russian, Japanese, and Spanish, and much lower in the French, Prussian, Bavarian, Austrian, and Belgian. Typhoid fever is higher in the British, French, Russian, and more than twice as high in the Japanese. Lobar pneumonia is higher in the Bavarian, Prussian, Austrian, Russian, Japanese, Dutch, French, and English. Pulmonary tuberculosis is higher in the Spanish, French, Japanese, and Dutch. Diseases of the heart are higher in the Spanish, Austrian, Belgian, Russian, British, French, and Prussian. For mental diseases our rate is the highest, being 2.04 for colored and 1.62 for white troops. It should be noticed that the above quoted figures are for the American troops for the year 1909, for the British 1908, for the Dutch 1905, and for all others 1907.

The outstanding and most sinister feature of the report is the deplorable increase and prevalence of alcoholism and venereal diseases among American troops. Venereal diseases caused the largest proportion of rejections, and the total number of admissions from the cause was 14,640, representing 12,605 cases, with an admission rate of 196.99, as compared with 194.13 for the preceding year, and a constant non-effective rate of 13.07, as compared with 11.65 for 1908. It is stated that although this is a disheartening state of affairs, the army record is exceeded by the prevalence of these diseases in civil life, and it is pointed out that it will be difficult to make any substantial improvement in the record of the army in this respect until the State and municipal authorities are aroused to the necessity of taking serious sanitary measures to restrict their ravages. The whole matter is discussed at considerable length in the report, a part of which is in the following outspoken language: "The venereal question has come to outweigh in importance any other sanitary question which now confronts the army, and neither our natural optimism nor the Anglo-Saxon disposition to ignore a subject which is offensive to public prudery can longer excuse a frank and honest confrontation of the problem. There is no reason to think that these diseases are beyond the reach of preventive

medicine any more than other contagious diseases, and their immunity from restriction must be attributed to the public disinclination to discuss them and legislate concerning them. It is now believed by most sociologists, as well as sanitarians, that the evil, being primarily a social one, can only be reached by a propaganda of public discussion and education, and that education in sexual matters and in the danger of venereal diseases should begin with the young and be carried on by means of all the agencies of popular enlightenment. A number of State and municipal health authorities, as well as private associations, are now publishing and distributing literature on this subject. It is believed that the War Department cannot do better than adopt this general attitude and many of these methods, including a philosophical indifference to criticism on the part of self-constituted censors of public morals whose susceptibilities are offended by a public discussion of these questions, measures, and regulations, have been set afoot with the view of decreasing the prevalence of venereal diseases in the army, but as yet the time is too young to make any definite statements as to their efficacy. The opinions of army medical men are unanimous with regard to the absolute necessity of devising and putting into force methods calculated to restrict the prevalence of venereal diseases among soldiers."

The admission rate for tuberculosis was somewhat greater than for the previous year, while the decrease in the prevalence of malarial infection has been steadily maintained. Typhoid fever, too, has been more prevalent and very considerable progress has been made during the year in the campaign for the protection of the army against the disease by means of vaccination with killed cultures of the *Bacillus typhosus*. It is believed that its protective value has been proved, while the innocuousness of the procedure has been entirely demonstrated. Uncinariasis has been fairly common among Southern-bred recruits, and several Northern-bred soldiers became infected in the Philippines.

The most encouraging part of the report is that which refers to the health of the American troops in the Philippines. Both the admission rate for disease and the death rate for disease and external cause were lower than in 1908. The most important diseases showing a reduction were malarial fevers, diarrhea and enteritis, alcoholism, tuberculosis, Asiatic cholera, and variola. On the other hand, there was an increased admission rate for typhoid fever, dysentery, dengue, and venereal disease. The recommendations in the sanitary reports for the Philippines relate mainly to the necessity for establishing sewer systems, systems of pure-water supply, antimalarial and antimosquito measures, and steps to be taken to lessen the occurrence of venereal diseases.

Attention is paid to the teeth of the American soldiers, in evidence of which is the fact that the number of dental operations during the year was 47,378. The ratio of operations per 1,000 of mean strength was 567.33. Nevertheless, the authors of the report think that the number of dentists should be so increased that each man in the army could receive at least one treatment yearly. As to surgical operations performed during the year, in 3,933 operations there were only 23 failures, with 30 deaths. The anesthetics used were: Ether, 1,326 cases; chloroform, 335; chloroform and ether, 100; local, 1,873, and none, 299.

The laboratory work done was of much interest and value. In the Manila laboratory the Noguchi modification of the Wassermann test has been used with very satisfactory results.

The report shows that the life of the soldier is healthy, due to the care taken to surround him with a sanitary environment, and it is also a valuable summary of medical and surgical work performed under varying conditions of climate and place.

AURAL TUBERCULOSIS IN CHILDREN.

An excellent review of our present knowledge on this subject is given by Dr. W. Milligan in the October issue of the *Journal of Laryngology*. The difficulties of diagnosis of the condition are considerable mainly for the reason that the stage of pure tuberculous infection is often a comparatively short one, while the almost constant mixed infection, pathogenic or saprophytic, masks the true nature of the original and underlying process. In the author's experience about 20 per cent. of hospital children under six years of age suffering from purulent otitis media owe the origin of the disease to an underlying tuberculous infection. These figures have been arrived at by means of the von Pirquet test, Calmette's test, or inoculation experiments. The disease is a frequent accompaniment of pulmonary tuberculosis. While pulmonary phthisis is rare in young children and cavitation infrequent, it cannot be deduced that this aural condition does not frequently occur. There are various channels through which bacilli may gain an entrance into the middle ear cleft. The author mentions six; aerial, air passing up the Eustachian tube and depositing its bacilli upon the tubal lining; respiratory tuberculosis; lymphatic, vascular, along the blood-vessels following the entrance of bacilli from the respiratory or digestive canals; through the lymphoid tissue which exists in such abundance in the pharynx and nasopharynx and around the lumen of the Eustachian tube, bacilli being carried inwards by means of the leucocytes and that often without any demonstrable lesion of the epithelium; from the entrance of bacilli through a perforated membrane tympani, and finally through erosion of the dermal lining of the external auditory meatus. The possible passage of bacilli without demonstrable lesion of the epithelium will naturally render the tracing of the course of infection at times difficult or even impossible. The author believes that the most common route of invasion in adults is by way of the respiratory system. In children it is probably by way of the lymphoid tissue.

The author digresses a moment to speak of the rôle of infected milk in this connection. His idea is that the bacillus is swallowed with the milk upon which the child is fed. Then the regurgitation of food so common in the child forces the semidigested fluid into the tonsillar crypts, the nasopharynx and especially the mouths of the Eustachian cushions. It

must be remembered that in infants and young children the tubes are shorter and wider than in adults, while their pharyngeal orifices lie nearer the oral and choanal cavities than is the case in the adult. Hence in the child the entrance into the tube of infecting material is favored. Dr. Milligan describes fully the pathological changes set up in the middle ear cleft by the entrance of the tuberculous material. The finding of bacilli in the aural discharge is by no means a constant fact. A more certain method of diagnosis is the examination of portions of tufts of exuberant granulations removed from the depths of the tympanum and subsequent inoculation experiments. Numerous other acid-fast bacilli than the tubercle bacillus are found. Chief among these are the bacilli of leprosy, Lustgarten's bacillus, the smegma bacillus, the grass bacillus, the butter bacillus, and others associated with fetid lung suppuration. In 100 specimens of aural discharge Wingrave found 24 with acid-fast bacilli, of which number 17 proved to be tubercle germs. Much attention is given by the author to the use of the modern von Pirquet and Calmette reactions in making the diagnosis. None of these should be omitted in doubtful cases. His experience has been that healthy children, at least up to ten years of age, do not respond to the von Pirquet test. The local changes in the ear when perforation has occurred show an absence of that distinct reaction so invariably seen in cases of ordinary inflammation.

The characteristic symptoms of the disease are the painless onset, absence of the inflammatory reaction, the frequent presence of two or more perforations, the early enlargement of the periauricular glands, and facial paralysis. The absence of initial pain is generally regarded as due to the very slow and insidious destruction of tissue and terminal filaments of the sensory nerves of the part. An uninfected tuberculous discharge from the ear is thin, watery, and for the most part odorless, containing gray or white granules or flakes and abundant lymphocytes, but this condition soon changes to one of mixed infection, and we have the products of pus bacilli to deal with, yet by means of the methods of diagnosis referred to we are generally able to make a positive diagnosis.

The desiderata of treatment are to remove infected bone and establish sufficient drainage. These results are to be secured early before the process has advanced. The provision and maintenance of drainage, supplemented by judicious use of tuberculin may effect a cure. The author is in the habit of exposing as much of the dura as possible, of removing the labyrinth, and of rather welcoming a view of the internal carotid artery than otherwise, believing that the greater the amount of the temporal bone removed, the greater the chances of recovery. He believes that the usual irrigation with antiseptic lotions is practically useless. Removal of adenoids and nasopharyngeal lymphoid deposits is a preliminary to any and all treatment. Enlarged glands are left for a time. The author believes that as long as they are not broken down they act as a first line of defence in preventing dissemination and hence fulfil a useful purpose.

Rat Plague in England.

In Suffolk, a county on the east coast of England, plague among rats was discovered a few weeks ago. At about the same time, too, four deaths from plague occurred in Freston, a lonely village in Suffolk. The first area found to be infested with infected rats was restricted, but the disease seems to be spreading considerably. Mr. A. E. Shipley, a well-known English zoologist, contributed to the London *Times* of November 9 an article on rats and their habits. As soon as a campaign is directed against rats the rats scatter, leaving their own districts and invading others. Instead, therefore, of commencing exterminating operations at the place most infected, the exterminators should draw a circle round the district outside in which no infected rat has been found, and then working from this circle to the center should, if possible, drive in and destroy the rats. Every care should be taken that the fleas on the rats are destroyed before they have had time to leave the dead body, and the rats and fleas should be burned, not buried. Mr. Shipley's advice is sound and the authorities of England might gather much useful information from reading of the manner in which rats were destroyed in San Francisco and the campaign which is still being undertaken by members of the Public Health and Marine Hospital Service in certain parts of California. Of course, the extermination of plague infection is a highly specialized undertaking requiring considerable experience, as is also the destruction of rats whether infected or not. As to how the infection reached the remote village of Freston in Suffolk there seems to be no idea. Since the four deaths among human beings at the commencement of the outbreak there have been no further fatalities. There is little fear that the disease is liable to spread on a large scale in Suffolk, where cleanliness is the rule and the inhabitants keep their feet covered, but on the other hand rats exist in veritable hordes in East Anglia and it will doubtless tax the resources of the authorities to the utmost to exterminate or even appreciably to diminish the number of the disease-bearing rodents.

The Automobile Smoke Nuisance.

The comment has frequently been made that there is in the United States less personal liberty than in most of the monarchial countries of Europe. The principle that "one man's liberty ceases where another's begins" has never been thoroughly mastered by the free American citizen, who disregards many of the primary rights of his fellow-man, often with an exasperating degree of immunity. In most of our large cities the general public shows a surprising amount of tolerance of abuses which are sometimes serious, yet often easy of redress. The National Highways Association is endeavoring to secure an amendment to the Callan Automobile Law, which is calculated to make it more practicable in its provisions against smoking cars. The language of the present law is, "dense" smoke, a term which has in practice been found to be unfortunately lax, with the result that arrests of chauffeurs for allowing their cars to smoke within the city limits have practically ceased within the last few weeks, as conviction and fine have been too difficult. The emission of visible vapors is entirely unnecessary, and is usually an evidence of unskillful driving. To the public, who have to inhale such vapors, it is a nuisance of the first rank, and should be abolished.

News of the Week.

City Death Rate.—For the week ending November 26, the death rate in New York was 13.95 per thousand of population, the total number of deaths being 1,284. For the corresponding period last year the rate was 13.36. Among children under five years of age there occurred 302 deaths during the week. Pulmonary tuberculosis caused 151 deaths, an increase of 17 over last year, and pneumonia caused 188, a decrease of 17. Diphtheria and croup caused 29 deaths, the same number as last year, and heart disease 180, an increase of 34.

Tuberculosis Show.—The Ontario Provincial Government has leased from the Canadian Pacific Railway a car which it purposes to fit up with a complete exhibit of matters pertaining to the anti-tuberculosis campaign. The car when equipped will be placed under the charge of lecturers and demonstrators and will be sent to every railway station in the province. Free lectures will be given and literature will be distributed. It will take the entire winter to make the complete tour mapped out for the car.

Bureau of Public Health.—In the annual report of the Department of Agriculture, Secretary Wilson declares that, while he is in hearty accord with the general proposition to provide better facilities for work in the interest of the public health, he is strongly opposed to any plan which will remove from the Department of Agriculture the inspection work involved in the enforcement of the Food and Drugs Act and the Meat-Inspection Law. Such action would, he believes, be a great detriment to the work of his department and to the agricultural and live-stock interests without any corresponding gain in efficiency or public advantage, and would result in increased expenditures rather than in economy. For example, the field work for the eradication of diseases of animals is carried on mostly during the summer, while the work of the slaughter houses is heaviest during the winter, and it is thus possible and economical to shift men from one branch of the service to the other as occasion requires.

Investigation of Infantile Paralysis.—The New York State Board of Health will ask the Legislature at its coming session to provide funds sufficient to permit of a thorough field investigation of infantile paralysis during the epidemic season next year. For the past two or three years the disease has occurred epidemically over an ever-widening territory, and it is estimated that the records of 1910 will show upwards of 3,000 cases, of which 10 per cent. terminated in more or less permanent paralysis. At present the New York State Health Department enforces the same sanitary precautions and quarantine regulations in regard to this disease as are observed in cases of diphtheria. It also requires that all cases be reported to it on special blanks, and a study will be made of these records; but a field investigation made house by house is also necessary in order to determine the factors which favor the spread of the disease.

Civil Service Examination.—The United States Civil Service Commission announces an examination to be held on January 18, 1911, to secure eligibles from which to make certification to fill a vacancy in the position of anatomist (male), at $1,600 per annum, in the Army Medical Museum, Office of the Surgeon General, and vacancies requiring similar qualifications as they may occur. The examination will cover the subjects of pathological histology, gross pathology, bacteriology, photomicrography, and training and experience. Application for blank forms should be made at once to the Civil Service Commission, Washington, D. C. According to a recent act of Congress an applicant for this examination will be required to be examined in the State or Territory in which he resides.

Hospital Saturday and Sunday Association.—Mr. George Macculloch Miller, president of the Hospital Saturday and Sunday Association of New York, since its inception thirty years ago, has recently resigned, and has been made honorary president. Mr. Robert Olyphant has been elected to fill the office thus made vacant.

The Harvey Society.—The third lecture of the Harvey Society will be delivered by Dr. Harvey Cushing of Johns Hopkins University on the evening of Saturday, December 10, at half-past 8, at the New York Academy of Medicine, 17 West 43d street. The subject of the lecture will be "Certain Clinical Aspects of Dyspituitarism." Professor Castle of Harvard University will deliver his postponed lecture on "Unit Characters in Heredity" on February 25, 1911.

The Cartwright Prize.—This prize, which is offered by the Association of the Alumni of the College of Physicians and Surgeons, Columbia University, New York, and is open for universal competition, will be awarded at Commencement, 1911. The amount of the prize is $500. The essays submitted in competition must contain original investigations made by the writer and must be the work of only one person; they must be typewritten, in English, marked with a device or motto, and accompanied by a sealed envelope, similarly marked, containing the name and address of the author. Essays should be sent to Dr. H. E. Hale, Secretary, 770 West End avenue, New York, on or before April 1, 1911.

Dentists for the Navy.—The House Committee on Naval Affairs has favorably reported the bill introduced a year ago by Representative Dawson of Iowa establishing a dental corps in the navy. The measure creates a corps of thirty, who, it is provided, shall enter the service as acting assistant surgeons. In eleven years the thirty will automatically resolve themselves into one Lieutent-Commander, four passed assistant surgeons, and twenty-five assistant surgeons. The age limit for entrance is from 24 to 32 years.

The Price of Radium.—The Radium Institute of London recently purchased a gram of radium from the Austrian government, the price paid being £15,000, or about $5,000 a grain.

Another Centenarian.—Josiah Zeitlein, said to be the oldest resident of Brooklyn, N. Y., died on December 2 at the age of 106 years. Mr. Zeitlein's rules for a long life included the abolishment of worry, hurry, quick lunches, meat, and doctors, and of drug stores except as places for buying stamps or consulting a directory. He added the comforting dictum that after the age of ninety was reached one might do about as he pleased.

Gift to Hospital.—The Paterson General Hospital of Paterson, N. J., has received a gift of $10,000 from Mr. E. E. Bell for the erection of a proposed new observation pavilion. The building is to be a memorial to Anna T. Bell, a charter member

of the Paterson General Hospital Association. The Board of Managers hopes to be able to raise sufficient funds to rebuild the entire institution.

Hospital Fire.—One of the cottages of the State Hospital for the Insane at Toledo, Ohio, was completely destroyed by fire on the night of November 30. No lives were lost, credit being due to the prompt and efficient work of the hospital officers and firemen in quelling the panic which followed the alarm among the 200 insane patients in the hospital.

Los Angeles and the A. M. A.—In an effort to make the meeting of the American Medical Association which will be held at Los Angeles beginning June 26, 1911, the largest in its history, circular letters setting forth the wonders and beauties of California and the advantages of Los Angeles, are being sent to all the members by Dr. Walter Lindley, editor of the *Southern California Practitioner* and ex-president of the California State Medical Society.

Addition to Hospital.—The Norwegian Deaconess Home and Hospital of Chicago dedicated its new addition on November 20. The building measures 120 by 50 feet, and is four stories high. The hospital now has accommodations for 100 patients.

Ehrlich Honored.—The Grand Cross of the Order of Alphonso XII of Spain has recently been conferred upon Prof. Paul Ehrlich.

Dr. Simon Flexner of the Rockefeller Institute was operated upon for appendicitis at the Presbyterian Hospital on Monday of this week. His friends and all the friends of scientific medicine will rejoice to know that the operation was successful and that his recovery seems to be assured.

Mrs. Mary Baker G. Eddy, discoverer and founder of the Christian Science Church, died on Saturday last at the age of eighty-nine years. Some of the dissenting Christian Scientists claim that she died many years ago and that the woman just passed over was an imposter, but that is probably an error, for the letters and poems recently given out are too like the previous writings of Mrs. Eddy to have been written by any one else.

Tri-State Medical Association.—At the twenty-seventh annual meeting of the association held in Memphis from November 15 to 17, the following officers were elected: *President,* Dr. J. W. Barksdale of Winona, Miss.; *Vice-Presidents,* Dr. John Darrington of Yazoo City, Miss.; Dr. R. P. Wall of Armarette, Ark.; Dr. A. G. Hudson of Raines, Tex.; *Secretary,* Dr. Eugene Rosamond; *Treasurer,* Dr. J. A. Vaughan.

Rolla District (Missouri) Medical Society.—At the seventy-first semi-annual meeting of the society held on November 19, the following officers were elected: *President,* Dr. C. F. Briglieb of St. Clair; *Vice-President,* Dr. S. B. Rowe of Rolla; *Secretary-Treasurer,* Dr. W. H. Brewer of St. James. The next meeting will be held at St. James in May, 1911.

Northern District Medical Society of California.—At the annual meeting of this society held at Sacramento on November 15, the following officers were elected: *President,* Dr. J. J. Hogan of Valejo; *Vice-Presidents,* Dr. R. A. Peers of Colfax, Dr. H. E. Wright of Sacramento, and Dr. R. M. Bramhall of Fair Oaks; *Secretary,* Dr. J. W. James of Sacramento; *Treasurer,* Dr. D. Hansbury of Chico.

Fifth District (Texas) Medical Society.—The following officers were elected at a meeting held in San Antonio on November 16: *President,* Dr. E. V. DePew of San Antonio; *Secretary,* Dr. F. C. Walsh of San Antonio; *Treasurer,* Dr. L. G. Wille of New Braunfels.

Eleventh District (Georgia) Medical Society.—The following officers were elected at the annual meeting in Valdosta on November 23: *President,* Dr. A. G. Little of Valdosta; *Vice-President,* Dr. H. C. Welchel of Douglas; *Secretary and Treasurer,* Dr. W. E. Miller of Eastman.

Mutual Aid Association of the Philadelphia County Medical Society.—At the annual meeting held November 14 Dr. Roland G. Curtin was elected *President* in place of the late Dr. James B. Walker. Dr. J. P. Shellenberger was reelected *Vice-President;* Dr. Lewis H. Adler, Jr., *Secretary,* and Dr. John B. Turner, *Treasurer.*

Hardin County (Ky.) Medical Society.—At the annual meeting held on November 10 at Elizabethtown the following officers were elected: *President,* Dr. D. E. McClure; *Vice-President,* Dr. S. N. Cowherd; *Secretary,* Dr. E. J. Strickler.

The Sixth District (Georgia) Medical Society at its semi-annual meeting on November 9 elected the following officers for the ensuing year: *President,* Dr. Marcus F. Carson, Griffin; *Vice-President,* Dr. E. M. Green, Milledgeville.

Southern Illinois Medical Association.—A two days' session of this society at Centralia was closed on November 4 with the election of the following officers: *President,* Dr. E. W. Fiegenbaum, Edwardsville; *Vice-Presidents,* Dr. Andy Hall, Mt. Vernon; Dr. H. E. Wilson, Centralia; *Secretary,* Dr. C. W. Lillie, East St. Louis; *Treasurer,* Dr. A. T. Telford, Olney. Mt. Vernon was selected as the place of meeting next year.

The Late Dr. Charles Jewett.—At a meeting of the Council of the Medical Society of the State of New York, held in Albany, December 3, 1910, the following minute was adopted: In the death of Dr. Charles Jewett not only has the Medical Society of the State of New York lost its honored President, but the medical profession of this country will miss from its ranks a tireless worker, a distinguished teacher, and an eminent surgeon. In the fullness of years and the ripeness of experience there was conferred upon him his last public honor —the presidency of the State Society. Unsought for and undesired, it was conferred by his colleagues as a fitting recognition of his distinguished achievements and his sterling worth. However distinguished the office there was something about the man that no office could compass and no honor could magnify. For whether in the councils of the mighty, or in the homes of the humble, his services were always distinguished, and his judgments clothed with authority.

Among obstetricians he was a leader by right of worth and superiority, by force of character and quality of achievement. He crystallized his knowledge into literature and enriched his profession by a fruitage that will live as a permanent asset. Because of his ability to sift, correlate, clarify, and vitalize the truth, he was a teacher of power and preeminence; and a host of students throughout the world are the living witnesses of his scholarly and forceful personality. Because of his advanced thought and judicial mind, his counsel and advice were sought by his brethren in the perplexities of human suffering, and the depth of his knowledge and the strength of his character were always an abiding inspiration.

The Medical Society of the State of New York, sorrowing in the loss of its distinguished President, humbly voices its appreciation of his work and his worth, and thus again renews its faith in the permanency of character, the supremacy of service, and the triumph of worth. *Signed:* William Francis Campbell, M.D., E. B. Cragin, M.D., J. A. Sampson, M.D.

Obituary Notes.—Dr. Landon B. Edwards of Richmond, Va., a graduate of the Medical Department of the University of New York in 1867; formerly professor of the practice of medicine and later professor of clinical medicine and chairman of the medical faculty, and now emeritus professor in the University College of Medicine, Richmond; ex-president of the Richmond Medical and Surgical Society and of the Richmond Academy of Medicine and Surgery; secretary and honorary fellow of the Medical Society of Virginia; a member of the American Medical Association, and the Ninth International Medical Congress; honorary member of the West Virginia Medical Society and of the Medical and Surgical Society of the District of Columbia; ex-president of the Association of American Medical Editors and of the American Medical Publishers' Association, and attending physician to the Virginia Hospital, died at his home on November 27, aged 65 years.

Dr. Leslie B. Shanklin of Sullivan, Ind., a graduate of the Central College of Physicians and Surgeons of Indianapolis, a member of the American Medical Association and the Indiana State and Sullivan County Medical societies, died in Pueblo, Col., of tuberculosis, on November 11, while on his way to El Paso, Tex., where he intended to settle on account of his health. Dr. Shanklin was 33 years of age.

Dr. Adolphus Berger of Lebanon, Ill., a graduate of the Humboldt Medical College, St. Louis, in 1862, died at his home of chronic bronchitis on November 8, aged 89 years.

Dr. Anselm D. Price of Harrodsburg, Ky., a graduate of the Medical Department of the University of Louisville in 1865, a member of the American Medical Association and of the Kentucky State and Mercer County Medical societies, died at his home on November 11, aged 70 years.

Dr. Samuel O'Callaghan of Philadelphia, a graduate of Trinity College, Dublin, in 1879, and of the Jefferson Medical College, Philadelphia, in 1882, died at his home on November 13, aged 71 years.

Dr. J. J. Smith of Enumclaw, Wash., a graduate of the Long Island College Hospital, Brooklyn, N. Y., in 1891, a member of the Washington State and King County Medical societies, and president of the State Senate in 1903, died at his home of typhoid fever on November 12, aged 41 years.

Dr. Samuel D. Smoke of Fort Ogden, Fla., a graduate of the Medical College of the State of South Carolina in 1859, died at his home on November 13, aged 73 years.

Dr. Robert D. Dunlop of Louisville, Ky., a graduate of the Hospital College of Medicine, Louisville, in 1884, a member of the Kentucky State and Louisville County Medical societies, and formerly a member of the Louisville School Board, died at his home of uremia on November 9, aged 56 years.

Dr. Thomas Gill Nock of Rome, N. Y., a graduate of the College of Medicine, Syracuse University, in 1883, a member of the American Medical Association and of the New York State and Oneida County Medical societies, formerly coroner of Oneida County, mayor of Rome, and a manager of the Utica State Hospital, died at his home on November 28, aged 51 years.

Dr. Jane Howell Harris of San Juan, Porto Rico, a graduate of the Woman's Medical College of New York, died of pneumonia on November 21.

Dr. E. Agustus Reed of Knoxville, Tenn., a graduate of the Medical Department of the University of Louisville in 1891, a member of the Tennessee State and Knox County Medical societies, died at his home on November 25, after a long illness.

Dr. George S. Stein of Columbus, Ohio, a graduate of the Department of Medicine of the University of Pennsylvania in 1864, a member of the American Medical Association and of the Ohio State and Franklin County Medical Societies, died at his home on November 19, aged 72 years.

Dr. J. W. Cringan of Arrington, Virginia, a graduate of the University College of Medicine, Richmond, Virginia, in 1901, a member of the Virginia State and Nelson County Medical Societies, died suddenly on November 21.

Dr. John H. O'Bar of St. Louis, Missouri, a graduate of the St. Louis College of Physicians and Surgeons in 1907, and a clinical professor in the same institution, died at his home on November 22 of pneumonia, aged 39 years.

Dr. Elam B. Mauger of Pottstown, Pennsylvania, a graduate of the Jefferson Medical College in the class of 1875, died at his home of angina pectoris on November 21, at the age of 54 years.

Dr. Charles L. Mitchell of Philadelphia, a graduate of the Jefferson Medical College, Philadelphia, in the class of 1880, one of the founders of the Medico-Chirurgical College, and its first professor of chemistry, died at his home on November 24, aged 59 years.

Obituary.

CHRISTIAN ARCHIBALD HERTER, M.D.

NEW YORK.

Dr. Christian A. Herter, Professor of Pharmacology and Therapeutics in the College of Physicians and Surgeons, New York, and physician to the Hospital of the Rockefeller Institute, died at his home after a long illness, on December 5. Dr. Herter was born in Glenville, Conn., on September 3, 1865, and in 1886 was graduated from the College of Physicians and Surgeons, New York. In 1894 he was made visiting physician to the City Hospital, New York, a service which he continued until 1904. He also held the chair of Professor of Pathological Chemistry in the University and Bellevue Hospital Medical College from 1897 until 1903. He was a member of the Association of American Physicians, the American Medical Association, the American Physiological Society, the New York Academy of Medicine, the New York Pathological Society, the Society of Experimental Biology, and the American Neurological Society, and since its inception a member of the Board of Directors and treasurer of the Rockefeller Institute. In research his work had to do chiefly with chemical pathology, the pathology of nutrition, and bacterial infections of the digestive tract, all subjects on which he spoke with authority.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

COLLEGE OF SURGEONS' MEETING—PLAGUE CIRCULAR—RADIUM IN CANCER—TABES—INFECTIVE CARDITIS—HEMATOMA OF THYROID—SPONDYLITIS DEFORMANS—ADIPOSE GROWTHS—HOME OF RECOVERY—MEMORIALS AND OBITUARY.

London, Nov. 18, 1910.

Yesterday was the twenty-sixth annual meeting of Fellows and Members of the Royal College of Surgeons. Thus twenty-six years have passed since the Council yielded so far to the demand for representation of those who constituted the body of the colleges as to agree to meet there once a year and hear what they had to say, though still declining to admit that their opinions or resolutions would have any influence. You will remember that the whole power of this peculiar oligarchy is exercised by the Council—twenty-four persons. They are selected by the Fellows who have no other voice in their college and who number about 1,200. The members are licensed to practice and have no further connection with the college, and as they are the main body, many thousands in number, it is not surprising that they demand some kind of representation. A resolution to this effect was submitted for the twenty-sixth time yesterday by Mr. Joseph Smith, J. P., who is president of the society of members.

The rat plague in Suffolk was met by so determined an effort to exterminate rats that few are now to be seen in the district of the first outbreak. But the disease has been detected in places some miles distant. The local government board has therefore issued a memorandum by Dr. Arthur Newsholme, giving directions for sending material for bacteriological examination from suspected cases. Dr. Newsholme describes the symptoms of bubonic, septicemic and pneumonic plague, and says that for administrative purposes it may be regarded as a rat disease which occasionally attacks man, fleas forming the intermediaries between the diseased rat and man. If the fleas of infected rats or of such other animals as suffer occasionally from plague are excluded from access to man the disease will seldom, if ever, says Dr. Newsholme, spread from animals to man. The first step in the control of the spread of infection in man is, as in other infective diseases, the prompt notification of suspicious cases to the M. O. H. The memorandum advises (*a*) persistent and systematic destruction of all rats, (*b*) removal and obliteration of their nests, burrows and haunts, (*c*) removing all known harborage for rats in or near dwellings and making every dwelling as far as possible rat-proof, (*d*) allow no waste food, whether for man or animals, to accumulate in or about the house. Dr. Newsholme adds an encouraging assurance that freedom from risk of plague can be secured with almost complete certainty by acting on these directions.

Radium for cancer was the subject of a paper by Dr. N. S. Finzi at the Æsculapian Society on November 5. The whole tumor, he said, should be thoroughly treated with filtered rays, using plenty of radium and giving a full dose every six weeks. In sixty-four cases he said the growth had completely disappeared in seven. They were in the lip, breast, uterus, prostate, rectum, esophagus. In most of them microscopic examination confirmed the diagnosis. He had twenty-three other cases still under treatment and was very hopeful of some. Relief of pain and discharge was marked when the growth was not decreased. Cases should be selected according to their structure, position and size, the constitution of the patient and his strength not being overlooked. The rays were given out in all directions, even from flat applications, so that to get their full effect it would seem desirable to surround the radium as completely as practicable by the diseased tissue. The B and Y rays have a selective action on cancer cells, the Y more than the B. It is therefore well to cut off most of the latter by means of metallic filters.

Some interesting cases were shown in the clinical section of the Royal on Friday. There was a man of 40 who had tabes for six years. Seven months ago severe pain began and there is now marked lordosis with dislocation of the lumbar spine forwards and sub-dislocation of the sacrum backwards. Grating was felt and heard near the fifth lumbar vertebræ and sacroiliac synchondrosis. A man of 42 had been under observation at St. George's Hospital since August, 1909. For the first six weeks the evening temperature varied from 97.6° to 101°. Heart feeble and irregular, systolic and diastolic murmurs. October 4, a streptococcus was obtained from the blood and on October 14 was begun autogenous vaccination. By October 21 the temperature became normal, but recurrent attacks of fever returned until the last two months. The microorganism had been isolated on five occasions. It was not pathogenic for mice. The patient has improved, the temperature is normal, the weight has increased, and the blood is sterile, with a normal leucocytic count.

A woman of 50, subject for years of enlarged thyroid, was seized on May 28 with sudden dyspnea. It was relieved by ice packs, but the thyroid was greatly increased in size and next day stridor returned. The tumor was hard, not fluctuating with the laryngeal mirror; the aretenoid region was seen to be very edematous. The thyroid was removed and during the operation a portion of it was found tightly packed under the sternum. When this was shelled out the breathing was immediately relieved and recovery was uninterrupted. The specimen showed a hematoma in the thyroid.

A man of 39 with spondylitis deformans, the spine being rigid throughout in a kyphotic position. The ribs were immobile from ossification of ligaments and fixation of costvertebral joints. From time to time nerve root pains were present. The condition had continued for seven years, but none of the accepted causes could be traced. The man was diabetic. It was pointed out that this disease differed from oseoarthritis in being due to ossification of the spinal ligaments without joint disease.

At the previous meeting of this section we had some cases of irregular development of adipose tissue. One was an anemic woman, who had noticed some swelling under her chin. In March a small, fatty, painless growth appeared at the back of the neck. In April and June further fatty deposits affected the shoulders, back, and abdomen, these diffused masses being tender and painful. There was neuralgic pain in the arms. The thyroid was atrophied. She had taken thyroid tablets, which seemed to control the increase, but worried her eyes. Pituitary extract had been given without noticeable effect.

A man of 45 had fatty masses over the neck, shoulders, arms, abdomen, thighs and sacrum—not painful nor tender. A very stout woman of 44, who had long felt her legs painful, found lately fatty swellings on them and the thighs, which are both tender and painful. It does not seem that these cases shed much light on adiposis dolorosa, or Dercum's or Lyon's cases. So, awaiting further research, I am content to group them as irregular fatty developments.

Dr. Jameson Macan, who died in October after two days' illness, was an active contributor to medical literary work in the department in which he was most interested—gynecology. He edited the *British Gynecological Journal* and generally wrote the valuable summaries. He also worked on the *British Journal of Obstetrics*. He translated, conjointly with his late brother, Sir Arthur Macan, Schultze's "Displacements of the Uterus." After the amalgamation of the various societies in the Royal he took charge of the publication department of the obstetrical and gynecological section. To his pen were also due various reports of international congresses and other proceedings concerning his specialty. In all this work and much besides he retained the admiration for his capacity and the regard for his personal qualities of his contemporaries within and without the profession.

The Schiff Home of Recovery, for patients who have undergone operations in the large London hospitals, was opened on Friday at Cobham. It has been chiefly established by Mr. Ernest Schiff, who gave £100,000 to the scheme in memory of his brother Alfred. It provides for between seventy and eighty inmates.

A memorial to the late P. J. Fagan, whose death was lately reported, is being raised in Dublin. It is proposed to devote it to the maintenance and education of his family, for whom he had been unable to provide adequately.

Dr. J. Frank Payne, fellow and Emeritus Harveian librarian of the Royal College of Physicians, died on Wednesday. He graduated in arts at Oxford; in science and medicine in London, 1862-80. He became a fellow of the college in 1873. He gave the Gulstonian lectures in 1874 and the Lambian in 1891. He had been Radcliffe traveling fellow of Oxford, examiner in medicine at University of Cambridge and London, was on the Royal Commission on Tuberculosis and consulting physician to St. Thomas's Hospital. You will remember his "Manual of Pathology" (1888), and that he edited the second edition of Jones & Sieveking's "Path. Anatomy." He contributed important papers to the societies and journals and wrote the articles on plague and the history of medicine in the "Encyclopedia Britannica." He retired to New Barnet, where his funeral takes place to-morrow. Lately he presented to the college library some rare early editions he had collected.

The death has occurred of Dr. G. de Gorreguer Griffith, founder and late senior physician of the Grosvenor Hospital for Women and Children, and physician and lecturer at Zenana Medical College, which he also founded. He qualified at the Dublin and London Royal Colleges (1860-63). He contributed to the medical journals and societies on gynecological subjects, in which he was most interested, and wrote a work on "Treatment of Fibroids of the Uterus." For a number of years he took charge of the "Hospital Mirror" of the *Medical Press and Circular*.

Lieut.-Col. Rivers Mantell, late I. M. S., died on November 9, aged 77. Col. Mantell graduated M. B., London, and M.R.C.S., 1855.

The death is announced of Mr. W. B. Woodhouse, who took the diplomas of the two Royal colleges and the dental license also. He served as a house surgeon at the Dental Hospital and afterward went to South Africa, where he was appointed civil dental surgeon with the field force. Subsequently he settled at Pretoria, became dental surgeon to the hospital and a member of the Medical Council. He was only 38.

Dr. T. S. F. Caverhill, F.R.C.P., Edinburgh, died on November 4. He took a great interest in sanatorium treatment, established one in Perthshire and wrote a work on "The Crusade Against Consumption."

OUR LETTER FROM PARIS.

(From Our Regular Correspondent.)

FRENCH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, THIRTY-NINTH CONGRESS AT TOULOUSE —SIXTH CONGRESS OF GYNECOLOGY, OBSTETRICS, AND PEDIATRICS, TOULOUSE—FIRST CONGRESS OF VACATION COLONIES — NECROLOGY, PROFESSOR RAYMOND.

PARIS, October 25, 1910.

THE Congress of the French Association for the Advancement of Science was held in August in Toulouse. The Section of Medical Electricity was presided over by Bergonié. The principal questions taken up were electrotherapy and radiotherapy in the treatment of fibromyoma of the uterus. The readers of papers, Guilleminot and Laquerrière, showed that radiotherapy often brings relief to the size of the growth or to hemorrhages, or to both. The latest matter of rapid progress of radiotherapy has come through Nogier. He has employed for this purpose reinforcing apparatus which reduces the treatment to one-thirtieth or one-fortieth of a second. Instantaneous radiography has been realized with treatments of one one-hundredth of a second, and very rapid radiography is now generally practised. In the Section on Hygiene and Public Medicine, presided over by Maurel, the attention of the audience was occupied by an investigation of the morbidity from tuberculosis among the rural population of France. It has been demonstrated that tuberculosis is decidedly on the increase. The cause of this increase is emigration toward the cities, agglomerations of people caused by military service, the primary schools, where contagion spreads, tuberculosis of cattle, alcoholism, the deplorable hygiene of the country districts and of cities with their narrow houses, without light and air, with the absence of prophylaxis, and of disinfection.

In the Section on Tuberculosis the treatment of hemorrhages among the tuberculous was the subject of an interesting paper by Israel Jong. He believes that the therapeutics of hemorrhage should be pathogenic, that is, one should consider its causes; some of them are physical, such as climate and temperature. Thus hemorrhages are observed at times in the hospitals of Paris in series. Altitude and marine climate may also cause hemorrhage. As to treatment, rest in bed and silence are to be ordered. He considers that revulsives and applications of ice are useless. He has studied coagulants such as calcium chloride and serum gelatin.

Another most interesting question was submitted to the Congress, that is, whether a previous attack of tuberculosis immunizes to a later attack. Ac-

cording to the opinions submitted it would seem that previously localized tuberculoses confer on subjects who have been attacked by them a true immunity. It has been observed that pulmonary tuberculosis rarely develops in persons who have previously had attacks of scrofula and lupus. Also coxalgics who have been cured and cured pleuritics seem to be immune to pulmonary tuberculosis. Fernand Bazançon believes that in tuberculosis one must distinguish cures from remissions of long periods observed in this disease. Before pronouncing the word cure the patient must have remained cured for four years without any new manifestation. However, experimental facts have not shown the reality of immunity conferred by a previous attack.

The Sixth Congress of Gynecology, Obstetrics, and Pediatrics was also held at Toulouse, in the month of September. In the Section on Pediatrics, Aviragnet discussed curable forms of acute tuberculosis in children. The invasion of the organism by tuberculosis comes principally by the lymphatic mucosa of the nasopharynx with a latent location in a group of glands, which is generally in the mediastinum. Tubercular tracheobronchial adenopathy arises by a series of accidents, which cause modifications of vesicular murmur at the right apex, attacks of asthma, localized bronchitis, pulmonary congestion, and associated glandular enlargements, cervical and inguinal. Tracheobronchial adenopathies are the most precious indications of the presence of latent tuberculosis. The most effectual medication is supplemental alimentation and continuous fresh air in a marine climate.

In the Section on Obstetrics, Fieux treated of the pathogeny and treatment of incoercible vomiting of pregnancy. To explain incoercible vomiting in pregnancy Fieux believes that the hypothesis of toxemia caused by the villosities of the ovum is most seductive, for there exist in the serum of the pregnant woman antibodies specific for the secretion of young chorionic villi. Further, the interruption of pregnancy is always followed by the cessation of vomiting. The ordinary treatment is confined to attempts to await the end of the vomiting, so as to permit the woman to continue her pregnancy. Premature labor is not indicated except when the pulse is more rapid that 100 pulsations per minute, and when polyneuritis or true icterus appears as a complication.

Pousson of Bordeaux has made a study of the results of nephrectomy from the point of view of the possibility of rendering successful future pregnancies, with the aid of six cases operated on. He saw only 7 abortions against 59 normal labors with normal infants and the possibility of lactation. The answer to question of the desirability of marriage will be based on the condition of the remaining kidney. It is well to remember that mothers have survived and been able to nurse their children with a single kidney and purulent urine.

Audebert and Gillies have studied the relations of biliary lithiasis to pregnancy. The influence of the puerperal state on biliary lithiasis has been much discussed. It provokes and aggravates lithiasis by favoring infections. If lithiasis of the gall bladder is without influence on pregnancy, hepatic colic and icterus produce abortions. The medical treatment consists of rest and an appropriate diet. Operation is only indicated in grave cases, and then only it may be indicated to undertake cholecystectomy.

The Congress of Vacation Colonies was held at Paris on September 30. Created for the benefit of small citizens who were anemic, these colonies are the most efficacious remedy for toning up suffering and delicate infancy. Their object is to send into the country some hundreds of poor city children. Such marvelous results have been obtained from the point of view of physical regeneration that it is astonishing that they were not undertaken earlier in France, and in a larger way, more in relation with their great social value. The beginning of vacation colonies dates from 1890. They soon became very popular, and in 1910, 72,800 little French children of both sexes were sent to the country. Some were placed in the open country, others in the mountains, some isolated on peasant farms, some in groups, to remain from three weeks to six weeks, or more. A child who has passed his vacation in a colony is more robust, and better armed physically to struggle against tuberculosis and other infections. All scholars who are delicate, anemic, emaciated, nervous, and lazy should be sent to the country, and a life in the fields is better worth while than sitting in school. It is well to salute the magnificent results of the vacation colonies that have been shown by the first National Congress of Colonies.

Professor Raymond, who occupied at Paris, after the illustrious Charcot, the clinical chair of nervous diseases of the Salpêtrière, died September 28, 1910. Born in 1844, he studied at the school of Alfort, to which he returned after his graduation in 1867 as Chief of Anatomy and Physiology. Externe of Hospitals in 1870, and gold medal interne in 1875, Chief of the German Ear Clinic in 1887, Hospital Physician admissible to the Aggregation in 1878, with his thesis on "The Dyspepsias," he became Agrégé in 1880. Physician to the St. Antoine Hospital, he was elected in 1894 professor of the clinic of nervoous diseases at the Salpêtrière. Aside from various articles or communications in the journals of societies, Professor Raymond published a series of works on mental and nervous diseases. It is also necessary to remember his lessons on pathological anatomy of the nervous system, and his work on Fixed Ideas and Psychasthenia, written in collaboration with Pierre Janet. The Faculty, the Academy of Medicine, of which he was a member, his pupils, by whom he was loved, find his loss great. Professor Raymond was a Doctor of the University of Oxford and Commander of the Legion of Honor.

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

ETIOLOGY OF BERIBERI—CHOLERA—OPPOSITION TO THE LISTING OF TUBERCULOSIS AS A REPORTABLE DISEASE—IMPORTATION OF MILK—REPORTED FAILURE OF THE COMAR TREATMENT—PERSONALS.

MANILA, P. I., September 28, 1910.

THE question of the causation of beriberi is still being extensively discussed in the Philippines and nearby Oriental countries; a set of men are gradually coming forward who do not believe that beriberi is due to the consumption of polished rice. As evidence they advance the fact that they can point to undoubted cases of beriberi in persons who have never used rice in any form. The defenders of the rice theory state that instances of this kind do not in any way nullify the contention that rice in Oriental countries is responsible for beriberi, asserting that rice is only responsible because it furnishes the staple article of diet for the masses who use it almost continuously to the exclusion of other food, and

that any other similar ration, which is deficient in phosphorus and other ingredients required by the human organism might also be the cause of beriberi, that the term "rice causation" only refers to the local conditions which prevail and that the disease may be contracted in other ways. As an illustration of this they point to the experiments recently made by Dr. E. D. Kilbourne, of the Army Board for the Study of Tropical Diseases, in which he was able to produce typical beriberi in chickens by simple starvation. Further confirmation of the rice origin of the disease has recently come to hand in the experience had at the Hospico de San José, which is a charitable institution in which are quartered between six and seven hundred orphans, insane, and other recipients of charity. For many years beriberi has been more or less constantly present. The use of unpolished rice was begun last June, and some weeks after that time all cases of beriberi disappeared, and the medical director states that practically for the first time in ten years they are entirely free from this disease.

The cholera conditions in the Philippines have improved considerably during the past few weeks, the provinces in Northern Luzon being almost entirely free of the disease. The rapidity with which the outbreak in Pangasinan was brought to a close as soon as the Governor-General impressed upon the provincial and municipal officials that they would be held strictly accountable for any failure to cooperate, and by giving practical effect to his orders by the suspension of several town councils, is another excellent example of how much may be accomplished toward eradicating cholera if the aid of the people in general can be secured. At present there is an average of about forty cases per week being reported, and fully two-thirds of this number occurs in the province of Batangas. In this latter province the disease gained quite a headway before the local officials would consent to having the Insular Bureau of Health take charge of the anti-cholera measures. This has now been done, however, and there is every reason to believe that there will be a rapid drop in the number of cases. In the city of Manila during the past few weeks there has been an average of one or two cases per day, but there is seldom more than one case in any one section, and it is most difficult to trace any connection between the cases. For the week ended September 24 there were five cases reported.

For the purpose of obtaining better statistics the Bureau of Health has placed tuberculosis and typhoid fever upon the list of reportable diseases. This action has caused considerable opposition from the Filipino press and from the Filipino physicians, who assert that this is a still further curtailment of their rights and privileges. The more ignorant class among the Filipinos have a great antipathy for hospitals, and they fear that this is another plan forcibly to compel them to enter a hospital in the event that they are afflicted with tuberculosis. For instance, at the out-patient free clinic that is conducted by the Bureau of Health and the Philippine Medical School, and which has had an average daily attendance of nearly 100 patients, the day the notice was issued that tuberculosis is a reportable disease practically no one applied for treatment, and it took several weeks of persuasion before any considerable number of the former visitors to the dispensary could be induced to return.

Since American occupation the importation of milk into the Philippine Islands has shown a steady increase. The record of the Customs House shows that in 1903 milk to the value of $247,366 was imported; this has steadily increased from year to year until in 1909 milk to the value of $406,607 was imported. The increase in the quantity of fresh milk is particularly noticeable; in 1903 there were 8,804 gallons imported, while in 1909 there were 113,397 gallons imported. In view of the fact that tinned milk is of necessity sterile and is generally used before there is any likelihood of contamination, milk in this form is much more sanitary than the fresh milk supplied by the average dairy in the United States.

It has been reliably reported that several of the cases of carcinoma that were apparently cured in Manila by the vaccine method as used by Coca and Gilman have relapsed, and that others have serious abcesses as a result of the injection, which apparently will not heal.

Dr. R. P. Strong, chief of the Biological Laboratory of the Bureau of Science, has been appointed chief of the medical wards of the new Philippine General Hospital and has entered upon his duties during the past week.

TREATMENT OF BARBERS' ITCH.

To the Editor of the Medical Record:

Sir:—A brief account of a simple but efficacious treatment of sycosis contagiosa or barbers' itch may be of interest. Sycosis contagiosa is a true eczema of the hairy portions of the face. It frequently affects the hair follicles, more especially the root sheaths, and is accompanied by considerable infiltration of the tissue between the follicles.

When the inflammation has reached the hair follicles, pustules form, each pustule being pierced by a hair. It naturally follows then that these loosened hairs, while in the follicles, act as foreign bodies and must be removed before a cure can be effected. Hence, every hair must be removed and when epilation is performed, generally speaking, every hair will be accompanied by its root sheath, swollen and loosened from its follicle.

The following case is submitted as an example of what one usually meets along this line: During the early part of July a farmer presented himself at my office seeking relief and cure for this troublesome disease of the skin. Some four weeks prior to his first visit he had been shaved by a local barber. In about a week the disease made itself known. He consulted two other physicians before applying to me. One called it ringworm; the other, common scabies. He said to me, after I had diagnosed his trouble, "Doctor, if I don't get relief tonight, to-morrow I will go to Philadelphia for treatment." I assured him if he would follow my instructions faithfully I would cure him. He consented. First with an ordinary pair of tweezers I epilated as much of the hair on his face as he could stand at one sitting. Second, taking a piece of absorbent lint I made a mask, covering the entire face, cutting out places for eyes, nose, and mouth. To this I applied a saturated solution of distilled verdigris, or subacetate of copper, and gave him a pint of the same solution with directions to keep the lint or mask constantly saturated. I also ordered a saline cathartic and one-fourth grain calcium sulphide four times a day, and gave him instructions to call the following afternoon. When he came his face expressed his gratitude. He said he had slept the previous night for the first time in

two weeks. I repeated the epilation operation and continued to do so every day until my patient was cured, which was in less than a week.

In conclusion, I will say that as the disease progresses toward a cure large scabs form in spots, when it is necessary, in order to hasten the cure, to incorporate the subacetate of copper in the form of an ointment, using 30 grains to the ounce of simple cerate. Dermatologists recommend bichloride of mercury, white precipitate, etc., but in my experience the treatment here given is more prompt, almost painless, and will not fail, if given a fair trial and there has been no mistake in the diagnosis.

C. H. GARDNER, PH.G., M.D.

SPRUCE CREEK, PA.

Progress of Medical Science.

Boston Medical and Surgical Journal.

November 24, 1910.

The Technique of Operations for Stone in the Ureter. H. Cabot.
A Method of Staining Capsulated Bacteria in Body Fluids. W. H. Smith.
Cancer of the Scrotum. R. M. Green.
The Technique of Arthrotomy. C. F. Painter and A. P. Cornwall.

Operations for Stone in the Ureter.—H. Cabot states that ureteral catheterization and radiography enable one in the majority of cases to know beforehand in what portion of the ureter a stone is situated. A great majority of stones lodge at one of three points—1. The physiological constriction just below the pelvis of the kidney, about on a level of the lower pole of the kidney. 2. At the brim of the true pelvis where the ureter crosses the iliac vessels. 3. In the lower two inches of the ureter, near its point of entrance into the bladder wall. The author believes that incision on the stone in the ulcerated tissue is almost certain to result in some sloughing of the tissue, and that the already existing tendency to stricture is increased by the fact that suture further narrows the ureter, and that the sutures are likely to cut through with further sloughing. It is safer to incise the ureter one or two inches above the stone, then with suitable forceps passed into this opening withdraw the stone and extract it through the incision. Freedom of the ureter from obstruction is essential to success. This permeability may be ascertained by passing a small bougie à boule downward to the bladder and upward to the kidney. If stricture of the ureter is found it must be relieved either by the internal ureterotomy of Albarran or by some other method. The author's experience with inlying catheters in the ureter does not encourage the belief that their presence is not objectionable, as they undoubtedly favor infection. It has been the custom to put some drainage in the abdominal wound down to the point of suture in the ureter. In three recent cases of the author's, two of which were aseptic and one markedly infected, no drainage of any kind has been used, and the wound has been closed in layers including the skin.

Method of Staining Capsulated Bacteria.—W. H. Smith describes a new method of staining capsulated bacteria in body fluids, which he has found to bring more uniform results than any other method with which he is familiar.

Cancer of the Scrotum.—R. M. Green continues his historical study of this subject and reports seven cases that had been operated upon during the past twenty-five years in the Massachusetts General Hospital. It is interesting to note that all the patients were born in the British Isles and that two of them were spinners, though it is doubtful if these facts are of any etiologic significance. More important is the fact that in three cases there was a definite history of precedent trauma. Only accumulation of more extensive data would, however, justify conclusions on the subject. At present it seems that cancer of the scrotum, in its early stage at least, is one of the forms of superficial epithelioma for which radium treatment would be particularly suitable.

The Technique of Arthrotomy.—C. M. Painter and A. P. Cornwall conclude their series of papers on this subject. They describe the technique in arthrotomy of the hip joint and intracapsular fractures, excisions, and erasions. In their entire series of 198 patients operated upon there were eight per cent. of infections and a mortality of a little over two per cent. There has been improvement in their results as time has gone on and the use of urotropine as a routine in arthrotomies is destined, they believe to materially lessen the risks of infection. It is difficult to summarize the results of a series of arthrotomies performed for so many different conditions and where the results to be anticipated are of such a variable character. In the main, however, the results which it was sought to secure seem to have been attained in the large majority of instances with measurable success and the authors feel that arthrotomies may be undertaken for the relief of any of the conditions discussed in their paper without undue risk and that sufficient benefit will accrue to justify the performance of the operation. The technique, however, is one that should be perfected to such a degree that the liabilities of infecting a joint are reduced to a minimum.

New York Medical Journal.

November 26, 1910.

The Carbon Compounds of Arsenic in the Treatment of Syphilis. S. C. Runnels.
The Chemistry of Cancer. S. P. Beebe.
Supplementary Report on the Hot Air Treatment of Phagedenic Chancroid and Chancre. E. W. Ruggles.
The Introduction of Large Quantities of Gases into the Circulatory Apparatus. C. B. Fitzpatrick and J. P. Atkinson.
Clinical Statistics. I. S. Wile.
Treatment of Symptoms in Hospitals B. Robinson.
An Improved Operating and Observation Endoscope for the Anterior Urethra. J. F. McCarthy.
Acute Myelogenic Leucemia. J. A. Wolfer.
Some Steps Toward the Prevention of Postoperative Exudates. W. E. Dicken.

Arsenic in Syphilis.—S. C. Runnels reviews the history of 606 and of the cacodylates.

Chemistry of Cancer.—S. P. Beebe states that within the past five years many chemical researches have been published dealing with such questions as the metabolism of cancer patients, the nature and properties of a possible cancer toxin or specific cancer poison, the nature and cause of cancer cachexia, the properties of the ferments in cancer tissue, and various studies dealing with the chemical characteristics of cancer tissue as compared with normal tissue. From observations extended over a period of some years he is convinced that extracts from sterile tumors given either subcutaneously, intravenously, or intraperitoneally are measurably more toxic per unit of nitrogen than extracts from fresh unautolized organs, but such results do not argue for a specific cancer toxin having a nature similar to the bacterial toxins. The metabolism studies which have been made do not materially add to the clinical observations in regard to the cause of cancer cachexia. From digestion experiments upon gelatin in which the proteolytic effect of the enzyme was measured with the help of the viscosimeter, Weil, working in the author's laboratory, has found that all tissues have some degree of proteolytic activity, but that this is with a cellular tumor quantitatively greater than with normal tissue. He is not prepared to say that this excessive proteolytic activity of the tumor may not be due to leucocytic infiltration.

Hot Air Treatment of Chancroid and Chancre.—E. W. Ruggles reports a second series of four cases in addition to the three previously reported, confirming the beneficial action of the hot air treatment of phagedenic ulcers. He describes a special oven that he has invented for the application of this mode of treatment.

Introduction of Gases into the Blood.—C. B. Fitzpatrick and J. P. Atkinson state that, according to the gen-

eral experience of investigators upon this subject, a dose (from 60 to 100 c.c.) of air given at one time, constitutes the usual fatal dose, causing death almost instantly. After a number of experiments with the previous introduction of glycerin or olive oil into the femoral vein, to prevent foaming or churning after the introduction of large quantities of air, the authors have found that the use of these substances is not necessary and they have obtained as good results without the use of olive oil or glycerin. The ability to introduce large quantities of oxygen into the circulatory apparatus can be readily used in treatment of disease in which oxygen is a therapeutic factor. Gas poisoning, drowning, anemia, blood poisoning, and similar diseases, which readily suggest themselves, are especially appropriate for this treatment. It has been noticed, for instance, that the symptoms of ether intoxication or poisoning, in the animals used for these experiments, have often been markedly relieved. In studying the mechanism of the retention, conveyance, and elimination of air by the vessels, they conclude that they have found evidence that the adrenals play a very important rôle in enabling the lungs and the circulatory apparatus to eliminate the air introduced. It is, moreover, apparent that if the air is eliminated by this means it is possible that it is carried in by the same means.

Clinical Statistics.—I. S. Wile believes that the compilation of a set of clinical statistics by the cooperation of physicians throughout the country would be of great value and would be a pronounced factor in determining the extent of morbidity in a definite group as contrasted with its mortality.

Treatment of Symptoms in Hospitals.—B. Robinson says that one of the sad, disheartening facts connected with hospital service, particularly medical, in his observation is the relative lack of interest by attending and house staff in the relief of painful or annoying symptoms of chronic disease. The diagnosis made and the prognosis determined, if cure seems impracticable, the patient does not always secure repeated, unwearying efforts to relieve symptoms, which are obligatory if the golden rule is followed in practice, as it should be. This lack of doing is doubtless explained by the too prevalent conviction that symptoms depend, of necessity almost, upon organic lesions, and if one cannot modify the lesions notably by treatment one cannot relieve symptoms. No greater, more lamentable, error exists. It is to this belief in part, among practitioners of reputation, that skepticism flourishes so largely and also quackery.

Improved Urethral Endoscope.—J. F. McCarthy describes his modification of the Luys' endoscope for observation of and operating in the anterior urethra.

Acute Myelogenous Leucemia.—J. A. Wolfer states that the diagnosis of acute leucemia necessitates more frequent blood examination, not counts alone, but examination of the stained specimen, for he is certain that quite a few patients go unrecognized and their death certificates are signed as some acute infection when the patient really succumbs to an acute leucemia. After diagnosticating the condition, it is necessary to study the case and try to establish an etiological factor. He would like to see the vaccine treatment more thoroughly tried.

The Prevention of Postoperative Exudates.—W. E. Dicken states that the exudates thrown out after surgical intervention are in exact ratio to the amount of tissue abrasion. Exudates may be mistaken for any kind of hard tumor in the neighborhood of the uterus. Inspissated exudates with broad attachments to the uterus may closely resemble subserous myomata. Inflammatory exudates differ from ordinary transudates in their higher specific gravity and their definitely increased amount of proteid matter; it is, however, in connection with serous surfaces that fibrin tends to form, and its formation in this region is associated with the breaking down of leucocytes. It is to this fibrin that one owes the plastic adhesions in serous cavities, and these adhesions play a most important part in limiting the spread and generalization of many bacterial inflammations. In operations one must avoid undue exposure to dry and cold air, mechanical trauma and bacterial infection. The author urges the importance of a proper technique, the appreciation of the significance of adhesions, and such care in operating that adhesions will not form again or will not originate *de novo*.

Journal of the American Medical Association.

November 26, 1910.

Esophageal Stenosis Following the Swallowing of Caustic Alkalies. C. Jackson.
Changes in the Nose After Widening the Palatal Arch. L. W. Dean.
An Apparatus for Supporting and Holding the Head and Shoulders in Cerebellar and High Spinal Operations. H. B. Smith.
Enteroptosis, with Special Reference to Its Etiology and Development. R. R. Smith.
Surgical Aspects of Enteroptosis. A. J. Ochsner.
Enteroptosis—The Physician's Viewpoint. J. H. Musser.
The X-Ray Diagnosis of Enteroptosis. E. H. Skinner.
Arthritis of Gastrointestinal Origin, Its Diagnosis and Treatment. H. W. Marshall.
Accurate Formula for Use in the Modification of Cow's Milk in the Artificial Feeding of Infants. G. R. Moffitt.
Radical Cure of Malaria; Its Importance and How It Is Obtained. S. Harris.
Dietary Studies of Undernourished School Children in New York City. E. M. Sill.
Miners' Consumption. O. V. Huffman.
Fatal Gunshot Wound. A. F. Johnson.
Axis Traction Handle for Obstetric Forceps. W. P. Megrail.
Warning Against the India-Ink Method for the *Spirocheta Pallida*. J. H. Barach.

Esophageal Stenosis from Caustic Alkalies.—C. Jackson advocates the enaction of laws that will compel manufacturers to label as poisons the various corrosives that are employed in the kitchen. Considering the cosmopolitan character of the population, and especially of domestic servants, the caution label should be in many languages.

Widening of the Palatal Arch.—L. W. Dean reports a case which shows the beneficial effect of widening of the palatal arch. This causes widening of the nose throughout, the middle meatus being affected as well as the inferior.

A Head Support.—H. B. Smith describes an apparatus that he has devised for supporting the head and shoulders in cerebellar and high spinal operations.

Enteroptosis, its Etiology and Development.—R. R. Smith presents this subject, which was reported in MEDICAL RECORD, Vol. 77, page 1076.

Surgical Aspects of Enteroptosis.—A. J. Ochsner discusses this subject, which was reported in MEDICAL RECORD, Vol. 77, page 1076.

Enteroptosis—The Physician's Viewpoint.—J. H. Musser presents this paper, which was reported in MEDICAL RECORD, Vol. 77, page 1076.

X-Ray Diagnosis of Enteroptosis.—E. H. Skinner deals with this phase of the subject, which was reported in MEDICAL RECORD, Vol. 77, page 1076.

Arthritis of Gastrointestinal Origin.—H. W. Marshall presents clinical data showing that the contents of the large intestine act as joint irritants, but says that there has been no special pathologic bacterium found to account for the toxins concerned. Whether the excessive development of non-pathogenic bacteria can produce the trouble is a question which he has sought to answer by the examination of the stools of arthritic patients. Patients with arthritis who respond to intestinal treatment exhibit luxuriant growths of intestinal bacteria, both the predominant *Bacillus coli* and also spore-forming anerobic bacteria. No new specific pathogenic microorganisms were found and a large majority of the spore-forming ones correspond to *Bacillus aerogenes capsulatus*. There are wide variations in the numbers of fecal bacteria in different individuals, and also at different times, so the number in any selected stool is not significant unless excessive. They are sometimes scanty in

arthritics because of purgation treatment, etc Patients with arthritis of other origins and also non-arthritic individuals may present identical appearances, lacking, however, the persistent excessive number of bacteria. Clinical data not here considered suggest that there is another type of arthritis existing in old age, independent of bacteria and due to defective digestion. Salient features of this type are its occurrence in old age and the existence simply of chronic dyspepsia in characteristic cases. In this type pronounced hypertrophy of bones occurs, which is absent in the bacterial type. To explain why some patients have intestinal arthritis and others do not, under the same conditions, he assumes a greater resistance of the latter in their joints. When arthritis occurs without any severe intestinal disturbances, if one is to assume an intestinal cause one must account for it by a greater joint susceptibility. Obscurity of origin is one of the prominent features of these intestinal cases, and, when no prominent etiologic factors are discovered daily colonic irrigations with general tonic treatment are advised for two or three weeks to ascertain the importance of the intestinal element in the etiology. The prognosis can hardly be made in chronic intestinal cases without a preliminary treatment test in many cases. The treatment is largely dietetic, together with antiseptic treatment of the intestines. The possibilities of constant reinfection must also be considered. The effects of mental depression are often underestimated in these cases. The only method of improving joint resistance is to increase the individual general health.

Formula for Milk Modification.—G. R. Moffitt publishes an elaborate mathematically calculated formula for milk modification in infant feeding.

Radical Cure of Malaria.—S. Harris presents this paper, which was reported in MEDICAL RECORD, Vol. 77, page 1029.

Dietary Studies of School Children.—E. M. Sill, as the result of investigations made of the dietaries of undernourished school children of New York City, finds that all the dietaries studied could be improved as regards nutrition and expense. The bulk of the nourishment in the diets was obtained from meat, milk, and bread and rolls purchased from the bakery. It would have been better economy if they had bought the flour and baked the bread with the fire used for cooking other things. He remarks especially on the lack of proper instruction as to diet and cooking, and thinks it should be given in the schools for the benefit of future generations. For the education of mothers at the present time something can be done by lectures, cooking classes, etc., but more can be reached through large organizations as well as the press. Articles should be written setting forth, in simple language, proper diets, methods of cooking, proper nutrition, and the laws of growth. A great deal can be done by individual and group talks to mothers and children in the dispensaries. The nutrition of young children is especially important, for improper and unscientific feeding from the time of birth to maturity is one of the most fruitful causes, both directly and indirectly, of disease, disability, incapacity for work, susceptibility to infection and lack of resistance to disease already contracted. Many children who are put down as dullards are such through malnutrition and require nourishing food before they study books to feed the mind. Many families spend more than they can afford for food and yet are insufficiently nourished on account of their ignorance. When the income of the family is small, meat can be replaced to a large extent by corn meal, wheat flour and cereals in bulk, rice, oatmeal, dried beans, potatoes, whole milk and skim milk, which has a large nutritive value. A large variety of fresh vegetables is not necessary; one or two cheaper vegetables are sufficient. The cheaper cuts of beef contain more protein and fat with less waste than the more expensive ones. The cheapest source of protein is the cereals, next comes meat, and most expensive are fresh vegetables.

Miners' Consumption.—O. V. Huffman defines this term as one used by miners to designate emaciation associated with anemia, general weakness, shortness of breath, and, occasionally, palpitation. It is a layman's term for a general condition that may be due to a variety of causes. Impaired health is too prevalent among miners and the use of this term, miners' consumption, is so general among them that it merits the serious attention of the profession. It is not necessary to look far for causes of ill health among miners. Most mines and mining towns have no sanitation whatever. In the mine urine and feces are disposed of promiscuously. The house is situated almost anywhere, usually with the privy on the hillside above it and the well below. Since the families seem to thrive, however, one must look in the mines for causes Among the causes of ill health in the mines the author mentions the poisonous gases, ethane, methane, and carbon dioxide. When dynamite is used there is another source of poison. The inert matter with which the nitroglycerin is mixed is, with minute quantities of nitroglycerin itself, blown into the dust produced, and later is inhaled during the processes of shoveling, loading, etc. The poisons may also be absorbed through the skin. Hence the miner's headaches, palpitations, etc. It is important to have clean, well-ventilated mines. Filth hidden in darkness is no safer than anywhere else. Physicians in mining towns have no authority and it might come within the province of the new Government Bureau of Mines to make sanitary rules for both inside and outside of the mines. Some physicians jump to the conclusion that the miner has general pulmonary fibrosis (anthracosis). As a matter of fact, there is very little evidence of the implication of the respiratory tract in this way, much less, in fact, than in the coal handlers outside. Other physicians account for the miners' pallor by the lack of sunshine, but this is also fallacious.

Fatal Gunshot Wound.—A. F. Johnson reports a case of gunshot wound severing the popliteal artery, with death from hemorrhage.

Axis Traction Handle for Obstetric Forceps.—W. P. Megrail has devised a handle that can be attached to any obstetric forceps, making the latter a complete axis traction forceps.

India-Ink Method of Staining Spirocheta.—J. S. Barach states that this method, which was introduced by Burri, is open to objection. He has examined all the obtainable India inks, and has found in some of them the presence of spirochete-like objects which seem capable of assuming various shapes and sizes, and which may delude even the expert.

The Lancet.

November 19, 1910.

The Prospect Before the Medical Student of To-day. J. A. Lindsay.
Hereditary Cranio-Cleido-Dysostosis, with a Review of all the Published Cases of this Disease: Theories of the Development of the Clavicle Suggested by this Condition. D. C. L. Fitzwilliams.
Twenty Cases of Pulmonary Tuberculosis Treated by Continuous Antiseptic Inhalation. D. B. Lees.
On Fractures in the Neighborhood of Joints. R. Jones.
On the Use of Potassium Bichromate in the Treatment of Phthisis. J. B. Tombleson.
Two Cases of Compound Fracture with Tetanic Symptoms; Recovery after Injection of Antitetanic Serum. E. K. Williams.
Osteomyelitis of the Left Clavicle. A. MacDonald.
A Case of Uterus Bicornis Unicallis. J. L. M. Wood.

The Prospect Before the Medical Student of To-day.—J. A. Lindsay believes that medical education is at present in a state of flux, that the preliminary subjects of its curriculum must be shorn of much of their detail, must be taught with a due regard to the ultimate destiny of the student, which in nineteen cases out of twenty, at a moderate estimate, is to become a practitioner of medicine. The young graduate, if financial and other circum-

stances permit, should select an opening, whether a hospital or laboratory, that will enable him to continue his education. He should not submit to the early allurements of specialism. There are no great financial prizes in medicine, but the rewards are often substantial and fairly secure. Besides, medicine offers a work that is in touch with nature at first hand; law is man made; theology is trammeled by tradition; while medicine looks at the facts of nature as they are, is ever extending its borders, and is ever touching life at more points. Medicine is probably destined to take an ever increasing part in the work of social evolution.

Hereditary Cranio-Cleido-Dysostosis.—D. C. L. Fitzwilliams states that congenital defects of the clavicle occur and are usually associated with imperfect ossification of the cranial bones. Sixty cases have thus far been reported, including two by the author. The pathognomonic features are partial or complete failure of development of one or both clavicles, deficient and defective ossification of the bones forming the cranial vault, and sometimes a profound alteration in the skeleton of the face, the bones of which are said to be atrophied or undeveloped. This disease affects bones that develop in membrane. A great many opinions as to the cause of the condition have been advanced. Alcoholism, tuberculosis, syphilis, and rickets have all been advocated; but the accuracy of these opinions appears less and less probable with the growth of knowledge of the subject. The position that hereditary cranio-cleido-dysostosis bears to achondroplasia is helpful in enabling one to obtain an idea of the true nature of both these affections, the former being a condition of maldevelopment of the membrane bones, while the latter is a condition affecting the development of those bones which originate in cartilage.

Continuous Antiseptic Inhalation in Tuberculosis.—D. B. Lees reports good results from this mode of treatment, which he has described in a former paper.

Fractures in the Neighborhood of Joints.—R. Jones presents a brief outline of the methods and principles of treatment he has employed as the result of long practice in a manufacturing and mining district, where he had exceptional opportunities of seeing a very large number of injuries both immediately after the accident and at a later stage. Briefly, he pays more attention to function than to appearance, considers correct alignment of more importance than meticulous care in reposition of fragment, believes that pain is always an indication for physiological rest, and therefore deprecates early forced passive movements. If he prefers methods of manipulation and fixation in some cases where others of his colleagues would prefer an open operation, it is perhaps because for many years an increasing proportion of his work has been the treatment of deformities and disabilities, whether of traumatic origin or not, and he has thereby gained confidence in using powerful but carefully graduated force in cases where another would hesitate to do so.

Potassium Bichromate in Treatment of Phthisis.—J. B. Tombleson reports favorable results following the internal administration of potassium bichromate in phthisis. He employs this drug in doses of ¼ grain (2½ minims of a 10 per cent. solution in water) either alone or in a tonic mixture (phosphate, hypophosphite, or simple iron), such dose to be taken in a wineglass of water after food, at first twice and later three times a day. The first dose and possibly the second may cause vomiting, but this does not matter, as, in his experience, toleration is easily established without missing a dose. The color of some of the mixtures changes from yellow to green, but this seems in no way to impair their efficacy.

Compound Fracture with Tetanic Symptoms.—E. K. Williams reports two cases in which the early injection of antitetanic serum had a prophylactic action.

Osteomyelitis of the Left Clavicle.—A. MacDonald reports a fatal case of this condition in which the following points are of interest: 1. The misleading history. The fact that the mischief was left-sided suggested to one of the surgeons who saw the case that it might be a mediastinitis consequent to injury to the esophagus. 2. The absence of any reaction by the hemic system to combat the situation, inasmuch as the infection was widely disseminated, and there was no leucocytosis or glycogenic reaction, and (post mortem) there was no pus formation. 3. The fulminating character and, above all, the rarity of the lesion.

Uterus Bicornis Unicallis.—J. L. M. Wood details the history of a case of this condition in which pregnancy occurred in both horns of a bicornuate uterus. The left smaller horn had aborted, whilst the right horn retained a missed abortion.

British Medical Journal.

November 19, 1910.

Some Points Concerning Tubercle, Syphilis, and Malignant Disease. R. Morison.
The Röntgen Ray Appearances of Thoracic Aneurysm. A. C. Jordan.
Miner's Nystagmus. H. S. Elworthy.
On the Cause of Neuropathic States. G. R. Jeffrey.

Tubercle, Syphilis and Malignant Disease.—R. Morison states that the chronic inflammatory swellings produced by tubercle and syphilis have not infrequently been mistaken for malignant disease and *vice versa*. Hodgkin's disease, as yet ill understood, sometimes resembles tubercle, sometimes sarcoma, in its clinical course. Natural cure is the rule in syphilis, the exception in tubercle, and very rare in cancer. In all of them the cure of the local lesions is the result of fibrosis. These diseases may exist in combination with one another. That of syphilis and tubercle is a deadly combination. The author has seen cases in which tubercle attacked the lungs of a victim of secondary syphilis. In each instance the tubercle rapidly advanced to a fatal issue. The most disastrous form of "scrofula" is a combination of congenital syphilis and tubercle. Cancer and syphilis are very firm allies, and syphilis often provides a suitable site for the lodgement of cancer. If a person over 60 years of age contracts syphilis his death from cancer may be anticipated. Tubercle and cancer favor the same sort of soil. Persons who have recovered from tubercle in their youth are exceptionally liable to cancer in their later years. It is more than a coincidence that both occur in families with a history of some members having attained to an extraordinarily long life.

Röntgen Ray Appearances of Thoracic Aneurysm.—A. C. Jordan states that there are few cases of this condition in which *x*-ray examination does not clear up the diagnosis beyond possibility of doubt.

Miner's Nystagmus.—H. S. Elworthy states that this is a disease peculiar to coal miners, and that it is the absence of color that makes all the difference. The cause is fatigue of the eye resulting from working by artificial light with a black background and nearly black surroundings. Nystagmus seldom manifests itself until the miner has been working for some years. The first stage is latent. The first symptoms may be various. In some the lamps seem to move or become blurred; in others there is headache or pains in the eyes, or else everything becomes misty. The most constant symptoms are headache, giddiness, and movements. The two eyes may be unequally affected, or have different movements; one lateral, the other vertical or rotary. The importance of daylight seems to have been overlooked both by the miner and the employer. The author takes the view that, as far as nystagmus is concerned, working underground in daytime is a mistake, as the miner in doing so loses his opportunity of refreshing the eye by looking at colors in

daylight, and so, in a measure, compensating himself for working by artificial light without color relief.

The Cause of Neuropathic States.—G. R. Jeffrey states that at the meeting of the Societies of Neurology and Psychiatry, held in Paris one year ago, a remarkable difference of opinion upon the part played by the emotions in the genesis of neuropathic states was found to prevail among the eminent members who took part in the discussion. The whole discussion merely emphasized what the author had already maintained, that there is an inherited or acquired structural predisposition—an emotional diathesis. A more important point clinically is the determination of the actual extent of the lesion, whether it is reparable or not. About this one's knowledge is very scanty, and its further investigation is urgently needed. Taking the mechanism which he had suggested as the mode of origin of neuropathic states, definite indications for treatment necessarily follow. To ensure as complete rest as possible—that is, to ensure the absence of any fresh external stimuli—isolation is necessary. It is not only a means of husbanding the patient's resources, but it has also a certain psychotherapeutic value. To treat accompanying dyspepsias, constipation, sleeplessness, or other symptoms, complete rest in bed in the open air—combined with suitable diet—massage, with baths and electricity, are necessary to eliminate from the disease any accompanying autointoxication and malnutrition. The most favorable conditions for the nutrition of the nervous system of the neurasthenic are bodily health and mental rest. If after these conditions have been maintained for three months no considerable improvement has been made, the lesion is probably irreparable, and the only hope of amelioration would appear to lie in education, either by suggestion or other psychotherapeutic measures.

Berliner klinische Wochenschrift.

November 14, 1910.

Internal Secretion of the Generative Glands.—Munzer continues his monographic study of this subject. He devotes considerable space to the results of castration on the breast. In certain cases only do male castrates develop a female breast. On the other hand gynecomasty may be found in entire men. In regard to women, the older writers seem to have looked upon a certain amount of atrophy as constant after castration. More recent writers declare that in the majority of cases the breasts show no change. Sellheim has shown that mutation of sex in certain animals after castration is a fiction. Castrated hens do not act like cocks, nor do capons appear like hens. Similar observations might be multiplied for other animals. A change is usually in evidence in castrated domestic animals, but there is no real mutation in regard to sex. In other words, a castrate does not change its secondary sexual character. Naturally, castration in the very young tends to cause more extensive alterations in the latter. The periodical enlargement of the muscles of the male frog's upper extremity, which occurs at the breeding season, and enables the male to grasp the female more strongly, disappears after castration, but can be restored by grafts. Abolition of such periodical phenomena is, of course, very different from radical change in permanent secondary sexual qualities. Very early castration before development can but inhibit the appearance of certain of the latter. But this inhibition is associated more or less with universal subdevelopment. In other words, there is a genital infantilism. Möbius claims that in such cases sex cannot be recognized if the subjects cover the genital area. Such creatures are absolutely sexless. We are forced to conclude that the genital glands in reality preside over general growth and development. They cannot determine sex, which is purely a matter of inheritance. The vanishing of a periodical function like menstruation after castration is intelligible. Yet often a prolonged climacteric period succeeds, characterized by metrorrhagia, leucorrhea, etc. Fellner seems to have shown that the uterus possesses an autotoxic internal secretion, to which the lutein of the ovary is a natural antidote. By setting up menstruation it enables the uterus to be rid of its toxic material. The development of the ovary is responsible for puberty (menstruation), pregnancy, and the climacteric, as well as for the general development of the mature organism. Yet, as already stated, it does not determine sex itself.

Relation of Cancer of the Stomach to the Female Genital Organs.—Ernst Runge states that only recently has it become generally known that a relationship exists between the ovary and cancer of the stomach. When both organs are found to be cancerous at the same time it is sometimes difficult to decide as to which is the primary lesion and which the metastasis. But ovarian cancer occurs in large numbers without any lesion of the stomach; while the stomach is seldom the seat of a metastasis from other organs. Hence, the provisional conclusion that the stomach is the seat of the primary attack. The author fails to note that the rectum is often the seat of a metastasis from the cancerous stomach. The various theories as to how these simple metastases originate could surely be better discussed if the two sets of phenomena could be studied in common. Clinically the ovarian symptoms obscure the gastric symptoms, and the gastric cancer may be overlooked until revealed by the autopsy. The lesson to be learned in this connection is as follows: In women during the child-bearing cycle and especially in the later portion of the latter, symptoms which suggest a possible cancer of the ovary should lead the practitioner to examine the stomach, with special reference to chemical tests (absence of HCl). If cancer is diagnosticated there should be either a radical operation for removal or a temporary gastroenterostomy, according to the prognosis. The ovary should then be extirpated as soon as possible. No successful cases are cited. Incidentally the author remarks that cancer of the stomach is very rare in pregnancy.

Foreign Bodies in the Superior Mesenteric Vein.—The perforation of sharp substances through the digestive canal into contiguous structures is well known, as is also the occasional migration of such bodies when they do not set up local disease or become encysted. It has but seldom happened that these objects have penetrated into the large veins, and it is very difficult, if not impossible, to explain such a migration. Bends found at an autopsy that a piece of fish bone had penetrated into the superior mesenteric vein, causing thrombosis which extended into the portal vein, death resulting from thrombophlebitis. He can explain the event only by the supposition that the vein chanced to lie against that part of the intestine where the perforation occurred. Two similar cases are known to be on record. It must be borne in mind that the migrating power of a fishbone must be greatly inferior to that of a needle.

Münchener medizinische Wochenschrift.

November 15, 1910.

Arthropoda as Transmitters of Germ Diseases.—Under the term arthropoda are included by Müller crustaceans, protracheates, myriapoda, insects and their larvæ, and the arachnoids (the latter including ticks, etc.). As the part played by insects—flies, fleas, mosquitos, etc.—and the ticks in transmitting diseases is fairly well known, it should suffice to determine the rôle of members of other classes of arthropods. This is evidently a very insignificant one. The cyclopes, a lowly organized type of crab, are said to spread the guinea worm disease. Aside from this the most that can be said of crustaceans is that

the edible kind are sometimes poisonous, and that some myriapods have a poisonous bite, as do also many kinds of arachnoids. The protracheates are not mentioned in any way as causing disease. It seems somewhat disingenuous to drag in these orders of arthropods in this connection.

Trypsin in Surgical Tuberculosis.—Sohler gives a brief historical account of this subject with a good bibliography. As far as his own experience goes he has used the drug in conditions where it has been pronouncedly contraindicated, such as bone and joint abscesses and large burrowing abscesses. He has also taken pains to collect, in addition to his own experience, much of the unfavorable comment on trypsin, beginning with the time when it was first recommended for cancer. He formulates this combined experience into generalizations which tend to show that trypsin injections are painful, corrode sound tissue, and set up a toxemia. While he may have had such results from using the enzyme when it was contraindicated, it is hardly just to insinuate that these untoward results have been in any way constant. They have occurred only in a minority of cases, and these have certainly been offset by many beneficial results. A majority of injections has doubtless led to negative and harmless results.

The Ehrlich-Hata Remedy in Tabes and Paralysis.—Perhaps more interest is being taken in this subject than in any other aspect of this new kind of therapy. Both these affections may undergo spontaneous remissions, so that it is difficult to determine the influence of medication. It is also practically admitted that to be cured such cases must be treated in the formative period. Treupel has now treated twenty-one cases of tabes. He is able to assert that the pains are at first made much worse (as if from liberation of toxins), but in a few days they abate, while the patient gains weight. All the symptoms improve save those of the eye. The Wassermann reaction becomes negative in some cases. Unfortunately, this benefit lasts but a matter of weeks. The author does not mention second injections in this connection. In progressive paralysis the results are much inferior to those in tabes. Willige, in a second paper, states that he treats all recent cases of paralysis with an injection, which is almost invariably well borne, but which often causes a notable general reaction inside of twenty-four hours. The optic nerve never suffers. The Wassermann reaction was influenced favorably on the whole after the injection, but gradually returned to its original degree. Six cases showed marked improvement and three others improved so markedly that they seemed fit for discharge as cured. Willige made successive injections in these, and describes the improvement in detail. But, as the author admits, such cases of improvement or remission occur spontaneously, and as yet it is too early for differentiation. Among Willige's final conclusions are the following: We are as yet unable to determine with certainty the power of the new remedy over the metasyphilitic nervous affections. It may be that a certain natural tendency to remission is facilitated by the treatment. Points as yet unsettled are the dosage (size, repetition, etc.) and utility of combinations with other remedies. The influence of treatment on the Wassermann reaction cannot be determined. The new remedy does no harm in metasyphilitic nervous affections. Coincidence of diabetes is a contraindication. The author does not refer much to tabes because he thinks the remedy, on account of the tendency to optic nerve atrophy in this affection, constitutes a contraindication. He would therefore continue to treat tabes with the old antisyphilitics.

Deutsche medizinische Wochenschrift.

November 17, 1910.

Convulsions after Orthopedic Operations.—Codivilla concludes that the epileptiform convulsions which follow the various orthopedic operations on the lower extremity are not due to fat embolism, as has recently been alleged. In his opinion they are due to overtension of the reflex nervous arc, which in turn may disorder the higher nervous centers. It has been demonstrated that after certain repositions in the leg or foot the sciatic nerve is placed in a state of permanent tension. Convulsions are due in a measure to a neuropathic substratum. The author feels justified in submitting these patients to a bromide course before operating. He would do this in a merely nervous child as readily as in one who had always had convulsions.

Case of Traumatic Alexia.—Heiligtag sums up the symptoms of this case as follows: (1) Slight right homonymous contraction of the visual field. (2) Supersensitiveness of the labyrinth; disturbances of the equilibrium center. (3) Subcortical alexia (meaning inability to read letters and words and figures of over two places). (4) Traces of the injury to the head. The latter was represented by a scar over the right occiput, while on the left side there was a Y-shaped depression in the skull, evident also in an *x*-ray photo. The skin adhered to the bone. With exception of symptoms given above, the patient was found to be normal, including the nervous system. Investigation of the injury revealed that the patient nearly a year ago had suffered a complicated fracture of the left occiput, having a star shape, with penetration into the brain of spiculæ of bone. Patient unconscious for eight days, and sensorium not normal for fourteen days. He complained thereafter of headache and vertigo, and had convulsions several times. The fracture had been treated in the usual manner. Alexia appeared within a month, and had persisted until seen by the present author. Alexia occurring alone means a small circumscribed lesion. The reading center of the brain corresponds with the site of the lesion, and the latter evidently was seated in the gyrus angulatus.

Alimentotherapy of Diabetes Mellitus.—Graul writes this paper largely in the interest of von Noorden's oatmeal diet, which appears to have secured brilliant results at times, especially at the first appearance of acetonuria. The glycosuria should improve in the same degree as the acetonuria. In a certain percentage of cases prolonged oatmeal diet causes an increase in the glycosuria. The author then substitutes a strict diet of vegetables and vegetable albumin, which is efficacious against both glycosuria and acetonuria. Occasional fasting periods also improve the last-named condition. It is understood that the author is writing only of moderately severe diabetes, especially when associated with acetonuria. These cases should not be fed with large quantities of meats, fish, eggs, butter, etc., because such a diet produces a great strain on the already diseased organs and leads to such complications as nephritis and arteriosclerosis, and also tends further to the production of carbohydrate intolerance, the object of all plans of treatment being to preserve and restore tolerance to this class of foods.

Action of "606" on the Spirochetes Normally Present in the Mouth.—Gerber calls attention to the resemblances between the mouth-spirochete and the *Spirocheta pallida*, with especial reference to the identical behavior of the two when "606" has been injected. The mouth-spirochete is particularly in evidence in dirty and diseased mouths, but even in healthy and clean mouths they may be found about the necks of the teeth, on the back of the tongue, and in the tonsillar lacunæ. Thus far it appears that the remedy has been tested only on subjects in which both kinds of spirochete were known to be present. The mouth-spirochete seems to be somewhat more resistant to the remedy than the pallida. The author's few cases do not place his contention beyond the theoretical stage, but he hopes that systematic studies will be made of the mouth-spirochete.

Book Reviews.

The Medical Record Visiting List, or Physicians' Diary for 1911. New revised edition. New York: William Wood & Company, 1911.

This well-known visiting list contains about thirty pages of miscellaneous information, and the usual blank leaves for visiting list, consultations, engagements, addresses, cash account, and records of births, vaccinations, deaths, etc. The pages are well ruled and the paper is good. Those who have used this list in the past are sure to want the edition for 1911, and those who use this edition for the first time will be content with their choice. The book is useful, handy in size, and unusually attractive.

A Christmas Mystery. The Story of Three Wise Men. By William J. Locke. Illustrated by Blendon Campbell. New York: John Lane Company, 1910.

Christmastide is the season when all men should conspire, as far as is in them, to make new again the old, old story on which the feast is founded, to the end that our hearts shall not harden in indifference or greed. One way to make it new is the way Mr. Locke has taken in this arresting little story by going to the New Testament for his basic facts, and then clothing them in almost startling twentieth century dress. Christmas Eve three men, tired and wise with the wisdom of this world, a hovel, a mother, and a little newborn child, are once again the material from which a Christmas tale is woven, but the time is to-day and the wise men are our fellows. After a night of dreadful service to a dying mother, when "their watch was ended, they wrapped up the babe with precious care and carried him with them, an inalienable joy and possession, into the great world." We like to believe that they did. We like to believe, especially at Christmas time, that, as a dead poet has told us, "the angels *are* climbing Jacob's ladder, right between Heaven and Charing Cross," and we thank Mr. Locke for helping us to believe it.

Die durch Gonokokken verursachten Krankheiten des Mannes. Ihre medikamentose und chirurgische Behandlung. Von Dr. S. Baumgarten, Spezialarzt für Urologie und Chirurgie in Budapest. Wien und Leipzig: Alfred Hölder, 1910.

This book consists of 400 pages divided into forty-nine chapters in which gonorrhea and its different complications and sequelæ are considered from each viewpoint. The author has signally emphasized some important facts. For example: "Although through the gigantic progress in urology, our knowledge of the pathology and treatment of urethritis has materially broadened, we see even yet the majority of physicians accepting a visible discharge as sufficient diagnosis of gonorrhea, whereupon the patient receives a prescription for a syringe and a few dozen ancient formulæ, the result of which is left to pure chance." He writes in sufficient detail to satisfy the careful reader and the sections on treatment deserve praise in this respect. Much has been taken from contemporary works, but full credit is given and all is tempered with personal experience. Uranalysis and tests of cure are omitted; insufficient attention is accorded to stricture and the section on urinary fever is not modern, all of which detract from the value of the work. The eighty-eight cuts and illustrations are insufficient for a text of this size and these eighty-eight are below mediocrity. The arrangement of subject matter and the author's literary style are good. Throughout the work, more attention is devoted to medical than surgical treatment.

Diseases of the Colon and their Surgical Treatment. Founded on the Jacksonian Essay for 1909. By P. Lockhart Mummery, F. R. C. S., Eng., B. H., M. B., B. C., Cantab., Jacksonian Prizeman and late Hunterian Professor, Royal College of Surgeons; Senior Assistant Surgeon, St. Mark's Hospital for Cancer, Fistula, and other Diseases of the Rectum; and Senior Surgeon to Out-Patients, The Queen's Hospital for Children, London. Illustrated by colored and other plates, and numerous figures in the text, many of which are reproduced from the author's sketches. New York: William Wood and Company, 1910.

Within recent years improved methods of diagnosis have been the means of adding considerably to the knowledge of diseases of the colon, which subject has assumed such importance as not only to warrant but also to necessitate the preparation of a special book dealing with it. In this instance the want has been amply supplied. This book includes all that modern research and experience have contributed to our knowledge of the colon and its diseases. These have been becoming more frequent, owing to the modern diet of prepared foods containing little or no waste residue, and this, together with a sedentary occupation, fails to furnish the normal stimuli to peristalsis and digestion. The earlier chapters are devoted to the anatomy and physiology of the colon both in health and disease. The results of the latest investigations by Cannon and Hertz upon peristalsis and antiperistalsis are given in detail. The difficult subject of diagnosis is thoroughly discussed. The technique of sigmoidoscopy is lucidly presented; as is also the subject of the use of the *x*-ray. Special attention is paid to the effect of adhesions and to chronic constipation and obstruction in their various forms. Colitis, pericolitis, and cancer are fully covered. An entire chapter is devoted to Weir's operation of appendicostomy and valvular cecostomy. The numerous illustrations are of a high order of artistic merit. In this as in other respects the work represents the best of the bookmaker's art.

Nahrungsmitteltabelle zur Ausarbeitung und Berechnung von Diätverordnungen. Für Krankenhaus und Praxis. Von Dr. Herman Schall und Dr. August Heisler. Zweite, bedeutend vermehrte Auflage. Würzburg (Curt Kabitzsch): A. Stuber's Verlag, 1910.

The nature and scope of this set of tables are sufficiently indicated by its title. In addition to the data relative to the various foodstuffs useful information is given concerning the metabolic activities of the body, its caloric requirements under different conditions, etc. A marginal index adds to the convenience of the work for rapid reference.

Dyspepsia, its Varieties and Treatment. By W. Soltau Fenwick, M. D., Lond., Doctor of Medicine of the University of Strassburg; late Physician to the Evelina Hospital for Sick Children. Philadelphia and London: W. B. Saunders Company, 1910.

There are few diseases that present such confusing problems to the general practitioner, and none that he is called upon more frequently to treat than those included under the indefinite group, dyspepsia. For this reason a work such as this, bearing the genuine seal of scholarship, cannot fail to be helpful. Written in a fascinating style, this book covers the subject with a lucidity that is equalled only by its thoroughness. At the outset the fact is emphasized that "a disturbance of digestion in the stomach itself is rarely due to a primary disorder of that viscus, but is usually a consequence of serious disease of another and perhaps remotely situated organ of the body. The truth of this apparent paradox will be appreciated when it is remembered that the majority of the secretory, motorial, and inflammatory affections of the stomach result from the failure of some other organ to execute its proper functions." In the first chapter there is presented a short scheme for the clinical differentiation of the various forms of dyspepsia. One of the most interesting chapters is that which deals with the relationship of latent disease of the appendix, gallstones, and duodenal ulcer to gastric hypersecretion. The long continuation of the latter is apt to induce severe gastritis accompanied by numerous erosions of the mucous membrane, which sometimes occasion severe hemorrhages. The recurrent attacks of hematemesis and melena, as well as the symptoms of indigestion, disappear with the removal of the diseased appendix. The author devotes to the subject of displacements a space commensurate with its importance. The varieties of dyspepsia that appear during infancy and old age are given special prominence. The entire work is based upon the examination and treatment of 18,000 cases, while statistical investigations were confined to 1,000 examples of the complaint.

A Textbook on the Therapeutic Action of Light, including the Rho rays, solar and violet rays, electric arc light, the light cabinet. By Corydon Eugene Rogers, M.D., formerly Demonstrator of Anatomy in the University of New York City. New York: Published by the Author, 1910.

The excuse for this book appears to lie in the author's desire to exploit the uses of a new form of incandescent electric light, emitting what he claims to have discovered as the "Rho" rays. Whatever virtues these may possess are more than negatived by the extravagant assertions that they may cure nearly every morbid condition to which the body is subject, including diphtheria, tuberculosis, and pneumonia. The scientific uselessness of this book is closely paralleled by its literary and typographical inaccuracies, including the misspelling of the author's name upon the title-page.

The Practical Medicine Series. Under the general editorial charge of Gustavus P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School; Charles L. Mix, A.M., M.D., Professor of Physical Diagnosis in the Northwestern University Medical School. Gynecology. Edited by Emilius C. Dudley, A.M., M.D., Professor of Gynecology, Northwestern University Medical School; Gynecologist to St. Luke's and Wesley Hospitals, Chicago; and C von Bachellé, M.S., M.D., Assistant Professor of Obstetrics, Chicago Polyclinic and College of Physicians and Surgeons; Gynecologist to the German Hospital, Chicago. Series, 1910. Chicago: The Year Book Publishers.

This book is divided into six parts, dealing respectively with General Principles, Infectious and Allied Disorders, Malformations and Tumors, Traumatism, Displacements, and Disorders of Menstruation, Sterility. The book is valuable and makes interesting and instructive reading.

Introduction to the Analysis of Drugs and Medicines. An Elementary Handbook for the Beginner. By Burt E. Nelson, Laboratory of the Binghamton State Hospital, and of Nelson and Lauder, Binghamton, N. Y.; Chemist to the New York State Hospitals, the Department of Health, Board of Water Commissioners, Etc. First edition. New York: John Wiley & Sons; London: Chapman & Hall, Limited; 1910.

While the practitioner is, as a rule, not especially interested in the analytical methods used for determining unknown drugs, except such as give color reactions when excreted directly in the urine, the results of such analysis are of the greatest importance to him, not only in the diagnosis of obscure cases of poisoning, but also in connection with the standardization of alkaloidal tinctures and fluid extracts. The first portion of the book is given up to general analytical methods, descriptions of apparatus, and a discussion of some of the more important qualitative and quantitative tests for inorganic substances. A chapter on ultimate organic analysis is followed by a long section on the analysis of medicines, both microscopical and chemical. There is also an extremely valuable table for systematic analysis of drugs, giving many useful points for the isolation and the identification of the pure substances. There are tables of melting points, of boiling points, and of physical and chemical constants of fats and oils, and, finally, a collection of the physiological actions of some of the commoner drugs. The volume should prove useful in the laboratory of every chemist and hospital worker who is interested in or required to do drug analysis. If any criticism were warranted it would be that the writer has attempted a little too much in a short space, and that some of the descriptions are not sufficiently detailed to allow any one but an expert to carry out the procedures. It is also unwise to tell a beginner in the laboratory to hold a non-luminous flame to an escaping jet of air and gasoline vapor. Something unexpected might occur.

A Manual of Operative Surgery. By Sir Frederick Treves, Bart., G.C.V.O., C.B., LL.D., F.R.C.S., Sergeant-Surgeon to H. M. the King, Surgeon-in-Ordinary to H. R. H. the Prince of Wales, Consulting Surgeon to the London Hospital; and Jonathan Hutchinson, F.R.C.S., Surgeon to the London Hospital. New (3rd) edition, revised and rewritten. In two octavo volumes. Volume II, 820 pages, with 302 engravings, and 8 full-page plates. Philadelphia and New York: Lea & Febiger, 1910.

The recent appearance of the second volume of this important work affords to American readers a complete and satisfactory record of the teaching of two of the most eminent British surgeons. Mr. A. J. Walton has also taken a part in the production of the present edition and his contribution is concerned with the revision of the chapters on operations on the skull and brain and also that on the middle ear, mastoid, etc. The subject of tendon suture and grafting has likewise been contributed by the same writer. In addition the present volume also includes a description of the surgery of the thorax, breast, arteries, veins, nerves, amputations, bones, and joints. Notwithstanding the great advances which have been made in the surgery of the brain, the authors are not favorably impressed with its applications to the removal of brain tumors, and consider that operative treatment is only justifiable where the locality can be accurately determined and the symptoms are such as to point to the tumor being small in size; if it can be readily reached and more especially if it has been in the motor area, and finally if its symptoms are such as would lead one to believe that it is a fibroma or localized sarcoma. The other tumors in the majority of cases are but poorly differentiated from the brain tissue and thus are not readily removable. The text of the book is in general fairly complete, but one of the omissions noted is an absence of any reference in the chapter on thoracic operations to the procedures rendered possible by the agency of the pneumatic cabinet, which has been developed by Sauerbruch and others. A number of excellent color plates have been introduced, but many of the remaining illustrations in the text are distinguished neither for execution nor novelty. The printed text and the general make-up of the volume are, however, excellent.

Atlas der bösartigen Geschwülste. Von Prof. Dr. D. V. Hansemann, Geh. Medizinairat. Mit 27 lithographierten Tafeln. Berlin: Verlag von August Hirschwald, 1910.

It is always a matter of regret that the American publisher is prevented by the high cost of labor from issuing at a reasonable price such beautifully illustrated volumes as this Atlas of von Hansemann's, which would be of great value to students and practitioners, but is now limited to those who can read German. The plates are very satisfactory, illustrating well all of the ordinary types of tumors, even though they do not perhaps reach the perfection of the lithographs in Borst's famous tumor book. From some of the diagnoses appended to the pictures one may be inclined to disagree, but they represent van Hansemann's well-known views on the classification of certain tumors. In addition to the twenty-seven full-page colored plates there is a short discussion of the methods of preparing thin sections for immediate diagnosis and a running commentary on the different types of tumors pictured. The importance of using paraffin embedding for diagnostic sections is properly insisted upon, and the dangers of employing frozen sections for hasty diagnosis, especially by inexperienced persons, are quite rightly emphasized. All in all it is a very satisfactory work.

Nursing in Diseases of the Eye, Ear, Nose, and Throat. By the Committee on Nurses of the Manhattan Eye, Ear, and Throat Hospital. J. Edward Giles, M.D., Surgeon in the Eye Department; Arthur B. Duel, M. D., Surgeon in the Ear Department; Harmon Smith, M. D., Surgeon in the Throat Department; Assisted by John R. Shannon, M. D., Assistant Surgeon in the Eye Department; John R. Page, M. D., Assistant Surgeon in the Ear Department; With chapters by Herbert E. Wilcox, M. D., Assistant Physician to the Hospital; Eugenia D. Ayers, Superintendent of Nurses. Philadelphia and London: W. B. Saunders Company, 1910.

This book is intended as a textbook for the nurses in the Training School of the Manhattan Eye, Ear, and Throat Hospital; it will, doubtless, serve a useful purpose in other similar institutions. The authors have kept in mind that the book is intended for nurses and not for physicians, and have endeavored not to go beyond the capacity of the best educated nurses. The illustrations are well chosen, and the book can be recommended to the nursing profession.

Operative Surgery for Students and Practitioners. By John J. McGrath, M. D., Professor of Operative Surgery at the New York Post-Graduate Medical School; Consulting Surgeon to the New York Foundling Hospital; Visiting Surgeon to the Harlem and Columbus Hospitals; Fellow of the New York Academy of Medicine; Member of the American Medical Association, etc. Third Revised Edition, with 276 Illustrations, including many full-page plates in color and half-tone. Philadelphia: F. A. Davis Company, Publishers, 1909.

The entire section on abdominal surgery in this edition has been re-written and much new matter has been added. A book such as this, covering ground that is covered by many similar books, derives its value largely from the manner in which the author arranges his material, from the clearness with which he sets forth what he has to say, and from the judgment which he uses in selecting the best from among a multiplicity of operations. All three of these conditions Dr. McGrath has met with the average amount of success. One may question the wisdom of devoting only 19 pages to the chapter on "General Considerations," and will question also the correctness of the author's advice to provide free drainage after resecting a tuberculous joint. There seems to be in the book an atmosphere of hurry—a lack of completeness. No mention is made, for instance, of the injection of nerve trunks in amputations. On the other hand, the value of a book like this to the man who practices surgery occasionally and because he is compelled to is manifest.

Society Reports.

PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, Held November 8, 1910.

DR. CHARLES A. FIFE OF PHILADELPHIA AND DR. ELI LONG OF NEW YORK IN THE CHAIR.

THE Philadelphia Pediatric Society held a joint meeting with the Section on Pediatrics, New York Academy of Medicine. The discussion of the papers was limited to members of the Section on Pediatrics of the New York Academy of Medicine. Following this meeting an informal smoker was given at the Hotel Rittenhouse.

The Symptoms, Management, and Treatment of Nasal Diphtheria.—Dr. EDWIN E. GRAHAM of Philadelphia read this paper. He said that it was important to remember that the Klebs-Loeffler bacillus might produce only the slightest irritation and discharge, with no membrane present, or it might produce the most intense inflammation with swelling and edema so extensive as to more or less completely block the nares. The amount of contagion was usually in direct proportion to the amount of discharge from the nose and nasopharynx. Diphtheria might be spread from a case in which there was little or no discharge present and yet the bacilli might be demonstrated to be present in the nose. Such cases were often the focus from which epidemics had their origin; they were a great menace to the community. If the bacilli were found for more than a reasonable time it was quite possible that they were not virulent and a guinea-pig should be inoculated to test their virulence. It was often extremely difficult to distinguish between the true and pseudodiphtheritic bacillus; therefore, inoculations in guinea-pigs should be made more often. After considering the symptoms of the mild, moderate and severe cases of nasal diphtheria, Dr. Graham stated that the membrane which appeared in the nose in most cases of scarlet fever and measles was not commonly diphtheritic, especially if it occurred early in the disease; if it occurred later in the course of these diseases then it was often diphtheritic. The occurrence of albumin in the urine was suggestive of diphtheria. In a doubtful case, in a child with a nasal discharge which persisted, a single negative culture was not positive proof that the case was not diphtheritic. With regard to the report of return cases, he believed that future investigation would conclusively prove that they occurred more often than was generally believed. He asked if one was warranted in sending such cases out without inoculating guinea-pig to test the virulence of the bacilli. There was no doubt in his mind but that all such cases with diphtheria bacilli in the nose, all clinical evidences of the disease having disappeared, were possible sources of danger. Cultures should be taken from all children exposed to the disease; those showing the bacilli should be appropriately treated. It was unwise to admit into a hospital ward or institution any child who had a membrane in the nose or had a nasal discharge, unless a bacteriological examination showed the absence of the diphtheria bacilli. All visitors entering a children's ward should wear a sterilized cap and gown. All children who had been exposed to diphtheria should receive an immunizing dose of antitoxin. Physicians and nurses should always wear cap and gown when in the sick rooms; all nasal discharges should be destroyed, and antiseptic gargles and sprays should be used frequently by all coming in contact with the patients. Where the discharge was abundant and the nasopharynx was more or less blocked with secretions, these parts should be kept clean with warm, mild antiseptic solutions. The fluid entering a nostril should escape from the opposite nostril and the mouth and, for this purpose, a fountain syringe was better than a piston syringe. This irrigation should be employed once in four hours. In case of nasal hemorrhage, irrigation should be discontinued. The earlier antitoxin was given in a case of nasal diphtheria the better. In the case of an infant one should not wait until the diagnosis was confirmed by a bacteriological examination. To postpone the early use of antitoxin in a case of profuse nasal discharge, when there was a membrane present, he considered inexcusable. Should anaphylaxis influence in any degree the giving of antitoxin? Much literature had been accumulated on the theories, phenomena, lesions, and mode of death in anaphylaxis in the lower animals, but one had difficulty in finding much in the literature regarding the serious results of anaphylaxis in man. Ker of Edinburgh advised caution in the administration of antitoxin in the treatment of relapses. Data given by Funk from the Municipal Hospital in Philadelphia showed that the children in the scarlet fever and diphtheria hospitals were given one or more doses of antitoxin, and the curative doses were large ones. Rashes, joint pains, and slight febrile disturbances were occasionally seen; yet no symptoms of a serious nature were ever observed. The concentrated serum was safer inasmuch as a smaller measure by quantity was required. A conservative and safe method consisted in giving a small initial dose of antitoxin, about the usual immunizing dose, in all cases where a previous injection of antitoxin had been administered. If no immediate reaction was observed, it was safe in a few hours to administer the remedy in appropriate doses. If the case showed an immediate reaction, it was immune to the administration of the larger doses, which might be given with safety.

DR. ROWLAND G. FREEMAN of New York said that although anaphylaxis was a real danger he thought this fact should modify the use of antitoxin only by inducing one to use a very large initial dose, and so, if possible, avoid the danger which would exist in the administration of subsequent doses. Should there, however, be any indication for a subsequent dose the danger of anaphylaxis was so small in comparison to the danger of diphtheria that it should not in any way modify one's conduct. The occurrence of this phenomenon was certainly extraordinarily rare. The speaker could not recall a single case in his experience when such a reaction had occurred, although he mentioned two cases of infants who had received between 40,000 and 45,000 units in repeated doses with no bad reactions.

DR. MATTHIAS NICOLL, JR., said that the subject of Dr Graham's paper was one of great importance. He had not the slightest doubt that one of the chief reasons why, notwithstanding a very general use of antitoxin as an immunizing agent, little progress was being made in decreasing the number of cases of diphtheria, which statistics showed remained approximately the same year after year, was due, first, to non-recognition of many cases of more or less chronic nasal diphtheria, and, second, to inefficient quarantine of convalescents from the disease. It was not generally recognized how severe a case of nasal diphtheria might be, and very often was. The average practitioner was very apt to regard it as a mild infection generally running a sub-acute or chronic course. In infants and very young children, and especially when occurring as a complication of scarlet fever and measles, it was a very severe and frequently fatal disease, only a little less to be dreaded than the laryngeal form of diphtheria. He recalled four young children in adjoining beds convalescing from scarlet fever, all of whom succumbed to nasal diphtheria, which went on to sepsis or bronchopneumonia. Dr. Nicoll was thoroughly in accord with Dr. Graham's statement that antitoxin should be given in full doses as soon as nasal diphtheria was suspected without awaiting the result of cultures. With regard to local treatment, the piston sy-

ringe should be dispensed with, for it was liable to force infectious material into the Eustachian tubes and set up ear complications. He preferred the ordinary fountain syringe used under low pressure. For this operation the patient should be thoroughly wrapped up from shoulders to feet in a sheet, firmly pinned in place. A few drams of the solution should be introduced at first to remove the accumulated inflammatory products, and the patient then given a moment's breaching spell, after which the irrigation was to be continued until the nasal passages were free. By this method, practised every three hours if necessary, the detached diphtheritic plugs were very satisfactorily removed, as well as the accumulated mucopurulent material, which if left undisturbed served as a nidus for the growth of complicating organisms. Normal salt solution answered every purpose, and was to be preferred to the use of strong antiseptics. Dr. Nicoll showed photographs of how patients were wrapped at the Willard Parker Hospital, and the method of irrigation as there practised, together with specimens of typical nasal plugs removed in this way.

Dr. B. van D. Hedges of Plainfield, N. J., said that they were beginning to recognize in diphtheria much the same conditions as existed in typhoid fever; they had the diphtheria carriers as they had the typhoid carriers. The cases of nasal diphtheria were in a large measure responsible for epidemics of diphtheria, because they were so often unrecognized. In Plainfield they recently had a mild outbreak of diphtheria in one of the public schools. At the suggestion of the Board of Health, the school physician took cultures from all the supposedly well children and found one case of postnasal diphtheria which in all probability had been responsible for the spread of the disease. No doubt many outbreaks might be traced to such a cause.

Dr. Thomas S. Southworth of New York spoke of enlarged cervical glands as a symptom of nasal diphtheria. He thought this was a sign of considerable value, especially when the discharge from the nose was not very noticeable. He recalled such a case which came to him, undiagnosed, for autopsy a few years ago; in this particular case the membrane was in the nasopharynx largely, and not visible in the pharynx. It extended back in the nose and down to the level of the soft palate. This impressed him with the importance of enlargement of the cervical glands; wherever one found enlarged glands in the neck without apparent cause he believed it was worth while to examine the nasal secretion for the presence of the Klebs-Loeffler bacilli. Among the common types of nasal diphtheria was that seen in small children, the marantic children, in which there appeared a slight bloody discharge from the nares. This was a common type in the institutions with which he was connected in New York, and it was a type that frequently was overlooked by the house staff. Dr. Southworth said he could pick these cases out in children who were often not supposed to be sick. When he saw a chocolate colored discharge from the nose, if it was not due to some foreign body, it was almost invariably due to the Klebs-Loeffler bacilli. In many of these cases irrigation of the nose was not as applicable or productive of as good results as in the larger children. A mixture of much value in these cases consisted of stearate of zinc suspended in albolene; this made a cream that was very healing. It was often surprising how rapidly the discharge disappeared and with it, for some reason, the Klebs-Loeffler bacilli as well.

Dr. L. E. La Fétra of New York asked Dr. Graham what they did with those chronic cases of nasal diphtheria occurring in institutions in whose cultures there were found non-virulent diphtheria bacilli. Did they consider that such bacilli could become virulent in other children? Were these children allowed to run around the hospital with the diphtheria bacilli in their nose?

Dr. Edwin E. Graham of Philadelphia, replying, said that in those cases where repeated examination of the nasal discharge had shown the presence of the Klebs-Loeffler bacilli, but where the inoculation in guinea-pigs had shown these bacilli to be non-virulent, he always considered it legitimate to allow such children to go home and mix with other children. That was the policy he had followed.

Some Anatomical Features of the Child's Heart and Their Practical Application in Physical Diagnosis.—Dr. George Fetterolf and Dr. J. Claxton Gittings of Philadelphia presented this paper. Their work had consisted in making sections and dissections of the bodies of infants which had been injected with ten per cent. formalin solution and then frozen. It was found that the thymus gland was of greater size and extent than was usually recognized; in places it touched the trachea. Sudden death would result if the gland became even moderately enlarged. Delay in involution would extend the danger period. The upper median portion was deeply indented posteriorly by the left innominate vein, which lay immediately on the anterior surface of the trachea. Any increase in venous pressure might cause compression of the trachea by this vein, the latter being braced anteriorly by the thymus. This was a possible explanation of death of the young during anesthesia. If there was any truth in this theory, venesection would be indicated in such an emergency. The horizontal position of the heart in infancy was well exemplified; the heart occupied a large amount of space, reaching, at its greatest depth, from the sternum to the vertebræ. Bronchial breathing posteriorly in cases of enlargement of the heart or pericardium was easily explained by the pressure on the left lung. The right auricle lay directly in front of the right half of the left auricle but did not touch the chest wall. The appendix was the only portion which did. The blood from the inferior vena cava was directed upwards by the Eustachian valve and not to the left, as was commonly supposed. The foramen ovale lay in an almost horizontal plane, and was not vertical. The tricuspid orifice was practically vertical, and opened to the left and slightly forward. The bottom of the right ventricle was nearly on a level with that of the right auricle, and gravity played little if any part in the passing of the blood through the tricuspid orifice. The right ventricle constituted practically all of the heart which touched the anterior chest wall, and was slightly overlapped on each side by the right and left lungs. Posteriorly it was bounded by two structures, the left ventricle below and the root of the aorta above. The aortic sounds, therefore, at the level of the second costal cartilage must be heard through the medium of the conus arteriosus. The left auricle was a horizontal cylinder, lying at the extreme back of the heart and extending throughout the entire width of the base of the heart. The right end of the left auricle lay directly behind the right auricle; the left end behind the left ventricle. The mitral orifice lay in a plane approximately parallel to the anterior facies of the vertebral column at this level. The mitral and tricuspid orifices, therefore, lay in planes which were almost at right angles to each other. The arch of the aorta passed almost directly backward, and not from right to left. Pressure upon the greater azygos vein by a dilated heart was impossible; whereas pressure upon the pulmonary veins, especially the right, could occur with even moderate degrees of enlargement. This explained in large part the hydrothorax and pulmonary congestion which were seen in many cases of enlarged heart without signs of stasis in the systemic circuit. The relatively loud sound of the closure of the pulmonic valves in children as compared with the aortic might be due to the persistence of the thymus, as well as to the fact that the upper lobe of the

left lung did not cover the pulmonary artery. More important, however, was the difference in tension. From a correct conception of the position of the heart *in vivo* they drew conclusions as to the pathological anatomy in case of enlargement. Increase in size to the left would be due mainly to enlargement of the left ventricle; to the left and upward mainly to the left auricular appendix, and to a slight extent the left auricle; to the left and downward to the left and right ventricles. Enlargement to the right would involve mainly the right auricle and appendix, and to a lesser extent the right ventricle and the right end of the left auricle. The mitral, tricuspid, and aortic orifices and valves were practically contiguous structures, readily explaining the difficulty in distinguishing the murmurs produced in cases of double or triple lesions or leakage. The difference in physical signs over the right and left apices of the lungs was due to the fact that the trachea and right apex were contiguous structures. On the left side they were separated by the aorta, left carotid and subclavian arteries, esophagus, areolar and lymphoid tissue. The bronchial lymph nodes at the bifurcation of the trachea were situated above the heart, so that there was no good conducting medium through which bruits could be transmitted to the chest wall. The persistence of the thymus, which could exert pressure on the vessels as they arose from the arch of the aorta, might explain the bruit heard over the upper sternum with the head extended. Surrounded as were the bronchial glands by structures which would give a dull note, it seemed highly problematical that enlargement of the glands could be diagnosed by percussion. The sections afforded a clear demonstration of the position of the lobes of the lungs and emphasized the fact that physical signs in the lungs posteriorly, as high as the spine of the scapula, were produced in the lower lobes. Anteriorly, on the right, the fourth rib divided the upper from the middle lobe, while on the left any signs heard above the heart and in front of the anterior axillary line would denote that the upper lobe was affected.

Dr. David Bovaird, Jr., of New York said that the demonstration made by Dr. Fetterolf showed clearly that the curriculum in the medical colleges needed a new course of instruction. They were familiar with applied surgery, but what they now needed was a course in medical anatomy. He was delighted at having the privilege of seeing such splendid preparations. It was impossible to cover all the points brought out in this demonstration, but Dr. Bovaird said he would venture upon two. First, the relationship of the thymus gland to the innominate vein had been made very clear; it showed that the most direct effect of any enlargement of this gland must necessarily be pressure upon the left innominate vein. This was a vexed question that had been much discussed; if one accepted the mechanical theory of the effects of enlarged thymus gland, implying pressure upon the left innominate vein, one naturally would look for cyanosis, but cyanosis was absent. Cyanosis was almost always absent in the clinical conditions associated with enlargement of the thymus gland, and especially in the cases of sudden death. Secondly, he was interested in the demonstration of the relationship between the chambers of the heart, the left lower lobe of the lung and the pulmonary veins, pressure upon which might cause hydrothorax. The demonstration had been very helpful in clearing up points that had been very obscure, and especially helpful in explaining the effects of pericardial effusion in children. He was particularly interested in the physical signs at the base of the left lung when pericardial effusion in children was present. He had been much puzzled in following the physical signs which were interpreted to be the result of pressure upon the left lower lobe of the lung to find that they were often gradually replaced by the signs of fluid in the left pleura. The use of the aspirating needle under such conditions often showed that one had to deal with a case of hydrothorax upon the left side, the pressure upon the pulmonary veins having gradually led to serious effusion into the plural sac. These facts were clearly explained by the demonstration made. There were a great many other interesting points in the demonstration which he said he would like to touch upon, but time did not permit. They all were certainly indebted to Dr. Feterolf and to Dr. Gittings for their presentation of the subject.

Dr. Godfrey R. Piser of New York said that those who were engaged in teaching physical diagnosis to students should be specially indebted to the readers of the paper; it was worth while to come to Philadelphia to see such a demonstration. There were many anatomical variations brought out that were worthy of notice; for example, the relation of the lobes of the lung to the thoracic structures and to the chest wall. Some time ago he had occasion to need absolute and reliable information on this point and he had a great deal of difficulty in finding it; in fact, he had to study the body itself to get the data he needed. A little patient of his was to undergo a negative pressure thoracic operation and the data he obtained proved to be of great assistance to the operator. Therefore, he felt that he would go away tonight with a great deal of information and with many facts to study. He asked Dr. Fetterolf whether he found that these relations which he had described held true for older children, those of two and five years of age?

Dr. L. E. La Fétra of New York said that a beautiful demonstration had been given them of the relation of the heart to the chest wall and the occupancy of most of the chest by the heart anteroposteriorly. This explained what they saw in young children when evidences of dullness were obtained by deep percussion over the left side of the back. With regard to the early signs of pericarditis, was it the enlarged right auricle which gave the dullness in the fourth and fifth interspace? The demonstration showed that the dullness in the fourth right interspace was accounted for by the presence of the right auricle. This was a point that was very valuable, especially to those who were teaching students, as it confirmed the statement of Lee that the normal right auricle could be made out by percussion in this situation, and that when engorged it produced dullness in the third or even in the second right interspace.

The Frequency and Significance of Albumin in the Urine of Normal Children.—Drs. S. McC. Hamill and K. D. Blackfan presented this paper. The object in carrying out this study was to secure some definite knowledge as to the frequency of occurrence of albumin in apparently normal children and to see if there was any associated condition which might account for its occurrence. Their results showed that 28 of 124 children had occasional casts associated with cylindroids and 6 had cylindroids without casts. An albuminous body precipitated by acetic acid in the cold was associated with the casts in the majority of instances, and serumalbumin in quantities varying from a very slight trace to a trace was associated in five instances. In the 124 children albumin was found 110 times or in 88.7 per cent. Thirty-four children or 27.4 per cent. showed serumalbumin almost always associated with the so-called nucleoalbumin; 106 or 85.4 per cent. showed nucleoalbumin, in 30 instances in association with serumalbumin. The authors were inclined to believe from their experience with certain groups of cases, in which their examinations had included twenty-four-hour specimens and had been conducted over prolonged periods, that the percentage of these albumins present in the urines of normal children was much greater than these figures indicate. They did not find any associated conditions to account for the presence of the albumin, and they concluded

that the so-called nucleoalbumin was probably frequently present in the urine of every child and that it was of no clinical significance in the amounts in which they found it and that the serumalbumin present in the amounts indicated, even when associated with occasional casts and cylindroids, the product of a temporarily overtaxed kidney, resulting from variations in the habits of life of the individual which were often too slight to be recognized.

Dr. Henry Dwight Chapin of New York said that the paper read by Dr. Hamill was of very great value as confirming perhaps the opinion of some of those present, although they had not had such exact proof as he had given. Some years ago he made a study of infants with bodily disturbances which were followed by the presence of albumin and casts in the urine. Eighty-six pulmonary cases were next studied; they varied from a very mild to a very severe form of bronchitis and pneumonia; forty-nine of these showed a trace of albumin in the urine; thirty-two showed both albumin and casts. He then took a series of forty-five cases of general illness, none of them being selected; of these thirty-one showed the presence of albumin in the urine. It seemed to him that so far as infants were concerned any bodily disturbance might throw down albumin and casts; this had no significance in the prognosis or treatment; it was simply due, in his opinion, to some irritation to the renal tubules and was without any significance. The series of cases reported by Dr. Hamill were cases in health; whereas the ones he had studied were ill. Dr. Hamill's paper he considered a very valuable one and one that should be read at one's leisure.

Dr. John Howland of New York said that the studies presented by the readers of the paper were both of practical and theoretical interest; they showed plainly that albumin could be present in the urine of perfectly healthy children. They all realized that albumin, with or without casts, could be present in the urine from time to time, and that this did not necessarily mean nephritis. However, very valuable information could be obtained from a careful observation of these cases. Under ordinary circumstances one could not attach very much importance to the occasional presence of albumin in the urine. After diphtheria or scarlet fever, however, the presence of albumin in the urine might give them considerable concern. The theoretical interest attached to the question whether there might not be instances of alimentary albuminuria. It was possible to produce, as they well knew, an alimentary albuminuria in man or the lower animals by feeding with excessive quantities of albumin. Merlin was able to show the presence of a gelatinuria when gelatine was fed to dogs in large quantities; also that when white of egg was fed in large quantities this appeared in the urine. Others had been unable to determine the character of the albumin that appeared because chemical methods failed. Gideon Wells attempted to show it with experiments, but could get no evidence of the presence of any albumin but serumalbumin. It was presumable that the permeability of the intestines and kidneys in children was far greater than in adults. This was shown in experiments carried out with bacteria. The observations of Wile were interesting in that they showed that starch granules could be absorbed from the healthy mucous membrane of the intestine, traverse three sets of capillaries and then be excreted in the urine. Hecker had attempted to prove the presence of foreign proteins excreted in the urine of children with albuminuria; he used the precipitin test. He obtained a precipitate with the serum of an animal immune to the beef protein in about 25 per cent. of his cases. What he did, however, could not be accepted as conclusive evidence. It showed that albumin might be absorbed from the intestine and excreted by the kidneys. In this connection Dr. Howland thought it would be interesting to learn if such cases as Dr. Hamill had investigated could be prevented by a temporary diet containing no milk, eggs or meat.

Dr. Floyd M. Crandall of New York said that the paper read was one of great importance and was in line with what he had felt, that traces of albumin in the urine of children, as a rule, meant very little. He was surprised, however, at the frequency of such findings in investigations so accurate and so closely observed. They must prove of great value to the practitioner in interpreting conditions seen in everyday work.

Dr. Ward Bryant Hoag of New York wished to voice the sentiments already advanced, that there was an immense amount of work manifested in the papers presented. The work of Dr. Hamill was most interesting, but it brought up certain vital questions. How did one know that a patient having albumin in the urine had it left over as the sequel of a previous unrecognized acute nephritis? Having albumin as a sequel of an acute unrecognized nephritis, what were the possibilities of another acute attack? Admitting the possibilities of the above first question, could they pronounce these patients "normal?" He reported a case in point. A boy born in the tropics suffered almost constantly because of malaria. He came to New York City when about six years of age, when Dr. Hoag first saw him. At that time he apparently was a healthy child. He was given a pair of roller skates and became over-heated and sat down on the sidewalk. After a week or so Dr. Hoag was called in to see him and found him edematous from head to foot with a large amount of albumin in the urine. Whether this was an acute attack the result of the inordinate use of the roller skates, and exposure, or an exacerbation of an old nephritis contracted at the time of his malarial infection, he could not say. However, the nephritis all cleared up except for a trace of albumin. Now the boy was ten years of age, but there was remaining a distinct trace of albumin in his urine. There were no casts or epithelium, other than squamous, present; the question was, what were the possibilities in regard to this boy's future? Was this trace of albumin, together with his history, a menace to his future? What would happen if at the end of ten or fifteen years he applied for life insurance? Would he be accepted as a good risk? To-day he apparently was perfectly healthy, robust and active. But was he normal?

Dr. Elias H. Bartley of Brooklyn said that these examinations of the urine of children were certainly very helpful to them; they frequently had occasion to examine the urine of children and frequently they found albumin present. The finding of a trace of albumin in the urine he regarded as having no pathological significance; it often appeared after active play of children, after exposure to cold, etc. With regard to the nucleoalbumin Dr. Bartley said he had always regarded that as a normal constituent of the urine of both children and adults; this was a normal secretion from the epithelial cells of most of the mucous membranes. What was called mucus in the urine was present in almost all urines and contained practically no mucin. Therefore the term mucus was rather misleading and confusing. The term now generally employed was "mucoid substance" and this was made up of nucleoalbumin. Nucleoalbumin was almost always present in the urine in traces, and very often in quantities large enough to be precipitated by 50 per cent. acetic acid. The slightest irritation of the mucous membrane or of the epithelial cells lining the kidney tubules, such as by a strongly acid urine, or crystals or uric acid or oxalate of lime, would produce this. There was no constant relation between the presence of casts and albumin in these cases. The casts as a rule were hyaline and not granular. They should regard the latter as positive evidence of a disintegration of the kidney structures with a granular deposit

in the hyaline material. Hyaline casts alone were of little significance, being of little more significance than cylindroids. It was very difficult to distinguish between cylindroids and hyaline casts. Therefore, he believed that the presence of cylindroids, a few hyaline casts and traces of albumin in the urine of children should be regarded as the result of a slight irritation of the tubular epithelium, and they were of no other significance.

A Case of Rabies.—Drs. Alfred Hand, Jr., C. Y. White, and John Reichel of Philadelphia reported this case. A girl, five years of age, was bitten on the face by a mad dog; the wounds were cauterized and healed promptly. Seventeen days later she developed fever, became restless and excited and three days later was admitted to the Children's Hospital. Meningitis was excluded by lumbar puncture and there were no signs of pneumonia, typhoid fever, or endocarditis. The temperature was 105° until a few hours before death, when it rose to 109.4°. The pulse ranged from 180 to 200. The case illustrated the susceptibility of childhood to rabies, the shortness of the period of incubation when the face or hands were bitten, because of the nerve supply, the extension of the virus being along the nerve trunks and the symptoms appearing when the central nervous system was reached. Three stages of the disease were described, which were more or less sharply defined: the premonitory, with restlessness, moderate fever, and sensory disturbances in the scar; the excited stage, with high fever, attacks of mania intermitting with periods when the patient was rational, painful spasms of the laryngeal and pharyngeal muscles and the emission of strange sounds; the paralytic, with stupor deepening into coma. The autopsy in the case reported showed only secondary changes such as cloudy swelling in the liver and kidneys and moderate congestion of the lungs. The meninges showed no exudate and cultures were sterile. Smear preparations from the cerebellum showed Negri bodies in the cells of Purkinje. An emulsion of the cerebellum injected into two rabbits was followed by the death of one twenty-five days later, the Negri bodies being easily demonstrated in the hippocampus major.

Pathological Society of Philadelphia.

At a stated meeting held September 22 Dr. F. D. Weidman presented a specimen of "Aberrant Pancreas in Capsule of the Spleen." The condition was discovered incidentally in the course of a complete histological study of the tissues from the body of a woman dead of septic endometritis. At autopsy a nodule was found that was thought to be a supernumerary spleen, and this as well as tissue within the substance of the spleen was found to contain acini and islands of Langerhans. Such deposits have been found in parts of the wall of the intestine, but this is the first recorded instance of deposition in the spleen. The condition is attributed to the inclusion of remains of germ cells. Dr. D. B. Pfeiffer exhibited a specimen of "Mixed Tumor of the Breast." The tissue was obtained from a woman 73 years old who presented a freely movable tumor of the breast, without involvement of the nipple or invasion of adjacent glands, and thought to be nonmalignant. After ablation of the breast the growth was found to present typical appearances of sarcoma. Recurrence in the regional lymphatic glands taking place, these were removed at a later date, but they were found to present typical appearances of carcinoma. Reexamination of the original growth now disclosed appearances of sarcoma in some situations and of carcinoma in others. Dr. D. J. McCorthy presented a specimen of "Pachymeningitis Hæmorrhagica Interna Complicating Fracture of the Skull." The patient had been a man with a history of alcoholic excess and of a fall some time previously. Toward the last there developed symptoms of Korsakoff's disease. Death took place suddenly from acute dilatation of the heart, and autopsy disclosed an unsuspected extensive fracture of the base of the skull, principally on the left side, with the remains of a pachymeningitis and a leptomeningitis on the right side, and a recent hemorrhagic pachymeningitis on the left side. Dr. D. B. Pfeiffer presented a communication entitled "Mixed Tumors of the Kidney." He reported two cases in infants, one with a growth involving the kidney and obtained after death, and the other with a growth in the region of the kidney and removed surgically. The first contained striped muscle tissue in addition to other structures, while the second contained a miscellaneous collection of tissue. These growths are perhaps to be explained as representing the inclusion of two or more varieties of undifferentiated germ cells.

College of Physicians of Philadelphia.

At a stated meeting held November 2 Dr. S. Weir Mitchell presented a communication entitled "Concerning Nervous Disturbances Following Surgical Operations and Anesthesias." He pointed out that there were to be considered disorders of the mind as well as neurasthenic states either developed or made manifest in the sequence of surgical intervention. Several factors are operative in this connection. Among these are the operation itself, with the resulting traumatism and loss of blood, and shock and the effect of the anesthetic. Some patients experience relief from preexisting nervous symptoms for a time following the operation, in a proportion of instances, however, with subsequent return. Dr. James G. Mumford read a paper entitled "Postoperative Psychoses." From a study of a number of cases operated on seven or eight years previously he found that in a certain proportion nervous disorders were presented that could be attributed to several influences, including functional loss, the sense of deprivation of a part, the withdrawal of an internal secretion. Experimental observation has shown that anesthesia and surgical operation are attended with definite cellular changes in the nervous system. Dr. J. Chalmers Da Costa read a paper entitled "The Diagnosis of the Postoperative Psychoses." He considered the several forms of mental disorder observed following operations, as well as the factors concerned in their development, and he dilated at considerable length on their differential diagnosis. Septic infection is an important etiologic factor, as also are fear and fright. Postoperative insanity is comparable to puerperal insanity. Dr. E. N. Brush of Towson, Md., discussed "Postoperative Insanities." He pointed out that there is no type of mental disorder distinctively a sequel of surgical operation. Heredity is the most significant etiologic factor. Infection and intoxication also are to be considered in this connection. Sometimes of course the mental phenomena are only exaggerations of a previously existing conditions. The discussion was continued by Drs. Howard A. Kelly, Edward Martin, Francis X. Dercum, John K. Mitchell and Chas. K. Mills.

Digestive Troubles and Epileptic Crises.—A. Rodiet gives observations on one hundred women at the Saint-Yvon Asylum. Often diarrhea or constipation is noted at the time of the convulsion. Of ten epileptics seven had digestive troubles preceding the attacks. The menstrual period is also favorable to the occurrence of the attack. In some cases the patients fail in appetite for from one to three days before the crisis. The symptoms noted most frequently in the author's cases were painful digestion, retarded salivation, constipation, and diarrhea, acute dilatations of the stomach, gastrointestinal atony, and urine rich in skatol and indican show the presence of gastrointestinal autointoxication in connection with the attacks. These poisons acting on a predisposed organism cause the crises. If these symptoms are lessened the attacks will also be decreased in number.—*Le Progrès Medical.*

Books Received.

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THE STORY OF THE BACTERIA. By T. MITCHELL PRUDDEN, M.D. 12mo; cloth; 232 pages; illustrated. G. P. Putnam's Sons, New York.

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PRACTICAL POINTS IN NURSING, FOR NURSES IN PRIVATE PRACTICE. By EMILY A. M. STONEY. 8vo; cloth; 495 pages; illustrated; $1.75. W. B. Saunders Co., Philadelphia, Pa.

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PRIMITIVE PSYCHO-THERAPY AND QUACKERY. By ROBERT MEANS LAWRENCE, M.D. 8vo; cloth; 276 pages; $2.00 net. Houghton Mifflin Co., Boston, Mass.

TASCHENBUCH DER THERAPIE. Von Dr. H. T. SCHNIRER. 32mo; cloth; 450 pages; M., 2. Curt Kabitzsch, Würzburg, Germany.

DIE HAUTLEIDEN KLEINER KINDER. Dr. S. JESSNER. 8vo; paper; 64 pages; M., 1. Curt Kabitzsch, Würzburg, Germany.

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CHRONICLES OF PHARMACY. By A. C. WOOTTON. 8vo; cloth; Vol. I, 428 pages; Vol. II, 332 pages; illustrated. Macmillan & Co., New York.

A HANDBOOK OF THE SURGERY OF CHILDREN. By E. KIRMISSON. 8vo; 822 pages; cloth; illustrated. Oxford Medical Publications, London, England.

THE CAUSE AND CURE OF COLDS. By WILLIAM S. SADLER, M.D. 12mo; cloth; 147 pages; illustrated; $1.00 net. A. G. McClurg & Co., Chicago, Ill.

MATERIA MEDICA AND THERAPEUTICS FOR NURSES. By JOHN FOOTE, M.D. 12mo; cloth; 194 pages. J. B. Lippincott Co., Philadelphia, Pa.

MANUAL OF HISTOLOGY. By G. N. STEWART, M.A., D.Sc., M.D. (Edin.), D.P.H. (Camb.). 8vo; cloth; illustrated; 1,064 pages; $5.00 net. William Wood & Co., New York.

ORTHOPEDIC SURGERY. By ROYAL WHITMAN, M.D. 8vo; cloth; 908 pages; illustrated. Lea & Febiger, Philadelphia, Pa.

GYNÉCOLOGIE OPÉRATOIRE. Par HENRI HARTMANN. 4to; paper; 498 pages; illustrated; 18 frs. G. Steinheil, Paris, France.

PRACTICAL MEDICINE SERIES. Vol. V (Obstetrics). 12mo; cloth; 230 pages. Edited by JOSEPH B. DE LEE, A.M., M.D. The Year Book Publishers, Chicago, Ill.

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MITTEL UND WEGE ZUR FÖRDERUNG DER KÖRPERFLEGE AUF DEM LANDE. Von Kreisarzt Dr. H. BERGER. 8vo; paper; 40 pages; M., 1. August Hirschwald, Berlin, Germany.

WORLD CORPORATION. By KING C. GILLETTE. 8vo; 240 pages; illustrated. New England News Co., Boston, Mass.

INTERNATIONAL CLINICS (a quarterly). Edited by HENRY W. CATTELL, A.M., M.D. 8vo; cloth; 311 pages; illustrated. J. B. Lippincott Co., Philadelphia, Pa.

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PATHOGENIC BACTERIA AND PROTOZOA. By PARK and WILLIAMS. 8vo; cloth; 670 pages; illustrated. Lea & Febiger, Philadelphia, Pa.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of December 3, 1910.

	Cases	Deaths
Tuberculosis Pulmonalis	634	139
Diphtheria	264	24
Measles	142	4
Scarlet Fever	226	10
Smallpox	—	—
Varicella	135	—
Typhoid Fever	53	15
Whooping Cough	42	4
Cerebrospinal Meningitis	3	10
Malarial Fever	—	—
Totals	1,499	206

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, during the week ended December 2, 1910.

PLACE.	DATE.	CASES.	DEATHS.
CHOLERA.			
Arabia: Mascat	Oct. 19-25	7	7
Austria-Hungary	Oct. 16-29	34	..
China: Hankow	Oct. 16-22	1	..
India: Bombay	Oct. 19-25	..	1
Calcutta	Oct. 2-8	..	15
Madras	Oct. 15-21	..	8
Negapatam	Sept. 17-30	..	29
Rangoon	Oct. 9-15	..	1
Indo-China: Saigon	Oct. 4-10	2	2
Italy		..	..
Total for Italy Nov. 17-23: Cases 44, deaths 5.			
Provinces—Caserta	Oct. 30-Nov. 5	16	18
Girgenti	Oct. 30-Nov. 5	3	..
Lecce	Oct. 30-Nov. 5	10	2
Naples City of Naples	Oct. 30-Nov. 5	..	..
Palermo	Oct. 30-Nov. 5	8	4
Rome—Sezze	Oct. 30-Nov. 5	3	1
Terracina	Oct. 30-Nov. 5	3	1
Salerno	Oct. 30-Nov. 5	4	..
Japan: Kobe	Oct. 17-30	156	83
Kyoto	Oct. 1-15	150	..
Nagasaki	Oct. 17-23	1	..
Osaka	Oct. 23	802	..
Including cases previously reported.			
Java: Batavia	Oct. 9-15	8	4
Korea: Phong Yang	To Oct. 2	70	40
Philippine Island: Manila	Oct. 9-15	2	1
Provinces—Ambos Camarines	Oct. 9-15	12	7
Batangas	Oct. 9-15	48	34
Bulacan	Oct. 9-15	16	15
Ilicos Sur	Oct. 9-15	54	34
Nueva Ecija	Oct. 9-15	18	13
Rizal	Oct. 9-15	3	2
Tarlac	Oct. 9-15	10	6
Tayabas	Oct. 9-15	10	8
Siam: Bangkok	Sept. 12-Oct. 8	82	82
Straits Settlements: Singapore	Oct. 2-8	1	1
Turkey in Asia: Bagdad vilayet	Oct. 24-30	191	177
Beirut	Oct. 30-Nov. 5	7	3
Saloniki	Nov. 18	..	1
Trebizond	Oct. 24-30	15	9
And vicinity.			
Zongouldak	Oct. 24-30	14	18
And vicinity.			
YELLOW FEVER.			
Venezuela: Caracas	Oct. 30-Nov. 12	3	1
PLAGUE.			
Brazil: Bahia	Aug. 20-Sept. 30	23	23
Rio de Janeiro	Sept. 26-Oct. 30	3	1
India: Bombay	Oct. 19-25	..	12
Calcutta	Oct. 2-8	..	7
Kurrachee	Oct. 19-25	4	5
Rangoon	Oct. 9-15	..	3
Indo-China: Saigon	Oct. 10-16	3	..
Peru: Callao	Oct. 1-31	5	4
Mollendo	Oct. 4-18	..	Present
Portugal: Lisbon	Oct. 24-Nov. 2	6	1
Turkey in Asia: Adalia	Oct. 6	62	..
Venezuela: Caracas	Oct. 20-Nov. 12	11	9
SMALLPOX.			
Brazil: Bahia	Aug. 20-Sept. 30	84	58
Rio de Janeiro	Sept. 26-Oct. 30	12	..
Canada: Ontario—Ottawa	Nov. 13-19	1	..
Nova Scotia—Halifax	Nov. 6-19	8	..
Ceylon: Colombo	Oct. 9-15	6	..
China: Shanghai	Oct. 17-23	..	10
Egypt: Cairo	Oct. 22-Nov. 4	..	1
France: Paris	Oct. 23-Nov. 5	4	..
Germany, general	Oct. 30-Nov. 5	1	..
India: Bombay	Oct. 19-25	..	1
Calcutta	Oct. 2-8	..	1
Madras	Oct. 15-21	..	2
Indo-China: Saigon	Oct. 3-16	19	14
Japan: Kobe	Oct. 23	1	..
Malta: Valetta	Oct. 16-Nov. 5	7	..
Peru: Salaverry	Oct. 26-Nov. 1	1	..
Portugal: Lisbon	Oct. 24-30	47	..
Russia: Libau	Oct. 30-Nov. 6	2	..
Moscow	Oct. 16-29	18	21
Riga	Oct. 24-Nov. 5	16	..

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Original Articles.

THE EHRLICH-HATA PREPARATION, No. 606.*

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NEW YORK,

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WHILE for hundreds of years many believed the doctrine that infectious diseases might be caused by microorganisms, only during the latter part of the last century did Pasteur and Koch, by their scientific investigations, prove the etiology of many of these diseases and thus through their researches opened up new fields in therapy. The aim of therapeutists was to introduce into the system some chemical or organic substance which would be fatal to microorganisms without at the same time harming the tissues and organs of the body.

For some considerable time Prof. Paul Ehrlich of Frankfort directed his efforts toward arresting the growth of bacteria in the body, destroying them or neutralizing their toxins, by some chemical substance simpler than the antibodies generated in the system. In other words, he endeavored to produce an artificially constructed chemical antitoxin. After repeated systematic and carefully planned experiments he succeeded in producing several chemical substances which have a special affinity for microorganisms, destroying them without at the same time affecting the tissues and organs of the host. These antitoxic substances, because affecting the parasites and not the organs and tissues of the host, are called parasitotropic.

If with the introduction of a single dose of a certain amount of a substance into the system of an animal suffering from an infectious disease it is possible to annihilate completely the microorganisms causing the disease, without seriously injuring the tissues or organs of the animal, an epoch-making discovery has been made and an ideal remedy obtained—a "therapia sterilisaus magna," as Ehrlich designates it.

Ehrlich has already succeeded in producing a number of chemical substances which have a specific action on certain microorganisms in the body. Of these chemical substances atoxyl, arsacetin, and arsenophenylglycin are best known. It was especially the specific effect of the last mentioned (arsenophenylglycin "418") on the trypanosome the cause of sleeping sickness and its wonderful effect on the spirochetes in syphilitic apes, that tempted the trial of this substance on luetic paralytics and led to the test of its influence on the intensity of Wassermann's reaction. Accordingly, Prof. Konrad Alt (*Münch. med. Woch.*, 1910, lvii, p. 561) of Uchtspringe made some practical investigations with this remedy (418) on paralytic idiots and epileptics who gave a previous history of syphilitic infection, and obtained excellent results, although certain unpleasant complications resulted from the injections; congestion of the face, a rise of temperature, restlessness, motor irritation, and slight paralysis of the lower extremities, a scarlatinaform eruption, without desquamation or renal effects were some of the unpleasant symptoms that followed. A permanent lesion never resulted. Of 140 cases treated with arsenophenylglycin none exhibited optic nerve or renal disturbance, complications which usually followed the use of atoxyl and arsacetin.

Because of these nerve and renal disturbances following their use, atoxyl and arsacetin have now been discarded. In witness of the specific effect of a single concentrated dose of arsenophenylglycin, a number (16.6 per cent.) of the patients with a previous history of syphilitic infection and who exhibited a positive Wassermann reaction before the injection, showed a permanent negative reaction thereafter. In 27.3 per cent. of the patients the reaction gradually became weaker. In some paralytics and epileptics the clinical symptoms improved rapidly. The drug influenced the lecethin metabolism and produced a leucocytosis.

Alt says that "in a large number of cases a rapid, astonishing, and lasting improvement followed." "It will require years of observation and many more tests for a positive assurance of a permanent effect."

By far superior, being more certain and more potent in its action and with less after effects than any of the above-mentioned preparations, is the Ehrlich-Hata "606" preparation. A new arsenic preparation, a derivative of arsenobenzol prepared by Dr. Bertheim, a coworker, in Ehrlich's laboratory. This preparation, $C_{12}H_{12}O_2N_2As_2$ 2 (HCl), a synthetic product, is a dioxydiamido arsenobenzol dihydrochloride and produced according to the following chemical formula:

It is made from the benzol ring, C_6H_6, by synthesis replacing an atom of hydrogen by a variety of chemical molecules thus

C_6H_6 Benzol,

$C_6H_5 - As = As - C_6H_5$ Arsenobenzol.

$OH - C_6H_4 - As = As - C_6H_4 - OH$
Dioxyarsenobenzol,

$OH \quad\quad OH$
$>C_6H_2 - As = As - C_6H_3<$
$NH_2 \quad\quad NH_2$
Dioxydiamidoarsenobenzol,

or

$C_{12}H_{12}O_2N_2As_2$ = Pure dioxydiamidoarsenobenzol.

By adding 2 molecules of HCl we have

$C_{12}H_{12}O_2N_2As_2$ 2 HCl, a salt dioxydiamidoarsenobenzol dihydrochloride.

As Dr. Hata, an assistant in Ehrlich's laboratory, conducted the animal experiments with this new

*Read before the Medical Society of the Borough of Bronx, November 9, 1910.

remedy under Ehrlich's supervision, and in order to simplify the long chemical name it was called Ehrlich-Hata preparation 606. The 606 denoting the 606th preparation produced.

With this new preparation relapsing fever in rats and mice was cured with a single injection; syphilis in rabbits and apes was also cured. Julius Iversen of St. Petersburg, in the fall of 1909 (*Münch. med. Woch.*, April 12, 1910, No. xv), injected this substance into fifty-two patients suffering from relapsing fever in whom the spirilla of Obermeier were found in the blood. In every one of these patients, after a single injection of 606, the spirilla disappeared from the blood and a critical drop in the temperature took place. The disappearance of the spirilla took place within 4 to 10 hours, never to return again. In other words, in 92 per cent. of the cases there was no return of the fever and the patients were permanently cured of their infection by a single dose. Aside from the pain at the site of the injection, no bad effects were observed in the optic nerve, kidney, or other organs of the body. He says that "in 606 we have a remedy which with mathematical precision is capable of annihilating the microorganisms in the living blood of patients suffering from relapsing fever without affecting the host, and which by its wonderful results proves it to be in fact a 'therapia sterilisans magna.'"

Ehrlich and Hata found that while arsenophenylglycin (418) had more affinity for the trypanosome of sleeping sickness, 606 or dioxydiamidoarsenobenzol exhibited essentially more affinity for the spirilla and spirochetes. After Ehrlich and Hata had studied the results on syphilitic infected rabbits and apes and had made its wonderful effects known, Prof. Alt and Dr. Hoppe in the fall of 1909 conducted investigations for the purpose of studying the therapeutic effects of this new preparation on human beings suffering from syphilis. Before trying it on patients two physicians voluntarily subjected themselves to the injection of 606 for experimental purposes. Excepting severe pain and a swelling over the injected area no untoward toxic symptoms followed its use. The pain following the injection was so severe in some of the earlier cases that morphine was required to relieve the suffering.

Some little skill and time were required in the preparation of the powder for hypodermic or intramuscular injections and an analgesic was added in order to mitigate the severe pain at the site of introduction. The pain was found to be due to the alkalinity of the solution, which in the first experiments was prepared as follows: 0.3 gm. of the yellow powder was mixed with 10 c.c. of sterile water, then enough sterile normal hydroxide of soda solution was added until only the least quantity of the powder remained undissolved (this requires from 2 to 3 c.c. of NaOH). Then more sterile water is added to make 20 c.c. Of this mixture 10 c.c. is slowly injected in each gluteus muscle. The pain following this injection lasts sometimes twenty-four hours, and is very excruciating at times. Although abscess never developed, a slight rise of temperature was noticed. No albumin or sugar ever appeared in the urine. Hoppe and Fischer of Uchtspringe found that the elimination of arsenic from the system after the injection of 606 was slower than when atoxyl, arsacetin, or arsenophenylglycin were used. This is an important point, for it meant a longer time in the system and, therefore, more continuous action on the spirochetes.

The pain of the injection was a great objection. 606 is an acid salt, not free from poisonous effects and is not suitable for subcutaneous use, even in small doses, in the acid solution, as it is poisonous and not safe, for it influences the action of the heart unfavorably. In a superalkaline state 606 is soluble and in this strongly alkaline state it was injected by Alt, Schreiber, and Iversen, but the injection was always attended with severe pain. It was then found that the more neutral the solution the less likely would local irritation arise.

L. Michaelis (*Berl. klin. Woch.*, July 25, 1910), in order to mitigate the pain of the injection, tried to introduce the preparation into the system in a neutral state, but as the substance in a neutral state is not soluble, the injection could only be made with the greater part of 606 in suspension. He found that if an aqueous solution of the dihydrochloride of 606 is simply neutralized by the addition of normal NaOH the substance is precipitated in lumps and irregular masses; if next the substance is dissolved with an overabundance of normal NaOH and then neutralized with an acid, the precipitate falls in a very fine powder, instead of masses and lumps, which is easily held in suspension and easily adapted for injection. Prepared in this way he is convinced that this mixture produces less disagreeable subjective symptoms than the strongly alkaline injection.

It was shown that the clinical results follow more quickly with intravenous injections of the preparation, and as no pain is experienced when used in this manner it was thought to be more advantageous. Schreiber of Magdeburg, and Hoppe of Uchtspringe (*Berl. klin. Woch.*, Aug. 1, 1910), prepared the solution for intravenous injection in the following manner:

In a graduated cylinder of 200 c.c. capacity, with a narrow neck and ground glass stopper, are placed 10 to 20 c.c. of sterile water, then 0.3 to 0.5 gram of 606 is put in and a few drops (0.3 c.c.) of methyl alcohol* added and well shaken until a clear solution is obtained. To this solution for each 0.1 gram of 606 used about 1.0 c.c. normal NaOH is now added and then enough 0.8 per cent. NaCl solution is poured in till the fluid reaches the line 180 on the graduated cylinder. This is again vigorously shaken for some time until a clear solution results. Should it not become clear after some time, one can then cautiously add a few more drops of normal NaOH solution and then finally fill the graduated cylinder to the 200 c.c. marked line with NaCl solution. This solution if carefully prepared is clear; it is then poured into a beaker glass from which it can easily be drawn into a syringe. The intravenous injection, though painless, is followed by chill, vomiting, and fever, and as the arsenic is more quickly eliminated from the system by this method its effects are not so lasting. On account of these objections W. Wechselman (*Deutch. med. Woch.*, Aug. 11, 1910) prefers to give 606 subcutaneously and prepared in a modified form from that made by Michaelis. 606 with 1-2 c.c. of commercial soda solution is dissolved in a mortar; if then drop by drop glacial acetic acid is added a fine yellowish paste is precipitated. This precipitate is dissolved in from 1-2 c.c. of distilled water and neutralized by the addition of 0.1 normal soda solution or 1 per cent. acetic acid, according to a carefully ascertained reaction with litmus paper. This gives about

*As the substance in its present form is more readily soluble in water, the addition of methyl alcohol is not necessary.

Results of Treatment with the Ehrlich-Hata Preparation.

8 to 10 c.c., which is injected midway between the scapula and spine, after previous disinfection of the skin.

Schreiber of Magdeburg (*Münch. med. Woch.*, July 5, 1910), Henerich Loeb of Mannheim (*Münch. med. Woch.*, July 26, 1910) have also prepared the substance with methods akin to that of Wechselman, but their injections were always painful.

An improved method of preparing the substance and one which is not followed by any lasting pain, the method I used in my first two cases, is the one which Michaelis has now modified and prefers to the one he first used. It is as follows: 25 c.c. of water, which has just been boiled and is still hot, is poured into a wide-mouthed glass receptacle of 50 c.c. capacity. Then 0.6 gm. of 606 is dropped into the water and dissolved by rubbing and constantly stirring with a glass rod. When all of the substance has been dissolved 6 c.c. of normal hydroxide of soda solution is added until the resulting precipitate is fully dissolved. Now 3 drops of ½ per cent. alcoholic solution of phenolphthalein is added, which turns the liquid red. We then add normal acetic acid until, with constant stirring, the reaction is neutral, as is evidenced by the discoloration of the phenolphthalein. The resulting neutral liquid holds the preparation in suspension and is of a light yellow color. Then in order to prevent a possible acid reaction, normal hydroxide of soda is again added drop by drop until a very faint red color of the phenolphthalein reappears. This fluid is now poured into a sterile flat receptacle, from which it can easily be aspirated into a syringe and then is injected subcutaneously between the scapulæ.

Michaelis claims that as long as such brilliant results have followed the intragluteal injection of the neutral suspension of 606, where the injected fluid remains as in a storehouse, he prefers this storehouse method to that of the intravenous injection. The substance was heretofore injected into the glutei muscles. After several trials of the injection into the subcutaneous tissues without any severe local irritation, he uses this method now regularly. Sometimes for several hours some little pain is felt but soon disappears under hydropathic treatment. Michaelis observed that occasionally on the third day patients again experienced a severe but evanescent pain, though accompanied without any sign of inflammation. In the first two cases injected by me with this method the pain was insignificant and elicited little complaint. If injected into the gluteus the large and lasting infiltrate (probably a fibrosis caused by the caustic action of the sodium hydrate) impedes walking and sitting. This is obviated by injecting it into the interscapular region. By massaging the skin over the site of injection, the fluid is distributed over a large area and the large surface which the mass offers plays an important rolê in the rapidity with which absorption can take place. I, too, have found this a most convenient place for the introduction of the substance, and the massaging of the surface seems to me a good procedure.

My attention was called by Dr. Meltzer to a modification in the technique of injecting 606 which he suggested, and which I used in several cases with gratifying results. Drs. Meltzer and Auer found that if adrenalin is injected into the lumbar muscles of animals, absorption takes place much quicker than when injected into the gluteus muscle, as was evidenced by the sudden rise in the blood pressure. Furthermore in observations made by Dr. Meltzer with 606 on man he found that the injection into the lumbar muscles gave very little pain and caused no other trouble.

For the injection into the lumbar muscles, one grasps the skin and inserts the needle of the syringe (the best syringe for this purpose is the "Record" syringe of 20 c.c. capacity) about one inch above the crest of the ileum until we reach the resistance offered by the tense fascia over the ileocostal muscles, and then slant the same and push it further into the muscle headward parallel to its fibers and then slowly inject the solution. The patient lies on the stomach with a sand bag under him in order to bring the lumbar muscles more prominently forward. This is a great improvement in injecting the substance, as patients experience hardly any pain whatsoever.

A quicker and simpler method of preparing the preparation is that described by Alt (*Münch. med. Woch.*, Aug. 23, 1910), although the resulting fluid is slightly alkaline. He places about 30 to 35 small glass beads into a slender, graduated glass cylinder with a narrow neck and ground glass stopper of about 100 c.c. capacity, and pours in 10 c.c. of distilled water and then the preparation. By energetic shaking for a short time all of the substance will be completely dissolved. To this solution, in order to make it alkaline, we add for each 0.1 gm. of 606, 0.5 c.c. of normal hydroxide of soda solution and shake again energetically for about one-half minute. There results a clear, yellow-colored, slightly alkaline solution which can be diluted by the further addition of distilled water. As the preparation is not always equally soluble it may be necessary, in order to obtain the clear effect, to add a little more or less of the hydroxide of soda. One sees that this preparation requires less normal hydroxide of soda solution and for this reason is more advantageous as it gives less pain when injected in this slightly alkaline state.

Alt believes an alkaline solution of the preparation prepared by the cautious addition of normal NaOH to be the best and most effectual, and at the same time least poisonous. Before coming to this conclusion he and his coworkers made many experiments on animals and human beings, in order to determine what form of solution and what method of incorporation of the substance into the system was least dangerous and at the same time most effectual. The addition of alcohol, the use of phenolphthalein as an indicator, a superalkaline solution of the substance and retitrating with acid, acid solutions, suspensions, etc., were all tried and discarded. He particularly states that the introduction of an acid solution was given up because it produced poisonous symptoms. Even in small doses it had an unfavorable influence on the heart's action.

In a neutral or not sufficiently alkaline solution the action is not as effectual because in this state too little of the substance reaches the circulation. Therefore, from his experiments and experience he came to the conclusion that only an alkaline solution obtained by the cautious addition of normal NaOH solution was the best and most highly to be recommended. From the great number of cases he as well as others have used it in, this alkaline solution, if properly prepared, seems to produce less pain than when other forms of solution are used. Prepared in this way a smaller quantity of fluid is used and a smaller induration follows. This is of special advantage in injecting into children.

I must say this method of preparing the substance appeals to me. It is much more rapidly prepared, and what is of great advantage, less difficult than the other methods, while at the same time is exact and requires less paraphernalia.

In two children, one of nine years and the other of twelve years, both suffering from syphilitic interstitial keratitis, this method was used; both experienced very little pain for the first twenty-four hours, which soon disappeared, however; the swelling was of little consequence and gave no inconvenience.

Kromeyer (*Berl. klin. Woch.*, Sept. 12, 1910) used a 10 per cent. emulsion of the preparation in liquid paraffin. He takes 3 gm. of 606 and rubs it up in a sterile mortar with a small quantity of liquid paraffin and gradually adds more paraffin until it is evenly and finely mixed. It is then poured into a glass stoppered bottle of 50 c.c. capacity, and more liquid paraffin added until it reaches the 30 c.c. mark. Each cubic centimeter (1 c.c.) of the emulsion contains 0.1 of 606. This emulsion must be well shaken before using. It must be kept from the light. A very large cannula must be used and it must be injected very slowly. For an institution where large quantities are used, perhaps the preparing of a large amount in this manner may be of advantage. But for obvious reasons for the general practitioner it has its drawbacks.

Up to date the amount of 606 which has been injected has varied according to the different reports of different clinicians. Some have had excellent results with a single dose of 0.3 gm., while others believe that 0.4, 0.5, 0.6, or even 0.8 gm. should be used.

Ehrlich believes that for every kilo of weight of the body 0.005 gm. should be used and for the present would be a good rule to be guided by. Thus for a patient weighing 60 kilos, or 120 lb., $60 \times 0.005 = 0.3$ gm., or about 5 grains, would be sufficient. Clinicians who have used this remedy agree that 0.3 gm. should be the minimum amount injected into an adult. The preparation being so powerful and containing about one-third arsenic, care must be exercised in increasing the dose. It is not an indifferent remedy and in certain cases may be attended with some danger. Only the accumulated experience of many practitioners, and after the remedy has had a fair trial in hundreds of cases, will we be able to settle upon the exact dosage for individual cases. Some claim that the earlier the syphilis the larger the dose required, 0.4-0.5 gm., while 0.3 gm. is ample in the late stages. Severe cases seemed to react with the same degree of certainty when only 0.3 gm. were injected as when larger doses were used. My two first cases of late and severe forms responded wonderfully well to 0.3 gm. doses.

From the accumulated reports already published one cannot dispute the fact that by a single dose of the preparation desperate and seemingly hopeless cases not only can be saved but have been saved and their health restored in a very short time. There may be occasionally a case where the spirochetes are not entirely annihilated by a single dose; such may eventually require a second injection; but thus far, of the thousand cases injected very few have been reported in which a second injection was required.

Prof. Ehrlich, in a circular letter dated October 25, 1910, states that the permanent effect depends upon the size of the dose and the method of application, also on the nature of the disease. He states that the intravenous method is better adapted and more intense and quicker for a complete sterilization or annihilation of the spirochetes.

The application is simple and in selected cases without danger and more agreeable for the patient. Alt and Schreiber give as a minimum amount intravenously, 0.3 gm., but more often 0.4 or 0.5 gm. while others give larger amounts, 0.7-0.8 gm. Iversen gives an intramuscular injection, 0.3-0.5 gm. two to three days after an intravenous injection of 0.5 gm., so that in the whole he utilizes 0.8-1.0 gm.

Ehrlich further states that of great importance is the fact that the intravenous injection can be repeated in two to three weeks, especially if the therapeutic effect was not efficient or if after four weeks the Wassermann reaction is still positive. From reports received, it seemed to him that the intravenous injections for permanent effect is superior to all other methods of application.

He strongly advises in the primary lesion to give an intravenous injection of 0.5, and at the same time thinks it advisable, in order to obtain a real sterilization, to institute an energetic local treatment, *i.e.* extirpation or cauterization of the initial sore.

The therapeutic effects of the remedy when introduced intravenously become apparent sooner, but presumably are not as certain because the arsenic is too rapidly eliminated from the system. Alt believes perhaps in the future the method of using the preparation will be to give one intravenously in order to annihilate at once the spirochetes and then follow it up with a second dose after four weeks or more by an intramuscular or subcutaneous injection to anticipate any relapse that may occur, provided, of course, that we can be assured that all of the arsenic has been eliminated from the system. He even states further, instead of a second dose of 606, we may instigate the mercurial treatment again. With the intramuscular or subcutaneous method the therapeutic action proceeds more gradually and lasts for a longer time, for in the muscles or under the skin the preparation is stored, so to speak, and forms a depot as Michaelis describes it, from whence the remedy is gradually absorbed into the system.

Alt (*Münch. med. Woch.*, July 19, 1910) had occasion to autopsy two cases dead from some other causes and found that a considerable part of the preparation injected into the muscle still remained, proving that it remains unchanged for a long time at the site of injection. In obstinate syphilitic cases the slow elimination of the arsenic of 606 is of great value, because the action of the drug is continued over a longer period of time, consequently it would seem more rational to use the subcutaneous or intramuscular method in preference to the intravenous.

Fischer and Hoppe (*Münch. med. Woch.*, July 19, 1910), in examining the urine of patients, found that the arsenic excreted essentially quicker and more completely after intravenous injection and that the elimination was ended by the second or third day. They also observed that in a patient who was autopsied 14 days after an injection for some other cause than the results of syphilis no arsenic was found in any of the organs of the body except in the gluteus muscle, where it was injected and where quite an amount was found, a good illustration of the fact that it remains here in storage for some time. Another case autopsied on the 36th day also showed some arsenic in the gluteus muscle. These

findings are suggestive that more certain results are obtained by the intramuscular or subcutaneous injections.

Outside of the body 606 acts very feebly on parasites. Its highly curative properties in the economy must be due to some changes in its composition brought about by the tissues or fluids of the animal organisms.

In explanation of the specific action of this preparation, Ehrlich assumes that the protoplasm of the *Spirochæta pallida* possesses specific atom groups (chemoreceptors) which link themselves with the fixed atom groups of the chemical substance of 606, thereby extinguishing the life of the parasite. In the elimination of the spirochetes from the organism there may be two processes at work. One a direct annihilation of the parasites, the other an increased phagocytosis. As is well known, phagocytosis is the process principally involved in the production of a natural cure; 606 injected into the body is followed by a considerable degree of leucocytosis, which is very suggestive that the phagocytes play a considerable part in the production of a cure.

Wechselman states that the remedy has a striking and distinct characteristic action on the indurated and compact connective tissue enclosing the spirochetes. Soon after an injection this compact tissue commences to disappear and the spirochetes which were found before the injection have strikingly diminished in number and then gradually disappear altogether. The sclerotic tissue is absorbed entirely and deep ulcers heal over with healthy granulations.

The quickened results are seen in the soft ulcerative forms of the disease while those which are longer in reacting to the remedy are the hard and indurated pathological lesions. This he explains from a study of the histopathological structures of the lesion.

If the infiltrated mass or the metamorphosed connective tissue walling in the spirochetes contain blood vessels as is the case in soft and ulcerative lesions, the spirochetes can readily be destroyed by the preparation brought to them through the circulating blood and a breaking down and absorption of the pathological tissues follows. If, however, the blood vessels are thrombosed as a result of an endarteritis, the remedy cannot be readily transported by the blood to the spirochetes lodged in these masses, but is conveyed by the leucocytes which attach themselves to these pathological structures. In this way can be explained the late disappearance of the hard papular syphilides of the skin and other indurated masses.

From the numerous reports already published the effects of this remedy, especially on the primary and secondary lesions, are simply marvelous. The rapid absorption of the indurated sore and disappearance of mucous patches and the breaking down of condylomata as well as the rapid annihilation of the spirochetes have been observed by all who have tried this remedy. These changes commence and are apparent to the naked eye already after the first 24 hours.

From the results of the cases on record, especially those cases that were not influenced by mercury and iodide, it is more than evident what great therapeutic virtue Ehrlich's preparation possesses. Occasionally there is an increase in the eruption after the injection (Herxheimer's reaction). This is explained as being an indication of the action of the remedy and is attributed to an irritative effect on the spirochetes and perhaps an indication that the dose was not large enough for a fatal effect on the parasites.

As regards the effect on Wassermann's reaction in most cases a diminution in the intensity of the reaction takes place in about four days, some respond earlier and some later. In some cases it only becomes negative after forty or fifty days.

The diversity in time may depend on the difference in the rapidity of the absorption of the remedy. Some trivial after effects are noticed, such as slight rise of temperature with a faster pulse beat; it lasts for three or four days and then drops to normal. The temperature may go in some cases up to 104° Fahr. or more, and is probably due to the absorption of the toxins of the degenerated tissues brought about by the remedy. In the absence of all physical signs accompanying this temperature this seems a rational explanation of the sudden rise. A slight erysipelatous rash may appear on the skin at the sight of injection, but disappears within a day or two. I have not experienced any abscess or necrosis of the skin. These can be avoided by careful asepsis and injecting subcutaneously and not into the skin. No other symptoms develop either in the heart, circulatory system, or digestive tract. When the remedy was not contraindicated in the thousands of cases injected abroad no toxic symptoms have been reported.

So rapidly does the remedy act when injected in the early stages of the disease that as early as after the first day papilla disappear and the roseola becomes paler. The infiltrated masses gradually commence to melt away, so to speak. On the third or fifth day condyloma absorbs and glands become smaller.

In six to twelve days the symptoms are mostly all gone and nearly all the patients gain in weight. This seems to be a characteristic effect of the remedy. Not only do they all increase in weight, but the whole general condition, physical and psychical, improves even on the day of injection. Wechselman thinks that this early feeling of well being may be attributed to the excitation effects of the arsenic. I observed this marked psychical change in the second case I treated. From a depressed melancholic and suicidally inclined individual he became brighter, more cheerful, and happier, which alone was a wonderful achievement.

There have been a few cases reported (Bohac and Sobotta (*Wien. klin. Woch.*, July 28, 1910) in which alarming symptoms arose, such as retention of urine, traces of albumin, loss of patellar reflex, obstipation and rectal tenesmus; they were probably cases in which Ehrlich's remedy was contraindicated or the injection was not properly administered. Ehrlich distinctly and emphatically warns against using it in persons afflicted with any other organic lesions, especially of the liver, kidney, heart, or circulatory system (aneurysms). In the case of the tuberculous, the senile, and heavy drinkers, the remedy should not be used.

In syphilis neonatorum and in children under one year of age the remedy is dangerous, for in these the organism is so overwhelmed with spirochetes that when they are annihilated or killed by the preparation a large amount of endotoxin is generated, the effects of which these young infants in their debilitated condition are unable to withstand and as a consequence will mostly all succumb to its influence. For this reason it was advised to inject the

syphilitic nursing mother and through the milk influence the spirochetes in the syphilitic infant. Two such cases are reported from abroad (*Münch. med. Woch.*, Aug. 30, 1910) with excellent results, although no arsenic was found in the milk of the mother. Ehrlich's explanation was that 606 produced antibodies in the mother and these were conveyed through the milk and thus affected the parasites in the system of the infant.

Opportunity was afforded me to test and confirm this remarkable result. A nursing mother with an infant four weeks old exhibiting the skin manifestations of lues was admitted to the hospital. Both mother and father denied infection and neither presented any manifestations of the disease, although in both a positive Wassermann-Noguchi reaction was obtained. The reaction was also positive in the infant and spirochetes were obtained from several of the skin lesions of the child. The mother was injected with 0.3 gm. of 606 from one of the first tubes I received. Forty-eight hours after the injection about 45 c.c. of the milk from the mother was given to a reliable chemist for examination for arsenic and, contrary to the reports from abroad, traces of arsenic were positively found in the milk.

The lesions on the infant were examined every other day for spirochetes and always found. Wassermann reaction constantly positive in the mother and also in infant until its death ten days after the mother was injected. The skin lesions in the infant did not improve and on the tenth day a temperature of 103° Fahr. developed with exitus. No autopsy allowed. In this case the injection in the nursing mother did not influence the syphilitic infant. How are we to explain this? Maybe the dose was too small or perhaps, as Dr. Meltzer explains, the mother had no manifestations of lues except the positive Wassermann reaction. She therefore did not develop sufficient reaction products from the injection into her system of 606 to be transmitted to the system of the infant with the milk. The arsenic found in the milk had no effect on the spirochetes in the baby. This interesting fact would tend to confirm the theory that it is not the arsenic alone that is directly concerned in the annihilation of the spirochetes, but that the combination of it with the other molecules becomes changed by the tissues and juices of the animal economy into a destructive acting substance which has a special affinity for the invading protozoa.

The precise purpose for which 606 is injected is the complete annihilation of the spirochetes the cause of the disease. We cannot help being sanguine that it accomplishes this. Of the immediate success, many observers can now speak with the authority of adequate experience. Before we can judge of its sustained effects or ultimate results a close study and scrutiny of every case in which the remedy has been used must be made months or even years after in order to speak with confidence of a positive cure. The mere amelioration of the symptoms is by no means all that is necessary to allow us to speak with confidence of a cure. The question of a positive cure can only be satisfactorily answered after the lapse of a long period of time.

What we know thus far from the reports of numerous clinicians who have investigated the therapeutics of this remedy is that in 606 we have a means that without injury to the human body has a specific effect on syphilis and as regards the rapidity and power of action is far superior to any yet known and that we can with one injection or dose accomplish as much, if not more, than several weeks of mercurial injections or inunctions can. It is a remedy which is a wonderful weapon in the treatment of syphilis. The specific action of 606 or mercury on the spirochetes affords conclusive proof that the *Tryponema pallidum* is the etiological factor in syphilis. The spirocheta is not a blood parasite. It flows but once through the circulatory system and then lodges in the tissues, where it either causes reactive changes or becomes imbedded for a longer or shorter time without producing any clinical changes.

It is likely that a single injection of 606 does not reach all the spirachetal foci in the body, and this would explain an occasional relapse. Such recurrence, however, does not detract in the least from the wonderful action of the drug. If up to the present the prescribed dose does not annihilate at once the spirochetes from the syphilis infected body the future may show that perhaps larger doses are indicated or perhaps repeated doses will be necessary. The fact is that in already over 10,000 reported cases no real organic disturbance has been found which could be attributed with certainty to the remedy; it seems obvious that perhaps larger doses or a modified preparation may annihilate at once all the spirochetes without any toxic effects on the system.

A reinjection is allowable and efficacious from the observations made on some of the relapsed cases, because the impression prevails among syphilographers that these relapses are due to the encapsulated spirochetes becoming free. A perusal of the literature shows Ehrlich's remedy to be an excellent and remarkable remedy against syphilitic skin and mucous membrane lesions. On lesions of the internal organs in many cases one injection has shown the same theapeutic effect that is accomplished only by a prolonged mercurial or iodide of potassium course. Of special note is the rapidity with which curative effects take place in malignant cases. Naturally cicatrical changes are not effected. Lost nerve tissue is not replaced by the remedy. Tabes and paralysis are not essentially influenced by it. On account of the rapidity with which it acts and because the treatment is shorter it is far superior to the older methods.

The principal indications for the remedy are malignant syphilis and obstinate affections of the mucous membranes

We can with confidence proclaim the remedy as giving results which are decidedly more satisfactory than those attainable by any other methods. The opinion is gradually becoming widespread and will soon become general that Ehrlich-Hata's preparation is the most powerful antisyphilitic remedy known to-day. One cannot but admit it to be such after observing its rapid action and wonderful effect on the various luetic manifestations, especially such as resisted every other known method of treatment.

It has proven itself harmless to the organs of the body from the thousands of cases already observed and some investigators who have treated many cases go so far as to say that even in diseases of the kidney or the nervous system where arsenic is contraindicated no harmful effects were observed. Through the rapid absorption of the indurated sore and disappearance of mucous patches and breaking down of condylomata as well as the rapid annihilation of the spirochetes there is no doubt that the communicability of syphilis will be lessened. It is obvious if such brilliant results as have been re-

ported continue to be verified lues will in time become exterminated. What remedy promises so much and has done so much already?

The introduction of dioxydiamidoarsenobenzol into our armamentarium has added a drug which has been the means of saving unnumbered lives and restoring to many that enjoyment of health which would otherwise have been denied them.

I have chosen such cases in which the older methods of mercury and iodide of potassium treatment were not efficacious. My personal experience with 606 therefore has been limited because only such cases were selected which did not respond to or were not benefited by other methods. In only one case did I inject 606 in the secondary stage. They are presented as illustrations of the promptness and rapidity with which the remedy acts and what influence it exerts on the resolution of the pathologico-anatomical structures of the disease. Of special note are the first four cases, where mercury and iodide of potassium failed. In these it was astonishing to see the improvement that already occurred on the third or fourth day.

Case I.—H. S., 24 years of age. Visceral syphilis. Contracted initial sore in March, 1907. Was treated by various physicians until June, 1907. From 1907 for three years received hypodermic injections of mercury. Symptoms, a large and painful mass in region of gall bladder with an enlarged liver and enlarged spleen. Exploratory laparotomy showed the tumor to be a gumma about the size of a closed fist and the liver studded with grumatous infiltration. The wound had nearly entirely healed when he was turned over to me for injection with 606; 0.3 gram was injected on September 4.

September 9 marked diminution in tumor mass was evident.

September 14, size of tumor diminished fully an inch from side to side. Liver markedly retracted from the abdominal wall.

October 13, mass entirely gone, gained 9 pounds; Wassermann still positive. November 3, Wassermann weak.

Astonishing and seemingly incredible is

Case II.—H. P., 36 years of age. Case of Dr. John Bullinger. Malignant syphilis. Contracted initial sore in June, 1907, followed by papular eruption. September, 1907, sores on neck and extremities appeared. December, 1907, jaundiced with an enlarged liver and rapidly losing weight. Epiglottis swollen and infiltrated. There followed rapidly ulcers on soft palate, tonsils, and epiglottis; slight improvement under mercurial treatment. June, 1909, relapses of ulcers in larynx and destructive changes in epiglottis. Gumma in the nasopharynx. Left wing of the nose gradually being destroyed by an ulcerative process; ulcerative sores on lips with marked destruction of tissues. In August, 1909, patient was admitted into the German Hospital. He left in October, 1909, very little improved. During all this time he received the most active treatment. He reentered the German Hospital in November, 1909, and remained there until September 5, 1910, when he entered the Lebanon Hospital to be injected with 606.

A large ulcer, 2x3 inches, the result of a broken down gumma, existed over the left malleolus. Another soft gumma on the instep ready to break down. On the upper third of the tibia a hard and painful gummatous mass was developing. A number of small and deep ulcers of punched-out appearance on cheeks, nose, and lips all covered with a nasty, yellowish discharge. (See illustration.) A large defect about the size of a 5-cent piece on the right side of the nose, the result of a broken down gumma and covered with necrotic tissue. He had received all the well-known methods of treatment—mercury in every form, enesol, atoxyl, and arsacetin, without any effect. He was rapidly getting worse. He could not swallow on account of the ulcers in his mouth and on his tonsils. Weight, 99 pounds; gradually failing. Wassermann strongly positive. Injected 0.3 gram on September 7, 1910.

September 14, an astonishing difference in the patient is apparent. The broken down gummas are healing up and covered with healthy granulations. Ulcerations and pustules have disappeared, the face looks clean. Patient is able to walk. The pains have left him. The gumma on the tibia almost entirely disappeared.

By October 20 patient gained 22 pounds. The large and deep ulcer on malleolus almost completely healed and all lesions on the face cured. (See the illustration.)

October 24, complained of slight pain over upper portion of R. tibia, where probably a commencing new gumma is forming. Reinjected October 24 with 0.5 gram. October 28, pain over R. tibia entirely gone. Still a slight swelling.

November 7, all external manifestation entirely healed. Wassermann still positive, but five times weaker than in the beginning.

Exceptionally effective was the remedy in the following two cases of congenital syphilitic interstitial keratitis.

Case III.—George L., age 9 years. Case of Dr. R. Denig. Syphilitic interstitial keratitis of both eyes. Was under the care of Dr. Denig of the German Hospital for five months without any benefit resulting from the usual antisyphilitic treatment. He was not able to open his eyes on account of the intense blepharospasmus. He received 0.15 gram 606 September 21, 1910. Two days later we were all astonished at the improvement. The blepharospasmus was gone, the eyes looked whitish, the infiltration and vascularization less. September 29, eyes absolutely free from injection. October 3, boy discharged from hospital (Bellevue). October 17, absolute cure of his eye lesions. Wassermann still positive October 10; October 23, still positive.

Case IV.—Estelle G., age 12 years. Case of Dr. John Howland of Bellevue Hospital, also one of congenital syphilitic keratitis of right eye. Was treated by inunctions and mercury injections with hardly any improvement.

September 21, 0.15 gram 606 injected. Two days later patient has no shield over the eye. Inflammatory symptoms had nearly entirely subsided. Infiltration decidedly less. September 25, 1910, improvement still continues. October 5, still some slight injection at the nasal side, but the eye looks white and is free from inflammation, tearing, and blepharospasmus. October 17, entirely well. October 10, Wassermann-Noguchi weaker. The boy for five months could not open his eyes on account of the photophobia and two days after the injection of 606 he could see and keep his eyes open. The girl for two months could not open her eye and she also two days after could open the eye without any effort.

Exceedingly interesting because the results were exactly opposite to the two cases published in the German Literature (Taege and Duhot) (*Münn-*

chener med. Woch., August 16, *Münchener med. Woch.*, August 30) is

Case V.—Mrs. D., age 28. A mother nursing an infant four weeks old, who exhibits the manifestations of congenital lues. Running from the nose. Pustular eruptions. Desquamation on palms of the hand and soles of the feet. Mucous patches on the lips, mouth, and around the arms. Mother and father both deny infection and show no evidence of lues. Yet a Wassermann-Noguchi reaction was positive in father, mother, and infant. From the skin lesions on the child spirochetes were found.

October 6 the mother was injected with 0.3 gram 606 to see the effects on the infant through the milk of the mother. Forty-eight hours after the injection the milk of the mother was subjected to a careful chemical examination and arsenic found. (Dr. Oefele.) This is contrary to Duhot's case (*Münch. med. Woch.*, August 30). The infant did not improve. Spirochetes continued to be found up to the tenth day after the injection into the mother, when exitus of infant took place. October 10, Wassermann-Noguchi still positive in the mother. As the mother had no manifest lesions the unsuccessful result might be explained by the fact that sufficient antibodies were not formed when 606 was incorporated into her system, which could be transmitted to the child through her milk.

Case VI.—R. S., age 25 years. Initial lesion three and a half years ago. Received active treatment for a long time with mercurial injections. Was admitted to the hospital with a large indurated mass in the gluteal region about the size of a closed fist and another smaller gumma over the saphenous opening on the thigh. There was an ulcer the size of a 25-cent piece over the hard gumma, which was covered with a nasty and foul discharge; this had existed for many weeks. Injected with 0.4 gram 606 on October 9. One week after the gumma in front of the thigh was soft and half the original size. The hard gumma over the gluteus was melting away and sloughs and necrotic tissue were being rapidly thrown off. October 22, cavity still discharging soft and degenerated tissue. November 1, cavity filling up with healthy granulations. November 3, Wassermann still positive. The patient gained 10 pounds during his stay in hospital.

Case VII.—Charles L., 38 years of age. Case of Dr. Lilienthal of Bellevue Hospital. Initial lesion twenty years ago, was treated by inunctions. Nineteen years ago fell and sprained his ankle. March, 1910, fell and a swelling gradually commenced to appear around his left ankle. It was twice the natural size. Patient could not move joint on account of swelling and pain. The prominent points of the ankle could not be made out. *X*-ray picture showed thickening of os calcis with probably deposits of new bone or gummatous formation. Injected with 0.50 gram 606 October 12. One week after there seems to be already a diminution in size of joint. Pain diminished. October 25, marked diminution perceptible and all the prominent landmarks of the joint can be made out. *X*-ray picture shows absorption of surrounding mass. November 7, pain has entirely disappeared. Patient can walk without cane. Has perfect function in joint. Feels very much better. All infiltration around joint and in tendons disappeared. Walked over a mile without any pain.

Case VIII.—Mr. M., age 41 years. Initial lesion twelve years ago; had active mercury and iodide of potassium treatment for the past three years. Periostitis of both tibiæ. Several indolent ulcers covered with nasty smelling discharge had existed for over a year, which did not heal in spite of all previous treatment. Injected, October 17, 0.45 gram 606. October 25, no more discharge or odor from the ulcers. Look healthy and are rapidly filling up with granulations. November 9, entirely healed. Patient says he has not felt as well in ten years. Has gained 20 pounds in three weeks.

Case IX.—Alice L., 9 years of age, was born with vesicular eruption; both mother and father give a luetic history. When two years of age child became hemiplegic. The lower extremity almost recovered, while the upper extremity became atrophied. Up to two years ago the child was fairly intelligent, but since then became almost idiotic. During the last year has lost her hearing to a considerable extent. During the last three months nose became extremely sore with a discharge of a foul smelling material. In the beginning of October the patient's nose became flattened and a typical saddle nose developed. Wassermann-Noguchi strongly positive. Injected, October 24, 0.3 gram 606. October 28, nose ceased discharging and foul odor gone. Child seems a little more bright and hears better, takes notice of surroundings, and answers when talked to. November 7, Wassermann-Noguchi still positive.

Case X.—O. S., age 44. Case of Dr. J. Bullinger. Infection 18 years ago. Active inunction treatment in German Hospital. No other symptoms until about five years ago, when ulcerations appeared in his throat. He had pain and difficulty in swallowing. Again inunctions and later injections of salicylates. All symptoms disappeared. About three years ago recurrences of ulcerations in throat, dyphagia, pain, and hoarseness. Iodide and mercury have very little effect. Two years ago heavy infiltrations in his tongue and hard palate increased hoarseness and pain on swallowing, loss of flesh. When seen before injection patient was very much run down from loss of sleep; has great deal of pain in throat and neck; turning of head is painful; attacks of spasmodic cough at night lasting often an hour or longer. Patient dreads to eat, as he can swallow only with difficulty, massage often being necessary to facilitate the first few swallows to pass his inflamed throat. It is almost impossible for him to swallow water alone. Status on day of injection: mucous membrane of post-pharyngeal wall nasal space, roof of hard and soft palate thickened and ulcerated, uvula ulcerated laterally, tongue base and sides swollen and granular infiltration, larynx covered with ulcerations and edematous. Only small edematous stump remains of epiglottis. Injected October 29 0.45 gram 606. In the evening patient was already able to partake of eggs, coffee, and bread, which he swallowed without pain or spasm. Next day swallows water without any trouble, all pains have left him. Nine days after injection the swelling of all parts has disappeared. Throat looks clean and mucous membrane has lost its angry redness and infiltrated appearance. Small area of larynx still covered with whitish exudate. Soft palate much shrunken. No more swelling on tongue, but still covered with spots of whitish exudate. Both cords are still thickened. Patient's voice is much clearer; has gained two pounds in weight. Wassermann-Noguchi still positive.

Case XI.—Mrs. E., aged 45. Midwife. Infected with chancre on thumb of right hand in September, 1909, followed by lymphangitis and adenitis. Gen-

eral adenitis after several weeks. Roseola and sore throat followed. During February, 1910, gumma appeared on back of tongue and in region of right tonsil and soft palate. October, 1910, nose became sore and discharged mucoid material. Has pains in all of the limbs. Nocturnal headaches, soreness, and discharge from nose. On left half of tongue several gummata, one the size of small hickory nut. The others smaller. The anterior one nearest tip commencing to break down, leaving an ulcerated area. Tongue swollen and thickened. Cannot roll it around in the mouth. Had received mercury and k.s. for weeks without any effect. Injected November 4, 0.5 gram 606 in lumbar muscles, according to Meltzer's method. Immediately patient experienced the most excruciating pain, which necessitated an injection of morphine. The technique in this case was faulty in that the needle must have penetrated through the muscle and the fluid injected in the connective tissue underlying it instead of in the muscle itself. However, after three days pain had subsided. There was no swelling. Rapid absorption must have taken place from the clinical picture presented, for after the first twenty-four hours the pains in her head had entirely disappeared. The pains in her limbs, also the discharge from the nose, were less. The gumma on the tongue did not inconvenience the movement. She felt better except the severe pain over the site of injection. By the end of the sixth day, November 10, you could not see the ulcerative gumma on the tongue, it had entirely disappeared. The tongue was freely movable. The other gumma had nearly entirely disappeared. All her pains in the face and limbs had dispeared. There was still though a slight sensitiveness over the lumbar region. As regards the clinical manifestations she was entirely cured in one week. Wassermann positive at end of one week.

Case XII.—Mrs. L., age 25. Noticed in the beginning of October a rash all over the body except face. No history of initial lesion. Typical copper-colored macular eruption. In September had pains and headaches with sore throat. Wassermann, November 4, strongly positive. Injected November 6 0.5 gram 606 into ileocostal muscle. Patient experienced almost no pain whatsoever except that produced by the needle. Was free from pain and swelling, except a slight soreness in the back. On November 8 roseola paler. On November 11 roseola still paler and hardly perceptible. Feels very well. This is the only case with secondary lesions that I injected. She was injected according to the method suggested by Dr. Meltzer and experienced no pain and no swelling following the same. As regards the rapidity with which absorption is taking place, the time elapsed is too short to report the effects on the Wassermann reaction.

Case XIII.—William D., age 30. Chancre ten years ago—treated only one week. Four years ago patient had a mass size of pear on right shoulder which broke open and discharged pus. Has had a swelling on knee below tuberosity of tibia size of small hen's egg. About a year ago patient noticed a swelling on inner side of left thigh, which gradually increased in size, was hard and red; swelling broke down and discharged pus and left an ulcer the size of a 50-cent piece. Status on day of injection, November 7, 1910: Gumma on right shoulder. Gumma below patella over the tuberosity of tibia size of small hen's egg. Ulcer on inner side of left thigh covered with a nasty discharge. Injected 0.5 gram 606 according to Meltzer's method. No pain, no swelling—he was free from pain for three days. On November 10 he complained of severe pain in lumbar region when he bent his back. Tumor on left knee smaller. Ulcer smaller and filling up with healthy granulations. Indurated gumma on shoulder practically gone. Wassermann still positive.

The method of injecting 606 into the ileocostal muscles as suggested by Dr. Meltzer leads me to believe that with this method we have a means by which the pain is eliminated, if injected properly. The needle must be inserted into the muscles between its surrounding fascia and not over or under it into the connective, as was done in Case XI.

My experience with the injections has been that of the three—Wechselman's neutral suspension subcutaneously injected, Alt's alkaline also subcutaneously, and Meltzer's with Alt's alkaline solution intramuscular (ileocostal) injection—the latter seems to give the least pain of all. As regards comparing the rapidity with which absorption takes place, as would be evidenced by the quicker disappearance of lesions and the effects on the Wassermann reaction, sufficient time has not elapsed in these last three cases for me to express an opinion. Further observations in other cases that are being made will give sufficient data to come to more definite conclusions on this point.*

To Geb. Ob.-Med. Rath Prof. Dr. P. Ehrlich of Frankfort; to a Member of Honor of the Dutch Red Cross Society and Honorary Life Member of the Lebanon Hospital, and to Dr. S. Flexner of the Rockefeller Institute I wish here to express my best thanks for their kindness in supplying me with tubes of this preparation. To Dr. S. J. Meltzer of the Rockefeller Institute for his valuable suggestions and to Dr. Noguchi for making the Wassermann-Noguchi tests I also desire to acknowledge my indebtedness.

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INTUSSUSCEPTION OF THE APPENDIX.

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About one year ago I had the opportunity to observe and to operate upon the following case: B. F., four and one-half years of age, was admitted to the pediatric service of Dr. Koplik, Mount Sinai Hospital, June 22, 1909. The patient's illness began suddenly about three months before admission with severe abdominal cramps which recurred two or three times a day and bore no relation to his meals. These attacks continued with increasing frequency and persisted up to the present. There never was any fever nor vomiting. His bowels moved at least once a day; the feces were normal in appearance, and it is particular to note that blood was never found in the passages.

*Since receiving the proof of this paper for correction I have had the opportunity to use the intravenous method in two cases. The solution injected was made according to Schreiber's method (*Münch. med. Woch.*, No. 39, 1910), and outside of nausea, vomiting, and abdominal pain, which followed about fifteen minutes after the injection, and a slight rise of temperature which showed itself about four hours later, no untoward symptoms developed. The patients experienced absolutely no pain at site of injection, and appeared absolutely well the next day. As only a few days have elapsed since the injections were made, the report of the results on the clinical lesions are left for another occasion.

The physical examination showed a rigidity of the entire abdomen, especially marked over the lower half of the right rectus; there was slight, movable dullness in both flanks; the pain was not localized, and the tenderness was most marked in the umbilical region. No mass was palpable, prob-

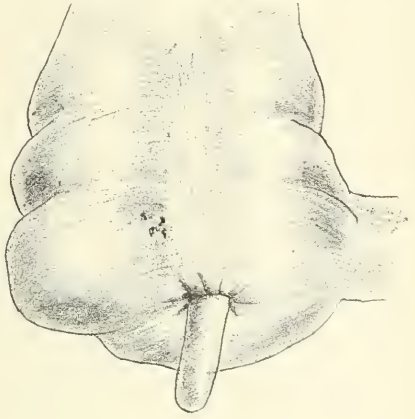

Fig. 1.

ably due to the excessive rigidity of the abdominal muscles. Rectal examination was negative. On the day following his admission distinct visible peristalsis was observed during an attack. He was kept under observation for the next few weeks, during which no change whatsoever was noted. The child felt exceedingly miserable during an attack, but between the attacks was to all appearances perfectly well.

On July 21 he was examined under anesthesia, and during complete relaxation of the abdominal muscles there was to be palpated in the right hypochondrium a mass about the size of an egg which moved with respiration. On July 24 there occurred an unusually severe attack of pain, necessitating the administration of morphine; after this attack a trace of blood was found in the stool.

He was transferred to the surgical service and operated upon July 27. Prior to operation I ventured the opinion that we might deal in this case with a chronic intussusception. Through a short Kammerer incision the mass previously mentioned was brought out of the abdomen and found to be the cecum. The appendix projected for a distance of about half an inch, from a cuplike depression formed by a much thickened cecum. It was recognized as an appendicocecal intussusception and steps were taken to desinvaginate it. After considerable difficulty this was finally accomplished and the appendix removed in the manner usually employed at the hospital (deligation and cauterization). The abdominal wound was closed by layer suture.

The boy reacted promptly and ran a smooth course for seven days, when the house surgeon dressed him for the first time; finding apparently primary union, he removed the silk cutaneous stitches. The child was very obstreperous and during straining burst the entire wound wide open, with resulting prolapse of a large mass of intestines. These were replaced and the entire wound resutured in layers. The child was in considerable shock, but recuperated nicely. Primary union resulted and he was discharged cured August 24.

In approximately 5,000 cases of appendicitis in Mount Sinai Hospital, during the past eleven years, this is the first case of intussusception of the appendix that has occurred. Further evidence of the rarity of the malady is shown by the fact that in the literature I have been able to collect but twenty-four additional cases. In reviewing the reported cases I was struck by the uniformity of the clinical signs, both subjective and objective. In fact the clinical picture, as I have evolved it from the reported cases, is, I believe, sufficiently definite to enable one to make a diagnosis of intussusception of the appendix with a fair degree of probability.

Before reciting the clinical picture of the disease I shall briefly summarize the reported cases.

Monsarrat (*Liverpool Medico-Chirurgical Journal,* Vol. XI, page 68): Child four years of age. History of repeated attacks of severe abdominal pain for one month; between the attacks the child felt perfectly well. At operation there was found a large intussusception, involving the ileum, ileocecal valve, and colon, which was easily reduced. However, there still remained a small mass which was found to consist of an invagination of the appendix into the cecum; all of the appendix but one-eighth inch of the tip was invaginated. Recovery after desinvagination and appendectomy.

Connor (*Lancet,* 1903, Vol. II, page 600): Boy, nine years of age, who had a number of attacks of abdominal pain during the month preceding operation. A large mass, consisting of the readily reducible invaginated ileum, was found; but there still remained a small mass which on examination was found to be the invaginated appendix. Entire appendix was invaginated; on this account desinvagination was impossible and resection of the cecum was necessary. Recovery.

Colman and Kellock (*Transactions Clinical Society,* London, Vol. XXX, page 227): Boy, eight

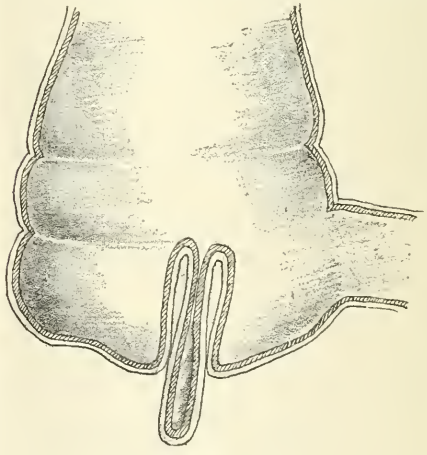

Fig. 2.

years of age. History of fifteen weeks' duration, with repeated attacks of abdominal pain. At operation a large, easily reducible ileocolic intussusception was found. A small mass remained which proved to be an invagination of the appendix into the cecum, and in addition a perforating ulceration

at the junction of the appendix and cecum was found. Excision and suture was followed by death.

Binney (*Australasian Medical Gazette*, 1908, Vol. XXVII, page 358): Child, two years of age. History of fourteen days' duration. At operation a large, easily reducible ileocolic intussusception was

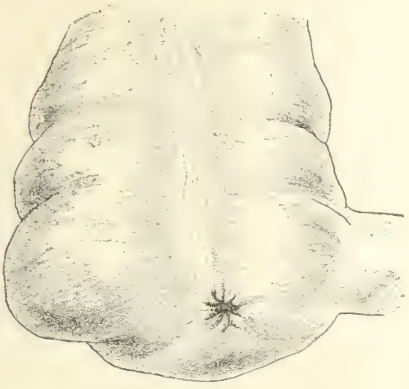

Fig. 3.

found. A small mass still remained, and upon close examination no appendix was to be seen. The cecum and terminal portion of ileum were resected with end to end suture; recovery. Examination of the specimen showed an invagination of the appendix into the cecum.

Rogers (*St. Paul Medical Journal*, 1909, Vol. XI, page 458) reports two cases.

Case 1.—Boy, eight years of age, who was taken acutely ill and gave no history of previous attacks. He was operated upon on the second day of the illness. A partial invagination of the appendix into the cecum was found; appendectomy and recovery.

Case 2.—Adult, eighteen years of age, who gave a history of frequent attacks of abdominal cramps during childhood. His present illness is of over five weeks' duration, with frequently repeated attacks of abdominal pain, culminating once in absolute intestinal obstruction, which was, however, relieved by medication. Operation revealed a partial invagination of the appendix into the cecum, which was so difficult of reduction that resection of the cecum became necessary. Recovery.

Chaffey (*Lancet*, 1888, Vol. II, page 17): Child, three years of age, giving a history of six weeks' duration. A large tumor could be palpated from time to time, which disappeared by enemata and manipulation, with the exception of a small part located in the right iliac fossa. The child died unoperated and autopsy revealed a gangrenous intussusception of the appendix into the cecum.

Lees and Silcook (*Lancet*, 1898, Vol. I, page 1400): Boy, four and one-half years of age. For the preceding few months he suffered from a number of attacks of apparent intussusceptions which were reduced by enemata. This procedure was finally ineffectual and operation became necessary. An invagination of the appendix into the cecum was found, requiring resection of the cecum, ascending colon, and terminal portion of the ileum with end to end suture. Recovery.

Pitts (*Lancet*, 1897, Vol. I, page 1602): Child, two and one-half years of age. History of three and one-half months' duration. In one attack a protrusion appeared outside of the anus, but this was reduced. At operation a large, easily reducible, ileocolic intussusception was found; a small part still remained, which on examination showed an absence of the appendix. Its place was taken by a dimple connected to an intracecal swelling. Incision of the cecum revealed this swelling to be an invaginated appendix. Extirpation followed by recovery.

Wright and Renshaw (*British Medical Journal*, 1897, Vol. I, page 1470): Child, two years and ten months of age. History of one month's duration. Operation revealed a partial invagination of the appendix into the cecum. Reduction was possible only after incision of the cecum and manipulation from within. Appendectomy followed by recovery.

Haldane (*Scottish Medical and Surgical Journal*, Vol. XII, page 333): Child, three years of age, giving a history of at least fourteen days' duration. Operation showed an invagination of the appendix (all but the tip) into the cecum. Extirpation; result not stated.

McKidd (*Edinburgh Medical Journal*, 1859, Vol. IV, page 793): Boy, seven years of age. History of about one month's duration. Patient died and autopsy revealed a complete invagination of the appendix into the cecum.

Enderlen (*Münchner medizinische Wochenschrift*, 1900, page 1021): Child, two and one-half years of age. History of several months' duration. The child was admitted to the clinic August 2 and presented a tumor to the left of the epigastrium; this gradually increased in size and finally (September 23) prolapsed from the anus. The child died September 29 and autopsy revealed in addition to the ileocolic intussusception an intussusception of the appendix into the cecum. No operation was performed.

Brewer (*American Medicine*, Vol. IX, page 67): Female, twenty-two years of age. Patient was taken acutely ill with pain in the right iliac fossa; a diagnosis of appendicitis was made and the patient operated upon by another surgeon; in spite of an extended search no appendix was found. After an operative recovery patient continued to complain of abdominal pain, which continued for the next five

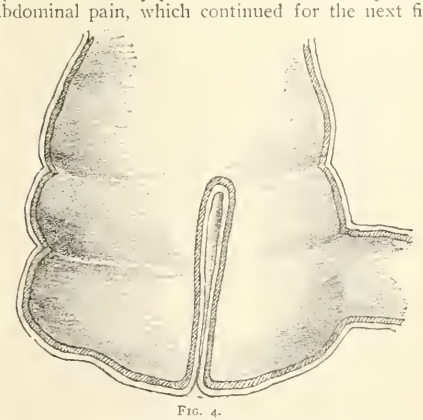

Fig. 4.

months. She was again operated upon, this time by Brewer. Exposure of the cecum again revealed an absence of the appendix; a tumor, however, was felt within the cecum, which, upon incision of this organ, proved to be a complete invagination of the appendix into the cecum. Excision and suture of the cecum was followed by complete recovery.

Hogarth (*British Medical Journal*, 1903, Vol. I, page 850): Child, six years of age. History of six weeks' duration. Operation revealed a large, easily reducible, ileocolic intussusception. There remained a small mass, which could not be further desinvaginated, owing to an invagination of the appendix into the cecum. Extirpation, recovery.

Ackerman (*Bruns Beiträge*, Vol. XXXVII, page 579): Child, four years of age. History of over four months' duration. A large intussusception was palpable in the descending colon. At operation desinvagination was easily accomplished until the cecum was reached. In consequence of this resection of the ileocolic region was performed; recovery. The extirpated specimen showed a gangrenous complete invagination of the appendix into the cecum.

Westerman (*Weekblad van det Nederlandsch Tijdschrift vor Geneeskunde*, No. 24. Original not obtainable, read only in abstract): Child, six years of age. At operation the ascending colon, cecum, and 20 cm. of ileum were resected. The specimen showed a complete invagination of the appendix into the cecum.

McGraw (*British Medical Journal*, 1897, Vol. II, page 956): Child, seven years of age. History of five months' duration. At operation an intussusception of the appendix into the cecum was found. Excision of the appendix and adjoining portion of cecum; recovery.

Waterhouse (*Transactions of the London Pathological Society*, Vol. XLIX, page 108): Child, four years of age. Operation showed that all but five-eighths of an inch of the distal extremity of the appendix was invaginated into the cecum. The invaginated part was gangrenous and irreducible. The cecum was resected but patient died thirty hours after operation.

Kuss and Guimbellot (*Bulletin et Memoires de la Société Anatomique de Paris*, 1907, Vol. LXXXII, page 487): Male, seventeen years of age. History of about one and one-half months' duration. A small mass was to be felt in the right iliac fossa and patient was operated upon for a supposed appendicitis. At operation the appendix was found to be completely invaginated into the cecum. Amputation; recovery after the temporary formation of a fecal fistula. On microscopic examination a primary tuberculosis of the appendix was also found.

Haasler (*Langenbecks Archiv*, Vol. LXVIII, page 826) reports two cases:

Case 1.—(Case 4 of Haasler's series): Patient forty-two years of age. History of six weeks' duration. A tumor was to be felt in the abdomen and a carcinoma of the intestine was diagnosed. The cecum, ascending colon, and 10 cm. of the ileum were resected; recovery. Examination of the specimen showed an invagination of the valvula Bauhinii and of the appendix into the cecum.

Case 2.—Case 9 of Haasler's series): Child, four years of age. History of four and one-half months' duration. At operation a large, easily reducible, ileocolic intussusception was found, leaving only a small irreducible portion in the cecal region, necessitating resection with end to end suture. Recovery. The specimen showed a complete invagination of the appendix into the cecum.

Greig Smith (*Abdominal Surgery*, Vol. II, page 678) in speaking of the treatment of intussusception says that in one of his cases of intussusception treated by insufflation, that died, the appendix was found to be invaginated into the cecum and unreduced.

D'Arcy Power in discussing the case reported by Waterhouse says that his last case of intussusception showed a beginning intussusception of the appendix into the cecum.

I am of the opinion that the above abstracted twenty-four, or, including my own case, twenty-five, can all be looked upon as authentic cases of complete or partial invaginations of the appendix into the cecum, with or without invaginations of the ileum and colon. In addition I find the following three cases, which are occasionally referred to by some writers as examples of this malady, which, however, on reference to the original publications, do not appear to me to be perfectly valid. I abstract them for the sake of completeness and shall indicate at the proper place the reasons which have prompted me to exclude them from my compilation.

Knight: Case of acute intussusception of cecum and appendix. Mortification. (*New Zealand Medical Journal*, Vol. IV, page 106). Child, thirteen months of age, which was taken ill very acutely, so that the time elapsed from the beginning of the illness to the operation was only one and one-half days. The major part of a large intussusception had been reduced prior to operation, leaving only a small unreduced part. At operation a small mass was found from which the appendix protruded. It being impossible to reduce it, the bowel was incised and valve exposed to view, which was found to be gangrenous. The child died within one hour. I believe this case should be excluded, because it is not stated distinctly in the description that the appendix was found to be invaginated; and furthermore, the presence of the gangrenous ileocecal valve leads me to the belief that this, and not the appendix, was probably the apex of the intussusceptum.

Rolleston: Prolapse of the mucous membrane of the vermiform appendix into the cecum (*Edinburgh Medical Journal*, 1898, Vol. IV, page 21) reports an interesting autopsy finding in a man thirty-two years of age who died of peritonitis caused by a perforated duodenal ulcer. A prolapse or projection of the mucous membrane of the appendix into the cecum, containing a coprolith, was found. This case, while undoubtedly of great interest as "possibly" explaining the earliest surgical pathology of the malady in question, should, however, not be included in this compilation, inasmuch as not all of the coats of the appendix were involved.

McFarland: A case of intussusception of the vermiform appendix and cecum, with recovery and subsequent passage of the invaginated tissues per rectum. (*Proceedings of the Philadelphia Pathological Society*, New Series, Vol. IV, page 163). Child eight years of age. History of an acute abdominal trouble, which was diagnosticated as intussusception. The case was not operated upon, as the symptoms relieved themselves spontaneously. During the convalescence two pieces of tissue were passed per rectum. One was a flat piece of intestine about the size of a half dollar, to which was attached a tube, 10 c. m. long, which was the appendix. It was not inverted. The author concludes that it was an intussusception of the appendix. I believe this case is to be excluded for the following reasons: First, that the intussusception was not seen; second, that the occurrence described can very readily happen in an ordinary gangrenous appendicitis with perforation into the cecum, and finally, that the appendix was not inverted. I believe it is impossible for an intussuscepted gangrenous appendix to reinvert itself.

Surgical Pathology.—It is evident that in any form of intussusception, which occurs in the neighborhood of the ileocecal valve, the appendix may be involved in one of the following five ways: 1. In any extensive intussusception, no matter whether it began as an ileoileac, ileocecal, or ileocolic form, the appendix will form a part of the entire mass. Inasmuch, however, as the appendix bears its normal relations to the cecum, such an appendix can not be classified as an intussusception. 2. There is also the possibility that the tip of the appendix may become invaginated into the lumen of the appendix, and this might progress until more or less of the appendix becomes inverted. No case, however, of this lesion, which may be called an appendiculo-appendicular intussusception, has to my knowledge ever been observed. 3. The intussusception may start at the junction of the appendix and cecum, or at the so-called Gerlach's valve. More and more of the appendix becomes inverted, and the process only ceases by swelling of the coats, or adhesions between the apposed serous surfaces. We then have what I have termed a "partial" intussusception of the appendix, as illustrated by the following diagrams, Fig. 1 seen on the flat and Fig. 2 seen on cross section. A greater or less portion of the appendix usually projects from the cecum. If a longitudinal section is made through the cecum and intussusception the intestinal coats will be cut six times. Of this variety of intussusception there are reported six cases, namely, two cases of Rogers, those of Wright and Renshaw, Haldane, Waterhouse, and myself. The process may end here, or it may go on to the formation of: 4. The entire appendix becomes inverted into the cecum, and we obtain a picture which is typical of the glovefinger eversions. As a rule no vestige of the appendix is visible, but its cecal attachment can always be found by tracing the teniae of the colon. On closer examination the appendix is found in the form of a mass within the lumen of the cecum. This form of intussusception may be designated as "total," and is illustrated by Fig. 3 as seen on the flat, and Fig 4, seen on cross section. In contradistinction to the preceding variety there are visible only four layers of the various coats of the intestine on longitudinal section of the cecum. Of this variety of appendiceal intussusception I have found only four cases recorded, namely, those of McKidd, Brewer, McGraw, Kuss, and Guimbellot. 5. The process may stop short with any one of the last two forms; it appears, however, that the inverted appendix acts as a foreign body, and in the efforts of the intestine at expulsion more and more of the intestine is drawn into the intussusception, in some cases even to the point of protrusion from the anus. In these cases we obtain, of course, the usual clinical picture of an ileocolic intussusception. At operation it is noted that after the comparatively easy reduction of the major portion there still remains a small tumor-like mass in the cecum, which is difficult of reduction and which is found to be either a partial or total inversion of the appendix.

It is manifest that the cases must begin either as a partial or total inversion of the appendix; owing probably to failure of diagnosis or from tardy operative interference the true condition is not recognized until the larger intestinal intussusception becomes evident. This is probably also the reason why the majority of cases of intussusception of the appendix belong to this group; in fact, in my series fifteen are of this variety, namely, those of Monsarrat, Connor, Colman and Kellock, Binney, Chaffey, Lees and Silcock, Pitts, Enderlen, Hogarth, Ackerman, Westerman, Haasler (two cases) Greig Smith, and D'Arcy Power.

Clinical Picture.—1. Race and Nationality. It is an interesting fact that of the twenty-five cases here recorded twenty were reported by American and English observers. The significance of this large Anglo-Saxon percentage I am unable to discern. It is particularly interesting in the light of the large statistics collected by Clubbe in Australia and Erdman and others in New York, which show that intestinal intussusception as a whole is far more prevalent among Anglo-Saxon peoples than among others.

2. Age. The oldest patient on record is Haasler's, who was 42; Kuss' and Guimbellot's was 17, Brewer's was 22, and Rogers' second case was 18. The remainder belonged to the first decade, varying from 2 to 9 years, with an average for the 18, in which the age is recorded, of about 5 years. We may safely say therefore that the age incidence is the middle of the first decade.

3. Pain. This is, to my mind, the most diagnostic symptom of appendicular intussusception. The pain is intense, cramp-like, and is usually localized around the umbilicus. The distinguishing feature of the pain, however, is its remitting character. The pain comes in paroxysms, during which the patient behaves as if in abject misery. These paroxysms are followed by an interval of remission, during which the patient feels perfectly well, and the little patient acts and behaves as though nothing had happened. The periods of pain and well-being alternate and their frequency varies from one or two to many a day. It is needless to add that this description applies only to partial or total invaginations of the appendix, uncomplicated by intussusception of the larger bowel. When this complication has supervened the clinical picture of intestinal intussusception dominates.

4. Duration. The duration of the disease is also rather characteristic. We find in most instances that the history spans a considerable period, varying from a few weeks to even several months. In a measure, the long duration is principally due to failure of recognition of the malady. It is a fact, however, that a longer or shorter period elapses before operative treatment becomes indicated either as an exploratory measure in the total or partial invaginations of the appendix or as an urgent measure when the primary invagination of the appendix is complicated by an intestinal intussusception. In other words, an interval of several weeks as a rule elapses before a pure and simple appendiceal intussusception becomes converted into, or, better said, complicated by an intussusception of the ileum into the colon.

5. Tumor Formation. While in many instances the palpatation of a distinct mass may be difficult from excessive rigidity of the abdominal muscles, I believe that in suspected cases every means should be taken to afford the best possible relaxation. I refer especially to the use of the water bath immersion method or to the administration of a general anesthetic. In my case a general anesthetic enabled us to demonstrate beautifully a swelling the size of an egg. The characteristic sausage-shaped swelling of cases accompanied by ileocolic intussusceptions requires but a passing mention.

6. Darmsteifung. This phenomenon has been noted in a few cases, but is not characteristic of the disease.

7. Stools. In pure and simple appendiceal intussusceptions the bowels move as a rule spontaneously or readily do so with cathartics; in other words, constipation is not the rule. It is needless to mention that in the more advanced ileocolic cases absolute constipation prevails.

8. Gross blood and mucus in the passages is, as a rule, almost pathognomonic in the more advanced cases of ileocolic intussusceptions. In the purely appendiceal intussusceptions this symptom has not been reported as occurring frequently; but I have little doubt that blood is probably present in nearly all the cases, if it is only looked for by chemical and microscopic tests. Blood was present in my case, and it was the presence of blood in the passages, directly after an attack, though only in minute amounts, ascribable to no other cause, which tempted me to make a tentative diagnosis of an intussusception.

To recapitulate briefly, the points upon which a diagnosis might be based would be the following: Given a child in the first decade of life with a more or less protracted history of repeated attacks of severe abdominal cramps occurring remittently with periods of wellbeing; who has a small palpable tumor in the right iliac fossa and blood in gross or minute quantities in the passages, I believe a diagnosis of chronic intussusception of the appendix to be justifiable. If manifest ileocolic intussusception is present and the above clinical picture has been previously in evidence the diagnosis that the larger intussusception originated in one of the appendix may be hazarded.

Treatment.—I do not wish to enter here into the question of the operative treatment of intussusception as opposed to the mechanical treatment, though I well know that good results have been reported, particularly from England and the Continent, from the insufflation of air and water. In the United States the operative treatment is deservedly recognized as that of choice, and I believe the presence of irreducible appendiceal intussusceptions, be they ever so rare, adds strong additional arguments for the correctness of this view. (See cases of Chaffey and Greig Smith.) If open operation is done for an intussusception, we can readily see whether the entire intussusceptum has been reduced, and if not, we can take steps to overcome it or act upon indications. I shall not discuss the operative treatment of ileocolic intussusception which is well known, but shall confine myself briefly to the operative treatment of appendicular intususceptions proper.

In the simplest cases of partial intussusception an attempt, frequently successful, is to be made to desinvaginate the entire appendix and then to remove it. If this is impossible its excision with the adjoining part of the cecum is indicated.

In total intussusceptions of the appendix I doubt whether desinvagination is ever possible. Three methods would appear to be feasible. 1. to incise the cecum and to desinvaginate the appendix from within and then extirpate it; 2. to incise the cecum and to extirpate the appendix from within; and 3. to resect the cecum with the appendix in one mass; this should, however, not become necessary except in the rarest instances.

Bone Formation in a Laparotomy Scar.—P. J. Sabijakina describes a case in which two and a half months after a laparotomy a bone 5 cm. long and 1 to 1½ cm. broad was removed from the scar. This bone had been formed partly from the connective tissue direct and partly from an intermediate cartilaginous stage.—*Russki Vratsch.*

TYPHOID SPINE:

REPORT OF A CASE, WITH RADIOGRAMS; COMPLETED BIBLIOGRAPHY.

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The accompanying radiogram, taken for me by Dr. L. G. Cole, is so striking and confirms so completely the accepted view of the nature of the lesion in this comparatively rare complication of typhoid fever that I have considered it fitting to publish it with an account of the case.

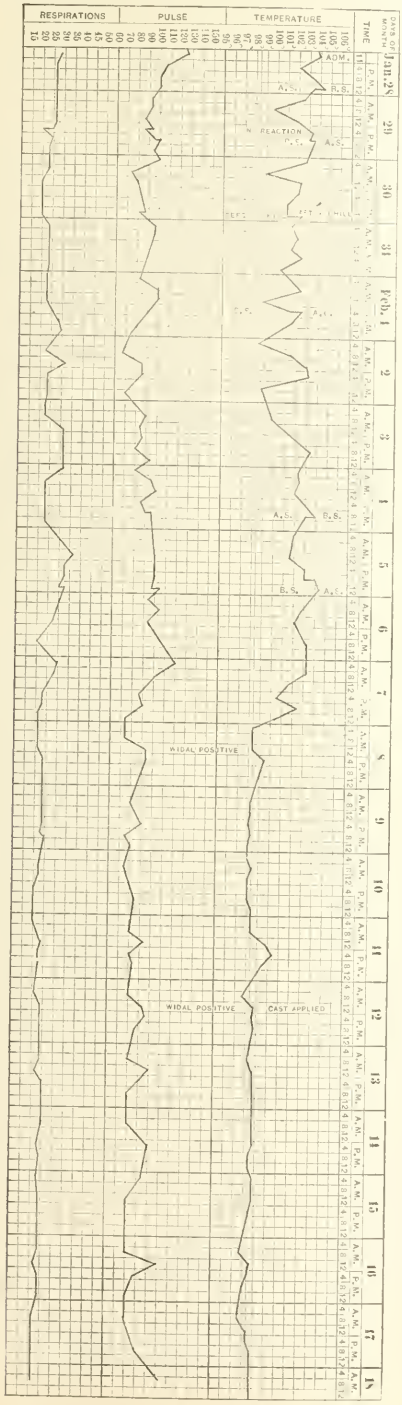
A. E. S.—French Hospital, No. 2344; admitted January 28, discharged February 21, 1910; services of Doctors Ferrer and Potter; house physician, Dr. Bernstein. Male, 30 years, chemical engineer, married, born in Austria, has lived in America several years. Family history: Mother had chronic rheumatism, otherwise unimportant. Patient's history: Acute articular rheumatism at fifteen; pericardial effusion and diaphragmatic pleurisy; sick for five months; patient noted no circulatory disturbance following. Specific and secondaries denied. Gonorrhea at nineteen, mild, no complications.

He was treated for typhoid fever at the French Hospital, under Dr. Birmingham, August 11 to October 11, 1909; a prolonged intercurrent relapse, febrile from before entrance to September 19 (140 days). Von Pirquet reaction negative, January 15; Widal positive, August 28; dilution 1:50. Urine showed diazo positive on entrance, pus cells towards middle, numerous motile bacilli September 7 for several days.

Treatment: A few cold baths which were not well borne. Alcohol sponges. Well till January 1, except occasional attack of pain, right side of back just below costal margin near spine, coming on at 4.00 A.M., and awakening the patient. These attacks persisted till January 18, though the patient was able to work despite pain which gradually continued during the day. Six hours' railroad trip in following week. On arrival, attack of severe pain which disabled the patient. He returned home in intense pain and fever and entered the hospital again. The pain was located in the right side of the spine below and over the last two ribs: it was so severe as to induce rigidity of the abdominal muscles and cause extreme pain about the umbilicus. No frequent urination or other symptoms on the part of the genito-urinary tract. No trouble with the legs or arms.

Physical examination: Fairly well nourished, slender male. Pupils: Moderately dilated, react normally. Skin: Warm, no eruption. Breath: Fetid. Tongue: Heavily coated, red edges, no deviation, no tremor. Pharynx: Slightly congested. Lymphnodes: Not palpable. Heart: Dulness extends from 5 cm. to right to 14 cm. to left of midsternal line. Apex beat: Slightly heaving, diffuse. P. M. I. 12.5 cm. to left of midsternal line. Murmurs: Loud, blowing, prolonged diastolic murmur heard with maximum intensity over left edge of sternum and at apex, also plainly audible over base and toward neck; shorter systolic blowing murmur heard at apex, over mitral and transmitted to left. Second sound clear, synchronous, no accentuation. Arteries: Visible pulsation in carotids, brachials and iliacs; abdominal aorta palpable; very slight thickening of peripheral arteries. Pulse:

Regular, rapid, increased tension; "Corrigan" type. Capillary pulse evident. Lungs: Normal. Broad-



bent sign: Marked. Abdomen: Slightly distended and tympanitic, held rigidly in upper quadrant; palpation there resisted by patient. Extremities: Normal, except for much exaggerated knee jerks. Spine: Held rigid; motion of lower lumbar and dorsal region impossible; any attempt causes excessive pain and is limited by muscular spasm. Tenderness to pressure along last three dorsal spines and along tenth and eleventh ribs on right side.

(See temperature chart for remaining details.)

February 1: Pains in back have persisted intermittently. The least movement brings on a paroxysm, in which the patient's suffering seems distressing. Except during paroxysms, patient is rather somnolent. Treatment has been rest, local heat, quinine in full doses, diaphoretics, and morphine to quiet pain. Chill on January 30 and February 1, the latter severe, lasting more than a quarter of an hour.

February 2: Tenderness seems more sharply localized over spine of eleventh dorsal and along tenth and eleventh ribs for two or three inches to right of spine; examination still very difficult and unsatisfactory. Knee jerks much exaggerated. Abdominal rigidity less marked. Edge of spleen felt. No spots detected. Medication changed to urotropin, grs. t.i.d.

February 4: Patient was taken to hospital, X-ray department. Definition of picture unsatisfactory. Renewed access of pain in back and abdomen, and rise of temperature after return to room.

February 7: Blood culture, sterile, Dr. Krumwiedie. Pains have been much less severe, less constant, and less frequent. Tenderness over tenth dorsal spine less marked.

February 9: Professor Gibney examined the patient and confirmed the diagnosis of "typhoid spine."

February 11: Paroxysm of pain recurred.

February 12: Dr. Townsend. "Any motion of back is complained of as painful. Is weak; effort to stand causes pain. No sign of posterior deformity; but there is a slight curve to the left of entire spine, beginning in upper dorsal and extending to the sacrum. No spinal tenderness on pressure. From mid-dorsal to sacrum spine is held rigid, no motion whatever permitted, either anteroposterior or lateral. Solid plaster of Paris jacket applied with assistance of Sayre extension apparatus."

February 14: Patient has been nearly free from pain. Drove to Dr. Tousey's X-ray laboratory; plaster jacket interfered with perfect definition of radiogram.

February 19: Jacket made into corset. Radiogram taken by Dr. L. G. Cole and he reports as follows: "From a careful study of three plates I am able to detect a very definite lesion in the intervertebral disc between the tenth and eleventh dorsal vertebrae. The spacing between these vertebrae is reduced to about one-half the size it is between the others. There is a lack of clearcut contour of the upper surface of the eleventh vertebral on the left side."

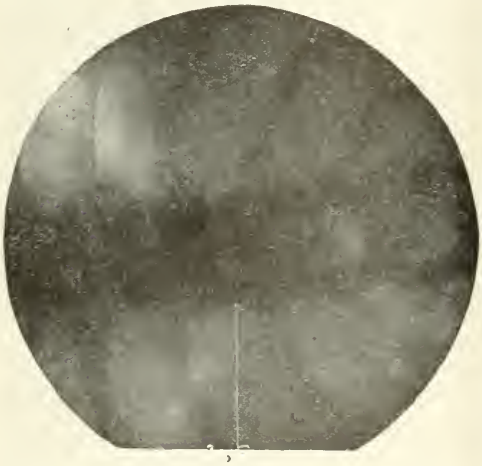
May 16: Patient resumed his occupation soon after discharge from hospital. Has worn his corset continuously. Pain has been slight from time to time, but was relieved by application of cautery. General physical condition markedly improved; weight 150 lbs.; cardiac signs as upon entrance; spleen not felt; knee jerks still increased. R—L;

no disturbance of cutaneous sensibility; back as before, but no tenderness, except to very strong pressure. Wassermann reaction negative (Dr. Noguchi). Urine normal.

May 21: Dr. Townsend. "Has worn no apparatus for past twenty-four hours. Spine rigid as before; lateral curvature severe. No tenderness."

May 24: X-ray picture. Dr. L. G. Cole. "Ribs, bodies of the vertebrae, and transverse spinous processes of the vertebrae show very distinctly. The spacing between the tenth and the eleventh dorsal vertebræ is very much less than between the other vertebræ. The edges of the surface are not as smooth and clearcut as they are above and below, and there is an increase in the density of the lower part of the tenth and upper part of the eleventh dorsal. These radiographic findings correspond exactly with the previous findings and from a study of these plates compared with those previously made I am absolutely certain of a pathological lesion corresponding with the above findings."

The literature upon this very interesting complication has been so thoroughly and recently re-



viewed by Fluss,[1] Silver,[2] and Halpenny[3] that the records of but few cases are needed to bring it up to date. Some of the previously reported cases have been excluded in one or both of the two last named compilations.

Guyot's[4] case, despite Halpenny's and Silver's objection to his brief report, seems to me worthy of being included among the authentic cases. A child of six years who had presented the symptoms of typhoid with a temperature of from 39° to 40° C. every afternoon for eight days developed great pain and hypersensitiveness in the lumbo-sacral region. Neither edema nor fluctuation was made out. Incisions were made through the aponeurosis upon both sides of the spinous processes; a large amount of pus was evacuated and the two cavities were drained. Nothing abnormal was made out in the cord. Two days later a focus of osteomyelitis at the lower end of the left fibula had to be drained; a few days subsequently another focus in the right thumb (a rare situation). The child recovered after sequestra were discharged without any special deviation. At the same meeting Chavannaz reported that he had seen an osteomyelitis of the vertebral column in a woman forty years of age, which occurred after a relapse. She showed certain nervous complications and died. This is the only fatal case which I have been able to find. It is a pity that the report is not more in detail. Crittenden[5] merely mentions that he has seen only one case of typhoid with Gibney's typhoid spine in a young woman who suffered a great deal from menstrual difficulties. It should be omitted from the list. As Silver has stated, Freiberg has reported but one case, not two, as credited to him by Fliess.

The case reported by Schanz[6] was also reported by Hertz[7] and is Zenker's[8] second case. The latter's description of his first case reads more like a case of myelitis than of typhoid spine and should properly be excluded.

Pahl[9] has no case of his own, but refers to three cases of typhoid spine seen in the last two years by Dr. John Ridlon of Chicago. There are hardly sufficient grounds on which to include these cases.

I agree with Halpenny and also include Herrick's two cases, Vickery's case, Arapov's[10] two cases, Gibney's Tyrolean case, Eskeridge's case, as well as the two cases of Osler, which were omitted from the list by Silver. White[11] has added still another case and refers to an early one by Schmitz,[12] and to two by Le Briton.[13] In addition to my case reported above in full, we may add one reported by Halpenny[14] in a footnote; one by Berry,[15] one by J. C. Wilson[16] (not the same referred to in Halpenny's article), and one by Sweet.[17] Trozzi's[21] case of typhoid spondylitis affecting the coccyx seems to merit inclusion, despite the location, the subsequent suppuration, and the lack of a radio-

	Age	Sex	Duration of Fever	Time of Onset of Symptoms	Cause of Onset	Mode of Onset	Location	Pain	Fever	Sensory Symp.	Tenderness	Inc. knee jerks	Deformity	Duration Acute Stage	Recovery due to Fixation	X-Ray Finding
Halperings 2d case	50	M	N	2 wks		sudden	Lower dorsal & lumbar	+ +	+		+			16 wks.	To rest	Refused
White	16	M	N	6 wks	Bicycle	sudden	Upper lumbar	+ +	+	+	+			3 wks.	Yes	
Schmitz	12	F	N	At end of fever		sudden	Lumbar iii & iv.	+ +		+	+		Kyphosis		rest	
Le Breton	57	M	N	3 mos	strain	grad'l	Lumbar & dorsal.	+ +			+	+	Obliteration of *I* n. curve.	2 wks	yes	
Le Breton	40	M	Severe	At end of fever		grad'l	Lumbar	+ +			+	+	Obliteration of *I* n. curve.	sev. wks.	yes	
Berry	19	M	N	During convales		grad'l	Lumbar	+	+		+					
S. Wilson Larat	28	M	N	3 mos	Exertion	grad'l	Lumbar	+ +	+		+			4 mos.	To rest	+
Sweet	19	M	Severe	2 wks		grad'l	Lumbar iii & iv.	+ +	+		+	+	Kyphosis	6 wks.	yes	+
Potter	30	M	Severe	4½ mos	Travel.	grad'l	Dorsal x & xi.	+ + +	+		+	+	Curvature	2 wks.	yes	–

gram. This brings the number to eighty-four, if we include Guyot and Chavannaz.

Following the analysis of Halpenny and Silver, I have constructed the table on p. 1094.

Radiography: J. C. Wilson's case showed much narrowed intervertebral discs; signs of necrosis in the vertebrate bodies, many osteophytes. Sweet's case showed an obliteration of the disc between the fourth and fifth lumbar vertebrae, with signs of new bone formation and scoliosis at this point. Of the fourteen cases in which radiograms are mentioned, only those of Cutler and Peltesohn showed no evidence of a pathological process in the bone or cartilage. In view of the uniform results in the positive cases and of the difficulty we encountered in our first two trials, it seems fair to assume that most examples of this complication of typhoid fever will present a similar lesion. The picture in Lovett and Withington's[20] case report is not a radiogram, but the reproduction of a photograph showing the patient in profile view, nude, with a crutch under his left arm. "As may be seen in the picture, the projection was of considerable size, the spinous processes could be easily made out, and their angular projection could only be accounted for by the giving way of some part of the weight-bearing portion of the vertebral column."

So far as treatment is concerned, a study of the cases reported more recently suggests that prompt fixation, whether by a plaster bed, extension apparatus, or corset will relieve or arrest the process.

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591 Park Avenue.

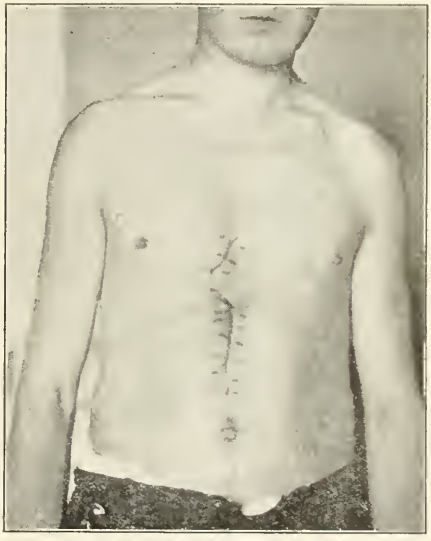
A CASE OF STAB WOUND OF THE HEART.*

By JOHN F. ERDMANN, M.D.,

NEW YORK.

S. H., male, age twenty-one, at 7 o'clock on the night of August 22, 1910, received a stab wound in the chest, made by a knife three-quarters of an inch wide by 6 inches long that would correspond to a fruit knife or one used for paring potatoes. The puncture—three-quarters of an inch long—was on the right side of the chest, one and three-quarter inches to the right of the median line, penetrating the fifth costal cartilage obliquely, and splitting its lower three-quarters. The distance from the left nipple was six inches to the right of the median line and on a line one and a quarter inches below the right nipple.

The patient was received at the hospital shortly after the injury, stating that he had been stabbed in an altercation at the restaurant in which he was employed as a waiter, and that he struck the man a blow and knocked him down subsequent to his being stabbed. I saw the patient at 10:30 or 10:45, practically three and a half hours after the injury, and was told that in the interval between his entering the hospital and my seeing him he had had a transfusion of 500 c.c. of salt solution. His condition at the time I saw him was one of profound shock,



The angle at the extreme right of the scar as the patient stands represents the point of entrance of the knife.

marked pallor, the pulse uncountable and almost imperceptible, dyspnea, rapid and shallow breathing, cold perspiration, and semiconsciousness. The heart sounds were distant and almost imperceptible. The patient complained of constant abdominal pain and upon palpation he was found to be exquisitely tender on the right half of the abdomen. On percussion dullness and flatness extended over this entire region, particularly marked in the upper half. As a result of the pain, dullness, and flatness, and the marked tympanitis on the other side, it was suspected that the liver might have been punctured or transfixed to such a degree that a hemorrhage had taken place into the peritoneal cavity, in addition to an injury in all probability to the outer edge of the pericardial sac.

An exploration was begun at the angle between the seventh costal cartilage and the ensiform process. Upon reaching the peritoneum a deep blue-black appearance such as is seen in extrauterine pregnancy with rupture was observed. The exploration was then extended two inches further in the abdominal wall, and the peritoneum opened, when

*Reported at a meeting of the Surgical Section of the New York Academy of Medicine, November 4, 1910.

the dark blue mass was seen to be the liver, driven downward four inches below the costal margin. It was deeply cyanotic. The peritoneal cavity and the dome of the liver were explored and nothing found to indicate puncture. The seventh costal cartilage was then raised, the diaphragmatic musculature was detached, and the cartilage cut at its juncture with the rib. The sixth, the fifth, and the fourth were also cut through. A retractor was placed on the cartilages, the skin raised from the sternum at the upper limit of the incision, and the sternum cut through at the upper limit of the incision with a pair of bone-cutting forceps. The cartilage and bony flap were raised to the left by forcibly dragging upon the retractor previously placed upon the cartilages. Upon raising the flap a hole admitting the index finger was found penetrating the pericardium. This was enlarged by a transverse incision one-half inch long toward the median portion of the mediastinum. The index finger was inserted and explored the contour of the heart, when a hole was found in the right ventricle admitting the gloved index finger. The pericardium was then incised upward and downward in the median portion of the mediastinum, so that an exposure was made for four inches in length. Upon making this opening in the pericardium an immense amount of clot was expelled, with some liquid blood. At this point the heart slipped from my fingers. The finger was again rapidly introduced, and the palm of the hand above and the thumb below grasped the heart, while the index finger was retained within the ventricle. A curved needle, threaded with No. 2 plain catgut, was then placed down to the heart, and during a systole puncture was made, irrespective of penetrating the cavity or not. As soon as the needle had pierced one side of the incision, the finger was withdrawn and the needle made to make its exit from the opposite side. A knot was tied and the heart held dangling from this suture. The subsequent stitches—eight or ten in number—were readily placed, one more being placed in the line of the heart wound proper, and two more rows placed after the manner of Lembert. A long cigarette drain was placed in the pericardial cavity, the incision in the pericardium closed up to the emergence of the drain, which was led out at the angle of the seventh costal cartilage and the sternum. Catgut stitches were taken in the costal cartilages between them and the ribs. Nothing was done to the sternum except to hold it in place by the dressings after the skin wound was sutured. The patient was back in bed in about thirty minutes.

The subsequent condition, while followed by a period of anxiety for four or five days on account of a lobar pneumonia and a pneumothorax, was such as to cause us to feel that a recovery was in order.

The patient was out of bed on the fourteenth day and was discharged on September 30, having been kept in the hospital simply to prevent his undergoing any undue exercise or labor.

60 West Fifty-second Street.

Lymphocytosis in Basedow's Disease and Simple Goiter.—M. Kappis finds a relative and absolute lymphocytosis of the blood as a constant manifestation of Basedow's disease, and as a frequent one in simple goiter. This lymphocytosis bears some relationship to the lymphatic foci present in the enlarged thyroid. In Basedow's disease the degree of lymphocytosis is not proportionate to the severity of the clinical manifestations.—*Mitteilungen aus den Grenzgebieten der Medizin und Chirurgie.*

SPONTANEOUS RUPTURE OF A GLAUCOMATOUS EYEBALL.*

By BURTON CHANCE, M.D.,

PHILADELPHIA, PA.

Ellett's report of a case of "Spontaneous Rupture of the Eyeball, as a Phenomenon of Glaucoma," read at the meeting of the American Medical Association in 1910, recalls a case of my own which it may be of interest to record.

In March, 1902, I was asked by a colleague to see his aged mother whose sight had been lost for some time past. As he resided at a distance the history was vague; what I could gather was as follows: About two years before the left eye became inflamed; there was intense pain, with visual symptoms which I judged to have been those of glaucoma. The sight failed rapidly and for some time past yielded only light perception. Within the preceding two months symptoms resembling those of glaucoma had set in in the right eye and it too became blind.

I found the right cornea steamy and insensitive, a shallow anterior chamber, the pupil dilated irregularly, and the iris inactive. No details could be obtained through the greenish-yellow fundus glare. In the left there was a large dense leucoma involving the lower half of the cornea—the result, apparently, of an ulceration which had been active at the time of the first period of inflammation—indeed, it was the family's belief that the disease of the eye had been that of ulceration of the cornea. There were iridocyclitic signs in both eyes, and about each cornea there was injection as well as congestion of the sclera. The eyes were not tender, although the tension was fully +3. There was but doubtful light perception. The picture was one of hopeless and complete inflammatory glaucoma.

Eserine was instilled and a strong solution was prescribed and to be used several times a day. After three days the pupils were seen to be somewhat contracted. The patient begged that no more of the solution be used because it gave great pain whenever instilled, the pain lasting about an hour.

After three weeks the lady was brought to my office in response to a request which I had made for the physical effect of being out of doors. The left eye had been less uncomfortable than formerly, though the pupil had continued dilated. The right eye had been very painful. The pupil was dilated and had resumed the ovoid shape. The corneal center was hazy and steamy, its substance edematous. The iris had been caught to the capsule by a synechia down and out. No view of the fundus could be obtained through the red glare made by the mirror, neither could any view of the fundus of the left eye be obtained. There was no light perception in any field of either eye.

Eserin in a weaker solution was prescribed, yet it too was painful. Sodium salicylate was administered thrice daily for several weeks. About six months later the lady fell and broke her right wrist, and later her general health declined, because of the inaction occasioned by her blindness. She had been a most active and self-dependent person, despite her 84 years.

The corneæ remained quiet for several months. About the first of March, 1903, the right eye became painful and on the 11th I noticed a shallow erosion near the center of the cornea.

*Read before the Section on Ophthalmology, College of Physicians of Philadelphia, Thursday, October 20, 1910.

and in two days there was marked hypopyon. These symptoms regressed, the erosion healing over and the condition remained stationary until early in April, when there was a rapid change and an abscess formed which pointed into the anterior chamber. All treatment was unavailing and I advised the removal of the eye. This was refused, but I was allowed to perform paracentesis. As the tension was so great I determined to insert a broad flat keratome into the cornea at the lower limbus. This was done most cautiously and then with forceps a dense fibrous slough was withdrawn from the aqueous chamber. The next day there was a rapid filling of the anterior chamber with a thin purulent fluid, which soon became absorbed and the wound of incision healed. The lady's general health did not fail perceptibly and in time she became strong enough to be able to go about the house again.

On April 18, at 10 P.M., while stooping, she was seized with frightful pain in the right eye and she became greatly agitated. A few moments afterward there was a burst of blood from the right eye and the protrusion of what to the family appeared to be the contents of the globe. When seen early the next day the lids were puffed and ecchymotic, and a mass of oozing clot and débris protruded from between them. The cornea had burst and the contents of the globe hung out through the rent in the center of the membrane. I abscised the mass and applied a firm bandage. When seen late at night the oozing had ceased and the patient was comfortable.

In the weeks following the ball continued to be painful and the anterior segment rapidly became staphylomatous, while the posterior was shrunken. As nothing gave relief I was entreated to remove the eye, which I did on May 5, 1903, without further accident and with but scant hemorrhage. The ether was borne well, the recovery was prompt, the wound in the socket healed favorably, and the left eye remained quiet.

An examination of the ocular tissues showed a matting of the iridociliary structures in a blood clot into the cornea, together with distortion of the posterior elements. The specimen was not examined microscopically, unfortunately having been mislaid and lost.

While the cornea in this case had been weakened by disease, it is without doubt that the rupturing was caused by an increase of the intraocular tension, and it is presumed that there was a distinct augmentation of the pressure when the patient stooped over while preparing for bed. As she was a woman of remarkable intelligence, her extreme agitation together with the pain she experienced prior to the actual rupture safely may be taken to indicate that something must have happened within the globe, and that this something led to the rupturing. My own thought is that a blood vessel ruptured and the increase of pressure was caused from the infiltration of the tissues by the effused blood. The cornea had undergone no visible changes since the abscessing; the wound of incision had become as firm as ever one sees after paracentesis, and, moreover, the rending of the cornea was centrally located.

The lady continued in fair health for several months, but died on September 8, 1904, after a brief illness.

235 South Thirteenth Street.

A BRIEF COMPARATIVE STUDY OF HEART STIMULANTS USED DURING FEVERS WITH A RECOMMENDATION OF THE PRECORDIAL COMPRESS.

By WILLIAM LEE SECOR, PH.D., M.D.,

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The proper support of the heart during the course of a more or less prolonged fever is a problem often of the greatest importance to the physician. The administration of heart stimulants or tonics in the case of various heart conditions indicating them but uncomplicated by fever is a very different matter from the use of agents to support the heart during a febrile course if the temperature is at all high. In these febrile conditions we usually find a rapid and weakened heart action so that the agent indicated would be one that would produce a slower, stronger heart's action, and if at the same time it stimulated the nutrition of the heart muscle it would approach the ideal.

Theoretically we have just such an agent in digitalis. It stimulates the vagus center and the inhibitory fibers of the vagi, thus producing a slower heart action and at the same time the force of the heart beat is increased by its stimulant action on the heart muscle and its intrinsic ganglia. It is held by some (Hare, "Practical Therapeutics") that the vagi are trophic nerves of the heart; if this be true digitalis not only stimulates the heart to do more and better work, but also aids in providing the extra nutrition needed by the heart muscle. Theoretically digitalis would be a very satisfactory agent and would meet the various indications nicely, but in practice we find that digitalis is a very unreliable drug *when administered during high fever,* and we cannot depend upon it.

Strychnine is a drug used by many throughout the course of febrile conditions. It stimulates the heart's action, increasing the rate and force of the pulse. It also stimulates the cord and increases reflex activity. Its action on the nervous system would contraindicate it in conditions where the nervous system is already in a high state of irritability due to the action of toxins. Hare claims that it should never be used throughout the course of a prolonged fever and sounds a strong note of warning against its use in this manner. He claims that its place in these conditions is that of an emergency remedy only to be used in time of special need to bridge over a crisis. In this same class of emergency remedies we would place nitroglycerin, ammonia, ether, etc.

The value of alcohol as a heart stimulant is very questionable, to say the least. Personally I am of the opinion that it does no good and often a great deal of harm and I know that I am not alone in this opinion.

Caffeine is used by some, but its excitant action upon the brain would contraindicate it in cases where there is hyperexcitability, insomnia, or delirium.

Strophanthus may give satisfactory results, but when used alone is often unreliable and such drugs as cactus and sparteine cannot be depended upon at all under these conditions.

The fact is that we have no drug that fully meets the requirements of a heart supporter during the

course of a fever. And in this connection I desire to call special attention to the precordial compress as a procedure giving results which meet the indications nicely.

In applying the precordial compress a rubber or aluminum coil, prepared for the purpose, is wrapped in moist gauze and placed over the precordial area. Through this coil ice water is kept flowing continuously. I have found that a large sized ice bag may be substituted for this coil without detracting from the value of the procedure.

This cold application should be kept on continuously except that every three hours it should be replaced, for fifteen minutes, by a fomentation and brisk friction made over the area. This will prevent damage to the skin and maintain the proper reflex activity of the nerves.

We find that the effect upon the heart and circulation of a prolonged cold application to the precordial area is very similar to that produced by digitalis and the action is not altered by fever. The heart's action becomes slower and the rate of flow of blood through the body is diminished, but the force is maintained with some rise in arterial tension. If continued for some time there is apparently an improvement in the nutrition of the heart muscle.

So we have here an agent readily accessible which possesses all of the advantages of the drug heart stimulants with none of their disadvantages, a procedure the study and application of which will well repay the physician in positive results.

CHANCROIDS DUE TO A PECULIAR CAUSE.

By WILLIAM J. ROBINSON, M.D.,
NEW YORK.

Mr. X. Y. applied to me for treatment for chancroids. That was his and his doctor's diagnosis. It was, according to his statement, a very bad case and they kept on constantly recurring. The first time he had them was about a year before he got married, but they were completely cured. And now they kept on coming back in spite of the fact that he avoided all extramarital relations, as all good men should. He had been six years married, had two children, the last three years old. The first attack since marriage he had over two years ago. The chancroids would heal in five to ten days, and sometimes they became confluent. The doctor gave him a wash, which from the description was lotio flava, then he gave him iodoform, but as he objected to the odor, he gave him some aristol powder. The chancroids would heal in five or ten days, and would remain well as long as he would keep away from intercourse; but almost invariably after intercourse with his wife, the chancroids would break out again. I suspected that the *causa peccans* was to be looked for in the woman, and I said so. He rejected this surmise with indignation. His wife was the purest woman in the world. I told him that I did not at all impugn her purity, but that she might have an irritating vaginal secretion, or leucorrheal discharge. This was also impossible, as she was very healthy, very clean, and he was sure that he alone was the guilty party.

When I examined him I found three small ulcers, one in the sulcus, one on the side, and one near the root of the penis. They did not look like chancroids to me. They looked like ordinary superficial ulcerations, due to some irritation or a burn. There was no adenopathy on either side. And careful microscopic examinations of the scrapings from each ulcer failed to disclose the presence of the Unna-Ducrey bacillus. Nor were there any streptococci. In fact, the field was singularly free from bacterial flora. I cleaned the ulcers thoroughly with hydrogen peroxide and gave him the following ointment to be applied twice a day:

Zinci oxidi	4.0
Bismuthi subnitr.	2.0
Bals. Peruviani	1.0
Petrolati albi	20.0

and I told him to abstain from intercourse for two or three weeks. In five days the ulcerations, or the chancroids, as he persisted in calling them, were completely healed. A month later the man came back with the same ulcerations, almost in the same situations. I gave him the same treatment, but told him that if his "chancroids" broke out again I would not treat him until I had examined his wife. They did break out, and reluctantly he agreed to send her to my office. I examined her, found the vaginal mucosa harsh, dry, and shining, but no evidence of any disease or any uterine or vaginal discharge. Still I felt that here was the etiological factor to be looked for. A little parleying disclosed the fact that each time before intercourse, without the husband's knowledge, she was in the habit of inserting some antiseptic tablet. She had been doing it for over two years, as she did not want to have any more children. And she considered it too delicate a subject to speak about to her husband. I analyzed the tablets and found the principal ingredients to be citric acid and a small quantity of corrosive sublimate. And I consider the latter responsible for my patient's chancroids. The susceptibility of many people to mercuric chloride is well known, some being unable to use it on their hands without getting an eczematous eruption, etc. I advised her to leave those tablets alone, suggesting a milder remedy, and since then my patient's chancroids have not returned. Which is proof positive that those tablets were the only cause of the trouble.

And in this connection it is not out of place once more to sound a warning against the use of the highly toxic mercuric chloride as an anticonceptional remedy and as a vaginal injection. Some druggists in their ignorance advise the use of the 7.7 grain tablets! Of course, several cases of poisoning from the vaginal use of corrosive sublimate have been reported, some of them with a fatal issue. That more cases are not on record is a matter of great luck and is to be looked for probably in the slight absorptive power of the vaginal mucosa.

12 Mt. Morris Park West.

Primary Epithelioma of the Urethra.—J. Tanton says that this tumor is extremely rare. Its etiology is obscure. Predisposition and chronic irritation play a part in it. Symptoms are at first slight; they are a diminution of the stream of urine, spontaneous hematuria, purulent secretion, tumor in various parts of the urethral passage. It appears in old subjects with the manifestations of urethral stricture. It destroys the tissues and infiltrates the neighboring structures. It may cause a perineal phlegmon or abscess after the urethra has been opened by the growth. In females it causes the same symptoms, and there is a tendency to confound the symptoms with those of metrorrhagia. Spontaneous pain is severe and violent, irradiating down the thighs. Coitus becomes very painful. In the females the growth begins at the opening of the meatus. The diagnosis is not easy. The prognosis is unreservedly bad. Treatment is of no avail as far as removal of the entire growth. Only palliative operations can be undertaken.—*Gazette des Hôpitaux.*

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR

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New York, December 17, 1910.

THE ACTION OF LIME SALTS.

It has been suggested that the toxic action of oxalic acid is to be attributed to its combining with calcium in the body tissues and fluids. The hypothesis has recently been confirmed by Januschke working in the laboratory of Professor Hans Meyer of Vienna. At the meeting of the Section of Pharmacology and Therapeutics of the British Medical Association, held July 22 to 29, 1910, Meyer reported that Januschke had shown that not only the cardiac depression but also the general toxic symptoms of oxalate poisoning can be relieved by the administration of calcium or of its physiological equivalent, strontium. The essential element in relieving the poisoning consists in the replacing of the calcium withdrawn by the oxalic acid from the protoplasm, and not in combining with and rendering inactive the acid itself. The symptoms of oxalate poisoning, namely, the marked flow of saliva, the alternate maximal contraction and dilatation of the pupil, the alternate rise and fall of blood pressure accompanied by a corresponding acceleration and slowing of the heart-beat, all point to an increased irritability of the autonomous and sympathetic nervous systems due to the withdrawal of calcium. The administration of calcium counteracts this hyperirritability.

It has also been found by Chiari and Januschke that animals to which calcium has ben administered do not give inflammatory exudates as normal animals do in response to chemical and bacterial irritants. This is attributed to the diminished permeability of the vessel walls, owing to the increase in their calcium content. These results correspond closely with those obtained by Wright in the prevention or weakening of serum exanthemata by the administration of calcium. Meyer believes that the following facts have been demonstrated: First, calcium has a sedative effect on the vegetative nervous system; and, second, it diminishes the permeability of the walls of the blood-vessels.

In the light of these experiments there is added strength to the theory of eclampsia, as advanced by J. R. Mitchell in the MEDICAL RECORD, November 19, 1910, that this disease of pregnancy, similarly to tetany, is to be attributed to a calcium starvation of the patient. Eclampsia of pregnancy is a complex symptom of the mother's need for calcium. The growing fetus is a calcium parasite, and will have this element even at its mother's expense, causing in the latter carious teeth, headaches, and nervousness. In pronounced calcium deprivation, the "nerves writhe in protest," first with intermittent, tetanic twitchings, later with frequent tetanic convulsions. The administration of calcium salts quickly relieves these manifestations.

This theory ingeniously explains in a most simple manner the causation of the toxemia of pregnancy, about which the theories already published have been legion. The edemas of gravid women receive a further rational interpretation in Meyer's hypothesis of the diminished permeability of the walls of the blood-vessels resulting from the withdrawal of calcium. The theory advanced by Mitchell and supported by his clinical experience explains better than any other the manifold phenomena of eclampsia, namely, its greater frequency in twin pregnancy and at term, the nervous excitability and convulsions, the delayed coagulation time of the blood, the decayed teeth, the urinary findings, the associated edema, the eclampsia of lactation and that of the newly born, and the cessation of convulsions under milk diet. It is hoped that a thorough trial will be accorded to the therapeutic administration of calcium lactate, as recommended by Mitchell, in the toxemia of pregnancy.

SPECIALISM OF TO-DAY.

In the presidential address delivered by Dr. Andrew MacFarlane at the meeting of the Third District Branch of the Medical Society of the State of New York on October 4, 1910, the subject of present-day methods of the practice of medicine was dealt with. Special pursuits specialism is the feature of the age. Individual effort has gone by the wall and the worker of to-day is no longer, as formerly, a good all-round man, but merely a part of a huge machine in which he takes his part and no more. Formerly a man was a trouser maker or a shoemaker, as the case might be, and this term meant that he was competent to make a pair of trousers or a pair of boots throughout. Now all that is past and the trouser maker has to do with the manufacture of but one small part of the trousers and the shoemaker one part of the shoes and so on with the other trades. The professions are becoming specialized in a similar manner, and the modern physician or surgeon busies himself with but one part of the human body. Thus if an individual goes to a certain physician complaining of certain symptoms, he is as likely as not to be passed on to another physician whose specialty is the treatment of the complaint which induces such symptoms.

Whether, on the whole, this state of affairs is for the weal or woe of the human race, the fact remains that specialism in medicine and surgery holds the field. As Dr. MacFarlane remarks, "This must be so, as one man could no more cover the field of medicine to-day than a single worker could master all the details of a huge manufacturing plant." However, when it has been freely granted that modern medicine has made tremendous advances

because investigation has been substituted for speculation and knowledge has driven out mystery, MacFarlane doubts if with all our added knowledge corresponding improvement has been made in our methods of diagnosis over those of fifty years ago. For instance, it may happen now that a patient, the cause of whose symptoms is obscure, will be bandied about from one specialist to another without a correct diagnosis being made until the patient has lost confidence altogether in the medical profession. Again, a patient may diagnose his own case and select his specialist. The specialist will limit his examination, observations, and treatment to his own field without knowing or trying to know anything about the condition of the other organs of the body. Further than this may not a medical man become so obsessed with his specialty that he neither can nor will see anything beyond it?

MacFarlane suggests as a remedy for this somewhat haphazard fashion of diagnosis that a conveniently situated house should be chosen to which obscure and complicated cases could be sent for observation and examination—a diagnostic house, in short. This house thoroughly equipped for the purpose would be in charge of a well-trained and experienced house officer. Thither might be sent the patient with the obscure lesion, whose history would be taken by the house officer who would in addition make the routine laboratory examinations. The patient having undergone at the hands of the attending physician a thorough physical examination it would then be decided what further examinations might be of assistance. By such means, thinks the author, "the diagnosis would then be more nearly the real resultant of medical science and not a hit-or-miss."

That prompt and accurate diagnosis is by far the most important factor in the treatment of disease requires no argument. In some diseases correct diagnosis is a matter of life or death. If the disease be quickly and properly diagnosed treatment can be initiated that will have the most successful results and vice versa. Therefore, any means which will assist to bring about this end is deserving of notice. The diagnostic hospital might be feasible and might be very valuable.

The Caloriscope.

Infant feeding on a calorie basis is a comparatively new resource as compared with caloric feeding of adults. The old plan of a properly balanced ration with the checks of proper utilization, good health, and natural gain in weight has generally been and still is regarded by many as all sufficient for infants. Even those who believe in infant feeding by calories limit the method to the mere prevention of overeating and obesity. It is probable, however, that the calorie plan will come more and more into use, and it may be well that it should. The infant who can do very well under the old plan may furnish some arguments against the relatively new one. When we apply calorie feeding to the individual we find great variations; and the experience of gastroenteric specialists is such that they almost to a man repudiate it in the diseases of the digestive organs. Certain men claim that they can do hard work without fatigue or loss of weight on about one-half the calories which, according to tables, are "coming to them." We have for some time had concise tables for the calorie feeding of infants, but the instrument in question, which was devised by Mettenheimer (*Münchener medizinische Wochenschrift*, November 15), represents a celluloid disk, or rather two semicircular disks, one of which is divided into sectors of different colors upon which are printed the chief articles for infant feeding, with a scale of calorie values for each quantity to be used—the lowest at the center. The other disk contains formulæ for mixtures of the said nutrient materials, and for recording the weight of the child. The first disk is made to revolve upon the other, so that a given colored sector may be brought flush with the second disk, on the free margin of which are inscribed calorie values from 100 to 1,000, an arrangement which facilitates the reading of the total number of calories in a mixture.

The Nature of Pellagra.

Dr. Sambon, the distinguished Italian investigator connected with the London School of Tropical Medicine, was one of the first, if not the first, to throw doubt upon the long held belief that pellagra is due to the consumption of damaged corn. He preached his doctrine with such earnestness that a fund was raised to enable him to make a study of the subject in the heart of an Italian pellagrinous district. The results of his investigations have been embodied in a preliminary report (*Journal of Tropical Medicine and Hygiene*, September 15 to November 1, 1910) which, whatever may be an individual's views, provides very instructive reading. Of course, this report is, in the nature of things, inconclusive, but enough material has been collected to prove that Sambon's opinions are founded upon sound premises. The reason why he first doubted that corn was the cause of pellagra "was based principally upon the striking differences existing between the distribution of the pellagra endemic stations and that of the areas of maize consumption, as well as on the irrefutable fact that true pellagra was known to occur in people who had never eaten maize. Spanish experience was overwhelming on this point." Arguing from the analogy of many insect-carried diseases and pellagra Sambon looked for an insect host and thinks that he has found it in a Simulium. His arguments in this direction are strong if not wholly convincing. As yet all endeavors have failed to demonstrate a parasitic agent in pellagra, but up to the present time experiments have not been sufficiently exhaustive. The research work, indeed, has only been partly accomplished. It seems that further and more lengthy investigations would be necessary to demonstrate the presence of the causative organism, if such exists. Sambon has possibly shown the way, and it is to be hoped that he may be enabled to place the honor of the final discovery to his name. There are many, however, who are not in accord with the London scientist's views, and among these is Captain H. J. Nichols, U. S. Army, who thinks that Sambon has been perhaps too ready to jump at conclusions from somewhat inadequate data. On the other hand, several well known authorities now regard his theory of pellagra as deserving of close study; among these is Dr. Sandwith. The report is full, interesting, and logical, and will well repay a careful perusal by all who are brought into contact with this peculiar disease.

Vaccination Against Typhoid Fever in the United States Army.

Vaccination against typhoid fever has been conducted on a considerable scale in the army of the United States according to the most recent report of the Surgeon-General, a total of 11,771, of whom completed cards have been received, having been thus operated upon. The number of moderate and severe reactions was quite small, while of the total number vaccinated there have developed to date three cases of typhoid fever, with no deaths. It must be borne in mind that the Widal reaction as a means of diagnosis among persons who have been vaccinated is worthless, since the reaction appears immediately after immunization and persists for a variable length of time. Among such patients the only rational way of confirming a clinical diagnosis by laboratory methods is by using Wood cultures. Among the unvaccinated of the army the case of typhoid fever rate per thousand was 4.11 and the case rate among the vaccinated was .26 per thousand, seemingly a convincing argument in favor of the method. Somewhat roughly speaking, the incidence among the unvaccinated was nearly sixteen times higher than among the vaccinated. Thus the harmlessness of the procedure has been clearly demonstrated and its efficacy appears to have been proved also in a sufficiently satisfactory manner. The Medical Department has now done all that can be done in the direction of voluntary vaccination against typhoid fever in the army and it remains for the War Department to decide whether the time has come to require it as a routine procedure.

News of the Week.

In Honor of Dr. Weir.—On Saturday evening of last week Dr. Robert F. Weir was entertained at a dinner given in his honor at the University Club by his former house surgeons at the New York, Roosevelt, and St. Luke's Hospitals. The dinner was the outcome of the desire of Dr. Weir's old house surgeons, numbering two hundred or more, to manifest their affection for their former chief, to whose teaching and example they as surgeons owed so much. Because of the limited capacity of the banquet hall it was found necessary, however, to restrict the number of Dr. Weir's hosts to about seventy-five. Dr. Robert Abbe, the toastmaster, read a number of letters and telegrams from old house officers, now scattered over the country and regretfully absent, and then presented to Dr. Weir a beautiful répoussé chalice, which had been concealed in oriental fashion beneath a square of Japanese embroidery. This cup, it was said, had not two handles or three, as the ordinary loving cup, but a thousand invisible handles which all the friends of the recipient were eager to grasp with him. Dr. Weir delivered a reminescent address, referring to the New York surgeons of the middle of the last century, with whom and under whom he had worked, and mentioning incidentally that his total years of hospital service were seventy-six—this figure resulting from some overlapping double services. Addresses were also made by Drs. Maurice H. Richardson of Boston, W. L. Rodman of Philadelphia, and W. S. Halsted of Baltimore.

Health of the Canal Zone.—The report of the Department of Sanitation gives the total number of deaths among employees in the Canal Zone, during October, as 42, 23 being from disease and 19 from external causes, giving an annual rate per 1,000 of 10.19. In Octobers of other years the annual rate per 1,000 was as follows:

1904	20.31
1905	32.85
1906	46.68
1907	25.97
1908	12.93
1909	9.95

The annual average rate of death during October in Panama, Colon, and the Canal Zone, including both employees and civil population, was 23.61. During previous years the rate was:

1905	56.62
1906	46.40
1907	30.19
1908	27.91
1909	16.62

The increase in the rate for October, 1910, over that for October, 1909, was due to the increased number of deaths among infants from intestinal disorders in the city of Panama. A comparative statement of the death rate among canal employees on the Isthmus of Panama under the original French company from 1881 to 1888, eight years, and the American Commission from 1904 to 1909, six years, is included in the report. It shows that if the American employees had worked under the same sanitary conditions as did the French, there would have been 1,279 more deaths per annum than have occurred under American control. This means a saving of 7,674 lives in the six years of the American occupation, and a reduction of 70 per cent. in the annual death rate from disease, when the average numbers of deaths per 1,000 among the French and the American employees are compared.

October Death Rate.—The monthly bulletin of the New York State Department of Health gives the death rate for the entire State during October as 14.5, the total number of deaths being 10,942, while in New York City alone the rate was 14.0, and the total number of deaths 5,597. In the rural districts the rate was 15.8. About 21 per cent. of the deaths were of children less than one year of age. The total mortality was 464 less than during October, 1909, the reduction being fairly well distributed throughout the State.

More Typhoid Fever at Annapolis.—The twenty-ninth case of typhoid fever among the cadets at the Naval Academy developed on December 9. The authorities still attribute the epidemic to contaminated milk which was received at the academy prior to November 9. Since that date the supply of milk from the suspected source has been discontinued.

Pasteur Institute Burned.—A dispatch from Paris tells of the burning of the branch of the Pasteur Institute at Garches, near Paris, on December 7. The branch was located in the Chateau Villeneuse l'Étang.

National Red Cross.—The sixth annual meeting of the National Red Cross was held in Washington on December 6, when President Taft was reelected president of the society. The other officers elected are Mr. William W. De Forest of New York, vice-president; Mr. Charles A. Magee, secretary; Mr. A. P. Andrew, Assistant Secretary of the Treasury, treasurer. President Taft announced that New York City had already pledged $500,000, its quota of the

two million dollar fund which the society is endeavoring to raise, and that he considered this an earnest that the entire amount would be forthcoming. The Red Cross now has about fifteen thousand members in the United States. Announcement was also made that the society intends to prosecute those concerns which continue to violate the act of Congress of June 23, 1910, protecting the Red Cross insignia from manufacturers.

National Health Bureau.—In his recent message to Congress, President Taft renews the recommendation contained in his message of last year that a bureau of health be created "in which shall be embraced all those Government agencies outside of the War and Navy Departments which are now directed toward the preservation of the public health or exercise functions germane to that subject." President Taft further says: "I greatly regret that the agitation in favor of this bureau has aroused a counter agitation against its creation, on the ground that the establishment of such a bureau is to be in the interest of a particular school of medicine. It seems to me that this assumption is wholly unwarranted, and that those responsible for the Government can be trusted to secure in the personnel of the bureau the appointment of representatives of all recognized schools of medicine, and in the management of the bureau entire freedom from narrow prejudice in this regard."

Open-Air Classroom.—Plans have been filed with the Building Department of New York City for the erection of an open-air room and diet kitchen on the roof of the two-story public baths and gymnasium in the rear of Hudson Street Park, at a cost of $6,000. The roof room will be used as an open-air classroom for children inclined to tuberculosis, accommodations being provided for not more than fifty.

Cholera in Madeira.—A dispatch from Funchal, dated December 11, states that the cholera continues to rage there, 422 cases with 136 deaths having been reported since the outbreak began. All the physicians in the island have been impressed into the public service by the health authorities.

Measles on Ship.—The steamship *Pannonia*, which arrived in New York on December 10, was held at quarantine because of the large number of cases of measles on board.

Pasteurized Milk.—In reviewing the work of the recent milk conference in New York, Dr. Charles E. North of the New York Milk Committee says that the conclusion was reached that the only raw milk fit for human consumption is that produced under sanitary conditions from tuberculin-tested cattle, and that all other milk should be thoroughly pasteurized. The conference as a body adopted Meigs's classification which provides for these two kinds of milk only, this action being taken as the result of testimony given by many experts in the subject.

Hospital at Aix-les-Bains.—The gift of $40,000 for the improvement of the hospital at Aix-les-Bains from Mr. J. Pierpont Morgan is announced by Dr. Paul Guyenot of that city, who sailed for home on December 8. Dr. Guyenot has been in America for several months studying our hospital methods.

New Sanatorium.—The State Commissioner of Health has approved the application of the Tupper Lake Sanatorium Corporation for permission to establish a private sanatorium for the treatment of tuberculosis at Tupper Lake.

Prof. Frederic S. Lee.—The trustees of Columbia University on December 5, on the recommendation of the Faculty of the College of Physicians and Surgeons, appointed Frederic S. Lee, Ph.D., now professor of physiology, to be head of the Department of Physiology in succession to Prof. John G. Curtis, who retired on June 30, 1909. Dr. Lee has been connected with the College of Physicians and Surgeons since 1891, when he was appointed a demonstrator of physiology.

Dr. Louis H. Mutschler of Philadelphia has been elected visiting surgeon to the Episcopal Hospital in that city. Dr. Mutschler has already served the hospital for fifteen years as assistant surgeon.

Dr. Edward Martin of Philadelphia has been elected John Rhea Barton Professor of Surgery in the Medical Department of the University of Pennsylvania in succession to Dr. William White resigned.

Public Health Lectures.—Dr. H. L. Wheeler of New York and Dr. W. A. White of Phelps, N. Y., have been appointed by the State Commissioner of Health as lecturers and consultants on hygiene in the Department. They will deliver a series of lectures throughout the State on subjects pertaining to the public health.

Philadelphia Medical Examiners' Association.—At the annual meeting, held on December 6, the following officers were elected: *President*, Dr. A. T. Gaillard; *Vice-President*, Dr. F. S. Ferris; *Secretary*, Dr. J. D. Farrar; *Treasurer*, Dr. J. D. Morton.

American Society of Sanitary and Moral Prophylaxis.—A meeting of this society will be held at the New York Academy of Medicine on Thursday, December 22, at 8:30 P.M. Papers will be presented by Professors E. R. A. Seligman and Felix Adler on the Sanitary Supervision of Prostitution. The subject of the Control of Venereal Diseases by the Health Department will be discussed by Drs. Abraham Jacobi, Stephen Smith, Thomas Darlington, and Eugene H. Porter, State Commissioner of Health.

Medical Association of the Greater City of New York.—A stated meeting of this association will be held in the New York Academy of Medicine on Monday, December 19, at 8:30 P.M. A paper on "Morbific Processes Controlled by the Hypodermatic Use of Aseptic Chemical Solutions" will be read by Dr. J. Blake White. This will be followed by a discussion on "The Question of Reflex Disturbances."

Taylor County (Texas) Medical Society.—At the annual election of officers of the society held in Abilene on December 6 the following officers were elected: *President*, Dr. M. M. Carrick, Assistant Superintendent State Epileptic Colony, Abilene; *Vice-President*, Dr. J. A. Adkisson, Merkel; *Secretary-Treasurer*, Dr. J. M. Estes, Abilene. Dr. J. M. Alexander entertained the society at a banquet, fifty guests being present. Dr. M. M. Carrick acted as toastmaster.

Eau Claire District (Wisconsin) Medical Society.—At the annual meeting of the society, held on November 28, the following officers were elected for the ensuing year: *President*, Dr. R. R. Chase, Eau Claire; *Secretary-Treasurer*, Dr. E. L. Mason.

Gila County (Arizona) Medical Society.—At the organization meeting of this new society, held on November 22 at Gila, the following officers were elected: *President*, Dr. John Bacon, Miami; *Vice-President*, Dr. R. D. Kennedy, Globe; *Secretary-Treasurer*, Dr. J. L. Wales, Globe.

Black Hills (South Dakota) Medical Society.—The following officers were elected at the annual meeting held at Deadwood on November 22: *President*, Dr. F. S. Howe, Deadwood; *Vice-President*, Dr. A. S. Hoon, Nemo; *Secretary*, Dr. W. L. Vercoe, Lead; *Treasurer*, Dr. F. E. Clough, Lead.

Montgomery County (Ohio) Medical Society.—The annual meeting of the society was held in Dayton, on December 2, when officers were elected as follows: *President*, Dr. A. L. Light; *Vice-Presidents*, Dr. Charles Hunt, Dr. Harry B. Harris, and Dr. C. W. Salisbury; *Secretary*, Dr. H. H. Hatcher; *Treasurer*, Dr. William Prather.

Hancock County (Ohio) Medical Society.—The following officers were elected at the annual meeting held on December 1: *President*, Dr. W. N. Yost; *Vice-President*, Dr. L. E. Todd; *Secretary*, Dr. E. H. Cooper; *Treasurer*, Dr. J. A. Kimmell.

Elkhart County (Indiana) Medical Society.—At the annual meeting held on December 1 the following officers were elected: *President*, Dr. C. W. Frink; *Vice-President*, Dr. G. W. Kirby; *Secretary*, Dr. E. M. Hoover

Mr. Isaac Stern.—In the death of Mr. Isaac Stern of New York, which occurred on December 5, Mt. Sinai Hospital loses the president of its Board of Directors, and one who for many years had been actively devoted to the service of the hospital. Mr. Stern was also a member of the Board of Directors of the Mt. Sinai Hospital Training School for Nurses and vice-president of the Hospital Saturday and Sunday Association. His will provides for a bequest of $10,000 to Mt. Sinai Hospital, to be known as the Isaac and Virginia Stern endowment fund, the income to be applied as the directors may determine.

Deaths of Foreign Medical Men.—Dr. Henri Huchard of Paris died on December 11. He was well known for his original work on arteriosclerosis and diseases of the heart and arteries. Professor Angelo Morro, the eminent Italian physiologist, died the early part of this month at the age of sixty-four years. He had made a special study of the phenomena of fatigue, being the inventor of a well-known form of ergograph. He was a senator in the Italian Parliament.

Obituary Notes.—Dr. JOHN C. DA COSTA of Philadelphia, Pa., died at his residence on December 6, of kidney disease, aged 76 years. Dr. Da Costa was born in Philadelphia and was graduated from the Jefferson Medical College in that city in 1878. At the time of his death Dr. Da Costa was emeritus gynecologist at the Jefferson Medical College, chief gynecologist to St. Agnes' Hospital, and president of the Philadelphia Obstetrical Society. He was also a member of the American Medical Association and of the Pennsylvania State and Philadelphia County Medical Societies, and a Fellow of the College of Physicians of Philadelphia and of the American Surgical Association.

Dr. WILLIAM WATSON of Dubuque, Iowa, a graduate of the Rush Medical College, Chicago, in 1854, a veteran of the Civil War, died at his home on November 21 aged 74 years.

Dr. HENRY HUTCHINSON of St. Paul, Minnesota, a graduate of the Hahnemann Medical College of Philadelphia in 1874, formerly professor of the theory and practice of medicine in the College of Homeopathic Medicine and Surgery of the University of Minnesota, a member of the staffs of St. Luke's, St. Joseph's and the City and County Hospitals, president of the Minnesota State Board of Health since 1901, a member of the Minnesota State Institution of Homeopathy, the Minnesota State Anti-Tuberculosis Society, the American Public Health Association, and the American Institute of Homeopathy, died suddenly at the Hotel Mustapha Superieur in Algiers on December 1 of heart disease, aged 61 years.

Dr. OLIVER ROLAND of Lancaster, Pennsylvania, a graduate of the Medical Department of the University of Pennsylvania in the class of 1875, for many years a member of the School Board and of the Board of Health, physician to the Children's Home, and a trustee of the Stevens Industrial School and the Lancaster Free Library, a member of the American Medical Association and the Pennsylvania State and Lancaster County Medical Societies, and consulting physician to the Lancaster General Hospital, died at his home of apoplexy on November 21, aged 60 years.

Dr. EMILY PARDEE-DISBROW of South Norwalk, Connecticut, a graduate of the New York Medical College and Hospital for Women in 1875, a member of the American Institute of Homeopathy and of the Connecticut State Homeopathic Society, died at her home on November 30.

Dr. JOHN FREDERICK HALLER of Brooklyn, N. Y., a graduate of the medical department of the University of Buffalo in 1888, examining physician of the Department of Charities, New York, visiting surgeon to the Swedish Hospital and consulting gynecologist to the Jamaica Hospital, a member of the New York State and Kings County Medical societies, and of the Association of Military Surgeons of the United States, died at his home on December 3, of pneumonia, after a brief illness, aged 44 years.

Dr. JOHN CUMMINGS MUNRO of Boston, Mass., a graduate of the Harvard University Medical School in 1885, consulting physician to St. Luke's Home, consulting surgeon to Quincy Hospital, and surgeon-in-chief to the Carney Hospital; formerly lecturer in surgery in the Harvard University Medical School; a member of the American Medical Association, the Association of American Anatomists, the American Surgical Association, and the Massachusetts State and Suffolk County Medical Societies; president of the Society of Clinical Surgery, honorary member of the Vermont Medical Society and of the Canadian Medical Association, and honorary fellow of the Philadelphia Academy of Medicine, died at his home, on December 6, aged 52 years.

Dr. HORACE BABCOCK of Gowanda, N. Y., a graduate of the Medical Department of the University of Buffalo, surgeon in the 2d Wisconsin Regiment during the Civil War, died at his home, on December 5, aged 86 years.

Dr. FRANK E. MCGANN of Mount Sterling, Ill., a graduate of Barnes Medical College, St. Louis, in 1904, a member of the Illinois State and Brown County Medical Societies, and coroner of Brown County, died at his home of typhoid fever, on November 28, aged 30 years.

Dr. Benjamin Franklin Spurgeon of Chico, Cal., a graduate of the University of Louisville, Medical Department, in 1874, a member of the California State and Butte County Medical Societies, died at his home, on November 24, aged 57 years.

Dr. Felix F. Porter of Paris, Tenn., a graduate of the Medical Department of the University of Pennsylvania in 1859, died at his home on November 27.

Dr. Frederick William Van Slyke of St. Paul, Minn., a graduate of the Minnesota Hospital Medicine Medical College in 1883, a member of the American Medical Association and of the Minnesota State and Ramsey County Medical Societies, died at St. Joseph's Hospital, St. Paul, on November 23, aged 54 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

GENERAL MEDICAL COUNCIL.—RAT PLAGUE, OFFICIAL CIRCULAR.—FRACTURES NEAR JOINTS.—ALTERNATING ANESTHETICS.—ENDOMETRITIS.—OBITUARY.

London, November 25, 1910.

The General Medical Council met on Tuesday, when the president, Sir Donald MacAlister, gave an address. He said he had reason to believe that a bill now before Parliament would remove the disabilities of midwives trained in Ireland. He had official authority to state that the inquiries of the Local Government Board into unqualified practice would be published in a Blue Book in a few days. A more important memorial would be laid before the council, supported by a letter from the Colonial Office, concerning instruction as to tropical diseases. It was desired that a certificate or diploma, such as that given in Public Health, should be obtainable from the various examining bodies and registered by the council. Sir Donald had ascertained that, if desired, a clause to effect this would be proposed by the government at an early date. All this sounds fairly optimistic but takes no account of the fact that we are in the midst of a general election with its uncertainty, and even if the same party should be returned, the present government holds the record for making promises and evading them when fulfillment is due.

As to the Blue Book mentioned, it was issued yesterday and officially confirms the frightful amount of quackery that is a familiar fact to all practitioners. The board find it difficult to say, categorically, whether unqualified practice is increasing, though in some districts the evidence is said to be in that direction. London does not seem quite so bad as some provincial towns. Counter prescribing by chemists is shown to be general and diminishes by delay the chance of cures. Bonesetters flourish most in the northern districts and in Wales. Quack medicines are sold largely to the poor and also in enormous quantities to the well-to-do and many are said to contain powerful poisons. When the General Medical Council has digested this Blue Book they might well reflect on their own negligence in making no effort to effect a change. Established to prevent practice by unregistered persons, they have contented themselves all those years in taking fees for registration and talking about the duties they have not performed.

The Local Government Board on Saturday issued a further statement as to rat-plague in which it is said that one of the inspectors has been inquiring for several weeks into the extent of the disease in East Suffolk with a view of securing concerted action by the various authorities. With him are associated three of the board's medical inspectors to investigate over a wider area. Further, Dr. Martin of the Lister Institute is investigating the outbreak on a large scale, the kinds of rodents predominating in the districts, and the flea parasites of these rodents. Other inspectors have been instructed to make inquiries in various parts of England, but up to the present infected rats have been found only in five districts. Valuable help has been rendered in East Suffolk by Dr. Heath, who has accordingly been specially appointed to deal with the matter by the County Council and other authorities are co-operating. The official statement adds that although cases of plague in man are unlikely to arise arrangements are being made by the various authorities for the early recognition and isolation of any such cases should they occur.

The Surgical Section of the Royal has allotted two evenings to a discussion on "Fractures in the Neighborhood of Joints." The opening paper was by Mr. Robert Jones of Liverpool, whose experience as hospital surgeon and university teacher gives great authority to his views. It is well they should be fully considered and I greatly appreciate a remark with which he began as to the way in which a broken bone is often left from first to last to the house surgeon, as if it were of slight importance. It is true, too, that every practitioner is expected to be able to treat a fracture, though many stiff and useless joints confront us and give occasion to serious misgivings.

Mr. Jones recognized that students nowadays are taught to rely too much on a radiograph for diagnosis, the interpretation of which is by no means free from difficulty. During the last twenty-five years he said he had treated many fractures involving the functions of the joints and a large proportion were not recent and had given rise to deformity or disability, or both. Patients suffer far more from disability than mere appearance and so he regarded every fracture as a potential cause of disability. In all fractures near a joint the mechanical function of that joint must be considered even more than its anatomy. Common disabilities in the shoulder after neglected fractures are deficient abduction and rotation; in the hip diminished range of these and often of extension; in the elbow fixation at an inconvenient angle; in knee, genu valgum and sometimes flexion. The special deformities and disabilities of injuries should be studied, anticipated, and so prevented. Mr. Robert Jones then proceeded to lay down his method of dealing with the fractures connected with the several joints and this at sufficient length to constitute a valuable clinical essay founded on his exceptional experience. Summarizing, he pays more attention to function than appearance, considering correct alignment to be more important than meticulous care in reposition of fragments, holding that pain is always an indication for physiological rest and, therefore, depreciating early forced passive movements.

If in some cases he prefers manipulation and fixation when others would prefer an open operation, he admits it may, perhaps, be because the increasing proportion of his work has been in the treatment of deformities and disabilities, whether of traumatic origin or not, has given him more con-

fidence in carefully graduated force in cases where some might hesitate to use it.

Mr. Rushton Parker said in any fracture between the clavicle and elbow it was of greatest service for diagnosis and treatment to sling the arm to the neck and flex the elbow to a rather acute angle. The upper limb was thereby bent into two portions, one containing hand and forearm suspended from the neck; the other only suspended from the shoulder. An upper arm was thus relieved of the weight of the forearm, which, if left loose, caused pain and deformity. In the lower part the tendency to adduction of the condyles could me met by a twist given to one of the lower splints, if of sheet metal.

Mr. R. Warren said the greatest accuracy was required when the cartilage-covered bearing surface of the joint was involved and in such open operation was more likely to be needed than when the fracture was in the vicinity but outside the capsule.

Mr. R. H. A. Whitelocke thought in all cases of fractured patella with much separation the open method was the only satisfactory one. Since the recent legislation the public was not satisfied with good functional results. He said Mr. Jones had struck the right note in emphasizing the important rôle of correct alignment especially in the lower limbs.

When prolonged anesthesia is required the plan of maintaining it by alternating the agents has recently been tried, ether being first given, or ethyl chloride at first, and afterwards nitrous oxide being employed to keep up the anesthesia. The method seems to have been due to the fact pointed out by Crile, that collapse was less frequent after nitrous oxide and oxygen than after other anesthetics and that overstimulation by the ether might partly be to blame. Mr. Flemming brought the subject before the section of anesthetics in a paper reporting eighty-six cases in which the plan was used, the prevailing idea being to decrease the amount of ether by alternating its exhibition with gas. In many cases there was no nausea and in none was there postoperative collapse. The numbers did not exclude the possibility of coincidence but Mr. Flemming thought them worth submitting to the section. He said the method demanded minute attention to decide just when to change from ether to gas, or vice versa. This usual routine was to induce anesthesia with ethyl chloride and ether, maintain it by ether (open or closed plan) for 15 or 20 minutes, in fact, till the operation was well under way, then substitute nitrous oxide and oxygen, with frequent breaths of fresh air, for from 3 to 5 minutes, then change back to ether and so on throughout. Thus gas anesthesia was, as it were, superimposed on the ether intoxication and generally it was found possible as the operation progressed to shorten the times of ether and lengthen those of gas. Mr. Flemming was satisfied that a perfecely smooth anesthesia could be maintained in this way and among the patients who proved favorable subjects were some for whom gas alone would not have been suitable, *e.g.* alcoholic men, very stout persons, and senile subjects.

Mr. Gill said he had given ether and gas alternately for short operations. He was glad stress was laid in the paper on limiting the dose and maintaining as light as possible a degree of anesthesia.

Dr. Blumfield had had similar experience in short operations and asked if reflex phenomena had been met with.

Dr. Silk did not consider rapid recovery wholly advantageous as the period of analgesia masked postoperative pain. The plan would require great skill and consume much gas.

Mr. Boyle said why not induce the anesthesia with gas. He thought it must be difficult to maintain level anesthesia by alternating.

Mr. Flemming, replying to this and to others who rather supported it, said he was himself surprised both by the ease with which level anesthesia was maintained and at the satisfactory after results.

In the Obstetrical Section a paper was read dealing with the clinical aspects of chronic endometritis, employing the term as a matter of convenience, although it was admitted that real inflammation was probably rare. Drs. Donald and Shaw were the authors and they comprised in their summary cases in which there were menorrhagia, metrorrhagia, leucorrhea, dysmenorrhea, and pain in the lower abdomen, associated with a moderately enlarged uterus which was tender on palpation. So far pathology had given little help. The chief object of the paper was to state the results of curetting in different types. Notes of 267 cases were taken and the condition of the patients ascertained twelve months after treatment. The general result was 230 were relieved and 37 not. The large majority did not get full benefit until some months after the operation. In dysmenorrhea the results were very good, and this supports the view that this symptom is often due to an abnormal condition of the endometrium. In leucorrhea the results were not quite so good; only cases in which the discharge was certainly uterine were included. In sterility the results were good—pregnancy following in one-third of the cases.

Surgeon-Major-General James Sinclair, A. M. S., Honorary Physician to King Edward, died on November 21, aged 78. He served in Ceylon, Malta, Gibraltar, Bombay, Abyssinia. He was at Magdala in 1868. Was mentioned in despatches and after holding a number of home appointments retired.

Brigade-Surgeon Lieutenant-Colonel J. M. Murray, M.D. Ed., F.R.C.S., died on Thursday, 17th inst. He served in New Zealand in 1860 and was present in several engagements, for which he received a medal. He retired in 1892.

Mr. Mitchell Henry, F. R. C. S., whose death was reported yesterday, was once on the surgical staff of the Middlesex Hospital but he abandoned the profession for a mercantile career in 1862 and subsequently took also to politics. He was first M. P. for Galway but later held a division in Glasgow, 1885-6.

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

MANILA MEDICAL SOCIETY.—INFECTED AERATED WATERS.—ANTI-TUBERCULOSIS WORK.—DIFFICULTIES IN CONNECTION WITH THE NEW WATER AND SEWER SYSTEMS.—606 IN YAWS.—PERSONAL.

MANILA, October 26, 1910.

THE regular monthly meeting of the Manila Medical Society was held at the Philippine General Hospital on the evening of October 3, 1910. A paper was read by Major Brookes of the Army Medical Corps entitled "The Report of Recurring Abscess of the Liver." The next paper was a "Report of a Probable Case of Pellagra," by Dr. D. Willets of the Philippine Medical School. Dr. Willets, while on a hookworm commission in the Province of Isabela,

found a case which presented the typical clinical manifestations of this disease, but he had some hesitancy in making a positive diagnosis because it is the first reported case in the Philippine Islands.

The necessity for constant vigilance and frequent inspections in connection with health matters was forcibly demonstrated recently by the inspection which was made by the Bureau of Health of the aerated water factories. While the routine inspection of these was being made monthly for a number of years and the use of sterile water made obligatory, yet upon more careful examination it was found that it was the custom of many of the factories as soon as the inspector had left to disconnect their sterilizing plant and use the raw water from the city mains which is, of course, ameba infected and undesirable in every way for bottling purposes.

The Anti-Tuberculosis Society still continues to make considerable headway in organization. Branches of the society were recently started in Zamboanga and Cebu. Through the aid of the Anti-Tuberculosis Society the Bureau of Health was enabled to open its sanatorium and night camp at San Juan del Monte upon an elevated sanitary site and within street car distance of Manila. Two weeks ago the sanatorium was made ready for the care of thirty patients and all this available space has already been occupied; in addition, tents have been provided for a night camp which will accommodate one hundred persons. The interest of the public has been thoroughly aroused. A number of public meetings have been held; large quantities of literature for public distribution have been prepared; a number of local theaters have held benefits for the society and a general awakening with regard to combating this disease has been manifested.

At the time the new water system for the City of Manila was put into operation it was thought that the watershed from which the supply was obtained could easily be freed of human habitation; it now develops, however, that in addition to the town of Boso Boso, which was recently depopulated, some 20,000 hectares of land still remain in the possession of private individuals, and at least 1,500 hectares of this is excellent farming land. The owners of one of the farms have held out such inducement for settlement that many of the persons who heretofore lived at Boso Boso and whose rights were bought out at considerable expense are now settling down on this new site which is still on the watershed. In the little towns which they have established large numbers of horses and carabaos and other animals are quartered close to the banks of the principal stream and the drainage from the stables flows directly into it. There is also considerable danger of the water being contaminated by the latrines which are used in connection with the dwelling houses. This land is rapidly advancing in value and it is feared that it will soon be beyond the resources of the Government to purchase the same.

During the past few months considerable difficulty has been experienced from the odors which arose in connection with the Calle Herran pumping station of the new sewer system. Persons who live in the vicinity complained bitterly of the nuisance created. A board was finally appointed composed of the city engineer, the chief of the department of sanitation and transportation and the director of health. After a thorough investigation it was found that the trouble arose from bags, dresses, stockings, and other foreign matter found in pails being dumped into the sewer and thus clogged the inlet pipes of the pumps which resulted in the fluid contents being pumped away and the solid matter being left behind, and that in order to remedy this condition of affairs the native attendants who are in charge of the pumps opened the manholes and forced the solid matter onward. The agitation caused by this process was directly responsible for the odors which arose. Steps were taken to prevent the introduction of these foreign substances and no further trouble has been experienced.

Considerable success has been had recently in treating cases of yaws with Ehrlich's new preparation 606. One patient who had extensive eruption on the face and arms was completely cured within a period of ten days. Other cases are now under treatment and a result of the same will be furnished later.

Dr. M. Reichard, formerly of Philadelphia, who was appointed to the Coast and Geodetic Survey, has arrived in Manila and has been assigned to duty on the S. S. Fathomer. Major Lyster of the Army Medical Corps is doing the eye work at the University and at St. Paul's Hospital.

Progress of Medical Science.

Boston Medical and Surgical Journal.

December 1, 1910.

The Doctrine of Vitalism in Medicine. M. G. Seelig.
Present Knowledge of the Laws of Heredity. W. P. Graves.
Postoperative Psychoses. J. G. Mumford.
A Case of Myxofibrosarcoma Originating in the Great Omentum with Involvement of the Bladder and Small Intestine. H. Cabot.

Vitalism in Medicine.—M. G. Seelig states that vitalism concerns itself solely with the abstract thought that there is inherently resident in living matter a directing element or force that is not under the control of the known laws of physics or chemistry. Vitalism is the *testimonium paupertatis* of the scientist, his credo expressed in terms of honest agnosticism. Antipodal to this doctrine of the inscrutability of the fundamental basis of life stands the dogma of the nonvitalist; that since many of the phenomena of life conform with the laws underlying the properties and actions of inorganic bodies one has every reason to assume that the sum total of activities constituting life is as much subject to the laws of chemistry and physics as is the sum total of activities of gunpowder or of the threshing machine. According to this view the human body is a machine, not only in the sense that its activities are directed toward a purposeful end, but also in that each step toward the accomplishment of this end is predicated upon a definite axiom. The sum total of these axioms constitutes the great body of natural law. There are, says the nonvitalist, many axioms still in the crucible of proof, many still unguessed; but the result of the final assay will invariably be the disclosure of a principle as essentially mechanical, physical or chemical as are the already established laws of the inorganic world. The assumption of an intangible, immeasurable vital force is, according to the doctrine, unnecessary and, to say the least, uninspiring.

Laws of Heredity.—W. P. Graves discusses this subject under the following headings: germinal continuity; physical basis for the laws of heredity; proof that the nucleus is the bearer of heritable characteristics; heredity and variation; modifications; inborn variations; discontinuous variations or mutations; telegony and maternal impressions; transmission of acquired characters; heredity in disease; law of filial regression; the law of ancestral inheritance; Mendel's law, and eugenics.

Postoperative Psychoses.—J. G. Mumford states that experience teaches that many persons subject to physical

and mental assaults—to what one calls traumatism and to shock—receive serious mental impressions, which can be demonstrated clinically through searching our records, and can be demonstrated anatomically through the examination of the brains of experimental animals and of patients who have died as a result of some form of physical or mental shock. The clinical evidence of disturbed mental equilibrium is familiar to all surgeons, and the author's researches show that such mental disturbance is especially liable to ensue after operations on the generative organs of both men and women when those organs have not been actually removed, but have been tampered with that the patient lives on in dread of their loss at some future time. For example, operations for varicocele and hydrocele are followed by more pronounced and prolonged neuroses than is the operation of castration. The operations of suspension of the uterus or repair of the perineum frequently leave behind them traits of mental depression more serious than does the operation of ovariotomy, or even of hysterectomy. The explanation in this case seems to be that those deprived of important organs are able to readjust themselves to a positive calamity more readily than are those patients who continue an existence of anxiety regarding a possible future calamity. In view of this situation it behooves surgeons to provide in every way possible against adding physical and mental traumata to their patients. This proposition in itself opens a field of wide speculation and interest and of the greatest practical importance. One must endeavor to guard against mental shock by surrounding the patient with appropriate psychic influences, and to guard against physical shock by limiting operative manipulations to the least possible traumata of the parts involved, and one must employ anesthetics judiciously and appropriately. The conduct of convalescence must be made more painstaking, more optimistic, and more prolonged. One must impress upon the patient the certainty of his return to perfect health; one must eliminate a needless repetition of painful dressings, which so frequently lead through summation to a depressing dread of the surgeon's visit; and after the wound is healed and the patient leaves his bed we should continue, through ourselves, our associates, and the patient's family physician, a constant and sustained attitude of optimism and encouragement to take up and practise the familiar duties and experiences of a well regulated and normal life.

Myxofibrosarcoma.—H. Cabot reports a case of this condition originating in the great omentum, in which the tumor involved the bladder and small intestine. The patient was successfully operated upon. The case is reported on account of its rather unusual character, and as showing how apparently hopeless growths may at times be found curable by operation.

New York Medical Journal.

December 3, 1910.

Iodine, the Ideal Surgical Antiseptic. F. T. Woodbury.
Concerning the Protest, by the Committee Representing Various Women's Clubs, Against Paragraph 70 of the Bill Relating to the Procedures of the Lower Courts of the City of New York. F. Bierhoff.
Hypernephroma. L. W. Blackburn.
The Operative Technique of Cystourethroscopy. L. Buerger.
Report of a Case of Hypernephroma. J. A. Jackson.
The Carbon Compounds of Arsenic in the Treatment of Syphilis. S. C. Runnels.
Centenarians. J. Knott.
The Treatment of Diabetes Mellitus. H. C. Sweet.
Cholelithiasis with Primary Carcinoma of Liver and Chronic Fecal Obstruction. C. M. Stimson.
Cocaine Intoxication. N. S. Yaw.

Iodine.—F. T. Woodbury, on the basis of wide experience, advocates the use of iodine as the sole antiseptic throughout operations for sterilizing hands, instruments, and suture material (at the time of operation without previous preparation), and for its local application in the full strength of the tincture throughout the extent of all wounds and suppurative cavities and on every raw surface infected or likely to be infected, and as an irrigation, in varying, suitable strengths, in all phlogistic conditions where the drug may be brought in contact with the bacterial cause, and as he cannot find in standard textbooks on pharmacology and therapeutics and surgery any reference to iodine as an antiseptic except in a vague way as being liberated from iodoform in the cavities of tuberculous abscesses or as used in the Claudius method of preparing catgut, he believes that he is the first to introduce this very valuable action of iodine to the profession.

Regulation of Prostitution.—F. Bierhoff refers to the protest made by the committee representing various women's clubs against the new statute providing for the medical examination of convicted prostitutes and their subsequent detention and treatment. He states that prostitution is a product of social conditions and economic causes which no legislation can abolish. No laws can force men and women to be all alike in their natural impulses, nor in their powers to resist these. While society may—and should—try, by educational means, to lead men and women to a better understanding of their moral obligations toward each other and toward the community, no laws can compel this understanding and its observance. Prostitution will continue to exist, and with its existence there will be a continuance of the ills consequent upon it. It cannot be legislated out of existence, nor can the ills. The most that legislation can do is to attempt to decrease, in a measure, open and flagrant solicitation upon the streets; to protect the young, innocent, and inexperienced from contamination by hardened offenders, and to protect the health of the community, guilty and innocent alike.

Hypernephroma.—L. W. Blackburn in reporting two cases of hypernephroma of the kidneys and one of what may be designated as adrenal hyperplasia with fatty infiltration of the adrenal cells, states that the term hypernephroma is one given to an epithelial cell growth now known to be derived from adrenal tissue, whether of the gland itself or aberrant hypernephric tissue situated elsewhere; being most frequently met with in the kidney, the term usually implies a renal tumor if unqualified. Knowing that there is in the adrenal gland only mesodermic epithelium, mesodermic connective tissue, and a few ganglionic nerve cells, one must acknowledge that in this neoplastic derivative there is a potentially or actually malignant combination tumor, the essential elements of which are mesodermic epithelial cells. The growth is, however, not essentially different from the mesoblastic malignant epithelial growths of the kidney and other organs of known mesoblastic embryogenesis. It differs from those tumors, however, in several respects which entitle it to a recognition as a special tumor though closely allied to so-called ordinary mesoblastic cancers.

Cystourethroscopy.—L. Buerger describes the operative technique of this procedure, stating that the cystourethroscope has a still wider scope of utility in the execution of therapeudic procedures than the older instruments. As for the ease and exactness with which even complicated operative measures can be performed, one can say without hesitation that the irrigation instrument surpasses the direct vision types.

A Case of Hypernephroma.—J. A. Jackson reports a case of this condition occurring in a patient who had pulmonary tuberculosis with an enterocolitis; the tumor was found at the post-mortem examination. There were no evidences of metastasis, the adrenals were free, and the growth was confined to the right kidney; a brief description of this organ comprises the body of the report.

Arsenic and Syphilis.—S. C. Runnels states that from a theoretical standpoint sodium cacodylate has several

advantages over dioxydiamidoarsenobenzol. The latter cannot be obtained in this country at present, while the former is at hand, and it is only necessary to test its purity before using. 606 will probably be very expensive, while the cost of the other is merely nominal. 606 causes pain on injection, while the cacodylates do not. Of the two the instability of the dioxydiamidoarsenobenzol is the more marked, for while the cacodylates break down in a few months, giving off poisonous products, it is necessary to ship the other in hermetically sealed vacuum capsules to prevent immediate decomposition. The maximum dose of the cacodylates, for safety, 0.3 gram per kilogram, is twice the size of that of 606, 0.15 gram per kilogram, proving that in the experimental animal it is much more safe. The arsenic content of 606 is 34 per cent., while that of sodium cacodylate is 46.8 per cent.; the latter, therefore, is capable of delivering, weight for weight, 38 per cent. more arsenic. Theoretically there seem to be some grounds for belief that sodium cacodylate should be more than a third more efficacious The entire dose of sodium cacodylate is dissolved in the blood, whereas a large percentage of 606 remains unabsorbed and therefore unacted upon at the site of injection. This means that those who have been treated with 606 afterward carry around in their persons indeterminate amounts of arsenic. This has in no way had any therapeutic action and is worse than wasted. It is said in favor of Ehrlich's compound, however, that that portion of it which enters the blood possibly breaks down with more ease and therefore delivers its arsenic content more readily than does sodium cacodylate.

Centenarians.—J. Knott believes that the production of centenarians has become a much more familiar feature of the accepted records of human existence within the past few decades. Some observers of the undoubted fact would explain it by the more accurate registration of births and deaths, which embalms facts that were formerly allowed to perish—either by negligence or scepticism, or a combination of both. Others, who happen to be optimistic believers in the efficacy of the methods of modern hygiene and sanitation, would attribute the prolongation of the span of human existence to the results obtained under their combined preventive and preservative influences. All the evidence which is now before the scientific world goes to show that the span of average human life is lengthening; so that one has this consoling consideration to offer its small contributory item of comfort to the wearied in an age of hurry and worry—universally expanding, as regards both national and individual progress, as these detestable features of modern existence unquestionably are. The additional physical comforts, the sanitary improvements, and the almost universal diffusion of some of the sound elementary facts and concepts of hygiene and allied sciences have more than compensated, upon the whole, for the excess of wear and tear produced by the increased speed which is now so necessary for competition in the race for material success, and the progressive emulation which the growth of numbers and the gradual elevation of the altitude of the higher test standard of skilled labor—mental as well as physical—have necessarily created in every locality and in every profession and occupation of life.

Cholelithiasis.—C. M. Stimson reports a case the interesting points in which were the existence conjointly of three pathological conditions, namely: cholelithiasis, primary carcinoma of the liver, and chronic fecal obstruction, and also the presence of almost continuous intense pain from the time the patient was confined to bed.

Cocaine Intoxication.—N. S. Yawger describes the symptoms and treatment of acute and chronic cocaine poisoning.

Journal of the American Medical Association.

December 3, 1910.

Etiology of Ptoses and Their Relation to Neurasthenia. E. Reynolds.
Relation of Recruiting to Preventive Medicine. W. H. Rennie.
Conservative Utilization of the Wassermann Reaction. D. M. Kaplan.
The Colonoscope. H. Stern.
Exophthalmos in Brain Tumor, with Report of Eight Cases. T. H. Weisenburg.
Brain Tumor of Psychomotor Area Causing Jacksonian and Generalized Convulsions, Visual Hallucinations, Somatic Delusions, Astereognosis and Hemiplegic Paralysis, Operation; Recovery. Mental and Physical. F. W. Langdon and S. P. Kramer.
Three Cases of Tumor in the Cerebello-Pontile Angle. J. Grinker.
The Topographic Diagnosis of Subtentorial Brain Tumors. H. H Hoppe.
Ehrlich's Biochemical Theory, Its Conception and Application. L. H. Marks.
A Case of Torsion of the Great Omentum. W. W. Richardson.
Myiasis Dermatosa Due to the Ox-warble Flies. R. T. Miller.
Revised Directions for Making and Using the Wright Blood Stain. J. H. Wright.

Etiology of Ptoses and Their Relation to Neurasthenia.—E. Reynolds presents this paper which was reported in MEDICAL RECORD, July 16, 1910.

Recruiting and Preventive Medicine.—W. H. Rennie states that the one essential requirement for the best results in selecting recruits is the strict adherence to a fixed, invariable, systematic routine method of examination. He gives instances of the influences brought to bear on recruiting surgeons, both for and against enlistment, by friends and states the requisites of an efficient recruiting surgeon as follows: Good powers of observation, a keen eye, mental alertness, considerable knowledge of human nature, complete understanding as to service conditions, and the calls that are made in each rating and, with all this, a proper interest in the service. Landsmen surgeons have been found repeatedly not to obtain the best results in recruiting on account of their lack of the special training required under actual service conditions.

Conservative Utilization of Wassermann Reaction.—D. M. Kaplan reaches the following conclusions: When a serum is submitted for diagnosis the laboratory report should read "negative" or "positive." No qualifications as to degree are necessary. For diagnostic and therapeutic purposes the laboratory report should always be collated with clinical findings. Negative reports are of value in therapy. Treatment should be stopped for from four to six months after the patient becomes clinically and serologically normal, and at the end of this period the test should be repeated. All patients having been cured of syphilis ought to have for preventive purposes a test performed twice a year. Some patients who have had syphilis never lose the positive reaction in spite of any therapy. A negative report obtained on a serum from a suspicious case should defer treatment until the course of the disease decides the etiology, provided there is no danger in delaying treatment. With a positive report one must not lose sight of the possibility of another disease being present beside syphilis. Advanced scleroderma and old leprosy are more positive than old syphilis, quantitatively and qualitatively. In active tabes 88 per cent. and in quiescent tabes 44 per cent. of positive reactions were obtained.

The Colonoscope.—H. Stern describes an instrument for the inspection of the sigmoid flexure which he claims possesses a number of advantages over other instruments intended for the same purpose.

Exophthalmos in Brain Tumor.—T. H. Weisenburg alludes to the small attention that has been given to the subject of exophthalmos in connection with brain tumor in the literature of the subject. His attention was particularly directed to it by a number of cases which he has observed during the last few years. Eight of these are briefly reported. In five a necropsy was made. The neoplasms were located in nearly every part of the cranial cavity and varied in their nature so that there appeared little connection between the character of the tumor and its location and the exophthalmos. In some cases the or-

bits were examined and in others the nature of the growth was such as to preclude any metastasis to the orbital cavity. Basedow's disease was excluded in all. The exophthalmos was bilateral in all the cases of internal hydrocephalus and those in which the tumor involved both sides of the brain, with the exception of a basal tumor. In the unilateral growth it was on the side of the lesion. The conclusions which he draws from the study of the subject are: Exophthalmos accompanies brain tumor more frequently than is generally supposed. It occurs only in those cases in which there is great intracranial pressure, especially when there is, in addition, direct interference with the normal flow of the cerebrospinal fluid. Exophthalmos is produced by direct pressure on the cavernous sinus. Its presence is of some clinical value, inasmuch as unilateral exophthalmos is nearly always indicative of an intracranial lesion on the same side. In those cases in which the protrusion is bilateral there is nearly always a greater exophthalmos on the side of the greater intracranial pressure or lesion.

Brain Tumor of Psychomotor Area.—F. W. Langdon and S. P. Kramer report a case of tumor in the left psychomotor area with visual hallucinations, somatic delusions, astereognosis, and right hemiplegia, but without the usual symptoms of headache, vomiting, vertigo, and papilledema to any extent manifest. Recovery followed operation and removal of a tumor imbedded in the brain, adherent to the pia and involving the middle third of the left precentral convolution, growing downward and diagonally backward across the Rolandic fissure and displacing but not invading the post-central convolutions. It was encapsulated, presenting numerous small protrusions and cysts on its buried or subcortical surface. Its weight was 26 grams, and on microscopic examination it proved to be an endothelioma, starting from the pia mater. The case is considered worthy of report on account of the peculiar mental symptoms and somatic disturbances without the usual general symptoms of brain tumor. There were no speech disturbances other than those due to mental condition.

Cerebellopontile Tumor.—J. Grinker reports three cases of tumor in the cerebello-pontile angle. In the first case three operations were performed before the tumor was detected and a portion of it was removed. The patient afterward died and at the autopsy the entire left hemisphere was found occupied by a gliomatous consolidation. The history of the case brings out prominently the following points: 1. The presence of pulsation does not necessarily mean absence of tumor underneath. 2. Once a patient has become blind and other symptoms such as severe headache, vomiting, and vertigo are not troublesome, a radical operation may possibly verify a doubtful diagnosis but is of no service to the patient. This fact should lead to the performance of decompression before blindness comes on. Lumbar puncture may occasionally prove beneficial in such cases, with due care to prevent sudden escape of fluid. In this patient the removal of only about an ounce of cerebrospinal fluid relieved a headache which had resisted all other treatment. The second case, in which the patient also died but in which there was no autopsy, emphasized the importance of unilateral sensory disturbances as a suggestion of organic disease, and the fact that focal symptoms of cerebellopontile tumors often precede the general symptoms by a considerable period of time. In the third case the symptoms were rather characteristic, but a diagnosis of cerebral hemiplegia had been made because of a sudden appearance of right-sided weakness combined with facial involvement. This symptom occurring in tumors in this location has been differently accounted for by authorities, some claiming it to be a real motor paralysis and other explaining it as a sign of cerebellar asthenia. Among the latter is Luciani who described three symptoms as characteristic of cerebellar lesion produced experimentally, namely, atonia, asthenia, and abasia. Clinicians have found this triad of symptoms in disease of the cerebellum, and particularly in tumor of that region. In this case the headache was principally in the frontal and parietal regions instead of in the occipital, but this symptom has little localizing value.

Subtentorial Brain Tumors.—H. H. Hoppe states that one cannot lay too much stress on the early diagnosis of tumors of the cerebello-pontile angle, since in their early stages they are very amenable to surgical treatment, though later little is to be hoped for from it. The aurist should be the first to recognize them, because of the prominent ear symptoms and impairment of hearing. Tumors of the cerebello-pontile angle show a predominance of unilateral focal signs on the part of the fifth, sixth, seventh, and eighth nerves, whereas tumors of the pons and medulla show bilateral focal signs with a clear indication of alternate hemiplegia. In both the focal signs may precede the general signs of brain tumors. Pons and medulla tumors, being small, produce less marked signs of brain tumor, whereas angle tumors have, later on, well-marked general signs. Choked disk is usually absent in pons tumor, but in angle tumors is almost invariably present, together with headache, vomiting, and vertigo partly due to an associated hydrocephalus. Not only is it difficult to say whether the disease is unilateral or not, but it is often difficult to rule out growths of the frontal lobe or to say certainly whether the symptoms are caused by tumor, or acquired internal hydrocephalus, or whether there is no tumor at all, but only a case of pseudotumor of the brain. The author takes up separately cerebellar ataxia, which is typical probably only in tumors of the vermiform lobe; the hemiataxia, hemisynergy, and tremor which may be of topographic diagnostic importance as indicating the side affected; the atonic paresis of one side, the vertigo which is invariably present, but not of much localizing value, the nystagmus which is a sort of nystagmic jerking when the eyes are turned to one side or the other, and is frequently seen in subtentorial growths. He also calls attention to the fact that the position of the head and the position of the body have a marked influence in bringing out signs of cerebellar tumors that may be latent. General or unilateral convulsions of the cerebellar type, viz., opisthotonos, momentary loss of consciousness with a general clonic spasm of very short duration, are indicative of subtentorial pressure and irritation of the pons rather than of intracerebellar tumor. Probably one of the most valuable signs indicating the site of the lesion is adiadokokinesis to which Babinski has called attention. By this is meant a slowing of movement of alternating character, and is best illustrated by successive pronation and supination of hand and forearm. In lesions of the cerebellar hemispheres there is a marked slowness in these movements of the homolateral side. It sometimes manifests itself as a slowness of speech due to the inability of the patient to rearrange his lip and tongue muscles rapidly. Other speech disturbances have been ascribed to cerebellar lesions, such as a jerky staccato speech. Other symptoms have been noticed by various authors, but not confirmed by others. Oppenheim says he finds a dulness on percussion on the side of the lesion, and Bruns calls attention especially in children to tenderness on percussion and the cracked-pot sign on the side of the lesion.

Ehrlich's Biochemical Theory.—L. H. Marks in expounding the work that Ehrlich has accomplished in the past seven years states that the latter has done far more than merely lay the foundation of a new science. His most valuable contribution to science is the basic idea that a specific chemical affinity exists between specific living cells and specific chemical substances. In his work on the trypanosomes Ehrlich studied the drugs that enter into

this chemical affinity. Of these drugs there are three groups: 1. The arsenic group, examples of which are arsenious acid, atoxyl, and later the new atoxyl substitution products, such as acetylatoxyl, arsenophenylglycin and dioxydiamidoarsenobenzol. To this group can also be added the antimony compounds. 2. Certain azo-dyestuffs, such as trypan-red, discovered by Ehrlich and Weinberg, and trypan-blue and trypan-violet, discovered by Mesnil. 3. Certain basic triphenylmethan dyestuffs, such as parafuchsin, methyl-violet and pyronin. The mode of action of these different drugs varies, according to Ehrlich, as follows: 1. Some substances have no effect on the parasite in test-tubes and possess no curative properties; in other words, the trypanosomes possess no receptor which fits into the atom grouping of the substances. 2. The substance has a highly destructive action on the parasites outside the body; but has absolutely no curative effect. This is best illustrated by the experiment of Koch with anthrax bacilli and bichloride of mercury. 3. The substance has absolutely no effect on the parasites outside the body, but shows a highly or completely curative action when within the body. This is an indirect action and under this category can be placed most of those drugs which are of practical interest.

Torsion of the Great Omentum.—W. W. Richardson reports a case of this condition belonging to the group of intrahernial and intraabdominal torsion about two points.

Fly Larva Infection.—R. T. Miller reports a case of infection of the skin with one of the ox-warble flies, a parasite of cattle almost exclusively.

Wright's Blood Stain.—J. H. Wright revises his directions for making and using the Wright blood stain

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The Lancet.

November 26, 1910.

Thrombotic Softening of the Spinal Cord as a Cause of So-called "Acute Myelitis." H. C. Bastian.
The Diseases of Elephants' Tusks in Relation to Billiard Balls. J. B. Sutton.
Diffuse Lipoma. Sir J. Hutchinson.
The Progress of Infection in Phthisis. Containing a Plea for the Treatment of Early Cases by Absolute Rest. L. Cobbett.
The Preparation 606; the Treatment of Syphilis by Ehrlich's Method; Indications and Contraindications; Observations Made in Germany. E. Emery.

Thrombotic Softening as a Cause of Acute Myelitis.—H. C. Bastian concludes that the evidence seems to be overwhelming that in the great majority of cases of acute myelitis, and also of acute poliomyelitis, the affection is caused not by an inflammation, but by thrombosis of some of the vessels of the spinal cord (where, in the latter disease, it is not due to a special acute degenerative process). Certainly, in the former affection one has in the great majority of cases to do with thrombotic softening rather than with a true myelitis. This latter conclusion is rendered obvious (1) by the similarity of the morbid changes in question to those occurring in the brain which are due to thrombosis, as well as to the absence of any reason why a primary inflammation should be rare in the brain and common in the spinal cord. These strictly logical reasons are strongly reinforced by (2) the fact of the existence of special conditions favoring the occurrence of thrombosis in the vessels of the spinal cord, and in just such parts of the cord as are most frequently affected; (3) by the fact that the disease is most commonly met with in just such persons and under just such conditions (as to heart's action, blood-vessels, and quality of blood) as are known to be favorable to the occurrence of thrombosis; (4) by the fact that the mode of onset and the early symptomatology of the affection are wholly different from what they would be had an inflammation of the cord actually existed; and finally (5) by the fact of the absence of any reasonable cause of inflammation, certainly in the majority of those in whom the malady makes its appearance.

Diseases of Elephants' Tusks.—J. B. Sutton contributes a humorous essay upon this subject, which can be valued only in the light of comparative pathology.

Diffuse Lipoma.—Sir J. Hutchinson states that the occurrence of fat tumors on the nape of the neck in the human subject has been observed by many. Sometimes disease may be located chiefly in the hair follicles or glands, sometimes the structures of the true skin may undergo hypertrophy, and in others a tendency to overgrowth may appear to be almost exclusively expended in overdevelopment of fat. It is from the latter condition that the enlargements with which the author deals originate. They are paleogenetic aberrations in the human subject of the base of the mane in animals. Until recently they have been supposed to occur only in the human subject, but recent observations have led the author to think that, as might have been expected, they occur also in some of the domestic animals. Nor must one, although he attach great importance to the region of the mane as giving to these growths their special location, narrow his observations to that region only. Wherever there are deeply placed hair follicles embedded as they always are in fat, there such hypertrophies may occur. These conditions occur very definitely in the region of the pubes.

Progress of Infection in Phthisis.—L. Cobbett discusses this subject and presents a plea for the treatment of early cases by absolute rest. Tuberculosis in man confers a certain degree of immunity, and it is on the acquisition of the new or improved powers of resistance which are the cause of this immunity, slight though they be, that the hope of recovery mainly depends. Certain observations on the lesions of calves injected with tubercle bacilli of the human and bovine types respectively lead the author to believe that the powers of resistance which develop during infection, and which lead in favorable cases to cure, are partly local and partly general. Experiments made many years ago on the cause of the local immunity caused by erysipelas lead the author to think that it is not improbable that the local powers of reaction become quickened and improved; possibly the endothelial cells become less sensitive to the poison, owing, it may be, to the development of an antibody, so that they now react by multiplication to a concentration of poison which originally would have caused necrosis. But whether the local powers of defence undergo improvement or not, one must believe that they hold the disease in check until new or improved constitutional powers, whatever they may be, have had time to become evolved, and so far perfected that the disease is arrested. In man, as in the ox, the severity of a tuberculous infection is largely determined by the number of bacilli which gain entrance at the start. As tuberculosis runs its course and the capacity of resistance increases it will require as time goes on an increasing number of bacilli to infect any new region of the patient's body. The author comes to the final conclusion that resistance to tuberculosis like resistance to other infections, is a very specific matter, and does not necessarily go hand in hand with what one regards as the general bodily health. We commonly assume that the two go together, and do everything to encourage the general well-being. We prescribe the most nourishing food, recommend fresh air, and are not adverse, in what we deem suitable cases, to moderate exercise. So far good, but the author thinks we should ever bear in mind in phthisis the menacing danger of the infection of new areas and do all we can to avoid it, or to postpone it until the patient has become more immune. And if we can do this in the early stages by absolute rest in bed, he does not think we should be deterred therefrom by the fear that the general bodily health will suffer.

Treatment of Syphilis by 606.—E. Emery, who, at the instance of Professor Alfred Fournier, was the first

Frenchman to visit the laboratory of Ehrlich and the various clinics of Germany to study the value of 606, comes to the following conclusions: 1. That the Ehrlich method up to the present is contraindicated as regards elderly men; for all persons having non-syphilitic visceral lesions —renal, cardiac, hepatic, splenic, pulmonary, and vascular affections, such as advanced aneurysm of the aorta, again particularly as regards patients who have not a normal condition of the fundus oculi. Toward patients who suffer from a severe syphilitic affection of the brain, such as recent hemiplegia, acute or subacute meningoencephalitis, it is necessary to observe the utmost caution, and, awaiting more ample information, to intervene only in very grave or desperate cases when mercury has ceased to be efficacious. Constitutional weakness and cachectic conditions are not always contraindications. 2. That the Ehrlich method is formally indicated: (a) for all patients in whom the lesions do not yield to mercury; (b) when a relapse takes place following immediately on an apparent cure with mercury; (c) in cases of repeated relapses; (d) when a total mercurial idiosyncrasy contraindicates the use of all mercurial forms of treatment; (e) for all patients attacked with malignant syphilis, with secondary or tertiary syphilides deeply destructive and mutilating, or most serious on account of their position and the disorders or dangers that they occasion; (f) again, for attacking syphilis when the chancre first appears, on condition that one adds to this the initial treatment of the spot attacked by an intermittent and prolonged mercurial course. 3. That in every other case one may, according to the circumstances and fitness, independent even of the infection, use either Ehrlich's method or the old mercurial methods. The author thinks, as do a number of writers on syphilis, these two methods of treatment assist and supplement each other in a certain number of cases. A long comparative study of the two kinds of treatment, of their advantages, their inconvenience, and their efficiency, will allow one to determine within narrower limits the precise indications for one or for the other. Whatever may be the fortunate future of Ehrlich's discovery, one cannot withhold an unreserved admiration from this sympathetic *savant* whose whole scientific career is a model and an example of ingeniousness, of logic, and of perseverance. No link is wanting in the unbroken chain of his experiments, all directed toward one end. From the very beginning of his studies Ehrlich set himself the task of determining the elective affinities of certain chemical substances toward the various organic tissues. After having shown the affinity of the granulations in blood corpuscles toward certain coloring matter, after having proved the existence of chemical substances which are fixed by the living microorganisms in the human body, he discovered this elective action shown by certain arsenical compounds toward spirilla. One can state, therefore, that the discovery of 606 is not due to mere chance, but, on the contrary, is the ultimate result of a whole series of researches conducted with scrupulous care and admirable certainty of deduction. It is better than the spontaneous creation of a purely intuitive genius: it is the crowning point of a splendid scientific career and the work of a lifetime.

British Medical Journal.

November 26, 1910.

The Use of Elastic Traction and Elastic Pressure in Surgery. G. A. Wright.
High Blood-Pressure in Arteriosclerosis. R. D. Rudolf.
The Reaction of the Heart to Digitalis When the Auricle Is Fibrillating. T. Lewis.
Variation of the Fermentation Properties of the *B. Typhosus*. W. J. Penfold.
A Case of Diaphragmatic Hernia in an Adult. E. Rinerose.

Elastic Traction and Elastic Pressure in Surgery.—G. A. Wright after reviewing some of the many uses to which elastic pressure has been adapted gives a somewhat detailed consideration of the use of rubber as an orthopedic agent. In cases of flexion deformity where no actual ankylosis is present, but immediate straightening by force is undesirable, no more valuable means of rectification exists than elastic tension. At this point the author notes the advantages which rubber possesses over other means of employing tension. First rubber has the advantage over steel springs in that its tension can be employed through a much wider range, as the strength of the tension is capable of more ready adjustment. It is much easier to apply slighter degrees of traction or pressure, much easier to arrange for the exact degree of traction required, and, in addition, any apparatus needed may be readily and cheaply improvised. The appliances are indeed exceedingly cheap, easily manufactured, and easily replaced. A little ingenuity and some rubber cord is the stock-in-trade, though patience and care are, of course, also necessary, as living tissues cannot, as some surgeons seem to suppose, be dealt with quite as if it was a question of cabinet making or upholstering. Pressure sores are a possible result of mismanagement or neglect, and are easier to make than to repair.

High Blood-Pressure in Arteriosclerosis.—R. D. Rudolf states that when in a case of arterial thickening a raised blood-pressure is detected such a rise may be due to one or more of the following causes: 1. Toxemia; such toxemia being at the same time the direct cause of the arterial disease by directly poisoning the vessel walls. A good example of such a poison is nicotine which directly raises the blood-pressure, and according to many authorities, also acts directly upon the vessel wall as a poison. Probably there are very many such toxins manufactured in the alimentary tract or in the tissues of the body. 2. Some toxin which has nothing to do with the associated arteriosclerosis, but is directly raising the pressure. One might theorize that in an arteriosclerotic patient the adrenal tissues might be from time to time overactive, and might thus produce periodic rises in pressure, as might occur in individuals not arteriosclerotic. 3. Compensatory. It is well known that if some vital tissues, such as those in the medulla, be rendered anemic—say, by the pressure of a new growth—the blood pressure rises enormously, seemingly with the object of forcing blood at all hazards into the part. If such a part of the brain be supplied by a vessel the lumen of which is much narrowed by disease, it is likely that the blood-pressure will rise from the same cause. 4. Simple nervousness. It is very common to find the pressure high from nervousness, and if an arteriosclerotic happens to be also a neurasthenic his pressure may be high from this cause alone. 5. Lastly, the raised pressure may be due to the arterial disease alone, and in this case probably the splanchnic vessels, or the aorta leading to them, are extensively diseased.

Reaction of Heart to Digitalis.—T. Lewis states that the case for which he pleads—that digitalis slowing is a result of heart-block when the auricle is fibrillating—is very materially strengthened when the following facts are considered: The type of case in which, with the normal or coordinate contraction of the auricle present, heart-block is readily provoked by digitalis administration, is the advanced rheumatic heart, and *a fortiori* the heart affected by mitral stenosis. It is a striking fact that of all cases of clinical auricular fibrillation those which are of rheumatic origin, and *a fortiori* those affected by mitral stenosis, show the characteristic slowing of digitalis to most advantage. This is the type of case in which digitalis acts in so magic a fashion, and in which the rate of the ventricle is set by the dosage employed; it is the type of case in which the ventricular rhythm may be sometimes reduced to regularity, and in which the rate may be reduced to that consistent with a true ventricular

rhythm. On the other hand, there is the type of patient in whom no reaction ensues upon the exhibition of the drug. Now Mackenzie has shown that digitalis produces heart-block in those patients in whom a previous defect of conduction exists. The proposition the author advances is a parallel one, namely, that the ventricle is retarded in auricular fibrillation by digitalis when there is a preexisting damage of the junctional tissues, a damage which is frequently demonstrable in cases of rheumatic heart affection. The complete evidence in support of this proposition will require observations upon patients in the early stages of the affection. It is requisite that it be demonstrated that a large proportion of the cases which react to digitalis had a deficiency of auriculoventricular conduction before the onset of fibrillation. The author presents the facts in regard to three cases in which the heart-rhythm was observed before the onset of fibrillation, or during the intervals of rest between attacks. The cases were thoroughly tested with digitalis during the stage of fibrillation. Two cases, in which no previous defect of conduction could be demonstrated, failed to show a trace of reaction to the drug. The third case in which deficiency of conduction was clearly established reacted repeatedly and in the most typical manner.

Fermentation Properties of Typhoid Bacillus.—W. J. Penfold finds that cultures fresh from the blood or excretions of typhoid patients show an almost absolute conformity to type in respect of fermentation characters, whereas the agglutination tests, when applied to freshly isolated strains, not infrequently break down. It seems, therefore, that, in the recognition of these organisms, fresh from the body, the fermentation characters take a preeminent position. In conclusion, the author puts in a plea for the value of the fermentation tests in elucidating the laws of bacterial variation. They are easily applied, and if once understood would probably explain many of the most difficult problems in connection with virulence and other properties of microorganisms.

Diaphragmatic Hernia.—E. Ringrose reports a fatal case of this condition occurring in an adult. The large omentum had passed partially through the hernia into the thorax. About one-quarter of the small intestines was in the thorax, and together with the fundus of the stomach and omentum had compressed the left lung against the vertebral bodies. The transverse colon was empty, but still passed horizontally across the abdomen a little below the level of the umbilicus. The hernia was situated on the left side of the diaphragm, and admitted the whole hand; its edges were formed of distinct muscular bands, the free edge being smooth and rounded; the upper edge formed a well-defined falciform border reaching from the middle arcuate fibers to the attachment of the diaphragm to the twelfth rib. There was no evidence of any tear or laceration; in fact, the condition strongly suggested a long duration, if not a congenital deficiency of the substance of the diaphragm between the middle arcuate fibers and the external acruate band. There was no sac. It was of interest to note that after reducing the hernia, that is, pulling back the fundus and intestines into the abdomen, the condition at once recurred, being highly suggestive that this migration into the thorax had been of some considerable standing.

Berliner klinische Wochenschrift.

November 21, 1910.

Supersensitiveness to 606.—Wechselmann discusses briefly supersensitiveness, both local and general, to the Ehrlich-Hata remedy. This is naturally a difficult subject, for the apparent supersensitiveness may be due not to the drug, but to the liberated endotoxins of the disease. Local supersensitiveness, excluding the possibility of accidental infection from pyogenic germs, doubtless explains the occasional occurrence of local necrosis at the point of injection. This necrosis appears to result from the unabsorbed drug, which may produce a dense nodule, with death of the tissues in the central portion. Much of this nodular formation is due less to hyperergy on the part of the drug than to the medium of solution. The excess of acid may either irritate ordinary tissues, or tissues supersensitive to acids. Manifestly such additional irritation must be excluded as far as possible. Orth has recently made serial sections of these nodules and has found them sterile as to germ life; the sole irritant, as already stated, being the unabsorbed arsenobenzol acting on supersensitive tissues. In regard to the general reaction, cases of paresis in which liberation of endotoxins should be negligible in degree have shown a supersentiveness suggesting idiosyncrasy to arsenic. Further study appears to show that in a small percentage of cases the remedy sets up a symptom-complex of a definite type, due neither to the necessarily liberated toxins nor to the arsenic in the molecule—high fever, angina, exanthems and enanthems, nephritis; in short a condition closely resembling serum disease. To patients with weak heart such an outbreak might prove very dangerous. The author seems to connect this supersensitiveness with antigen formation in connection with liberation of toxins. We have thus far been told that liberation of toxins was a necessary step in the action of the remedy and that a reaction should be in proportion to the toxins liberated. This phenomenom is not dependent on supersensitiveness. The reaction due to the latter should be a different phenomenon —should occur when endotoxins are not liberated, as in paresis and in nonsyphilitics. The author in his brief sketch does not sufficiently differentiate between the two sets of phenomena.

Optic Neuritis Following Use of 606.—A few cases of opticus lesion have come to light in connection with the use of the Ehrlich-Hata remedy, but these are not of a character to discredit the latter; with the rapid spread in the use of the remedy, a case now and then is bound to occur as a mere coincidence. Kowalewski describes a case which well illustrates the point. His patient had at the outset a severe case of recent syphilis which yielded promptly to one injection of the remedy. However a relapse occurred, which assumed the shape of intolerable headache persisting some days, and followed by typical optic neuritis. The mechanism of the case was simple enough. The relapse took the form of a meningitis which was propagated along the sheath of the opticus with eventual neuritis. Not caring to inject 606 a second time, patient was placed on an inunction cure (Hg) and promptly recovered—so promptly, in fact, that the author believes that the disease had been all but cured by 606. He suggests as a matter of prudence that one should follow up the single injection of 606 with an inunction cure.

Internal Secretion of the Generative Glands.—Münzer concludes his long serial article on this subject. He ends with a study of the results of castration on the psyche. Our information along these lines is scanty. No one seems to have studied the development of the brain in castrates—at least since the time of Gall, who found the cerebellum undeveloped; a sequence also claimed to be constant for all castrated animals, both by Gall and his school and by various moderns. We know empirically that in the miniature individual, as well as in those who were castrated early in life, sexual desire is in abeyance—is extinct. When the generative glands reach their maturity, they exert a certain action on the brain, giving rise to the sexual impulse. Changes in character and personality are even more in evidence. Man is believed to owe his courage, energy, industry, etc., to his generative glands.

Women after castration are believed to be irritable, moody, and combative. The mental state is one of depression. The psychical alternations in both sexes after castration are believed to be due to a species of autointoxication. In one predisposed to psychosis castration would intensify the condition.

Münchener medizinische Wochenschrift.

November 22, 1910.

On Caution in the Use of Iodine Internally.—Krehl would always examine the thyroid before pushing iodine or iodides. He would consider enlargement of the thyroids a contraindication to the use of the drug in arteriosclerosis. The patient should also be investigated as to the possible presence of thyrotoxic symptoms, which also contraindicate iodine. The author believes further that indiscriminate use of iodine causes both enlargement and hyperactivity of the gland. If iodine is given when thus contraindicated, the condition set up appears to resemble the so-called "iodine cachexia" as described by others.

Intermittent Limp.—Professor Erb writes briefly of a condition which he long ago helped to make known. He touches first on the so-called "tobacco etiology" of the condition which has recently been put in evidence by himself and others. His personal and other available figures appear to sanction such a view. In fact, the more he sees of the condition the more he is inclined to recognize tobacco as a causal element, to the same degree that it is a cause of arteriosclerosis. Another element is the natural tendency to cold feet, including traumatic coldness of extremities (from special exposure). In the last dozen or so cases examined Erb could feel no femoral pulse, although the stethoscope revealed a faint arterial murmur. This symptom is unilateral as a rule and brought out by comparison with the sound side.

On the Question of Marriage of Girls with Heart-Disease.—Jashke discusses this problematic subject in much detail. He is concerned chiefly with the effects of pregnancy on the mother. In regard to childbearing by women with valvular lesions he cites many figures to show that the danger is exaggerated. Women with such lesions continue to bear children. The type of case described by obstetricians as contraindicating pregnancy and as furnishing a special obstacle to delivery is an extreme one and leads us to another type of case, to wit, that with impairment of the myocardium, with actual chronic insufficiency. The diagnosis of the intimate nature of this lesion is difficult at best. Many varieties are to be found under this head, for chronic insufficiency of the heart is not necessarily due to degeneration of the myocardium. Fatty infiltration, goiter-heart, congenital stenosis of the arteries, pressure lesions, etc., may cripple the normal action of the heart and must be separated from actual disease of the myocardium, which latter, when in evidence, is sufficient to contraindicate marriage and pregnancy. In regard to pure neuroses of the heart, these not only do not contraindicate marriage, but may at times be improved by it.

Extensive Poisoning by Hyoscyamus Niger.—Phillipi and Muhle report an episode of this sort, said to be rare in literature. A number of people partook at once of roast meat, potatoes, and blackroot. Within two hours all exhibited evidences of poisoning by some member of the solanaceæ family. Mydriasis was present. The blackroot *(scorzonera hispanica)* could not in itself be toxic, but was evidently mixed with or replaced by a weed containing hyoscyamus *(h. niger)*. This was evidently a result of careless harvesting, the blackroot having been accidentally mixed with the toxic plant. The symptoms induced were of the type caused by the solanaceæ, with the differential marks which distinguish hyoscyamus from other members of the group.

Deutsche medizinische Wochenschrift.

November 27, 1910.

Action of the Ehrlich-Hata Remedy on the Eye.—Wechselmann studies this subject from the point of view of the effects of the remedy on patients with syphilis of the eye. The material, therefore, comes largely from ophthalmological sources. In a series of 250 cases the eye was examined before the injections were practised. In none of these cases did the injection of "606" give rise to any alteration of the eye. The author has now controlled over 1,400 cases, and has yet to note any evidence of injury to the eye as a result of the treatment. It is, however, probable that an optic nerve rendered supersensitive by previous injections of some of the more toxic arsenical compounds may be unfavorably influenced by 606. Even in untreated syphilis or syphilis treated with Hg. optic neuritis may occur as a rare phenomenon. Some authorities have so much confidence in the innocuousness of 606 in causing optic neuritis that they would not hesitate to prescribe it if that condition were actually present. The author regards this course as unwise.

Etiology and Treatment of Detachment of the Retina.—Horstmann believes that this condition cannot occur save as a result of disease of the vitreous. This depends for its nutrition on the choroid plexus and ciliary body. All cases thus far recorded which have been subjected to microscopic examination confirm this teaching. Hence a variety of intraocular affections may give rise to the retinal lesion (space does not suffice to enumerate them). In regard to treatment, rest is of the first importance and very many recoveries have resulted from this resource alone. Only when this fails completely should we proceed to operative measures. Most of those advocated are of no value. The author contents himself with recommending but one, to wit, scleral puncture, to lessen the amount of fluid beneath the retina.

Functioning Muscle Substitution.—Kron enumerates many instances of this character from general and personal records. He deals in part with congenital defects of muscles, and in most of the cases cited the defects were in the muscles of the neck, chest, shoulders, etc. Cases are also cited of replaced paralyzed muscles, such as result from neuritis. Thus the author replaced a paralyzed deltoid (from poliomyelitis) with the clavicular pectoralis, which had already undergone compensatory hypertrophy. The lower extremity yields results greatly inferior to those of the upper part of the trunk in this connection.

Paratyphoid Osteoperiostitis.—Osteoperiostitis due to Eberth's bacillus and a small number of other germs is well enough known, or is at least to be found mentioned in standard works. The paratyphus germ has hardly yet been mentioned in this connection but Jensen and Kock of Copenhagen have placed a case on record. Of great interest is the apparent fact that a period of latency of 20 years occurs in this case. In 1889, long before the isolation of paratyphus fever, patient had a typhoidlike fever, which ran a protracted course. A tender area appeared on one of the femurs, and while relative recovery took place the locality occasionally gave trouble. At the expiration of 20 years, patient now being 40 years of age, the old lesion lighted up in the form of an osteoperiostitis, from the pus in which the paratyphus B. bacillus was found. Unusual cultural and inoculation tests were made which left no doubt as to the nature of the germ.

Prevention of Air Embolism in Placenta Prævia.—Peters alludes to the danger of air embolism in the operation of extracting a placenta prævia. This danger may be obviated by performing all operative procedures necessary for the detaching of the placenta while the patient is under water. This may be accomplished with the aid of a sterilized bathtub and sterilized water.—*Zentralblatt für Gynäkologie.*

Book Reviews.

THE PHYSICIAN'S VISITING LIST (Lindsay and Blakiston's) for 1911. Sixtieth Year of Its Publication. Philadelphia: P. Blakiston's Son & Co.

THIS edition of the popular Lindsay & Blakiston Visiting List, used by so many practitioners for so many years, differs in no wise from its predecessors. It contains a calendar for 1911 and 1912, directions for treatment of certain emergencies, the usual dose table, and blank pages for twenty-seven patients a week. It is of convenient size for the pocket and conveniently arranged.

STUDENTS' AIDS SERIES. AIDS TO MICROSCOPIC DIAGNOSIS (BACTERIAL AND PARASITIC DISEASES). By ERNEST BLAKE KNOX, B.A., M.D., (Dubl. Univ.) Diplomate in Public Health (Honors), Royal College of Physicians and Surgeons, Ireland; formerly Assistant to Lecturer in Pathology and Bacteriology, Trinity College, Dublin; late Demonstrator of Anatomy in the University of Dublin; late Secretary and Member of the Standing Committee on Enteric Fever, appointed by the Government of India; Captain, Royal Army Medical Corps. New York: William Wood and Company, 1910.

THIS little handbook of 156 pages is designed to enable students and others preparing for examinations to review the essential features in microscopic diagnosis. It is not intended as a substitute for a textbook, but it covers its ground thoroughly, and is strictly up to date. The chapters on the protozoal diseases are particularly admirable, and embody the results of most recent researches. The methods of isolating, staining, and identifying the common pathogenic bacteria are succinctly stated, and presented in a manner suitable for ready reference.

L'AÉROPHAGIE, PAR LE DR. H. MAUBAN, Ancien Interne des Hôpitaux de Paris, Médecin Consultant à Vichy. Preface du DR. ALBERT MATHIEU. Paris: G. Steinheil, 1910.

EVER since Mathieu, in 1901, showed that aerophagia, associated with digestive troubles, is one of the most frequent causes of so-called flatulent dyspepsia, this condition has been generally recognized in the pathology of digestion. In this small volume of 160 pages the author reviews the clinical forms of aerophagia, their mode of production, and their symptomatology. Among the measures recommended in the treatment are to advise the patient to keep his mouth open, to wear a tight collar so as to make swallowing painful and attracting the attention of the patient to this act, the use of gastric sedatives and absorbents, lavage, the prone posture, massage, electricity, and respiratory gymnastics.

PRÉCIS DU TRAITEMENT DES FRACTURES PAR LE MASSAGE ET LA MOBILISATION. PAR LE DR. JUST LUCAS-CHAMPIONNIÈRE, Chirurgien Honoraire de l'Hôtel Dieu, Membre de l'Academie de Médecine, President de la Societé Internationale de Chirurgie. Paris: G. Steinheil, 1910.

THIS little volume presents a résumé of the use of movements in the immediate treatment of fractures. The indications and limitations of this mode of treatment, its mode of application, with the precautions to be observed, are presented in a general manner. The details of this treatment as applied to the special fractures are fully given.

DIFFERENTIAL-DIAGNOSTISCHE TABELLEN DER INNEREN KRANKHEITEN. Von J. CEMACH, in Wien. München: J. F. Lehmanns Verlag, 1910.

THIS little volume comprises 37 schematic tables covering the differential diagnosis of the principal internal diseases. Considering the difficulty which this subject presents to the average student of medicine, these compact and at the same time complete synoptic comparisons of the various groups of diseases cannot fail to be helpful. At the same time they may serve to aid the general practitioner in moments of uncertainty, enabling him to review rapidly the chief points in differential diagnosis. The author has succeeded in crowding an unusually large amount of material between the covers of this book.

OPOTHÉRAPIE. Par Le Dr. PAUL CARNOT, Professeur Agrégé à la Faculté de Médecine de Paris, Médecin des Hôpitaux de Paris. Avec 90 Figures dans le Texte. Paris: Libraire J.-B. Baillière et Fils, 1910.

THIS useful volume is a comprehensive textbook of opotherapy, a subject that has taken front rank among the many systems of therapeutics. The first part deals with organotherapy in general, the nature of its remedies, the internal secretions, hormones, kinases, cytolytic and anticytolytic antibodies, and the anaphylactic substances, the toxicity of the organotherapeutic products, the indications and contraindications in their employment, and their various modes of preparation and pharmaceutic forms. The second part of the work deals with the special applications: hematic opotherapy, comprising blood transfusion, and the use of hemoglobin, fibrinogen, and leucocytic extracts; digestive opotherapy, including the use of the various digestive juices, and the ferments, pepsin, kinase, secretin, etc.; genital opotherapy, including the study of the testicular, interstitial, and prostatic juices, ovarian extracts, and extracts of the corpus luteum, placenta, mammary glands, and their many therapeutic applications. The subject of the internal secretions of the thyroid and parathyroids, and their administration in myxedema, cretinism, infantilism, chronic rheumatism, scleroderma, dermatoses, migraine, nocturnal enuresis, and asthma is exhaustively covered, as is that pertaining to the internal secretions of the hypophysis and suprarenal capsule.

MENTALLY DEFICIENT CHILDREN. Their Treatment and Training. By G. E. SHUTTLEWORTH, B.A., M.D., etc., Medical Examiner of Defective Children to the Willesden Education Committee, and formerly to the School Board for London; Consulting Medical Officer, National Association for the Feeble-Minded, late Medical Superintendent (now Hon. Consulting Physician), Royal Albert Institution for the Feeble-Minded of the Northern Counties, Lancaster; formerly Assistant Medical Officer, Earlswood Asylum, and Medical Expert, M. A. B. Institution for Improvable Imbeciles, Ealing; and W. A. POTTS, B.A., M.D., etc., Consulting Medical Officer, National Association for the Feeble-Minded; Chairman of the After-care Committee, and Member of the Special Schools Committee, Birmingham; late Medical Investigator to the Royal Commission on the Care and Control of the Feeble-Minded: formerly Resident Medical Officer, Yorkshire East Riding Lunatic Asylum. Third Edition. Philadelphia: P. Blakiston's Son and Company, 1910.

THAT one per cent. of all school children belong to the class of mental defectives is a fact whose importance cannot be ignored by physician or educator. Since the publication of the first edition of this book in 1895, there has been a growing interest in the welfare of the defective child which has been greatly stimulated by the general introduction of medical school inspection. The present volume may be used as an accurate guide by all those who are directly or indirectly brought into contact with these unfortunates. It comprises chapters on the history of this subject, the discussion of the term feeble-minded, defective and epileptic children, special instruction, pathological classification, etiology, diagnosis, and prognosis, the medical examination of children, treatment, education, industrial and moral training, and results and conclusions. There is an excellent bibliography at the end.

PHYSICAL EXAMINATION AND DIAGNOSTIC ANATOMY. By CHARLES B. SLADE, Chief of Clinic in General Medicine and Instructor in Physical Diagnosis in the University and Bellevue Hospital Medical College, New York. Illustrated. Philadelphia and London: W. B. Saunders Company, 1910.

THIS book presents the technique, fundamental principles, and methods of physical examination, in order to prepare the student for the study of the more comprehensive works upon the subject. The diagnosis of specific disease conditions is avoided, as the work deals chiefly with the normal subject. The illustrations contain only those lines that are essential to the subject-matter. The book may be safely placed in the hands of the beginning student as a reliable primer of physical diagnosis.

A PLEA FOR THE HOME TREATMENT AND PREVENTION OF SCARLET FEVER. By ROBERT MILNE, M.D., Ch.M., Medical Officer of Dr. Barnado's Hospitals and Homes for Thirty Years, etc., etc. New York: William Wood & Company, 1910.

THIS little book of eighty pages is an exposition of the author's strikingly original method of treating scarlet fever. The patients are not isolated from other children. They are frequently and thoroughly anointed with eucalyptus oil, and their throats are frequently swabbed with a 10 per cent. carbolized oil. The results of this plan of treatment are said to be exceptionally good, particularly in preventing the spread of the infection. The main advantage apparently lies in the fact that it is not necessary to isolate the patients, and even in the hospital these are treated in the same ward with surgical cases. It certainly indicates an unusual amount of courage for anyone to advocate such a method of handling these cases, in direct variance with current practices and teaching. At any rate, the book is a most interesting and suggestive one, particularly in awakening the thought that possibly some of our apparently settled convictions may yet be considerably modified or even overthrown.

Society Reports.

SOUTHERN MEDICAL ASSOCIATION.

Fourth Annual Meeting, Held at Nashville, Tennessee, November 8, 9 and 10, 1910.

THE PRESIDENT, DR. W. W. CRAWFORD OF HATTIESBURG, MISSISSIPPI, IN THE CHAIR.

AN address of welcome was delivered by Dr. W. D. Haggard of Nashville, which was responded to by Dr. Seale Harris.

President's Address.—Dr. W. CRAWFORD spoke approvingly of the advances that had been made in the system of medical education during the past decade. He said the profession must be made to appreciate that an over-production of medical colleges meant an over-production of poorly equipped doctors. The laymen must be brought to realize that there was a difference in medical degrees, so that he might demand higher standards. State legislatures must be awakened to their responsibility. The medical student himself must be convinced that the best was not too good for him.

Safeguarding Society from the Unfit.—Dr. A. B. COOKE of Nashville said that vasectomy was not specified as the method of sterilization in the Indiana law, but its advantages over other methods were obvious. Orchidectomy was a mutilating operation, and one of considerable gravity, yet he was persuaded that it should be recognized and specified as the only method permissible in a certain class of criminals. As a preventive, particularly in the South, where this monstrous evil was most prevalent and most abhorrent, it could not be doubted that the legal infliction of one such penalty would have a more salutary effect than many lynchings or even burnings at the stake. It was as yet too early to point to definite results from the operation of these laws; but when the crucial test of time shall have been applied he thought it was reasonable to predict that crime and degeneracy would be largely decreased and the world would be correspondingly better and happier.

Dr. GEORGE H. PRICE of Nashville said it was a difficult matter to secure legislation because there had been a lack of uniformity on the part of the medical profession looking to this great problem of safeguarding the public; nevertheless he thought the medical profession should be foremost in advocating restrictive measures.

Dr. FRANCIS DOWLING of New Orleans said the people in various sections of the State of Louisiana were interested in securing such legislation as would safeguard the public. Some had suggested that gonorrhea and syphilis should be among the diseases reportable to boards of health, the same as cases of diphtheria or scarlet fever.

Dr. JOHN H. WHITE of New Orleans said there was one difficulty growing out of the particular remedy advocated by Dr. Sharp of Indiana for this class of defectives, and that was the operation of vasectomy would be utilized by the roué as fitting him to practice his nefarious life without risk of being caught, and he believed that that was a thing which should be carefully considered before resorting generally to this operation, and a law providing against men voluntarily submitting to this operation for that very reason.

Dr. JERE L. CROOK of Jackson, Tenn. said the time had arrived when the medical profession should take active steps towards bringing about the consummation of the ideas embodied in Dr. Cooke's paper.

Dr. ISADORE DYER of New Orleans said that in the last few years this particular question had been discussed as one of supreme moment in connection with the general subject of eugenics. He believed that professors of eugenics, criminologists, and scientists, who were interested in the solution of this problem, were all satisfied that the aphorism of Oliver Wendell Holmes, that a man should begin to take care of himself by taking care of his great grandfather, was very pertinent, and that we ourselves for the sake of our own people should establish a law protecting our descendants from the possibilities to which they had been exposed in regard to criminals and defectives.

The association then passed a resolution to the effect that it concurred in the laws of Indiana regulating marriage and providing for the sterilization of habitual criminals and other degenerates.

Exophthalmic Goiter.—Dr. WILLIAM D. HAGGARD of Nashville spoke of the four cardinal symptoms of this disease, and said that surgical treatment had proven superior to any other form of treatment. It simply showed statistically it offered the best results, and at the present time early operation was the best treatment.

Dr. B. L. WYMAN of Birmingham, Ala., said the medical treatment of hyperthyroidism had been practically a failure in the majority of cases, and this agreed with his experience in the treatment of this disease, so that in recent years he had referred his cases to a surgeon. He emphasized the importance of early diagnosis.

Bones and Joints.—Dr. JOHN B. MURPHY of Chicago gave an address on this subject, and, among other things, said that when there was a lesion in the neighborhood of a joint which caused inflammation or thickening, or adhesion of the capsule, if the surgeon wanted to overcome deformity the capsule must be dealt with as one would deal with bones or with any other inelastic material. The outer fibrous capsule had a feeble vascularity. It practically never became inflamed; it was never the seat of a primary lesion. It never became tuberculous. It had an inner lining which was known as the synovial lining. The surface was represented by endothelial cells, which were arranged close to each other, and they sealed up the surfaces of both the synovial membranes just as the epithelial cells sealed up the surface of the skin. He had found in his experiments on dogs that if he wanted to infect a joint with the most virulent type of pneumococci, if he injected half a syringe full of the virulent microorganisms into a joint with a very fine needle, it would produce no effect whatever in that joint. On the other hand, if he took the other half of the same syringe barrel of infective material and injected it into another joint in the same dog, using a fine hypodermic needle, it would tear out the endothelial cells that covered the surface, and this would be followed by infection and death. This meant that if surgeons were going to do work on joints one of the things they must observe was that the joint had an enormous resistance against infection, and they must become the greatest respecters of this endothelial layer in all work that involved the surgery of the joints. He found that if he injected a joint with turpentine a day or two days in advance, or if he injected the joint with tincture of cantharides a day or two in advance, then injected the joint with formalin and glycerine, and afterwards injected the virulent microorganisms, the dog would die. Again, if he injected the joint six or twelve days before, then he could inject the joint and tear it up and not the slightest effect would be produced, because the chemical inflammation produced a cofferdam of all the lymph spaces beneath, making it impossible to infect the surface. He could render the joint surface, therefore, immune by injecting it with some chemical irritant two weeks before he operated. The time to attack a joint was when nature or the surgeon had artificially prepared the joint in rendering it immune against easy infection. Speaking of ankylosis he said it could be avoided in practically every case of acute infection of joints. The moment the practitioner spoke of draining joints that were infected, he was assuming re

sponsibility for an ankylosis. If there was an infection in a joint, to save it from destruction, it was necessary to relieve the joint of tension and the products of infection. This could be done by aspiration. But what one could do to give the patient more relief than a hypodermic injection of morphine was to put on Buck's extension and separate the pressing surfaces that were inflamed. Dr. Murphy reported several cases on which he had operated with gratifying results.

Education of the Specialist.—Dr. S. C. Ellett of Memphis said that with the establishment of a department of health it might be feasible to map out a course of study and hospital work which a man must satisfactorily complete before he could appear before the world as a specialist in any department of medicine.

Treatment of Trachoma.—Dr. H. H. Martin of Savannah, Ga., said in order to effect a complete cure in chronic trachoma surgical and medical treatment must be combined, as neither was sufficient in itself. On the surgical methods the one which he called attention to was the Coover plan, which was the most satisfactory from all points of view. For local application a five to ten per cent. solution of copper sulphate had no rival, but it must be begun soon after the operation and continued for eight weeks.

Malarial Manifestations in the Eye.—Dr. M. H. Bell of Vicksburg, Miss., stated that his observations were made from the symptoms found in thirteen cases of eye trouble due to malarial infection. Corneal ulceration was present in eleven cases, and two entirely distinct types of ulceration were noted. In seven cases the common dendritic ulceration was present, and in the other four the ulcers were of the simple round variety which he had designated acute herpetic. The acute type of dendritic ulcer he had found only in an acute malarial infection, and it had always responded readily to appropriate antimalarial treatment in combination with the application of tincture of iodine to the ulcerated area, and the usual local treatment employed for any corneal inflammation.

The Artificial Leech in Acute Mastoiditis.—Dr. U. S. Bird of Tampa, Fla., said that his experience included some nine cases. Clinically they were all instances of typical acute mastoid infection, middle ear disease, temperature, mastoid swelling, and pain. In every case the middle ear had been freely opened without relief. In all of the cases operation seemed probable and in one case the patient was sent to a hospital for that purpose. In some heat was used, but in most it was unnecessary after the leech. Calomel was given at first as a routine measure. An improvement was noted at varying intervals after leeching. In every case relief was permanent, no further active treatment being necessary.

Turbinectomy.—Dr. G. E. Vaughan of Clarksville Tenn., pointed out the chief indications for this operation, described the method of operating which is usually practiced, and reported cases.

Episcleritis.—Dr. O. Dulaney of Dyersburg, Tenn., detailed the symptoms of this disease, and discussed the prognosis and treatment.

The Heath Mastoid Operation.—Dr. M. M. Cullom of Nashville, Tenn., said the operation was safer than the radical operation. There was less danger of intracranial involvement following the operation. There was practically no danger of injuring the facial nerve. There was no injury to the hearing and the operation was often followed by marked improvement in hearing power. Suppuration diminished rapidly and postoperative healing took place sooner than after the radical operation. It could be easily converted into the radical operation, if desired.

Inguinal Hernia.—Dr. John Smyth of New Orleans related some experiences in operating on cases of inguinal hernia. After reporting three cases he drew the following conclusions: 1. The sac in one case was probably a variety of the pantaloon sac reported by Dr. Eisendrath and others. This kind of sac might account for some of the failures to cure hernia by operation. 2. The condition in another case was an artificial one, and was evidently the result of a failure to securely close the neck of the sac in the previous operation, and it showed the necessity of extreme caution in operating on cases which have already been subjected to operation. 3. The condition in another case was the result of an effort at reduction of the hernia, in which the position of the testis was lost sight of or ignored. The truss applied at that time caused sufficient traumatism to produce adhesions which imprisoned the testicle in the upward reflection of the sac, and the enterocele, or hernia proper, recurred in the lower peritoneal pouch, possibly another case of pantaloon sac.

Dr. Duncan Eve of Nashville said that the success of all operations for the relief of hernia depended upon obliteration or removal of the sac, and the transformation of the cord to the new bed or canal. Without these two principles, no hernia that was operated upon could be regarded as cured.

Dr. C. W. Allen of New Orleans said that the first important step in hernia was the manner of dealing with the neck of the sac. Formerly surgeons ligated the neck of the sac, frequently transfixing it, but this was unsafe.

Dr. Jere L. Crook of Jackson, Tenn., stated that the reason we did not operate more frequently than we did for hernia was due to the fact that we were perhaps negligent in pointing out to patients the necessity of it. Men wore trusses for years when a simple operation (with a very low mortality) would make them practically perfect men physically. The operation for hernia was one of the most important we should urge upon patients, and if we made it a routine measure, when we had occasion to come across a man who wore a truss in examining him for life insurance, to urge upon him the importance of an operation for the radical cure we would undoubtedly do this operation oftener, and in doing so would add much to the comfort of these patients.

Dr. Robert Caldwell of Nashville thought we were all pretty well agreed as to the treatment of the sac nowadays, and and it was not so much the removal of the sac in toto as it was the treatment of the exudate about the neck of the sac. He said we were going to have recurrences whether we used the Bassini, the Ferguson, or the Macewen method, because we had to deal with different conditions. He did not see why in routine work we should still do the Bassini operation.

Dr. Willis C. Campbell of Memphis said he did not know very much about the technique of the operation, but he had noticed that in all cases at the New York Hospital for Ruptured and Crippled a plaster spica was applied after the operation, which immobilized the parts absolutely and gave opportunity for quicker healing and left practically no dead spaces.

Dr. Charles A. Robertson of Nashville said there was one question in connection with hernia that had been brought to his attention and given him some degree of wonderment, namely, why physicians were not more frequently called upon to operate on hernia. The reason for it lay in the fact that fitting trusses was largely in the hand of instrument dealers and druggists, who made false claims in regard to the permanent or curative value of the truss.

Dr. W. D. Sumpter of Nashville said this subject appealed to him because of his belief that hernia was an operation that could be done under local anesthesia. The operation could be performed under local anesthesia with comparatively little pain. He had done many of these operations under local anesthesia in the last four years.

He thought if local anesthesia were resorted to more frequently more men would be operated on for the relief of this condition who now feared a general anesthetic.

Dr. Paul Dewitt of Nashville agreed with Dr. Sumpter in reference to local anesthesia. There was no doubt but that the operation for the radical cure of hernia could be performed just as completely under local as under general anesthesia. He had operated on several cases under local anesthesia and he had yet to find a case that suffered any amount of pain during the operation.

The Operative Treatment of Fractures of the Long Bones.—Dr. Jere L. Crook of Jackson, Tenn., reported four recent cases of fracture of both tibia and fibula on which he had operated, in all of which he secured good results, and in none of which could he have done so without operation.

Operative Treatment of Fractures.—Dr. C. W. Allen of New Orleans said that a general anesthetic was demanded for the proper reduction of all fractures except the simplest. All fractures after reduction should be subjected to the *x*-ray, and it was often found that what was thought to be a well-reduced fracture proved to be far from satisfactory. In many cases reduction was possible, but could not be maintained owing to the obliquity of the line of fracture. When reduction was impossible operation should unhesitatingly be performed, and one frequently found upon operating on such cases that the interposition of soft material would have made reduction impossible by any other than operative means. The time for operation called for some judgment. In cases seen early, within the first twenty-four hours, when there was not much injury to the soft parts, operation had best be done at once. Where there was extensive injury to the soft parts, or where several days had elapsed before first seeing the case, delay should be advised until the local inflammation subsided, sometimes about the second week, when there would be less danger of infection. He thought far too many limbs were needlessly amputated. With a little hard work and some ingenuity on the part of the surgeon many badly mangled limbs could be saved. As long as the blood supply was sufficient to keep alive the peripheral parts there was a chance. It was better that such patients should spend six months in a hospital and walk out sound and able to make a living than to be discharged after three weeks with the loss of a limb, to spend the rest of their lives as hopeless cripples or helpless charges upon the community.

Dr. W. P. McAdory of Birmingham said that a number of years ago he had a negro patient who was shot through the middle of the femur. He did not know the bullet was lodged between the ends of the bone at the time he put the limb in extension. He kept the limb in extension for five weeks, at the end of which time he took it down to find that he had an ununited fracture. He prepared the patient for operation. He cut down on the seat of the fracture and found the bullet, which was very large, had flattened out, making a piece of metal about the size of a quarter of a dollar interposed between the ends of the bone. He resected both ends of the bone, wired the fragments, and so gave this man a useful limb.

Dr. H. A. Elkourie of Birmingham felt in regard to compound fractures that he would rather cut down upon the bone and fix or wire the fragments together than trust to hypothesis and get bad results.

Dr. A. G. Payne of Greenville, Miss., stated that as far as the treatment of compound fractures was concerned, to his mind there was only one method, and that was to operate at once. The wound should be opened up and the bone thoroughly exposed, and any mechanical device which one might see fit to use to hold the fragments in position would work if one was clean about it.

Dr. Michael Hoke of Atlanta said that as an orthopedic surgeon he was called upon to correct many deformities the result of badly united fractures, and in this connection he desired to say that there was no reliable book written on the mechanics of the joints and on fractures, consequently we could not expect the general practitioner to treat these cases and get good results every time. For instance, if a practitioner put up a fractured elbow joint in the position of flexion and did not incorporate the shoulder, he could not control the upper fragment, the shaft of the humerus.

Dr. John Smyth of New Orleans differed with those gentlemen who wanted to operate on every case. He thought this would be a mistake. He had under treatment the case of a young girl who sustained a fracture of the humerus about an inch and a half above the elbow joint, supracondyloid, where the upper fragment went backward and the lower fragment was tilted forward. These fractures were put up in flexion, with a weight on the elbow joint after the suggestion of Lovett and Stimson. After repeated examinations with the X-ray apposition was very good, and after eleven days the splint was taken off, the arm massaged a little, and a light plaster splint reapplied. The girl will not only have a good functional result, but an excellent cosmetic one.

Dr. Robert Caldwell of Nashville believed that the operative treatment of compound fractures should be the rule, and the nonoperative treatment should be the exception. Of course, much would depend upon the character of fracture the surgeon had to deal with. If he had a transverse fracture, it was known that if it was reduced it was comparatively easy to maintain it in position and one could secure good results by nonoperative treatment, but if one had an oblique fracture, or a spiral fracture, to deal with, although he secured reduction, it was difficult to maintain it; consequently, knowing the comparative rarity of a true transverse fracture, he should say that the operative treatment should be the rule and the nonoperative treatment the exception.

Dr. A. B. Cooke of Nashville said that if under aseptic precautions the open treatment of compound fractures was practiced as a routine measure the question would arise, what possible harm could be done to the patient? This was the main point to decide. If operation could result in no harm to the patient, if properly done, we could not conceive that it would do anything but good for the patient, because it would leave in every individual case upon which this method was practiced an element of certainty which was important to the physician as well as to the individual welfare of the patient.

Dr. Duncan Eve of Nashville stated that until recently surgeons were very well satisfied with firm union. He did not think much about the question of permanent results, but since their ideal had been raised by the *x*-ray the surgeon insisted upon not only a good functional result, but also a cosmetic one. He was afraid the *x*-ray had raised the standard a little too high. While he was not opposed to the operative plan of treatment of compound fractures, he was not modern enough yet to suggest that all closed fractures should be treated by the open method. In compound fractures this method was all right because one had an open wound to deal with. Operation was all right for those fractures one was not able to reduce, or when reduced would not remain in coaptation or apposition, but the time had not arrived when surgeons would generally accept the open method as an every-day plan for the treatment of closed fractures.

Dr. E. Denedre Martin of New Orleans said that when it came to the question of fractures the first and most important thing was to know the character of the fracture, and above all the anatomical structures involved. If one had a simple transverse fracture, he was a poor

surgeon if he could not reduce it and hold it in position. If the surgeon had an oblique fracture, which was due to torsion, he knew he was dealing with contraction of certain muscles and he would have trouble in holding the fragments in apposition and he must overcome the action of the muscles if he would get results.

Gonococcic Vaccine.—Dr. George R. Livermore of Memphis stated that as far as a case of either acute or chronic anterior or posterior gonorrhea was concerned his experience had convinced him that gonococcic vaccine, as a cure, was absolutely worthless. He had used it in all doses and at varying intervals, and in no case did he effect a cure or see other than a modicum of improvement. This statement coincided with statements of prominent genito-urinary men in New York who had also experimented extensively with gonococcic vaccine. On the other hand, some of the complications of both acute and chronic gonorrhea sometimes yielded promptly and satisfactorily to the administration of the vaccine. The complications in which the vaccine had given the best results in his hands were epididymo-orchitis, arthritis, and prostatitis. In the treatment of gonorrhea in women he had several times noted cases that seemed to be benefited by the use of the vaccine. Whether this improvement was a coincidence or not he was unable to say, as other means of treatment were used at the same time, and he did not believe the question would be settled until vaccine therapy was placed on a more rational basis.

Dr. Raymond Wallace of Chattanooga stated that he had had some experience with gonococcic vaccine, and it tallied with that of the author of the paper. He had had the best results in cases of gonorrheal rheumatism. He recalled four cases in which three or four injections effected a cure.

Dr. W. W. Crawford of Hattiesburg, Miss., recalled to mind a woman upon whom he did a hysterectomy. She had old pus tubes, and he thought the organisms were dead. He thought he had a sterile condition to deal with from the length of time she had the inflammatory reaction in the pelvis, but after he had operated he discovered she had a recent infection superimposed on the old gonorrheal infection of some four or five years previously, which occurred at the birth of the child. He confidently believed that if it were not for the use of vaccines in large doses, giving fifty million the first dose, and one hundred million each day for two or three days, this woman would have died: but as an additional reaction was set up by the use of the vaccine she recovered.

End Results of Surgical Operations in Nervous Women.—Dr. S. T. Rucker of Memphis in a paper on this subject drew the following conclusions: 1. Nervous women as a rule did not make good subjects for surgical operations. 2. An operation should not be undertaken unless there was a definite, unmistakable pathological lesion, and that it was the chief cause of the nervous symptoms. 3. A correct estimate of the end results of surgical procedures could not be made, unless the surgeon kept in touch with his patients for months after they returned home. 4. In clearing up diagnosis in obscure conditions, every surgeon should seek the aid of a competent internist, neurologist, and pathologist. 5. Last, but not least, to no one was the golden rule more applicable than to the surgeon. When a patient presented herself she sought relief from suffering. She was not especially anxious to be cut, but to be cured, and the surgeon should always ask himself the question, if this was me or my wife, or my daughter, would I advise an operation?

Dr. A. A. Herold of Shreveport, La., recalled very distinctly a case that occurred in the New Orleans Charity Hospital of a woman whom he had in the gynecological service. She was operated upon four times. First, for a retrodisplacement of the uterus, second, for the removal of one or both ovaries; third, for the removal of the appendix; fourth, for the removal of a kidney. At last, she was transferred to the neurological department, and what became of her after that he did not know.

Dr. George R. Livermore of Memphis said that a man came to him for diagnosis and possible operation for kidney stone. He gave obscure nervous symptoms, with violent pain in the right side. The diagnosis had been previously made of appendicitis by another physician. He was operated on and his appendix removed, but the pain was just as severe as before. Then a diagnosis of gall-stones was made by a surgeon of Cincinnati, who operated for that condition. No gall-stones were found. The gall-bladder was drained, and the pain was just as severe after this operation as before. When he came to him, from the history of the case, he thought his condition was more hysterical or neurasthenic than otherwise. Uranalysis was negative. He had never passed any calculi. *X*-ray examination showed no stone in the kidney, nor shadow anywhere, and so he refused to operate, and advised him to consult a neurologist.

Dr. J. A. Crisler of Memphis recalled the case of a physician who had all the evidences of neurasthenia, including genuine hysteria, and who had the notion he had a bad gall-bladder and a bad appendix. He came to him and he refused to operate on him. He went to every surgeon in Memphis. The man then went out of town to consult another surgeon, who removed his appendix and drained his gall-bladder, and he had since been perfectly well. He said one might cite these cases one after another, and prove on the other hand that surgery was indicated.

Gunshot Wound of the Abdomen.—Dr. F. G. Dubose of Selma, Ala., reported a case of gunshot wound of the abdomen and chest, the bullet penetrating the stomach, the liver and lung.

Foundation of Medicine.—The chairman of the Surgical Section, Dr. E. Denegre Martin of New Orleans, in his address called attention to some of the loose stones in the foundation of medicine, and said methods of teaching were greatly to blame for the awkward work of beginners. The cadaveric courses now given in medical schools went far to better acquaint the student with the anatomical structures involved in the numerous operations, but the technic was at fault, as students only learned the replacement of the structures, but saw nothing of the various modifications which arose in every operation. A mere knowledge of anatomical relations, a theoretical mastery of pathology in the laboratories, was worthless until learned on the living body in relation to other structures. He believed a great advance could yet be made in methods of teaching.

Surgical Treatment of Hepatic Cirrhosis.—Dr. Arthur A. Herold of Shreveport, La., reported three cases, and then drew the following conclusions: "I believe that all well-marked cases of atrophic cirrhosis of the liver should be advised to submit to surgical procedure, informing the patient that it is practically devoid of danger, and that there is a chance of prolonging his life and making him more comfortable thereby; also that he will carry a small hernia with him in the future. I do not consider results obtained on the whole brilliant; but I do not believe that a failure to benefit one of these cases by operation will injure the reputation of either the surgeon or of surgery. As to the anesthetic, if the kidneys show no lesion, ether is preferable, as general anesthesia permits better examination of the liver and more freedom of work. If evidences of nephritis are present, it is safer to use a local anesthetic and do a simple epiplopexy."

Why Ligate the Sac in Hernia?—Dr. H. A. Elkourie of Birmingham said he had done within the last six years twenty-two operations for hernia without removing the

sac, and his results had been very flattering. He had not had a single recurrence and out of the twenty-two eighteen patients were now living within a radius of half a day's drive from his office.

Cancer of the Cervix Uteri and Its Treatment.—Dr. A. G. PAYNE of Greenville, Miss., said that the cervix uteri was affected with cancer more frequently than any other portion of the body. Fully one-third of all women who died of cancer were the victims of uterine cancer, and cancer of the cervix was pre-eminently a disease of the child-bearing period. Panhysterectomy was the only operation by which we could offer a woman with cervical cancer any permanent benefit or result, and then only in case there had been no extension into the bladder, vagina, rectum or glands. As soon as the disease spread beyond the cervix a recurrence was inevitable, and only palliative treatment, operative or otherwise, was indicated.

Coxa Vara.—Dr. WILLIS C. CAMPBELL of Memphis reported a case of this disease, and said the diagnosis was not difficult with care in making the examination. As a rule, no medicinal measures were indicated, but in this case he believed that the thyroid extract deserved a trial. In patients of moderate size a simple stilting abduction brace should be used until the bone was firm, when an osteotomy could be done below the lesser trochanter by any of the various methods and the extremity held in abduction and internal rotation by a plaster spica, including the foot below and extending to the nipple or axilla above. He did not believe that a brace would be satisfactory in a subject with so much adipose tissue, but when further reduced we might be able to use any desirable method. At present the patient was in a plaster spica extending to the nipple line, and the extremity held in as much abduction as possible. The condition had probably been present for one year, and at the expiration of two more years a corrective osteotomy could be done with excellent functional result if there was no further change visible by the *x*-ray, otherwise we should wait until the process was stationary. In the meantime he should apply successive plaster spicas with forcible abduction and internal rotation, which might restore the angle sufficiently to give perfect function.

Purgatives with Pain in the Belly.—Dr. C. N. COWDEN of Nashville said there was no place for the administration of a purgative with pain in the belly unattended by a diarrhea. The point he desired to emphasize as strongly as possible was that the patient's danger lay not in the fact that the bowels did not move, but in the condition that produced the pain and obstruction, and the administration of purgatives of any kind under these circumstances with the idea in mind of attempting to force a bowel movement was not only irrational, but was productive of the greatest harm to the patient. He did not get well because the physician forced his bowels to move but in spite of the effect of the drastic measure. Why not be rational in the treatment of these cases and meet the indications with remedies or measures that were indicated and not by the indiscriminate use of purgatives. Purgatives were valuable remedies and were often indicated in the treatment of disease, but the cases were few and far between, not met with in a lifetime, in which they were indicated in the treatment of acute conditions of the belly, where pain was a prominent symptom.

Surgery of the Ovaries.—Dr. J. A. CRISLER of Memphis said that when a woman came to him with great pain in her ovary, to which no infection could be traced, who suffered before and after her menstruation and in between times, he could not tell, upon exploratory incision which ovary was at fault by any microscopical examination. On the contrary, on many occasions he had found the ovary of which the woman complained and which was tender upon bimanual palpation to be in appearance upon celiotomy entirely normal, while the other ovary might contain a hemorrhagic area half its size. When both ovaries were giving constant pain in a woman who was not necessarily neurasthenic, rendering her practically incapable, when the abdomen was opened and both ovaries appeared as good or better than those noticed in a previous case that were not giving any trouble, he did not know whether to resect a portion of them in the hope of relieving the congestion and retention of large Graafian follicle cysts, or whether to remove them entirely or to merely puncture the cyst and let some better surgeon remove them later or to confess absolute ignorance upon the subject and convict the entire profession of inefficiency, basing the proposition upon the present-day literature upon the subject and of our inability by any known means of differentiating the good from the bad microscopically and not clinically. He did not know when the removal of these ovaries would bring perfect relief to some women who did not seem to miss the so-called internal secretion, while in others a series of the most violent and unpleasant symptoms followed the procedure regardless of the age of the patient. He mentioned these cases to show the broad contrast that could exist and the uncertainty of the effects of the so-called ovarian secretion. A comparison was made of these ovaries that were removed and so far as he could tell, by a careful examination, there was relatively an identical similarity between them. The paranchymatous substance and stroma were normally arranged. The cortical surface presented a normal appearance. The vascularity was identical. There were no varicosities in the ovarian ligament vessels nor in the pampiniform plexus of either side. The corpora lutea were normally situated and distributed. The ovarian tension was not excessive, and the color was good, and no marked prolapse was present, and he did not know what caused the pain and its concomitant chain of symptoms.

Human and Bovine Bacilli Isolated in Cervical Adenitis.—Dr. WILLIAM LITTERER of Nashville stated that eleven cases of primary tuberculous cervical adenitis were studied, which resulted in the isolation of five cultures of *Bacillus tuberculosis* of the human type, and six cultures of the bovine type. The classification of the types was made on the basis of four tests: (1) the morphological characters of the cultures; (2) the dysgenetic or eugenetic characters of the cultures; (3) the relative virulence towards rabbits; and (4) the reaction curve in five per cent. glycerin bouillon. This last test served admirably to distinguish between the two types, provided careful control tests be rigidly adhered to. In gathering up the clinical data of the eleven cases, he was unable to discern a single feature of distinction between those persons who harbored the human type of bacillus and of those who were infected with the bovine type. The only striking difference observed was the result procured from the administration of tuberculin. In order that uniformly satisfactory results be obtained from the therapeutic administration of this agent, he said it was imperative that the nature of the type of infection be determined, so that a corresponding strain of tuberculin may be employed.

Dr. W. M. MCCABE of Nashville reported a case of elephantiasis caused by *Streptococcus erysipelatosus*, which was associated with *Bacillus prodigiosus*.

The Gamete Carriers.—Dr. GRAHAM E. HENSON of Crescent City, Fla., spoke of the rôle of the gamete carriers in the spread of malaria, and said that until such a time as a campaign of enforced screening of all homes and public meeting places had been generally effected it was imperative that, in addition to the proper treatment of cases showing acute clinical manifestations of malaria, some means be devised to corral all chronic gamete carriers who had either frequent recurrences or possibly only

after long periods of time, and that they be kept under treatment long enough to destroy all parasites they might be harboring.

Carbonic-acid Baths in the Treatment of Heart Diseases.—Dr. J. H. HONAN of Bad-Nauheim, Germany, stated that the results of his clinical studies convinced him that carbonic acid baths in most cases reduced high blood pressure, raised low blood pressure, increased the pulse volume, increased elimination, increased pulse amplitude, increased heart energy, increased duration of temperature, reduced peripheral resistance, reduced dilatation, and relieved nervous irritability.

Measles.—Dr. THOMAS WEAVER of Nashville discussed the complications and sequelae of measles, based on a study of 470 cases.

Dr. C. C. BASS of New Orleans described a quick microscopic typhoid agglutination test, and pointed out its application and advantages.

Dr. J. B. MURFREE of Murfreesboro, Tenn., reported a case of aneurysm of the arch of the aorta, and exhibited the specimen. He said the course of thoracic aneurysm tended to death, and satisfactory treatment could only be hoped for when the aneurysm was saccular with a relative small neck to the sac.

Dermatitis Factitia.—Dr. J. M. KIND of Nashville reported six cases illustrating this condition and said that the treatment for them was that of any simple dermatitis The nervous system demanded the greater attention.

Pathology of Anterior Poliomyelitis.—Dr. O. H. WILSON of Nashville said that nearly all fatal cases of this disease terminated by paralysis of respiration, and in these edema of the floor of the fourth ventricle was found, with an extension of the inflammatory process well up the sylvian aqueduct. The destruction of the ganglionic cell was a secondary result of the inflammatory process, and the cell infiltration. The activity of the inflammation, and the resistance of tissue determined the extent of this, which determined the character of the permanent paralysis. When localized destruction of some cells in the anterior horn was found, chiefly in the lumbar enlargement, we had the common type of poliomyelitis; when the pathology was localized and intense at a point involving practically the entire section of the cord, a rare condition, we might have a transverse myelitis. Acute bulbar paralysis might be seen when the intensity of the disease was located in that region, encephalitis when the cord symptoms were insignificant, and polioencephalitis when the symptoms were general.

Dr. CHARLES M. NICE of Birmingham discussed the symptoms and diagnosis of anterior poliomyelitis.

Infant Feeding.—Dr. MARGARET O. DAVIS of Nashville brought out some points regarding the differences in human and cows' milk in infant feeding, the care of feeding utensils, etc. She emphasized the necessity of pure milk, and its preference to the use of drugs in some cases The predisposition to disease of poorly-fed children was touched on. She emphasized the need of certified milk in cities.

Cardiorenal Treatment.—Dr. J. B. GUTHRIE of New Orleans spoke of the use of digitalis in heart diseases. He withheld a salty diet in cases of dropsy, which he said assisted the patients in enduring the thirst, and made easier work for the heart. Measure of the urine was the gauge of treatment, and rest, dry salt-free diet, and purgation gave as striking change as we saw with the addition of digitalis. He recommended purgatives of strong salines or jalap in dropsy cases. In acute dilatation he recommended venesection, as well as the use of opiates to insure rest. He impressed the necessity of treating the heart muscle, even where the kidney or vessels were first affected, that is, to lighten the labor of the heart muscle by depleting measures, purgatives, diuretics, if the kidney was sound, rest in bed where possible, by the use of opiates if there was distress, and by the reduction of drinking fluids. Digitalis might be given to prolong the rest period of the heart beat.

Treatment of Acute Anterior Poliomyelitis.—Dr. A. W. HARRIS of Nashville said that experimental work was still being carried on in this country and abroad, and all the recent knowledge gained as to etiology, pathology, and clinical types should give much encouragement and should lead one to expect that in the near future a more certain means of making an early diagnosis and probably a specific therapeutic agent would be furnished.

Double Perforation in Typhoid Fever.—Dr. E. M. FOLKES of Biloxi, Miss., reported two cases of perforation following typhoid fever. One patient died eleven days after a successful operation for the closure of the perforation. The diagnosis in this case was made early and operation performed promptly. All of the cases of which he had heard had died within twenty-four or thirty-six hours after the operation, which meant that a too early diagnosis could not be made, nor too prompt surgical interference had to save life.

Dr. A. B. COOKE of Nashville presented resolutions which were adopted, endorsing the medical inspection of all school children.

The association by resolution urged upon Congress the necessity of creating a National Department of Health for the protection of the present and future generations and the strict interpretation of the pure food and drugs acts, whereby the public can be shielded from foods drugged with artificial preservatives which seal the inferiority of unfit material, from habit production nostrums, and from dishonest labels, even though in technical conformance with the law.

Officers.—The following officers were elected for the ensuing year: *President,* Dr. Isadore Dyer, New Orleans; *Vice-presidents:* For Tennessee, Dr. William Litterer of Nashville; for Florida, Dr. W. W. Adamson of Tampa; for Georgia, Dr. William C. Lyle of Augusta; for Alabama, Dr. T. D. Park of Birmingham; for Louisiana, Dr. J. B. Guthrie of New Orleans; for Mississippi, Dr. A. G. Payne of Greenville; *Secretary-Treasurer,* Dr. Seale Harris of Mobile.

Hattiesburg, Miss., was selected as the place for holding the next meeting.

State Medical Licensing Boards.

SUMMARY OF THE LAWS AND REGULATIONS GOVERNING THE PRACTICE OF MEDICINE IN THE STATES AND TERRITORIES OF THE UNITED STATES.

COMPILED BY DR. JAMES A. EGAN, SECRETARY OF THE ILLINOIS STATE BOARD OF HEALTH, AND PUBLISHED FROM ADVANCE SHEETS OF THE BULLETIN OF THE BOARD THROUGH THE COURTESY OF THE SECRETARY.

THE requirements governing the practice of medicine as set forth below are substantially correct up to the date October 31, 1910. No attempt has been made to furnish a complete digest of the several laws and regulations. It has been the purpose rather to give the leading facts regarding the conditions of medical practice desired by the physician who wishes to locate in a State. Such information as that relating to standards of preliminary education, the fees for examination and license, the time and place of examination, has been purposely omitted. Full information may be obtained of the respective secretaries, whose names and addresses are correctly given. There has been added an abstract of the laws in each State governing osteopaths, midwives, and itinerant vendors of medicine.

Alabama (Laws to 1907).—Graduation not essential. *Examination* required in the following subjects: Chemistry, anatomy, physiology, the etiology, pathology, symptomatology, and diagnosis of diseases, obstetrics, gynecology, major and minor surgery, physical diagnosis, diseases of

the eye, ear, nose, and throat; hygiene and medical jurisprudence. When an applicant states in writing that he does not propose to practise major surgery, he shall be exempt from examination in that branch, and his certificate shall entitle him to treat diseases, provided that he shall not be entitled to perform operations of major surgery. *Credit for years of practice.*—None. The board, however, "gives an applicant who has been in practice five years or longer a less technical examination in anatomy, chemistry, and physiology than is given to recent graduates." *Reciprocity.*—None.

Osteopaths.—No special requirements. Examined, and licensed if they pass the examination above prescribed. Practice not restricted. *Midwives.*—No law. "Midwives are allowed to practise without restriction." *Itinerant vendors.*—Code of Alabama provides for license.

Chairman Board of Censors of the Medical Association of the State of Alabama, Dr. W. H. Sanders, Montgomery.

Alaska (Laws to 1909).—Graduation essential. *Examination* not required. Applications should be made to the clerk of the court of the district in which the applicants desire to practise.

Arizona (Laws to 1903).—Graduation essential from "a regularly incorporated college." *Examination* required in the following subjects: Anatomy, surgery, gynecology, obstetrics, practice, physiology, pathology, chemistry, materia medica and therapeutics. "If the applicant request it, he or she shall have the privilege of being examined in the branches of the science and the practice of medicine other than physiology, anatomy, pathology, chemistry, practice, surgery, obstetrics, and gynecology, by the member or members of the board, if there be any, of the particular school of medicine specified in his or her diploma." *Credit for years of practice.*—None. *Temporary licenses.*—Not granted. *Reciprocity.*—None.

Osteopaths.—Graduation essential, from "a regularly incorporated college." Practice not restricted. *Examination* required, same as for physicians. *Midwives.*—Practice exempted. *Itinerant vendors.*—No special requirements.

Secretary Territorial Board of Medical Examiners, Dr. Ancil Martin, Phoenix.

Arkansas (Laws to 1903).—Graduation essential from a reputable medical school.. *Examination* required in the following subjects: Anatomy, physiology, chemistry, materia medica and therapeutics, theory and practice of medicine, surgery, obstetrics, pathology, bacteriology, gynecology, hygiene. *Credit for years of practice.*—None. *Temporary licenses.*—Granted. *Reciprocity.**—On licenses issued after an examination only, with the following States: Illinois, Indiana, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Nebraska, Nevada, North Dakota, Ohio, Texas, Vermont, Virginia. On licenses issued on the basis of either a diploma or an examination, with the following States: Indiana, Kentucky, Maryland, Michigan, and Ohio.

*Discrepancies as to the reciprocating States may be noticed, under this heading, in the various States. But the information published under each State is as furnished by the secretary of the State Board of Medical Examiners.

Osteopaths.—State Board of Osteopathic Examiners. *Midwives.*—Practice exempted. *Itinerant vendors.*—Practice forbidden.

Secretary State Medical Board of the Arkansas Medical Society, Dr. F. T. Murphy, Brinkley; Medical Board of the Arkansas Homeopathic Medical Society, Dr. P. C. Williams, Texarkana; Medical Board of the Arkansas Eclectic Medical Society, Dr. G. A. Hinton, Hot Springs.

California (Laws to 1909).—Graduation essential from a legally chartered medical school, the requirements of which were at the time of graduation in no particular less than those prescribed by the Association of American Medical Colleges for that year. *Examination* required in the following subjects: Anatomy, physiology, bacteriology, pathology, chemistry and toxicology, hygiene obstetrics, histology, gynecology, general diagnosis *Credit for years of practice.*—Five points on a general average for each ten years of reputable practice. *Temporary Licenses.*—Not granted. *Reciprocity.*—None.

Osteopaths.—Graduation essential from a legally chartered college of osteopathy; course of instruction much inferior to that demanded of medical colleges. Practice not restricted. Two osteopaths on State Board of Medical Examiners. *Examination* required, same as for physicians. *Midwives.*—No law. *Itinerant vendors.*—No law.

Secretary State Board of Medical Examiners, Dr. Charles L. Tisdale, San Francisco.

Colorado (Laws to 1905).—The State Board of Medical Examiners is required to adopt a schedule of minimum educational requirements. "When an applicant for a license offers to the board satisfactory proof that he has complied with such educational requirements as are specified in said schedule, the board shall accept such proof as sufficient evidence of the educational qualification of the applicant to entitle him to a license without examination." Graduation not essential. *Examination* required in the following subjects: Anatomy, physiology, chemistry, symptomatology, toxicology, pathology, surgery, and obstetrics. "The credentials of applicants relating to their general reputation, their preliminary education, and the courses of study they have pursued; the degrees they have received; the number of years they have been engaged in the lawful practice of medicine; their experience in general hospitals, medical departments of the army, navy, and public health and marine hospital service; licenses granted to them by other States and countries; and their experience as teachers of medicine shall be given due consideration by the board in conducting its examination. Upon investigation of an applicant's credentials the board shall, when convinced that an applicant is qualified to practise medicine, grant him a license thereon without further examination." *Credit for years of practice.*—None. *Temporary licenses.*—None granted. *Reciprocity.*—None.

Osteopaths.—Practice exempted by law. *Midwives.*—No law. *Itinerant vendors.*—No law.

Secretary State Board of Medical Examiners, Dr. S. D. Van Meter, Denver.

Connecticut (Laws to 1909).—Graduation essential from some legally incorporated and reputable medical college, approved by the Connecticut Medical Society, the Connecticut Homeopathic Medical Society, or the Connecticut Eclectic Medical Society. *Examination* required in the following subjects: Anatomy, physiology, chemistry, obstetrics, hygiene, surgery, pathology, diagnosis, therapeutics, practice, materia medica. *Credit for years of practice.*—None. *Temporary licenses.*—Not granted. *Reciprocity.*—None.

Osteopaths.—State Board of Osteopathic Registration and Examination. *Midwives.*—Examined and licensed. *Itinerant vendors.*—No law.

Secretary Connecticut Medical Examining Board, Dr. Charles A. Tuttle, New Haven. Secretary Connecticut Homeopathic Medical Examining Board, Dr. E. C. M. Hall, New Haven. Secretary Connecticut Eclectic Medical Examining Board, Dr. Thomas S. Hodge, Torrington.

Delaware (Laws to 1907).—Graduation essential from some regularly incorporated medical college in good standing in the opinion of the Medical Council. *Examination* required in the following subjects: Anatomy, physiology, chemistry, pathology, diagnosis, materia medica and therapeutics, practice of medicine, surgery, obstetrics, hygiene. *Credit for years of practice.*—"The General Assembly has provided an examination for elderly physicians who were graduated on a two years' course, but the boards do not extend any privileges or grant a certain per cent. in the examination for previous practice." *Temporary licenses.*—Granted for not less than two weeks nor more than four weeks, but only "to take charge of the practice of a resident or legally qualified physician of this State during the latter's temporary illness or absence from the State." *Reciprocity.*—On licenses granted after an examination only, "with all States having a standard equal to or better than ours."

Osteopaths.—Examination required. Graduation essential from "a legally chartered and regularly conducted school of osteopathy." *Examination* by the Medical Council and some reputable practitioner of osteopathy in the following subjects: Anatomy, physiology, hygiene, chemistry, obstetrics, pathology, diagnosis, histology, gynecology, surgery, urinalysis, and osteopathy. Practice not restricted. *Midwives.*—No. law. *Itinerant vendors.*—Regulated under pharmacy law.

Secretary State Medical Examining Board representing the President and Fellows of the Medical Society of Delaware, Dr. J. H. Wilson, Dover. Secretary State Medical Examining Board representing the Homepathic Medical Society of Delaware, State and Peninsula, Dr. L. A. Kittenger, Wilmington. Examinations are conducted by the Medical Council.

District of Columbia (Laws to 1905).—Graduation essential from a college approved by the Board of Supervisors. *Examination* required in the following subjects: Anatomy, physiology, chemistry, bacteriology, pathology, materia medica, therapeutics, hygiene, histology, practice of medicine, surgery, obstetrics, gynecology, diseases of the eye and ear, medical jurisprudence. *Credit for years of practice.*—None. *Reciprocity* with the following States: Georgia, Indiana, Kentucky, Maryland, Michigan, Minnesota, Nebraska, Ohio, Texas, Vermont, Virginia, West Virginia, Wisconsin.

Osteopaths.—Practice exempted by law. *Itinerant vendors.*—Regulated under pharmacy laws.

All communications relative to licenses to practise medicine in the District of Columbia should be addressed to the Board of Medical Supervisors, Washington, D. C.

Florida (Laws of 1889 and 1905).—Graduation essential from a recognized medical college. *Examination* required in the following subjects: Anatomy, physiology, surgery, gynecology, therapeutics, obstetrics, chemistry. The State Board of Homeopathic Medical Examiners also examines in materia medica. *Credit for years of practice.*—One per cent. for each year of practice after ten years. *Temporary licenses* granted. *Reciprocity.*—None.

Osteopaths.—State Board of Osteopathic Examiners. *Midwives.*—No law. *Itinerant vendors.*—No law.

Secretary State Board of Medical Examiners, Dr. J. D. Fernandez, Jacksonville. Secretary State Board of Homeopathic Medical Examiners, Dr. C. W. Johnson, Jacksonville. Secretary State Board of Eclectic Medical Examiners, Dr. Hiram J. Hampton, Tampa.

Georgia (Laws to 1904).—Graduation essential from an approved medical college. *Examination* required. The applicant is examined by the board representing the system of practice of the school of which he is a graduate, or by the board which represents the system that he proposes to practise, in the following subjects: Anatomy, physiology, chemistry, therapeutics, practice of medicine, surgery, gynecology, obstetrics, pathology. *Credit for years of practice.*—"Some allowance is made when applicants show proficiency in practical branches." *Temporary licenses* granted. *Reciprocity.*—On licenses issued after examination only with the following States: District of Columbia, Illinois, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Michigan, Nebraska, Nevada, North Carolina, North Dakota, Tennessee, Virginia, and "a few others."

Osteopaths.—State Board of Osteopathic Examiners. *Midwives.*—No law. Midwives practise without restriction. *Itinerant vendors.*—No law.

Secretary State Board of Regular Examiners, Dr. I. H. Goss, Athens. Secretary State Board of Homeopathic Examiners, Dr. R. E. Hinman, Atlanta. Secretary State Board of Eclectic Examiners, Dr. C. W. Miller, Atlanta.

Hawaii.—Graduation essential from a reputable college of medicine whose curriculum embraces not less than four years of study. *Examination* required.

Secretary Board of Medical Examiners, Dr. Archibald N. Sinclair, Honolulu.

Idaho (Laws to 1909).—Graduation essential from a reputable college of medicine in good standing. *Examination* required in the following subjects: Anatomy, physiology, pathology, diagnosis, hygiene, chemistry, histology, toxicology, and theory and practice of medicine and surgery "as those branches are taught in the reputable, chartered schools of the system of medicine to which the applicant belongs or which he intends to practise." *Credit for years of practice.*—Five per cent. for each ten years of legal practice. *Temporary licenses.*—Not granted. *Reciprocity.*—None.

Osteopaths.—State Board of Osteopathic Examination and Registration. *Midwives.*—Practice exempted by law. *Itinerant vendors.*—No law.

Secretary State Board of Medical Examiners, Dr. O. J. Allen, Bellevue.

Illinois (Laws to 1907).—Graduation essential from a medical college in good standing. *Examination* required in the following subjects: Chemistry, etiology and hygiene, physiology, neurology, anatomy, materia medica and therapeutics, pathology and bacteriology, surgery, physical diagnosis, ophthalmology and otology, pediatrics, obstetrics, gynecology, laryngology and rhinology, medical jurisprudence, practice. *Credit for years of practice.*—One per cent. for each year of reputable practice since graduation, up to a total of 30 per cent. *Temporary licenses.*—Not granted. *Reciprocity.*—On licenses issued after examination only, with the following States: Arkansas, Georgia, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Michigan, Minnesota, Missouri, Nebraska, Nevada, New Jersey, North Dakota, Ohio, Texas, Utah, Vermont, West Virginia, Wisconsin, and Wyoming.

Osteopaths.—Not mentioned in the statutes. Examined and licensed, if found proficient, under section of the medical law providing for examination of those persons "who desire to practise any other system or science of treating human ailments who do not use medicines internally or externally, and who do not practise operative surgery." Practice restricted. *Examination* in the following subjects: Anatomy (same as for physicians), physiology (same as for physicians), chemistry, histology and pathology, hygiene, symptomatology. *Midwives.*—Examined and licensed. Violators of the law prosecuted. *Itinerant vendors.*—Law provides "that any itinerant vendor of any drug, nostrum, ointment, or application of any kind intended for the treatment of diseases or injury who shall, by writing or printing, or any other method, profess to the public to cure or treat disease or deformity by any drug, nostrum, or application shall pay a license of $100 per month into the treasury of the State Board of Health." Violators of the law prosecuted.

Secretary State Board of Health, Dr. James A. Egan, Springfield.

Indiana (Laws to 1909).—Graduation essential from a medical college maintaining a standard acceptable to the State Board of Medical Registration and Examination. *Examination* required in the following subjects: Anatomy, including histology and embryology; general surgery, materia medica and therapeutics, medicine, obstetrics, pathology and bacteriology, chemistry, etiology and hygiene, physiology, neurology, gynecology, laryngology and rhinology, medical jurisprudence, physical diagnosis, ophthalmology and otology, pediatrics. *Credit for years of practice.*—None. *Temporary licenses.*—Granted. *Reciprocity.*—On licenses issued, after examination only, with the following States: Arkansas, District of Columbia, Georgia, Illinois, Louisiana, New Hampshire, New York, Texas, Wyoming. On licenses issued on the basis of either an examination or a diploma—if the diploma and license were issued prior to March 11, 1901—with the following States: Iowa, Kansas, Kentucky, Maine, Maryland, Michigan, Minnesota, Missouri, Nebraska, Nevada, Ohio, Tennessee, Utah, Vermont, Virginia, West Virginia, Wisconsin.

Osteopaths.—Examined and licensed. Graduation essential from an osteopathic college maintaining a standard acceptable to the State Board of Medical Registration and Examination; course of instruction inferior to that demanded of medical colleges. Osteopath on State Board of Medical Registration and Examination. *Examination* same as for physicians, except that the subjects of medicine and materia medica are omitted. *Midwives.*—Licensed on presentation of approved diploma or on examination. *Itinerant vendors.*—No law.

Secretary State Board of Medical Registration and Examination, Dr. W. T. Gott, Indianapolis.

Iowa (Laws to 1909).—Graduation essential from a medical college in good standing with the State Board of Medical Examiners. *Examination* required in the following subjects: Anatomy, histology, embryology, chemistry, physiology, materia medica and therapeutics, toxicology, obstetrics, gynecology, pathology, bacteriology, etiology, practice, neurology, physical diagnosis, pediatrics, hygiene, surgery, laryngology and rhinology, ophthalmology and otology, medical jurisprudence. *Credit for years of practice.*—One per cent. for each year of reputable practice up to and including fifteen years. *Temporary licenses.*—Granted. *Reciprocity.*—On licenses, issued after examination only, with the following States: Delaware, Illinois, New Hampshire, New Jersey, Texas, Virginia, Wyoming. On licenses issued on the basis of a diploma but without an examination, provided that diploma was issued prior to January 1, 1899, with the following States: Georgia, Indiana, Kansas, Kentucky, Maine, Maryland, Michigan, Minnesota, Missouri, Nebraska, Nevada, New Hampshire, New Mexico, North Carolina, Ohio, South Carolina, Utah, West Virginia, Wisconsin.

Osteopaths.—Examined and licensed. Graduation essential from a legally incorporated school of osteopathy recognized as in good standing by the Iowa Osteopathic Association; course of instruction much inferior to that demanded of medical colleges. *Examination* in the following subjects: Anatomy, including practical anatomy; physiology, chemistry, histology, pathology, gynecology, obstetrics, and the theory of osteopathy—the latter excepted "until such time as there may be appointed an osteopathic physician on the State Board of Health and of Medical Examiners." *Midwives.*—No law. *Itinerant vendors.*—Regulated under pharmacy law. Annual fee of $100.

Secretary State Board of Medical Examiners, Dr. Guilford H. Sumner, Des Moines.

Kansas (Laws to 1908).—*Examination* required, but "graduates of legally chartered medical institutions of the United States and of foreign countries, in good standing, as may be determined by the board, may, at the discretion of the board, be granted a license without examination." Graduation not essential. Applicant must present evidence that "he has devoted not less than three periods of six months each, no two within the same twelve months, or after April 1, 1902, four periods of not less than six months each, no two within the same twelve months, to the study of medicine and surgery." *Examination* "shall embrace all those topics and subjects a knowledge of which is generally required by reputable medical

colleges of the United States for the degree of Doctor of Medicine." *Credit for years of practice.*—None. *Temporary licenses.*—Granted. *Reciprocity.*—On licenses issued, after examination only, with the following States: Alabama, Delaware, District of Columbia, Georgia, Illinois, Louisiana, Maine, Maryland, Minnesota, New Jersey, North Carolina, North Dakota, Ohio, South Carolina, Tennessee, Texas, Utah, Virginia, West Virginia, Wyoming. On licenses issued on the basis of either an examination or a diploma with the following States: Indiana, Iowa, Kentucky, Missouri, Nebraska, Wisconsin.

Osteopaths.—Licensed on presentation of a diploma from an approved school of osteopathy. Practice not restricted. *Midwives.*—No law. *Itinerant vendors.*—Annual fee of $50; license to be issued by county clerk.

Secretary State Board of Medical Registration and Examination, Dr. Henry A. Dykes, Lebanon.

Kentucky (Laws to 1904).—Graduation essential from a reputable and legally chartered medical college in the United States. *Examination* required in the following subjects: Anatomy, including histology and embryology, physiology, pathology, chemistry, surgery, obstetrics, gynecology, bacteriology, hygiene, ophthalmology and otology, medical jurisprudence, mental and nervous diseases, etiology, and physical diagnosis. *Credit for years of practice.*—One per cent. for each year of reputable practice. *Temporary licenses.*—Not granted. *Reciprocity.*—On licenses issued, after examination only, with the following States: Delaware, District of Columbia, Illinois, Louisiana, New Hampshire, New Jersey, North Dakota, Texas, Virginia, Wyoming. On licenses issued after an examination or on diploma with the following States: Arkansas, Georgia, Indiana, Iowa, Kansas, Maine, Maryland, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, South Carolina, Tennessee, Utah, Vermont, West Virginia, Wisconsin.

Osteopaths.—Examination required. Graduation essential from a reputable college of osteopathy; course of instruction inferior to that demanded of medical colleges. Practice not restricted. Osteopath on State Board of Health. *Examination.*—Same as for physicians. *Midwives.*—Practice exempted. *Itinerant vendors.*—Practice exempted, except that of "any itinerant medical company of two or more persons traveling as a troupe or company."

Secretary State Board of Health, Dr. J. N. McCormack, Bowling Green.

Louisiana (Laws to 1908).—Graduation essential from "a college in good standing of any sect teaching medicine or the healing art." *Examination* required in the following subjects: Anatomy, physiology, chemistry, obstetrics, gynecology, physical diagnosis, surgery, pathology, therapeutics, hygiene, "provided that any person not using internal medication in his practice shall be exempt from examination in therapeutics." *Credit for years of practice.*—None at the present time. It is believed that the Louisiana State Board of Medical Examiners will do so at its next meeting. The allowance, however, will probably not be over 15 per cent. *Temporary licenses* granted. *Reciprocity.*—On licenses issued, after an examination only, with the following States: Arkansas, Georgia, Illinois, Indiana, Kansas, Kentucky, Maryland, Minnesota, Missouri, New Hampshire, Virginia, Wisconsin, provided that applicants "present a diploma from a college rated Class 'A' by this board, *i.e.*, medical colleges rated between 70 per cent. and 100 per cent. by the Council on Medical Education of the American Medical Association."

Osteopaths.—State Board of Osteopathy. *Midwives.*—Law does not apply to midwives in rural districts and plantation practice. *Itinerant vendors.*—Practice prohibited.

Secretary State Board of Medical Examiners, Dr. A. B. Brown, New Orleans.

Maine (Laws to 1901).—Graduation essential from some reputable medical college, or college having the power to confer degrees in medicine, and in good standing with the State Board of Medical Registration and Examination. *Examination* required in the following subjects: Anatomy, physiology, pathology, materia medica and therapeutics, surgery, principles and practice of medicine, obstetrics, chemistry, hygiene, diseases of the eye, ear, nose, and throat, medical jurisprudence. *Credit for years of practice.*—One per cent. for each year of practice, but no credit allowed until after applicant has been in practice for five years. *Temporary licenses.*—Not granted. *Reciprocity.*—With the following States: Arkansas, Delaware, District of Columbia, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Missouri, Nebraska, Nevada, New Jersey, North Dakota, Ohio, South Carolina, Tennessee, Texas, Utah, Vermont, Wisconsin, Wyoming, Virginia, West Virginia. *Osteopaths.*—Practice exempted. *Midwives.*—No law. *Itinerant vendors.*—No law.

Secretary State Board of Registration of Medicine, Dr. Frank W. Scarle, Portland.

Maryland (Laws to 1908).—Graduation essential from colleges meeting the requirements of the American Medical College Association or the Intercollegiate Committee of the American Institute of Homeopathy. *Examination* required in the following subjects: Anatomy, physiology, chemistry, surgery, practice of medicine, materia medica, therapeutics, obstetrics, and pathology. *Credit for years of practice.*—None. *Temporary licenses.*—Not granted. *Reciprocity.*—Maryland is in reciprocal relationship with the following States: Georgia, Illinois, Indiana, Iowa, Kentucky, Maine, Michigan, Minnesota, Nebraska, New Hampshire, North Carolina, Ohio, South Carolina, Tennessee, Texas, Vermont, Virginia, West Virginia, Wisconsin. The recognition of licenses is based on examination only, except the practitioners who were engaged in practice prior to the enactment of the law regulating medical practice are admitted, if properly certified as to professional standing and ability.

Osteopaths.—Practice exempted. *Midwives.*—Practice exempted. *Itinerant vendors.*—No law.

Secretary Board of Examiners representing the Medical and Chirurgical Faculty of the State of Maryland, Dr. J. McP. Scott, Hagerstown. Secretary Board of Medical Examiners of the Maryland State Homeopathic Medical Society, Dr. Joseph S. Garrison, Baltimore.

Massachusetts (Laws to 1909).—Graduation not essential. *Examination* required in the following subjects: Anatomy, surgery, physiology, pathology, obstetrics, gynecology, practice of medicine, hygiene, diagnosis, bacteriology, pediatrics, toxicology. *Credit for years of practice.*—One per cent. of the minimum requirement (75 per cent.) for each year in excess of five years of successful practice. *Temporary licenses.*—Not granted. *Reciprocity.*—None.

Osteopaths.—No special requirements. Examined and licensed if they pass the examination above prescribed. Practice not restricted. *Midwives.*—No law. *Itinerant vendors.*—No law.

Secretary State Board of Registration in Medicine, Dr. Edwin B. Harvey, Boston.

Michigan (Laws to 1907).—Graduation essential from a medical college approved by the State Board of Registration in Medicine. *Examination* required in the following subjects: Anatomy, physiology, chemistry, pathology, materia medica and therapeutics, toxicology, histology, practice of medicine, surgery, obstetrics, gynecology, mental and nervous diseases, diseases of the eye, ear, nose, and throat, bacteriology, hygiene, medical jurisprudence, and public health laws of Michigan. *Credit for years of practice.*—Two per cent. for each year during the first five years of practice and 1 per cent. thereafter up to a total of 25 per cent. *Temporary licenses.*—Not granted. *Reciprocity.*—On licenses issued, after an examination only, with the following States: District of Columbia, Illinois, Louisiana, New Jersey, New York, North Dakota, Texas, Virginia, Wyoming. On licenses issued either on a diploma or an examination with the following States: Arkansas, Georgia, Indiana, Iowa, Kansas, Kentucky, Maine, Maryland, Minnesota, Missouri, Nebraska, Nevada, New Hampshire, Ohio, South Carolina, Utah, Vermont, West Virginia, Wisconsin.

Osteopaths.—State Board of Osteopathic Registration and Examination. *Midwives.*—No law. *Itinerant vendors.*—No law. Secretary State Board of Registration in Medicine, Dr. B. D. Harison, Detroit.

Minnesota (Laws to 1909).—Graduation not essential. Applicant must prove "that he has completed four entire sessions (three prior to 1899) of twenty-six weeks each at a medical school recognized by the State Board of Medical Examiners." *Examination* required in the following subjects: Anatomy, physiology, chemistry, histology, materia medica, therapeutics, preventive medicine, practice of medicine, surgery, obstetrics, diseases of women and children, diseases of the nervous system, diseases of the eye and ear, medical jurisprudence. *Credit for years of practice.*—None. "But length of time in practice is taken into consideration in passing upon an applicant's papers, and the longer an applicant has been in practice the better showing is he required to make in the practical branches, such as the practice of medicine, obstetrics, and surgery." *Temporary licenses.*—Not granted. *Reciprocity.*—On licenses issued, after examination only, with the following States: Arkansas, Delaware, District of Columbia, Illinois, Louisiana, Maryland, Nevada, New Hampshire, New Jersey, North Carolina, North Dakota, South Carolina, Texas, Vermont, Virginia, Wyoming. On licenses issued, either on a diploma or on an examination, with the fol-

lowing States: Indiana, Iowa, Kansas, Kentucky, Maine, Missouri, Nebraska, Ohio, Tennessee, Utah, Wisconsin. "All applicants for licenses are required to take a practical examination in laboratory work in pathology, histology, bacteriology and urinalysis, and in clinical diagnosis. Applicants for reciprocal registration coming from boards which do not require this examination must take it before this board as a supplementary."

Osteopaths.—State Board of Osteopathic Examiners and Registration. *Midwives.*—Licensed on presentation of approved diploma or on examination. *Itinerant vendors.*—No law.

Secretary State Board of Medical Examiners, Dr. W. S. Fullerton, St. Paul.

Mississippi (Law to 1906).—Graduation not essential. *Examination* required in the following subjects: Anatomy, chemistry, obstetrics, materia medica, physiology, pathology, surgery, hygiene. *Credit for years of practice.*—None. *Temporary licenses.*—Granted. *Reciprocity.*—None.

Osteopaths.—Graduation not essential. *Examination* required in anatomy, physiology, and hygiene only. *Midwives.*—Permitted to practice without license. *Itinerant vendors.*—No law.

Secretary State Board of Health, Dr. S. H. McLean, Jackson.

Missouri (Laws to 1909).—Graduation essential from a reputable medical college approved by the State Board of Health. *Examination* required in the following subjects: Anatomy, chemistry, physiology, therapeutics, obstetrics, gynecology, surgery, practice of medicine, bacteriology, medical jurisprudence, and such other branches as the State Board of Health may direct. *Credit for years of practice.*—One per cent. for each year of reputable practice. *Temporary licenses.*—Not granted. *Reciprocity.*—On licenses issued, after examination only, with the following States: Illinois, Louisiana, North Dakota, South Carolina, Texas, Virginia. On licenses issued on the basis of a diploma, but without examination, with the following States: Georgia, Indiana, Iowa, Kansas, Kentucky, Maine, Maryland, Michigan, Minnesota, Nebraska, Nevada, New Hampshire, West Virginia, Wisconsin.

Osteopaths.—State Board of Osteopathic Registration and Examination. *Midwives.*—Examined and licensed. *Itinerant vendors.*—May be licensed as peddlers; $20 per year.

Secretary State Board of Health, Dr. Frank B. Hiller, Jefferson City.

Montana (Laws to 1907).—Graduation essential from a medical college in good standing. *Examination* required in the following subjects: Anatomy, physiology, materia medica and therapeutics, practice of medicine, surgery, obstetrics, diseases of women and children, diseases of the nervous system, diseases of the eye and ear. *Credit for years of practice.*—Five per cent. for each ten years. *Temporary licenses.*—None. *Reciprocity.*—None.

Osteopaths.—State Board of Osteopathic Examiners. *Midwives.*—No law. *Itinerant vendors.*—No law.

Secretary State Board of Medical Examiners, Dr. William C. Riddell, Helena.

Nebraska (Laws to 1907).—Graduation essential from a medical school in good standing. *Examination* required in all the branches generally required by reputable medical colleges for the degree of Doctor of Medicine. *Credit for years of practice.*—None; but it is believed that the Nebraska board will adopt the Illinois method at their next meeting. *Temporary licenses* not granted. *Reciprocity.*—On licenses issued, after an examination only, with the following States: Arkansas, Illinois, Louisiana, New Jersey, Tennessee, Texas, Vermont, Virginia. On licenses issued on the basis of either an examination or diploma with the following States: District of Columbia, Georgia, Indiana, Iowa, Kansas, Kentucky, New Hampshire, Ohio, Utah, Maine, Maryland, Michigan, Minnesota, Missouri, Nevada, West Virginia, and Wisconsin.

Osteopaths.—State Board of Osteopathy. *Midwives.*—No law. *Itinerant vendors.*—Practice prohibited.

Secretary State Board of Health, Dr. E. Arthur Carr, Lincoln.

Nevada (Law of 1905).—Graduation essential from a legally recognized college. *Examination* required in the following subjects: Anatomy, physiology, materia medica and therapeutics, chemistry, bacteriology, pathology, toxicology, obstetrics, surgery, general medicine, diseases of the skin, eye, ear, nose, throat, brain, and genitourinary system. *Credit for years of practice.*—One per cent. is allowed for the first five years. After that, 1 per cent. for each additional year. *Temporary licenses.*—Not granted. *Reciprocity.*—On licenses issued after examination only with the following States: Arkansas, Illinois, Indiana, Louisiana, Maine, New Hampshire, South Carolina, Texas. On licenses issued on the basis of a diploma, but without examination, with the following States: Georgia, Iowa, Kentucky, Michigan, Minnesota, Missouri, Nebraska, Wisconsin.

Osteopaths.—No law. Osteopaths practice without restriction. *Midwives.*—No law. *Itinerant vendors.*—No law.

Secretary State Board of Medical Examiners, Dr. S. L. Lee, Carson City.

New Hampshire (Laws to 1907).—Graduation essential from a medical college conforming to the requirements of the Regents. *Examination* required in the following subjects: Anatomy, physiology, hygiene, chemistry, surgery, obstetrics, pathology, diagnosis, practice, materia medica, and therapeutics. *Credit for years of practice.*—None. *Temporary licenses.*—Not granted. *Reciprocity.*—On licenses issued after examination only with the following States: Indiana, Iowa, Kentucky, Louisiana, Maryland, Minnesota. On the basis of either an examination or a diploma from a reputable medical college, provided the diploma and license were issued prior to September 1, 1897, with the following States: Michigan, Nebraska, Nevada, Vermont, West Virginia, Wisconsin.

Osteopaths.—Practice of osteopathy exempted by law. *Midwives.*—No law. *Itinerant vendors.*—No law.

Secretary State Medical Board representing the New Hampshire Medical Society, Dr. James T. Greeley, Nashua. Secretary State Board representing the Homeopathic Medical Society, Dr. R. V. Sweet, Rochester. Secretary State Board representing the Eclectic State Medical Society, Dr. Walter H. True, Laconia.

New Jersey (Laws to 1910).—Graduation essential from some legally incorporated medical college in good standing with the State Board of Medical Examiners. *Examination* required in the following subjects: Materia medica and therapeutics, obstetrics and gynecology, practice of medicine, including diseases of the skin, nose, and throat; surgery, including surgical anatomy and diseases of the eye, ear, nose, and genitourinary organs; anatomy; physiology; chemistry; histology; pathology; bacteriology; hygiene; medical jurisprudence, and in such other subjects as the board may require. *Credit for years of practice.*—None. *Temporary licenses.*—Not granted. *Reciprocity.*—On licenses issued after an examination only with the following States: Delaware, Illinois, Indiana, Kentucky, Maine, Michigan, Minnesota, New Hampshire, Ohio, Vermont, Wisconsin.

Osteopaths.—No law. Osteopaths practise without restriction. *Midwives.*—Examined and licensed. *Itinerant vendors.*—No law.

Secretary State Board of Medical Examiners, Dr. H. S. Norton, Trenton.

New Mexico (Laws to 1909).—Any reputable person who is a graduate of a medical college in good standing as defined in the medical law of New Mexico, and who personally appears before the Board of Medical Examiners at its regular meeting, shall be licensed without examination. Examination required of graduates of reputable medical colleges other than those in good standing. *Credit for years of practice.*—Five per cent. for each five years of actual practice. *Temporary licenses.*—Not granted. *Reciprocity.*—On licenses issued after an examination only with the following States: Iowa and Louisiana. On license issued on the presentation of diploma without examination with the State of Iowa.

Osteopaths.—Territorial Board of Osteopathy. *Midwives.*—No law. *Itinerant vendors.*—No law.

Secretary Board of Health and Medical Examiners, Dr. J. A. Massie, Santa Fé.

New York (Laws to 1907).—Graduation essential from a medical college registered by the Regents as maintaining a proper medical standard. *Examination* required in the following subjects: Anatomy, physiology, chemistry, hygiene and sanitation, surgery, obstetrics and gynecology, pathology, and bacteriology, diagnosis. *Credit for years of practice.*—None. *Temporary licenses.*—Not granted. *Reciprocity.*—On licenses issued after examination only with the following States: Delaware, Indiana, Michigan, Ohio, Utah, Vermont, Wisconsin.

Osteopaths.—Examination required. Graduation not essential. Applicant must produce evidence that he has studied osteopathy and attended certain courses in a college of osteopathy, maintaining at the time a standard satisfactory to the Regents; course of instruction inferior to that demanded of medical colleges. Osteopath on State Board of Medical Examiners. *Examination.*—Same as for physicians. *Midwives.*—No law. *Itinerant vendors.*—No law.

First Assistant Commissioner of Education, Augustus S.

Downing, M.A., Ph.D., LL.D., Albany. All correspondence relating to the details of examination should be addressed to the Chief of the Examination Division, New York State, Education Department, Albany.

North Carolina (Laws to 1905).—Graduation essential from a medical college in good standing. *Examination* required in the following subjects: Anatomy, physiology, surgery, pathology, hygiene, chemistry, materia medica, therapeutics, gynecology, pediatrics, practice of medicine. *Credit for years of practice.*—None. *Temporary licenses.*—Granted. *Reciprocity.*—State Board of Medical Examiners empowered to reciprocate.

Osteopaths.—State Board of Osteopathic Registration and Examination. *Midwives.*—Practice exempted. *Itinerant vendors.*—Licensed by Board of County Commissioners.

Secretary State Board of Medical Examiners, Dr. Benjamin K. Hays, Oxford.

North Dakota (Laws of 1890-1895-1905).—Graduation essential from a reputable medical college recognized by the State Board of Medical Examiners. The State Board of Medical Examiners will not recognize colleges rated by the Council on Medical Education of the American Medical Association below 50 as being in "good standing." *Examination* required in the following subjects: Anatomy, physiology, chemistry, pathology, therapeutics, diseases of women and children, nervous diseases, diseases of the eye and ear, medical jurisprudence, surgery, obstetrics, preventive medicine, histology, and such other subjects as the board may deem advisable. *Credit for years of practice.*—None. *Temporary licenses.*—Not granted. *Reciprocity.*—On licenses issued after an examination only, subsequent to June 30, 1905, with the following States: Arkansas, Illinois, Maine, Michigan, Minnesota, Texas, Vermont, West Virginia, Wisconsin.

Osteopaths.—State Board of Osteopathic Examiners. *Midwives.*—No law. *Itinerant vendors.*—No law.

Secretary State Board of Medical Examiners, Dr. H. M. Wheeler, Grand Fork.

Ohio (Laws to 1910).—Graduation essential from a legally chartered medical institution in good standing, as defined by the State Medical Board. *Examination* required in the following subjects: Anatomy, physiology, pathology, chemistry, materia medica and therapeutics, medicine, diagnosis, surgery, obstetrics, diseases of women and children, and such other subjects as the board requires. *Credit for years of practice.*—Five per cent. for each five years. *Temporary licenses.*—Not granted. *Reciprocity.*—On licenses issued after an examination only with the following States: Illinois, New Jersey, New York, Texas. On licenses issued on the basis of a diploma but without examination with the following States: Arkansas, District of Columbia, Indiana, Iowa, Kansas, Maine, Maryland, Michigan, Minnesota, Nebraska, Vermont, West Virginia, Wisconsin, Wyoming.

Osteopaths.—Examination required. Graduation essential from a reputable college of osteopathy, as determined by the Osteopathic Examining Committee appointed by the State Medical Board on the recommendation of the Ohio Osteopathic Society; course of instruction inferior to that demanded of medical colleges. *Examination* in the following subjects: Pathology, physiological chemistry, gynecology, minor surgery, osteopathic diagnosis, and the principles and practice of osteopathy. *Midwives.*—Examined and licensed. *Itinerant vendors.*—No law.

Secretary State Medical Board, Dr. George H. Matson, Columbus.

Oklahoma (Laws to 1908).—Graduation essential from "some legally chartered medical institution or college; the requirements of such medical school or college shall have been at the time of granting such diploma in no particular less than those prescribed by the American Association of Medical Colleges or the Southern Association of Medical Colleges in that year in which the said diploma was granted." *Examination* required in the following subjects: Anatomy, bacteriology, physiology, gynecology, obstetrics, toxicology, medical jurisprudence, hygiene, sanitary science, chemistry, physical diagnosis, materia medica, practice, histology, and surgery. *Credit for years of practice.*—None. *Temporary licenses.*—Granted. *Reciprocity.*—None.

Osteopaths.—Examination required. Graduation essential from a legally chartered college of osteopathy in good repute; course of instruction much inferior to that demanded of medical colleges. Osteopaths are permitted to administer medicines "in cases of emergency." Osteopath on State Board of Medical Examiners. *Examination.*—Same as for physicians, except that materia medica and therapeutics are omitted, and the applicant "shall be examined in theory and practice by the member of the Board of Examiners who represents the school of practice to which the applicant professes to belong." *Midwives.*—Practice exempted. *Itinerant vendors.*—County licenses required.

Secretary State Board of Medical Examiners, Dr. Frank P. Davis, Enid.

Oregon (Laws to 1907).—Graduation not essential. *Examination* required in the following subjects: Anatomy, surgery, pathology, materia medica and therapeutics, practice of medicine, diseases of the eye and ear, gynecology, diagnosis, obstetrics, nervous diseases, diseases of children, chemistry, medical jurisprudence, histology, and physiology. *Credit for years of practice.*—After ten years of active practice licenses will be granted on a rating of 70 per cent.; after twenty years' practice, 65 per cent. *Temporary licenses.*—Not granted. *Reciprocity.*—None.

Osteopaths.—Examination required. Graduation essential from "any established school of osteopathy recognized as in good standing by the Oregon Osteopathic Association." Osteopath on State Board of Medical Examiners. *Examination* required in the following subjects: Anatomy, pathology, gynecology, obstetrics, chemistry, histology, physiology, osteopathy. *Midwives.*—No law. *Itinerant vendors.*—Regulated under pharmacy law.

Secretary State Board of Medical Examiners, Dr. E. B. McDaniel, Portland.

Pennsylvania (Law of 1893).—Graduation essential from some approved legally incorporated medical college. *Examination* required in the following subjects: Anatomy, physiology, hygiene, chemistry, surgery, obstetrics, pathology, diagnosis, therapeutics, practice of medicine, materia medica. *Credit for years of practice.*—None. *Temporary licenses.*—Not granted. *Reciprocity.*—None.

Osteopaths.—State Board of Osteopathic Examiners. *Midwives.*—No law. *Itinerant vendors.*—No law.

The Medical Council has supervision of the regulation of the practice of medicine in Pennsylvania. Secretary of Medical Council, Hon. Nathan C. Schaeffer, Harrisburg. There are three separate Boards of Medical Examiners for the State of Pennsylvania: one representing the Medical Society of the State of Pennsylvania; one representing the Homeopathic Medical Society of Pennsylvania; and one representing the Eclectic Medical Society of the State of Pennsylvania.

Philippine Islands.—Graduation not essential. *Examination* required in the following subjects: Anatomy, physiology, chemistry, materia medica, pathology, bacteriology, hygiene, surgery, practice of medicine, obstetrics, diseases of women and children, neurology, diseases of the eye and ear, medical jurisprudence.

Secretary Board of Medical Examiners, Dr. Paul Clements, Manila.

Porto Rico.—Graduation essential from a medical institution in good standing as recognized by the Board of Examiners. *Examination* required in those general subjects and topics a knowledge of which is commonly and generally required of candidates for the degree of medicine by respectable colleges of the United States.

Secretary Board of Examiners, Dr. Quevedo Baez, San Juan.

Rhode Island (Laws to 1908).—Graduation essential from a medical school in good standing. *Examination* required in the following subjects: Anatomy and physiology, materia medica and chemistry, pathology, surgery, theory and practice of medicine, obstetrics and gynecology, medical jurisprudence, and hygiene. *Credit for years of practice.*—None; but a special examination is given to physicians who have been in practice fifteen years or more and who are of good repute in the locality in which they have been practising. *Temporary licenses.*—Not granted. *Reciprocity.*—None.

Osteopaths.—No specific requirements. *Midwives.*—No law. *Itinerant vendors.*—No law.

Secretary State Board of Health, Dr. Gardner T. Swarts, Providence.

South Carolina (Laws of 1904-1905-1908).—Graduation essential from a medical college of established reputation. *Examination* required. The curriculum of the State Board of Medical Examiners is divided into two sections: the Junior and the Senior curriculum. The Junior curriculum comprises the following subjects: Anatomy, physiology, histology, materia medica and medical botany, chemistry, medical physics, bacteriology, and pathology. The Senior curriculum comprises the following subjects: Anatomy, hygiene, sanitary science and State medicine, urinalysis, therapeutics and toxicology, surgery, practice of medicine, diseases of children, obstetrics and gynecology, medical jurisprudence. Applicants holding a diploma from a four-year graded medical college, who have pursued the study of four separate courses, and have obtained marks of not less than 75 per cent. in each individual branch, shall be exempted from examination in the Junior curriculum.

Credit for years of practice.—None. *Temporary licenses.*—Granted. *Reciprocity.*—On licenses issued after an examination only with the following States: Kansas, Maine, Maryland, Michigan, Minnesota, Missouri, Nevada, Utah, Virginia, West Virginia, Wyoming.

Osteopaths.—Examination required. Graduation essential from a duly authorized school of osteopathy. *Examination.*—The same as for physicians, except that materia medica, major surgery and the practice of medicine are omitted. *Midwives.*—Practice exempted. *Itinerant vendors.*—No law.

Secretary State Board of Medical Examiners, Dr. A. Earle Boozer, Columbia.

South Dakota (Laws to 1907).—Graduation essential from a legally organized and reputable medical college recognized by the State Board of Medical Examiners. *Examination* required in the following subjects: Anatomy, physiology, chemistry, pathology, therapeutics, practice of medicine, surgery, obstetrics, gynecology, diseases of the eye and ear, bacteriology, medical jurisprudence, and such other branches as the board may deem advisable. *Credit for years of practice.*—None. *Temporary licenses.*—Not granted. *Reciprocity.*—None.

Osteopaths.—State Board of Osteopathic Examiners. *Midwives.*—No law. *Itinerant vendors.*—No law.

Secretary State Board of Medical Examiners, Dr. F. W. Freyberg, Mitchell.

Tennessee (Laws to 1907).—Graduation not essential. *Examination* required in the following subjects: Anatomy, physiology, chemistry, pathology, surgery, obstetrics, materia medica, and practice. *Credit for years of practice.*—None. *Temporary licenses.*—Granted. *Reciprocity.*—Tennessee has reciprocal relations with the following States: Georgia, Indiana, Kansas, Kentucky, Maine, Minnesota, Nebraska, North Carolina, Utah, West Virginia, Wisconsin. Negotiations are now pending with Maryland and Michigan. Licenses are issued on presentation of diploma without examination to licentiates of Georgia and Kentucky.

Osteopaths.—State Board of Osteopathic Registration and Examination. *Midwives.*—No law. *Itinerant vendors.*—Practice prohibited.

Secretary State Board of Medical Examiners, Dr. C. A. Abernathy, Pulaski.

Texas (Laws to 1907).—Graduation essential from "bona fide, reputable medical colleges, reputable within the meaning of the act." *Examination* required in the following subjects: Anatomy, physiology, chemistry, histology, bacteriology, medical jurisprudence, obstetrics, hygiene, gynecology, pathology, physical diagnosis, surgery. *Credit for years of practice.*—One per cent. for each year of actual practice. *Temporary licenses.*—Not granted. *Reciprocity.*—On licenses issued after an examination only with the following States: Arkansas, District of Columbia, Illinois, Indiana, Iowa, Kansas, Kentucky, Maine, Maryland, Michigan, Minnesota, Missouri, Nebraska, Nevada, New Jersey, North Dakota, Ohio, Vermont, Virginia, West Virginia, Wisconsin.

Osteopaths.—Examination required. Graduation essential from a recognized school of osteopathy. Practice not restricted. Osteopath on State Board of Medical Examiners. *Examination.*—Same as for physicians. *Midwives.*—No specific law. Examination provided for those who wish to practice obstetrics alone. The act "does not apply to those who do not follow obstetrics as a profession, and who do not advertise themselves as obstetricians or midwives, or hold themselves out to the public as so practising." *Itinerant vendors.*—No law.

Secretary State Board of Medical Examiners, Dr. R. H. McLeod, Palestine.

Utah (Laws to 1907).—Graduation essential from a legally chartered medical school deemed "a recognized school of medicine." *Examination* required in the following subjects: Histology, anatomy, physiology, chemistry, toxicology, urinalysis, materia medica, therapeutics, bacteriology, pathology, theory and practice, surgery, obstetrics, gynecology, pediatrics, dermatology, hygiene, medical jurisprudence, ophthalmology, otology, rhinology, laryngology, and such other branches as the State Board of Medical Examiners may direct. *Credit for years of practice.*—None. *Temporary licenses.*—Not granted. *Reciprocity.*—Utah reciprocates at present with the following States: Georgia, Kansas, Kentucky, Illinois, Indiana, Iowa, Maine, Minnesota, Missouri, Michigan, Nebraska, New Jersey, New York, South Carolina, Tennessee, Wisconsin, Wyoming. Applicants for reciprocity presenting a license dated subsequent to December 24, 1802, must obtain such license on the basis of an examination. If the license was issued prior to December 24, 1892, Utah reciprocates with any or all of the States named on the basis of a diploma.

Osteopaths.—Examination required. Graduation essential from an osteopathic school recognized by the State Board of Medical Examiners. Osteopath on State Board of Medical Examiners. *Examination.*—The same as for physicians, except materia medica and therapeutics, which are given them by the osteopathic member of the board. *Midwives.*—No specific law. Those desiring to practice obstetrics are examined and licensed, but the law permits practice "in case of emergency," and it exempts "persons practising obstetrics in communities where there are no licensed practitioners." *Itinerant vendors.*—No law.

Secretary State Board of Medical Examiners, Dr. G. F. Harding, Salt Lake City.

Vermont (Laws to 1908).—Graduation essential from a legally chartered medical school recognized by the State Board of Medical Registration. *Examination* required in the following subjects: Anatomy, physiology, chemistry, pathology, bacteriology, hygiene, practice of medicine, surgery, obstetrics, gynecology, materia medica, legal medicine. *Credit for years of practice.*—One per cent. for each year of practice up to ten years. *Temporary licenses.*—Not granted. *Reciprocity.*—On licenses issued after an examination only with the following States: Arkansas, District of Columbia, Illinois, Indiana, Kansas, Kentucky, Louisiana, Maine, Maryland, Michigan, Minnesota, Nebraska, New Hampshire, New York, New Jersey, North Dakota, Ohio, Texas, Virginia, West Virginia, Wyoming.

Osteopaths.—State Board of Osteopathic Registration and Examination. *Midwives.*—No law. *Itinerant vendors.*—No law.

Secretary State Board of Medical Registration, Dr. W. Scott Nay, Underhill.

Virginia (Laws to 1910).—Graduation essential from "some medical college or institution teaching the art of healing human diseases." Certain undergraduate students admitted to examination in the subjects of the first two years of the curriculum of an approved medical college. *Examination* required in the following subjects: Anatomy and histology, physiology and embryology, chemistry, pathology and bacteriology, materia medica, therapeutics, and toxicology, hygiene, preventive medicine and jurisprudence, theory and practice of medicine, obstetrics, pediatrics, surgery, and gynecology. *Credit for years of practice.*—None. *Temporary licenses.*—Granted. *Reciprocity.*—On licenses, issued after an examination only, with the following States: Arkansas, Delaware, District of Columbia, Indiana, Georgia, Kentucky, Louisiana, Maryland, Maine, Michigan, Minnesota, Missouri, Nebraska, New Hampshire, North Carolina, South Carolina, Texas, West Virginia, Wisconsin, Wyoming.

Osteopaths.—Examination required. Graduation essential from "some medical college or institution teaching the art of healing human diseases." *Examination.*—The same as for physicians, except that materia medica and therapeutics are omitted. Practice not restricted. *Midwives.*—Practice exempted. *Itinerant vendors.*—No law.

Secretary State Board of Medical Examiners, Dr. R. S. Martin, Stuart.

Washington (Laws to 1909).—Graduation essential from some legally chartered medical school, the requirements of which shall have been at the time of the granting of the diploma in no particular less than that prescribed by the Association of American Medical Colleges for that year. *Examination* required in the following subjects: Anatomy, histology, gynecology, pathology, physiology, bacteriology, chemistry, toxicology, obstetrics, general diagnosis, and hygiene. *Credit for years of practice.*—None. *Temporary licenses.*—Not granted. *Reciprocity.*—None.

Osteopaths.—Examination required. Graduation essential from a legally chartered college of osteopathy in good standing with the State Board of Medical Examiners. Practice not restricted. Two osteopaths on State Board of Medical Examiners. *Midwives.*—No law. *Itinerant vendors.*—Regulated under pharmacy laws.

Secretary State Board of Medical Examiners, Dr. Frank P. Witter, Spokane.

West Virginia (Laws to 1907).—Graduation essential from reputable medical college recognized by the State Board of Health. *Examination* required in the following subjects: Chemistry and medical jurisprudence, materia medica and therapeutics, anatomy and embryology, obstetrics and gynecology, bacteriology and hygiene, physiology and histology, medicine and pediatrics, surgery, diagnosis, laryngology, rhinology, ophthalmology and neurology. *Credit for years of practice.*—None; "but the old practitioner is always taken care of." *Temporary licenses.*—Not granted. *Reciprocity.*—On licenses issued after ex-

amination only with the following States: Illinois, North Dakota, Texas, Vermont, Wyoming. On licenses issued on the basis of a diploma but without an examination with the following States: District of Columbia, Georgia, Indiana, Iowa, Kentucky, Kansas, Maryland, Michigan, Missouri, Nebraska, New Jersey, Ohio, South Carolina, Tennessee, Virginia and Wisconsin—licenses issued prior to May 23, 1895.

Osteopaths.—Examination required. Graduation essential—from a recognized osteopathic college of a standard recognized by the American Osteopathic Association. *Examination.*—In the following subjects: Anatomy and embryology; chemistry and medical jurisprudence; physiology; histology; bacteriology and hygiene; obstetrics and gynecology; surgery; practice of osteopathy, and osteopathic diagnosis. Osteopaths are not permitted to practice medicine or major surgery. *Midwives.*—Practice exempted. *Itinerant Vendors.*—County license required.

Secretary State Board of Health.—Dr. H. A. Barlee, Point Pleasant.

Wisconsin (Laws to 1909).—Graduation essential from a college of medicine and surgery deemed reputable by the State Board of Medical Examiners. *Examination* required in the following subjects: Surgery; hygiene; physical diagnosis; anatomy; pediatrics; obstetrics; gynecology; pathology; bacteriology, histology; materia medica, therapeutics, practice; neurology, dietetics, medical jurisprudence; physiology, laryngology, ophthalmology; chemistry, toxicology, urinalysis. *Credit for Years of Practice.*—Five per cent. for each five years of practice of applicant. *Temporary Licenses.*—Not granted. *Reciprocity.*—On licenses issued after an examination only, with the following States: Illinois, Louisiana, New Jersey, New York, North Dakota, Texas, Wyoming. On licenses issued on a diploma but without examination, with the following States: District of Columbia, Georgia, Indiana, Iowa, Kansas, Kentucky, Maine, Maryland, Michigan, Minnesota, Missouri, Nebraska, Nevada, New Hampshire, Ohio, South Carolina, Tennessee, Utah, Vermont, Virginia, West Virginia.

Osteopaths.—Examination required. Graduation essential—from a college of osteopathy deemed reputable by the State Board of Medical Examiners; requirements inferior to those demanded of medical colleges. Osteopath on State Board of Medical Examiners. "Osteopaths, when licensed, shall have the same rights and privileges and be subject to the same laws and regulations as practitioners of medicine and surgery—except in the matter of administration of drugs and the performance of surgical operations." *Examination.*—Same as for physicians, except that materia medica and therapeutics, practice of medicine and surgery are omitted. *Midwives.*—Examined and licensed. *Itinerant Vendors.*—No law.

Secretary State Board of Medical Examiners, Dr. John M. Beffel, Milwaukee.

Wyoming (Laws to 1905).—Graduation essential from a legally chartered college of the system which the person claims to practise. Said college must be recognized by the State Board of Health or the State Board of Medical Examiners of the State in which it is located. *Examination* required in the following subjects: Anatomy, physiology, chemistry, toxicology, pathology, physical diagnosis, gynecology, surgery, obstetrics, hygiene, and bacteriology; also "such branches as are necessary to complete the system of which he is a practitioner. If the applicant is a practitioner of any school or system not represented in the membership of the board, the board shall have authority to call a legally licensed practitioner of that system to assist in the examination." *Credit for years of practice.*—No specific percentage. The State Board of Medical Examiners allows "certain advance in the fundamental branches, e.g., anatomy and chemistry." *Temporary licenses.*—Not granted. *Reciprocity.*—On licenses issued after an examination only, with the following States: District of Columbia, Illinois, Indiana, Iowa, Kansas, Maine, Michigan, Minnesota, Ohio, South Carolina, Tennessee, Utah, Virginia, West Virginia, Wisconsin.

Osteopaths.—Examination required. Graduation essential from "a legally chartered college," recognized by the State Board of Health or the State Board of Medical Examiners of the State in which it is located. *Examination* same as for physicians. Osteopaths not restricted in their practice. *Midwives.*—Examined and licensed. Practice exempted in cases of emergency. *Itinerant Vendors.*—No specific regulations, excepting for those "who shall maintain an office or residence in the State for a period of not more than three months in any one year."

Secretary State Board of Medical Examiners, Dr. S. B. Miller, Laramie.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION	
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan. 10
Arizona*	Ancil Martin, Phoenix	Phoenix	Jan. 3
Arkansas	F. T. Murphy, Brinkley	Little Rock	May 9
California*	Chas. L. Tisdale, 929 Butler Building, San Francisco	Los Angeles	
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	Jan. 3
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Mar. 14
Delaware	J. H. Wilson, Dover	Dover	
District of Columbia	Geo. C. Ober, Washington	Washington	Jun. 10
Florida*	I. D. Fernandez, Jacksonville	Tallahassee	May 8
Georgia	T. H. Goss, Athens	Atlanta	May
Idaho*	W. F. Howard, Pocatello	Boise	April 4
Illinois	J. A. Egan, Springfield	Chicago	Jun. 11
Indiana	Crawfordsville	Indianapolis	Jan. 10
Iowa	Louis A. Thomas, Des Moines	Des Moines	
Kansas	H. A. Dykes, Lebanon	Topeka	Feb. 14
Kentucky	J. N. McCormack, Bowling Green	Louisville	
Louisiana	A. B. Brown, 108 Baronne St.	New Orleans	May 18
Maine	F. W. Seattle, Portland	Portland	Mar. 14
Maryland	J. McP. Scott, Hagerstown	Baltimore	
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Mar. 14
Michigan	B. D. Harrison, 205 Whitney Building, Detroit	Ann Arbor	June 13
Minnesota	W. S. Fullerton, St. Paul	St. Paul	Jun. 3
Mississippi	S. H. McLean, Jackson	Jackson	May 9
Missouri	Frank B. Hiller, Jefferson City	Jefferson City	
Montana*	Wm. C. Riddell, Helena	Helena	April 4
Nebraska	C. A. Carr, Lincoln	Lincoln	Feb. 7
Nevada	S. L. Lee, Carson City	Carson City	May 1
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	Jan. 3
New Jersey	H. G. Norton, Trenton	Trenton	June 20
New Mexico	J. A. Massie, Santa Fe	Santa Fe	Jun. 9
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York, Albany, Syracuse, Buffalo	Jan. 31
N. Carolina	B. K. Hays, Oxford	Charlotte	June 14
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	Jan. 3
Ohio	Geo. H. Matson, Columbus	Columbus	
Oklahoma*	F. P. Davis, Enid	McAlester	Jan. 3
Oregon	B. E. Miller, Portland	Portland	Jan. 3
Pennsylvania*	N. C. Shaeffer, Harrisburg	Philadelphia	June —
Rhode Island*	G. T. Swarts, Providence	Providence	Jan. 5
S. Carolina	H. H. Wyman, Aiken	Columbia	June 13
S. Dakota	F. W. Freyberg, Mitchell	Aberdeen	Jan. 11
Tennessee	C. A. Abernathy, Pulaski	Memphis, Nashville, Knoxville	May 28
Texas	R. H. McLeod, Palestine	Palestine	
Utah	R. W. Fisher, Salt Lake City	Salt Lake City	Jan. 9
Vermont	W. Scott Nay, Underhill	Montpelier	Jan. 10
Virginia	R. S. Martin, Stuart	Lynchburg	Dec 20
Washington*	T. C. McFadden, Seattle	Spokane	Jan. 3
W. Virginia	H. A. Barlee, Point Pleasant	Morgantown	
Wisconsin	J. M. Beffel, Milwaukee	Milwaukee	Jan. 10
Wyoming	S. B. Miller, Laramie	Laramie	Mar. 7

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for all the details regarding the examination in any particular State.

Louisiana.—At the October examination there were 31 candidates; 11 of these passed. There were 50 questions asked; in the future 100 questions will be set, viz: Ten on each of the following branches: Anatomy, chemistry, gyneology, hygiene, obstetrics, pathology, physical diagnosis, physiology, surgery and therapeutics.

Virginia.—At a recent meeting of the Medical Examining Board it was decided "that applicants for reciprocity from other States shall pay a fee of $25. Those desiring a certificate from this board for the purpose of obtaining reciprocity from another State shall pay a fee of $10."

California.—At the August examination out of 111 regulars 95 passed, 16 failed; 31 osteopaths, 22 passed, 9 failed; six homeopathists, 3 passed, 3 failed; 3 eclectics, 1 passed, 2 failed.

Washington.—In the July examination 109 doctors appeared before the board; 78 of these obtained a license to practice.

Tennessee.—Out of 284 applications for license before the State Board of Medical Examiners, 280 received licenses.

North Carolina.—At the examination this year there were 95 applicants; 79 of these were granted licenses.

Pituitary Extract in Postpartum Hemorrhage.—A. Foges and R. Hofstätter confirm the observation already made by Bell, namely, that pituitary extract increases the contractile power of the uterus. This action begins within five minutes after an intramuscular injection of 1 to 2 c.c. of pituitrin. It is therefore a potent factor in combating postpartum hemorrhage, and has the advantage over ergotin in not causing pain and infiltration at the site of injection. Administration by mouth, however, is of no avail.—*Zentralblatt für Gynäkologie.*

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

PRACTICAL MEDICINE SERIES. Vol. VI (General Medicine). Edited by FRANK BILLINGS, M.S., M.D. Cloth; 12mo; 351 pages; illustrated; $1.50 net. Year Book Publishers, Chicago, Ill.

TRANSACTIONS OF THE THIRTY-SECOND ANNUAL MEETING OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION, held at Washington, D. C. 8vo; cloth; 277 pages; illustrated. Association.

HYGIENE FOR MOTHER AND CHILD. By FRANCIS H. MACCARTHY, M.D. 12mo; cloth; 296 pages; illustrated. Harper & Brother, New York.

MANUAL OF TOXICOLOGY. By ALBERT H. BRUNDAGE, A.M., M.D., Phar.D., M.D. 12mo; cloth; 428 pages; illustrated. The Henry Harrison Co., Brooklyn, N. Y.

CHILDREN'S DIET IN HOME AND SCHOOL. By LOUISE E. HOGAN. 12mo; cloth; 194 pages. Doubleday, Page & Co., New York.

VETERINARY ANATOMY. By SEPTIMUS SISSON, S.B., V.S. 8vo; cloth; 826 pages; illustrated; $7.00 net. W. B. Saunders Co., Philadelphia, Pa.

LIPPINCOTT'S NEW MEDICAL DICTIONARY. Edited by HENRY W. CATTELL, M.D. 8vo; leather; 1,108 pages; illustrated; $5.00. J. B. Lippincott Co., Philadelphia, Pa.

DIE INNERE BEHANDLUNG VON HAUTLEIDEN. By Dr. S. JESSNER. 8vo; paper; 49 pages; M., 0.85. Curt Kabitzsch, Würzburg, Germany.

DERMATOLOGISCHE HEILMITTEL. Von Dr. S. JESSNER. 8vo; paper; 96 pages. Curt Kabitzsch, Würzburg, Germany.

DIE SYPHILISBEHANDLUNG MIT DEM EHRLICH-HATA-'SCHEN MITTEL. Von Dr. JOHANNES BRESLER. 12mo; paper; 65 pages; M., 1.80. Carl Marhold, Halle, Germany.

DIE GICHT UND IHRE DIÄTETISCHE THERAPIE. Von SCHITTENHELM und SCHMID. 8vo; paper; 38 pages; 1 mark. Carl Marhold, Halle, Germany.

SYMPTOMATOLOGIE UND DIFFERENTIAL-DIAGNOSE DER ERKRANKUNGEN IN DER HINTEREN SCHÄDELGRUBE. Von Dr. med. NIC. GIERLICH. 8vo; paper; 1 mark; 44 pages. Carl Marhold, Halle, Germany.

DIE FÄZES DES MENSCHEN IM NORMALEN UND KRANKHAFTEN ZUSTANDE. Von SCHMIDT und STRASBURGER. 8vo; paper; 428 pages; illustrated; 21 marks. August Hirschwald, Berlin, Germany.

MORPHINISME ET MORPINOMANIE. Par le Dr. HENRI MIGNON. 8vo; paper; 135 pages; 2 fr. 50. Vigot Frères, Paris, France.

THERAPEUTIQUE USUELLE DU PRATICIEN. Par Albert ROBIN. 8vo; paper; 520 pages; 8 fr. Vigot Frères, Paris, France.

LA VIE SEXUELLE ET SES LOIS. Par le Dr. ANTON NYSTRÖM. 8vo; paper; 351 pages; 6 fr. Vigot Frères, Paris, France.

FIRST AID. LYNCH and SHIELDS. 32mo; paper; 175 pages; illustrated; 30c. net. P. Blakiston's Son & Co., Philadelphia, Pa.

LES FORMES LARVÉES DU PALUDISME. Par le Dr. BASILE MOUSSEOS. 8vo; paper; 144 pages; illustrated; 3 fr. 50. Vigot Frères, Paris, France.

L'HOMOSEXUALITÉ ET LES TYPES HOMOSEXUELS. Par le Dr. LAUPTS. 8vo; paper; 447 pages; 6 fr. Vigot Frères, Paris, France.

KING'S MANUAL OF OBSTETRICS. By A. F. A. KING, A.M., M.D., LL.D. 8vo; cloth; 713 pages; illustrated. Lea & Febiger, New York.

HYGIENE AND SANITATION. By SENECA EGBERT, A.M., M.D. 8vo; cloth; 508 pages; illustrated. Lea & Febiger, New York.

PROGRESSIVE MEDICINE (A Quarterly). Edited by HOBART AMORY HARE, M.D. 8vo; paper; 338 pages; illustrated; $6.00 per annum. Lea & Febiger, New York.

PRINCIPLES OF PATHOLOGY. By J. GEORGE ADAMI, M.A., M.D., LL.D., F.R.S. 2d edition; Vol. I; 8vo; cloth; 1,027 pages; illustrated. Lea & Febiger, New York.

SYMPTOMATIC AND REGIONAL THERAPEUTICS. By GEORGE HOWARD HOXIE, A.M., M.D. 8vo; cloth; 499 pages; illustrated. D. Appleton & Co., New York.

SYSTEM OF MEDICINE. By ALLBUTT and ROLLESTON. 8vo; cloth; 900 pages; illustrated; $6.00 net. The Macmillan Company, New York.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of December 10, 1910.

	Cases	Deaths
Tuberculosis Pulmonalis	549	154
Diphtheria	281	26
Measles	131	4
Scarlet Fever	251	7
Smallpox	—	—
Varicella	149	—
Typhoid Fever	49	16
Whooping Cough	49	4
Cerebrospinal Meningitis	6	8
Malarial Fever	—	—
Totals	1,465	219

Experience with Serum Sickness.—G. C. Schiffen observed in 200 cases of this condition that 20.1 per cent. had an exanthem, while one-half of the cases began with fever. The incubation period was commonly seven to eleven days. Seldom was there albuminuria or pain in the joints, which pain was chiefly present in the cervical and upper dorsal portions of the spine.—*Mitteilungen aus dem Wilhelmina-Krankenhause in Amsterdam.*

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, during the week ended December 9, 1910.

CHOLERA

PLACE	DATE	CASES	DEATHS
Austria-Hungary: Hungary		..	..
Total for Hungary Oct. 30–Nov. 5, cases 23, deaths 13.			
Laibach	Oct. 24	1	..
Brazil: Para	Oct. 22	2	..
From s. s. Manaos, transshipped from s. s. Araguaya.			
India: Bombay	Oct. 26–Nov. 1	..	2
Calcutta	Oct. 9–15	..	12
Madras	Oct. 22–28	..	4
Italy		..	..
Total for Italy Nov. 23–29, cases 21, deaths 2.			
Provinces: Caltanisetta	Nov. 6–12	1	1
Caserta	Nov. 6–12	34	10
Girgenti	Nov. 6–12	3	1
Lecce	Nov. 6–12	3	2
Naples	Nov. 6–12	9	..
Exclusive of the City of Naples, previously reported.			
Palermo—Palermo	Nov. 6–12	4	1
Perugia	Nov. 6–12	2	..
Rome	Nov. 6–12	14	3
Salerno	Nov. 6–12	3	..
Trapani	Nov. 6–12	1	..
Madeira: Funchal	Nov. 16–29	77	..
Russia		..	..
Total for Russia, Oct. 9–15, cases 679, deaths 353.			
City of St. Petersburg	Oct. 9–15	58	24
City of Cronstadt	Oct. 9–15	4	3
Russia		..	..
Total for Russia, Nov. 16–22, cases 803, deaths 344.			
City of St. Petersburg	Nov. 16–22	86	23
Tripoli: Tripoli	Oct. 30–Nov. 12	158	103
Turkey: Adrianople	Nov. 7	..	Present
Constantinople		..	..
In vicinity, Sept. 27–Oct. 23; cases 200; deaths 93, among troops.			
On s. s. Garb, 30 cases and 14 deaths.			

YELLOW FEVER

Brazil: Manaos	Oct. 23–29	1	1
Para	Oct. 30–Nov. 12	23	14
Venezuela: La Guaira	Dec. 3	..	Present

PLAGUE

Arabia: Aden	Oct. 22–25	3	1
On s. s. Himalaya from London to Bombay.			
Egypt: Provinces—Assiout	Oct. 7–Nov. 10	23	6
Garbieh	Oct. 5–21	22	6
Menouf	Oct. 3–Nov. 4	7	3
Minieh	Aug. 19–Sept. 11	3	2
India: Bombay	Oct. 26–Nov. 1	..	15
Calcutta	Oct. 9–15	..	13
Japan: Mitsuyama	Nov. 5	16	..
Peru: Paita	Oct. 28	1	..
On s. s. Guatemala from Callao to Panama.			
Russia: Odessa	Oct. 29–Nov. 4	133	39
Roksoliani	Nov. 11	2	..

SMALLPOX

Brazil: Para	Nov. 6–12	3	..
Canada: New Brunswick—Newcastle	Nov. 20–26	3	..
Nova Scotia—Sydney	Nov. 20–26	3	..
China: Shanghai	Oct. 24–30	1	10
Cases among foreigners; deaths among natives.			
France: Paris	Nov. 6–12	4	..
India: Madras	Oct. 22–28	..	2
Italy: Naples	Nov. 6–12	10	1
Japan: Formosa		..	..
Jan. 1–June 30, 9 deaths not previously reported.			
Mexico: Aguascalientes	Nov. 13–19	..	2
Mexico	Oct. 9–22	6	..
Zanzibar: Zanzibar	Oct. 3–16	15	7

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Original Articles.

NEUROLOGY IN ZURICH*.

V. MONAKOW'S NEW THEORY OF BRAIN LOCALIZATION; JUNG'S PSYCHANALYSIS AND INTERPRETATION OF DREAMS.

By E. W. SCRIPTURE, Ph.D. (Leipzig), M.D. (Munich).

NEW YORK.

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I.

VON MONAKOW'S work on aphasia[1] has led him to a new theory of brain function and brain localization. According to the prevailing theories the various sensory and motor activities of the brain are located in different regions. Thus the occipital lobe is the region for the sensations of sight, the middle portion of the two central gyri is the arm-center, Broca's convolution or the rear end of the inferior frontal gyrus with its operculum and the operculum of the prefrontal gyrus form the speech center, etc.

We can distinguish several grades of reasoning concerning these centers. "Localization" has come to mean for most persons that the sensations of sight are manufactured in the occipital lobe, the motor images of words in Broca's convolution, etc. A little less extended is the view that, although the sensations and images may not be manufactured in the center, yet this center is indissolubly connected with certain mental experiences; when it goes out of activity that portion of mental life ceases; thus, extirpation of Broca's convolution must abolish speech.

In the first place we must distinguish between the fact of the localization of the results of an injury and the hypothesis of the localization of a function. For example, if an injury to Broca's convolution produces aphasia we have the fact which we express by calling this part of the brain the "center of aphasia," that is, the injury to a certain point produces a loss of speech. It is pure hypothesis to say that it is the "center of speech," by which we mean that the mechanism of speech lies in that part of the brain. The two things, center of aphasia and center of speech, are not identical; the former means the place at which an injury produces a certain speech trouble; the latter means the place in which those nerve activities take place that result in speech. The center of motor aphasia may lie in Broca's convolution; the center of speech may be there or somewhere else.

Extending the distinction to brain localization in general, we must distinguish between the localization (or origin) of the symptoms of a disease and the localization of the function itself.

Having drawn this distinction between center of aphasia and center of speech we have first to ask, Does the center of aphasia lie in Broca's convolution? After that we may ask, Where is the speech center?

Does the center of aphasia lie in Broca's convolution?

There are numerous cases of motor aphasia. v. Monakow has collected forty-three well-observed ones in which lesions in and around the Broca convolution were found.

Among these cases v. Monakow reports fourteen where there was complete motor aphasia but a nearly complete return of speech after months or years, and yet at the autopsy a large lesion was found in Broca's region. v. Monakow reports the case of a druggist who had three aphasic attacks, from each of which he recovered in a week or so. Years later he died. The brain sections showed that Broca's convolution was entirely gone.

To explain such cases the principle of substitution has been proposed whereby a different part of the brain takes on the activities of the part destroyed. Of this theory v. Monakow remarks that no one would assert it who is familiar with anatomy. A substitution would require the presence of embryonal cells in the other part of the brain which would have to go through the entire development. The extremely complicated mental activities required for speech—memory, association, sense of rhythm, etc.—took many years for their development. Shall we assume that a hitherto untrained part of the brain can acquire all this training in the few weeks or days in which some patients recover? If another part took on the function we must expect the recovery of speech to proceed at least as slowly as the learning of speech in childhood or of a foreign language; yet some patients recover suddenly.

There are, however, many other cases in which complete or partial motor aphasia existed for a long time with no injury of Broca's convolution found at the autopsy. In some of these cases there were severe lesions in other regions sometimes far distant; in other cases no coarse lesions could be found.

If we assume that the center of motor aphasia lies in Broca's convolution we have at most only twenty-nine cases that agree with the assumption, and at least twenty-eight that contradict it. We must conclude that there is probably something wrong with the assumption itself. Let us, says v. Monakow, go over the facts carefully again with attention to certain features hitherto not brought into prominent consideration.

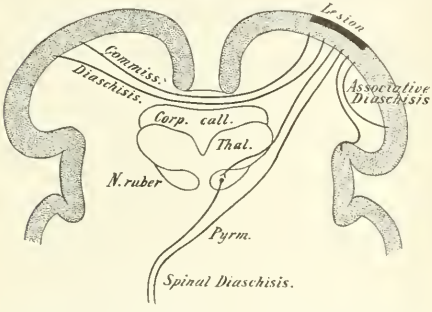
The localization of the symptoms of a cortical lesion means the reaction of the central nervous system to the localized injury. This reaction may arise from secondary factors such as edema, compression, filling of ventricles, toxines, etc.; these have no bearing on the present problem, and we will omit them for further discussion. The reaction rises

*Address before the New York Academy of Medicine, Section of Neurology and Psychiatry, Oct. 10, 1910.

mainly from two important factors. One is the direct anatomical result from injury whereby a certain portion of the brain is put out of activity; thus when a hemorrhage destroys Broca's convolution the reaction will show such changes as depend directly on that portion of the cortex.

The other important factor is the dynamic one. An injury to a point in cortex is followed not only by symptoms arising from anatomical lesion at that point, but also by symptoms arising from irritations transmitted to many parts of the brain. The condition may be termed "irritative shock." According to Goltz, Hitzig, and Charcot, the irritative shock consists of positive irritation of the various parts of the brain by nerve currents sent from the seat of the lesion. According to v. Monakow it consists simply of the effects on these distant points arising from the communication being cut off. This last factor would be what v. Monakow calls the "diaschisis factor."

An analogy to a hemorrhage in Broca's convolution may be found in the burning of a telephone central. If the Bryant central were put out of activity there would be not only the trouble at that central



Scheme to illustrate Diaschisis. A lesion of the cerebral cortex is followed by symptoms resulting not only from the loss of function at the seat of lesion, but also by those resulting from the interrupted connections with other parts of the cortex. The former are the "residual" symptoms, the latter the "diaschisis" ones. The symptoms of motor aphasia, for example, result from disturbed action of many parts of the cortex; only a very few of the symptoms can be "localized" in Broca's convolution.

and among the subscribers with that central, but also trouble all over the city wherever a message had to go along a wire belonging to Bryant. The trouble at the Bryant central would correspond to the anatomical factor; the trouble resulting to the subscribers and centrals who are thereby cut off would be the diaschisis factor. Affairs might gradually recover from the upset condition due to the diaschisis factor. Those symptoms from which the city does not and cannot recover from the loss of the Bryant central are the residual or direct lesion symptoms. All the others are diaschisis symptoms.

Under "diaschisis," then, we understand an interruption of functions of portions of the brain outside the region of the original lesion, but anatomically connected with it. The diaschisis usually arises from an acute local lesion; it resembles shock in its nature.

The cells affected by the lesion are thus of two kinds: (*a*) the directly injured nerve cells at the region of the lesion, (*b*) the indirectly disturbed cells at distant points.

If the directly injured cells do not recover and the indirectly disturbed cells find a way to readjust their activities completely, then the only symptoms remaining will be those directly depending on the lesion—the "direct lesion symptoms."

Cases of motor aphasia where the patient recovers his speech and where the autopsy shows destruction of Broca's convolution show that the phenomena of motor aphasia are mainly diaschisis effects, and only those symptoms—namely, hesitation, slight perseveration, difficult construction of sentences, slight word-amnesia—which never disappear, are direct effects of the lesion.

Cases where the aphasia is prolonged indicate that the diaschisis effects do not disappear so rapidly. Cases where the motor aphasia is permanent indicate that the diaschisis effects simply remain permanently ("protracted diaschisis" of v. Monakow). Why the diaschisis effects disappear partly or wholly in some cases and not in others depends on the conditions of health in those parts of the brain.

The system of diaschisis connections in the brain can be studied by following the course of fibers that undergo secondary degeneration and of the changes in the cells put out of function in the distant parts of the brain. In the Ladame—v. Monakow case, which I had the opportunity to study last summer, several definite regions of degeneration could be found.

If we accept the views thus explained, we can answer the first question proposed a while ago, "Does the center of motor aphasia lie in Broca's convolution?" No, because motor aphasia occurs without any injury to that region. Broca's convolution is the region where injury is most often followed by motor aphasia; it is especially connected with some of the finer mechanisms of speech. To produce motor aphasia there must be disturbance over widely separated areas of the brain; just what areas we do not yet know. The very phrase "center of aphasia" is meaningless if by "center" we understand a definitely marked off area of the cortex. We might well use the term to include all the portions of the brain involved in aphasia, no matter how widely distributed; the components of the center then remain to be determined.

To the next question, "Where is the speech center?" we must reply that in the old sense of the word "center" no such thing exists. In the newer meaning I have proposed, the center of speech includes all the widely separated parts of the brain that are involved in producing the spoken word.

This doctrine of diaschisis has brought about greater precision of thought in regard to brain localization. It does away with the possibility of apportioning the higher mental activities to special parts of the brain. According to v. Monakow, only the elementary components of action may be localized as brain reflexes. All mental activities, even of the simplest kind, require widely separate portions of the cortex for their existence. This means that mental functions cannot be localized in the usual way as islands of the cortex, there can be no center of speech, or center of hearing, or center of association, etc.

You remember the two stages which every new thought must go through: I. It is not true. II. It is not new.

Many writers who have discussed v. Monakow's views have rejected them; all of those I have seen have failed to even faintly grasp what they are. This is not entirely their fault; v. Monakow seems to have a difficulty in stating his theory clearly. But the diaschitis theory fits so well with the clinical

phenomena of aphasia that it cannot fail of immediate acceptance as soon as it is clearly understood.

It is very easy to make the other criticism, namely, that the theory is not new. As v. Monakow points out, he has adopted the Goltz theory of irritative shock with the modification that the effects of the shock of the distant parts are only those of interrupted function and not of irritation. His diaschisis theory is closely related to the views of the earliest and greatest workers in brain localization. In addition to the investigators mentioned by v. Monakow, I know that Ludwig, the great physiologist of the last century, held a similar view. He used to compare the deduction of the location of the speech center from the tumor and hemorrhage cases to an experiment of shooting a pistol at a clock. The clock stops. Autopsy shows that a certain wheel was broken by the bullet; would you call this wheel the "center" of the movement of the clock? The movement of the clock involved all the wheels, although a lesion of one of them stopped the clock.

II.

The work of Dr. Jung[2] in psychanalysis is based on the remarkable discoveries of Freud[4] of Vienna; it contains, however, several new features.

There are three methods of getting at the facts of mental life.

The first is that of simple observation; we interpret the patient's condition by what he tells us and by what we can observe. This leads to treatment by the usual medical and hygienic methods and by therapeutic talks. A patient, for example, complains of having no will power and no steadiness of purpose. This we understand directly from analogy with our own weakness and proceed to a regular education of will. The most widely known representative of this line at the present moment is Dubois of Bern.

The second method is that of experimental psychology; its aim is a most careful and accurate analysis of the patient's mental condition by experimental tests and records. The brilliant work of Kraepelin and his pupils at Heidelberg and Munich has been done exclusively on the insane.

The third method is that of psychanalysis. Suppose a patient presents himself with a paresis of the right arm which began years ago. There is not the slightest symptom of anything organically wrong. It is evidently a hysterical paralysis. Or suppose a man appears complaining that he is tormented beyond endurance with the fear that he cannot urinate. He never has the slightest difficulty, and he knows the fear to be foolish. Yet this fear is so constant and overpowering that he has been obliged to give up work. Again a patient comes to the office saying that for years he has been tormented with the fear of touching filth; he washes his hands a hundred times a day, he avoids shaking hands with me because he fears I may have filth on mine. He does not take the chair I offer him, but selects another for a similar reason.

Such cases are quite beyond the method of observation. In our own mental life there is nothing like these conditions; they are so far beyond our understanding that they seem weird or unbelievable. The patient with the fear of filth told me that he knew this fear to be utterly nonsensical, and that he spent hours discussing it with himelf. It is one of the greatest achievements of the method of psychanalysis that it has found the mental mechanism of such cases. In fact, some of them are so typical that probably some of those who hear me now can tell at once in outline what was the matter in each case. The first is one of Dr. Jung's, which I will give in detail as an illustration. The second is one of Dr. Stekel's[4]; the third is my own. Of these last two I shall say nothing further.

To analyze the first case Dr. Jung used his association method. In this method a word is spoken and the patient is required to say at once what he first thought of. The time he takes is measured with a stop-watch. After a hundred such associations he is required to tell again what he thought in each case. The following is an example from one of Dr. Jung's records:

Word spoken.	Associa'n.	Time.	Memory.	Sensitive topic or complex.
head	hair	1.4	x	
green	meadow	1.6	x	
water	deep	5.0	swim	!
stick	knife	1.6	x	
long	table	1.2	x	
ship	sink	3.4	steamer	!
ask	answer	1.6	x	
wool	knit	1.6	x	
obstinate	friendly	1.4	x	
lake	water	4.0	blue	!
sick	well	1.8	x	
ink	black	1.2	x	
swim	can	3.8	water	!

Whenever the time of association is unusually long, when there is evidence of forgetfulness, when the patient does not respond at all to the word called out, when his association is superficial—in short, whenever the association is of unusual character—the word called out touched upon some topic on which the person was highly sensitive. The sensitive topic indicated by the record above was an experience on the water.

Applied to the man with the paretic arm, the association tests showed that the words in the list where the most disturbance occurred (long time, forgetfulness) were "proud," "pure," "arm," "bird," "death," "sin." The words he thought of as associations most frequently were "love, like," 8 times; "not," 6; "I," 4; "marriage," 3; "arm," 3; "lake," 3. Now just try to put these words together as a picture of his mental condition. "I am (or was) proud that I am (or was) pure. I have sinned. I would prefer death. I do not love my wife (marriage)." The words "arm," "bird," "lake," remain unexplained.

His own story is that he was always proud of his immaculate life. One day he notices that he is impotent with his wife. He is much worried and decides to consult a prostitute, with the result that he finds he is not impotent. But this immoral act utterly disgusts him as a man of high principles; he would rather die than do it again. He has a dream of a sturdy farmer who stretches out his arm; a bird flies down upon it and sings. This dream contains four typical elements that recur over and over in dreams. The stretched-out arm appears in dreams always as one of the symbols for the stiff male member. In matters relating to women the right side always refers to the lawful wife; the left to the illegitimate connection. Again the chief person in the dream always represents the dreamer. Finally, a dream always represents the fulfillment of an unfulfilled wish. The patient thus realizes

in his dream the relation to his wife that he cannot realize in reality. In his dream, moreover, he reveals that his paralyzed arm is a symbol for his trouble. In fact, a person familiar with the results of psychanalysis could have deduced at once the essential point in his case from the symptom of the hysterically paretic arm. As soon as the patient understood the mechanism of his case the paresis disappeared.

Another case of Dr. Jung's was that of a happily married woman subject to explosions of jealousy with outbreaks of violence and running away from the house. These outbreaks she carefully kept secret from the rest of the family; she wreaked her temper on her husband, who was a model man. In the association tests the strongest disturbances occurred with the words "happiness," "anxiety," "religion," "choose," "marry," "part," "death," "die." In her associations she uses "like" 13 times; "man," 10; "child," 7; "necessary," 7; "beautiful," 6; "I," 4.

It was possible to guess the story from these results alone, but it was easier to confront her with the record and show her that she had revealed conclusively that something is the matter with her happiness, that she is anxious about something, that religious questions are troubling her, etc. The patient owned up that she is not happy with her husband, that she is anxious about the future and does not know what to do, that she married outside of her religion a man whom she chose against the wishes of her parents, and that she is debating if she shall part from him or die. She also says that she likes men, that a child is necessary for a happy marriage, that she (I) is still beautiful enough to attract men.

Further conversation showed that she had fitted herself to her husband, but she is not satisfied with him and from time to time the feeling of resistance breaks through. She would like to be loved by some other man; she had even telephoned to a young man to meet her in her husband's absence. She would be happy in any case if she had a child. The outbreaks of jealousy are projections of her own wishes; she would like to do the things with men which she accuses him of doing with women.

Another method of psychanalysis is that of running associations; this was introduced by Freud. The patient is told to let his mind wander with perfect freedom and to tell his thoughts as they arise. The method is useful in the most varied ways. It must first be made clear to the patient that his cure depends upon telling the truth; no matter how private may be the thought that arises, he must tell it frankly to the physician.

This method I will illustrate by the case reported by a clergyman of Zurich[5]. He noticed in a composition written by one of his pupils, a boy of eleven years, indications of strained relations among the members of the family. Knowing that he could not possibly get the facts otherwise, he applied a combination of the association experiment with running associations. For example, the word "water" aroused the association "corpse" after four seconds. Thereafter the boy associated "ship," a "drowned person," "I saw how a drowned person was taken into a boat. "Now tell all the words that occur to you," said the clergyman. "Bathe, swimming, bathhouse, bottom, seaweed, shark, earth, stone, springboard, air, chain, beam, submarine boat, crew, no air, drowned." "What occurs to you now?" asked the clergyman. "I saw some moving pictures with two divers that found gold. One cut the air tube of the other, took the gold, and went up." The word "diver" brought up the association of "the dead diver in the moving pictures. We could see his pale face. We once got a wax mask representing a dying king with eyes turned up. Arno (his brother) put on the mask and wrapped a shroud around him. He looked like a ghost. I was frightened. The dying diver reminds me of this wax figure (meaning his brother in the mask)." Over and over again the boy produces series of associations ending up in some representations of his brother as dead, as in prison, as tortured, as murdered by himself, as crucified, etc. It was very evident that he hated his brother from the bottom of his soul. This he did not realize in the least himself. The information and the treatment came through this method of psychanalysis.

The method of running associations is based on certain laws of the association of ideas. One of these we may state as follows: The oftener an idea or an element of an idea has been in mind the more frequently it will appear in associations. The brother Arno was constantly in little Max's mind; no matter what he started to think about, the thought of Arno would sooner or later appear. Another law is that the intenser an idea is or the more emotion it arouses the more often it recurs. A person will remember the time he made a fool of himself, no matter how much he wishes to forget it. Start any one on memory associations, and he will inevitably land over and over again on the chief topics in his mind and will involuntarily deliver his secrets over to you.

The more the running association is freed from the control the better the information concerning the person's mind. Seat yourself in quiet and let your mind wander in associations. You will notice that at each step a dozen new things crowd in together. Instinctively you pick out one and proceed. For example, with the word "lamp" there appear at once to my mind in half-formed condition a certain gas flame, a certain electric light, a certain proverb, etc.; one of these I have to catch because I cannot think clearly of all of them at the same time. I catch the certain electric lamp. It is in a certain room; this leads my thoughts in that direction. If I had caught the gas flame, my thoughts would have gone otherwise.

From childhood up we have been trained to control our thoughts, to proceed in an orderly fashion, to speak only in a modest way, even to think in a modest way, etc. This control becomes automatic. When we let the thoughts wander, we automatically catch only those thoughts that fit with our training. In the presence of another person we are trained to speak only in a discreet manner; even to think otherwise is not proper. Automatically we catch only the discreet thoughts and suppress the others. In the doctor's office the conversation is freer, but even here it usually requires some training before the patient will let himself think freely.

Another method is that of assigning a topic concerning which all impromptu thoughts are to be noted down. For example, the physician tells the patient to note down on the spot each thought that arises impromptu concerning himself (the physician). For example, a patient reports that in an entirely impromptu manner the thought occurred to him that the doctor was getting bald; on another occasion he said he thought the doctor was getting rather stout, and so on. An entire group of these

observations revolved around the signs of advancing age; this was, in fact, one of the great troubles of the patient, namely, that he was getting old. Another patient reports that the thought had occurred to him that the doctor was extremely considerate of the feelings of his patients, that he was really rather bashful, and so on. This simply reflected the patient's condition of bashfulness and overanxiety about how people felt toward him. Still another patient thought that the doctor must make a great deal of money out of his practice, that he dressed in expensive clothes, etc. Of course, the inference was at once clear, namely, that the patient's thoughts centered around money. I have never had an experience quite like one that Dr. Jung related to me. One of his patients, a clergyman, told him that the thought had occurred that Dr. Jung was not strictly truthful, that he was not quite honorable in dealing with his patients, that he did not believe that he led a strictly moral life, etc. Before knowing the facts of the case Dr. Jung replied, "It is *you* who are the liar, *you* have not acted honorably with your parishioners; *you* are doing something immoral." The thoughts that arise impromptu like this are always reflections of the patient's own personality.

Another fundamental method of psychanalysis is the study of dreams. During the daytime the associations of ideas and emotions that occur to us are constantly regulated by the impressions from our surroundings. In the factory our thoughts will be driven in business channels, and it is quite unlikely that thoughts of what the children are doing at school bother us. When we get home the reverse will be the case. As we fall asleep this regulation by the surroundings falls off; our mind wanders according to its own instincts and our dreams are pictures of our inner selves.

The dreams of children are very simple because their minds have not received much regulation. A child dreams she is in a boat on the water. The day before she had not been allowed to go in the boat. Freud's 19-months-old child had been obliged to fast for a day. That night she was heard to say in her sleep: "Anna Feud Erbeer Hochbeer Eierpeis Papp." Evidently she was dreaming that she, Anna Freud, had strawberries, blueberries, egg food, and pap to eat.

These and countless other dreams of children make clear two fundamental laws: 1. The content of the dream, i. e., the things used in the dream are derived from the preceding day or from a very recent time. 2. Every dream represents the fulfillment of a wish that has remained unfulfilled. To these laws there is never any exception.

As we grow up from childhood we are taught to guide our thoughts in certain channels; there are topics that we must not even think about or even dream about. The habit of control becomes automatic. The result is that when the unfulfilled wishes push themselves through this control they do so in more or less disguised form. This "symbolism" must be interpreted in order to get at the real meaning of the dream. The more highly cultured the person the more complicated is the symbolism; persons of simple lives have franker dreams; children use little or no symbolism.

A patient relates the following dream: He is on the Philadelphia train. The conductor comes for his ticket. He has lost it. The conductor makes him pay his fare. He is annoyed at the occurrence. He also finds that he has lost a sheet of paper which the doctor had given him to write his dreams on.

When asked if anything relating to a ticket on a railway journey had occurred lately, he replied that it had been previously arranged that he should go on a business journey to Chicago at the expense of the firm. The business had just been settled by mail and he had thus "lost his ticket." He had decided, however, to go at his own expense ("pay his fare") in order to see his mother (the unfulfilled wish) whom he always visits when business takes him to Chicago. The sheet of paper beside his bed for recording his dreams is a constant worry to him. The dream realizes the unconscious wish that it would get lost just like the ticket.

There was nothing in the dream that differed much from ordinary life; the symbolism is very transparent. "Lost his ticket" is symbolic for "lost his journey," "paying again" for "going again." Yet the patient had not the slightest idea of the meaning of the dream.

In the following dream the symbolism is more elaborate:

"1. How I like some form of literary activity more than medicine.

"2. Driving an automobile, black car with red wheels; putting on speed down hills, finally seeing a fence, a sort of square hole through which I tried to pass in the car very quickly, as there was no other way to avoid hitting the fence, but the car caught on a bottom post and smashed up. Don't know who people in car were. They were strangers. There was a lady in car whom I know; she was pretty well shaken up, and I remember going to a house nearby to ask for her. Quite a crowd there, and they treated me to sarsaparilla. Later I recall looking down from a high bank on the Hudson with the same lady and watching an express train go by."

The patient says the dream has no meaning for him. The fence, as he describes it, seems to be a wall with a low passage through it. He distinctly states that he has seen nothing like it. No association rises in his mind concerning it. I am at once reminded of the Biblical phrase, "Sooner shall a camel pass through the eye of a needle than a rich man enter the kingdom of Heaven." I also recall a picture of a wall with a low opening and a camel in front of it too large to pass through.

On the preceding evening the patient had told me that he is thinking of giving up medicine. I asked him if he needed to work for a living. He said no; he had enough for himself, but not enough to get married on. I told him that if he were a poor man, the question of giving up medicine would never have entered his mind, and that being well-to-do deprived him of a motive and thus hindered his progress in the study of medicine. We also discussed taking up something else and I urged him not to break things up so.

The first dream badly states this as an unfulfilled wishes concerning medicine and literature.

In discussing the dream, I asked him what class of people own automobiles. He answered: The well-to-do and the rich. The dream pictures him as a rich man in an automobile coming to a fence. He wants to go through, but finds the passage too small and experiences a smash-up. This is a symbolic statement of just what we had been discussing concerning the study of medicine and what the first dream seems to have announced as a topic for further dreaming. The dream here represents his wish to give up medicine, which he has not yet done.

"Putting on speed down hills" seems to refer to frequent discussions I had had with him concern-

ing how hasty and recklessly he had been working on the stimulation of coffee and at the expense of his nerves. He is now restraining himself with difficulty; the old instincts and wishes break through in the dream.

"A lady in the car" was a friend whom he had met at the railroad station on the preceding day. While crossing the Hudson on a ferry he had discussed with her his desire to give up medicine. In the afternoon she went for a ride with his brother in an automobile. In answering my question regarding his financial condition he had added quite gratuitously: "But not enough to marry on;" this admits that he would like a companion. In his dream his wish is fulfilled by the lady in the car; he wishes he were rich enough (automobile).

"The crowd in the house near by" consisted of girls dressed in white. He thinks it looks like a festive occasion. Many years ago he was in love with a girl and paid no heed to any other woman; when she became engaged to somebody else he felt relieved, although for several years he had determined to marry her. "Festive occasion with the girls in white" seems to represent a wedding to which he was going with a lady. When he arrived he found that she was not there. She had been lost and instead of a festive occasion the bride's maids gave him nothing more than a sarsaparilla. This also seems to indicate a wish on his part to keep out of such an entanglement as marriage, to lose the lady even by a smash-up, and to put up with a soft drink rather than to be tied down by marriage.

The strangers in the car and the style of the car were not explained.

The last part of the dream refers to a walk he had taken. He says himself that he would wish to have a house situated on the Hudson. He would evidently like to have the lady in it. The association with the Hudson and the railway seems to have been prepared by the incident of meeting her at the railway station and crossing the Hudson with her.

The following dream is more elaborately symbolical.

"I bought a ticket to some place, a single ticket, because I was not coming back. At a certain station on the way I get off. I go to the manager's office, where I find two men at work over papers. I stand at attention, heels together in the German fashion. The man has an American military cap of dark blue. I say to myself, 'Shall I give a military salute or take off my hat?' When the manager turns around I ask for the return of my money, because I have found a patient on the train. The manager, who has now become a younger man, says yes, but it will be dear; it will cost one fare plus a hemorrhage, plus an infarct. I reply, Never mind, the expense is nothing to me. The assistant reckons out what I am to get and says it will be about 50 per cent."

The patient had originally been in doubt whether he should stop for treatment in this town or go to one much farther off. Stopping at the nearer place, he had a few days before seen the doctor and his assistant (manager and clerk) at a scientific meeting. The doctor had told him he could not begin treatment till next week (he stands at attention waiting). The patient holds the doctor in great respect (the dream clothes him in a military costume and makes him manager of the station). At the same time the doctor is a personal friend; the two feelings are present at the same time and the patient doesn't quite know how to act ("Shall I give a formal military salute or take off my hat in a friendly manner?"). The patient naturally expects the doctor to do him enough good to compensate him for what he loses by not going to the other place ("I ask for the return of my money for the part of the journey not taken").

It is characteristic of dreams that the personalities are often changed. The patient now represents himself as a doctor who had found a patient on the train. Instead of remaining the inferior (the patient) he for a moment gratifies himself that he is the superior (the doctor), who is about to treat a patient.

The dream now notes the fact that the doctor is younger than the patient (manager is now younger). The patient had been somewhat worried over the probable expense and feared what the dream declares ("it will cost you dear"). On the previous evening the patient had discussed the matter with a friend and remarked that the journey was not entirely for the sake of the treatment (one fare), but also to learn the method; he had also complained that the treatment cost him part of the time he wished to give to some anatomical work ("hemorrhage plus infarct"). These two topics had occurred to him during his anatomical work on the preceding day. He had finally concluded that he was ready to pay any price if he could be cured ("never mind, the expense is nothing to me"). The 50 per cent. seems to refer to the fact that the treatment was taking about half the time from some other work.

The further interpretation could be made only in connection with the rest of the treatment. A vitally important defect of the patient's character was an inability to properly and promptly understand his relations to other persons; the uncertainty as to how he should approach another person expressed itself in the dream as the doubt concerning how he should greet the doctor; this hesitancy in greeting had actually given him very great mental distress for many years. Another defect was a constant conflict between a naturally spendthrift nature and an acquired but annoying and ill-judged penuriousness; the whole dream consists of questions of expense. This dream, as well as many others, expressed the patient's thoroughly egocentric view of the events of life.

The same symbols are used over and over again in dreams to such an extent that they become typical. Around the Lake of Constance the Zeppelin airship is the symbol, not only in dreams, but also in jocular conversation, for the erected male member, as is quite natural from its shape. The following incident occurred in this region. One doctor, a disbeliever in psychanalysis, said to another: "You have asserted that every dream gives the fulfillment of an unfulfilled wish. Last night I dreamed that I was piloting a Zeppelin airship; that I came to a mountain which I couldn't get over; that I was much afraid that the airship would sink to the ground crushed up, but that I finally got over the mountain. I certainly have not wished for an airship; if I had one, I would not wish to climb mountains with it and I would not wish to smash it." It required very little skill for the other doctor to reply: "Last night you attempted a certain act; you were not successful at the Mons Veneris, and your ship collapsed. You did not finally succeed. Your dream makes you succeed where you failed in reality." The interpretation agreed exactly with the facts.

Of what use is psychanalysis? In the first place, it gives us a method for investigating the subcon-

scious. Our mental life shows itself to us as a series of conscious thoughts; what we know directly of ourselves we say is consciously known. But the direction of our conscious thoughts is largely determined by our entire past history stored up somewhere outside of consciousness. The sum of these outside influences we term the "subconscious." For example, if I pronounce the word "hate" each of you thinks of something different. The entire sum of forces involved outside of the word I pronounced and outside of the present scene belonged to the subconscious. Some slight attempts have been made to get at these subconscious processes by the accurate methods of experimental psychology, but the laboratory men have not yet become interested in the work. Freud has found a set of methods that for the first time reveal clearly the fact and laws of the subconscious. The results show a remarkable fixity and uniformity; over and over again one patient after another reveals the same typical condition till finally you can guess most of his story by the time he has begun it.

In the second place, psychanalysis enables us to cure a large number of persons that cannot be cured by other methods. Many cases of hysteria may be cured by hypnotic suggestion, but this proceeds by curing a symptom without understanding the disease. The better way, and in many cases the only way, consists in finding the cause of the disease. The cause lies always in some suppressed emotional experience in the past; it can be found only by psychanalysis. Exactly the same statements are true concerning the various psychasthenias and anxiety neuroses. As the patient learns his own mental mechanism by analysis, he finally recognizes the emotionalized idea that causes his trouble. The disease arises from the suppression of this idea. As soon as it is dragged forth the trouble disappears. The psychanalysis is therefore the method of cure.

In the third place, the method is of immense value in correcting unprofitable mental attitudes. Children often grow up with distorted ideas of their surroundings; in many cases they never succeed in making a proper readjustment. By psychanalysis such weak spots in one's mental adjustment become clear, and a readjustment gradually follows. The revelation to the egocentric patient referred to above (dream of the station-master) was followed by a marked change in character. The method is applicable in every case of defect of character, such as in bashfulness, timidity, obstinacy, temper, greed, etc.

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IMMUNITY REACTIONS AS PRODUCTS OF NATURAL SELECTION.

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No subject has proven of more intense interest to progressive physicians during the last quarter of a century than has that of immunity to disease. No other is likely to be of greater interest for at least a century to come. Metchnikoff's revelations concerning phagocytosis, followed by the successive discoveries in serum immunity, have constituted one continuous series of stimulating surprises to the medical profession. But one unpleasant feature mars the final result and that is the heritage of memory-racking, useless synonyms that remain as a reminder of the international wrangles which occurred over various disputed points. Students who are unable to sweep these aside are very apt to fare badly in endeavoring to secure a comprehensive conception of the subject as a whole. It rarely occurs to them that they are but dealing with a special phase of the physiology of digestion or that to understand it properly they must first know the chief facts of the chemistry of digestion. "Constantly in striving to comprehend the processes which are concerned in the destruction of bacteria and their products, the neutralization of cell products, and development of immunity," says Adami, "we find ourselves brought back to the fundamental fact that these constitute but special cases of the dissociation of food stuffs, of assimilation, and digestion. The processes which occur when a cell destroys an ingested microbe must be identical with those which occur when it digests any other foreign matter, and bacteriolysis in the body fluids must be brought about by procedures of the same order as occur when fibrin is digested in the gastric juice."[1] It is evident that Metchnikoff takes the same view of the subject when he asserts that "the destruction of microorganisms in the animal is an act similar to true digestion."[2] Ehrlich, too, expresses this view when he tells us that "we shall probably not err if we regard the addiment (complement) as having the character of a digestive ferment."[3] The discoverer of opsonins, in agreement with the others, tells us that "it would seem probable that the bacteriolytic, bactericidal, and bacteriopsonic effects exerted by the blood fluids are each in their degree manifestations of a digestive power exerted by the blood-fluids and bacteria brought into contact with them."[4] According to these and other investigators the active agents concerned are enzymes —digestive ferments. Of late years our physiologists have been discovering that enzyme action is probably as universal as is life, and that all sorts of living things carry on their life functions by the aid of enzymes. Chittenden declares that "we are practically justified in the assumption that the great ma-

jority of the intra- and extracellular chemical changes taking place in living organisms are the result of enzyme action." Again he tells us that "in that more or less hidden world of microorganisms, so potent for good and evil, tangible enzymes are likewise responsible for many, if not all, of the chemical reactions by which the life and activity of the organism are manifested."[5]

Granting that evolution through selection is true, and it follows as a consequence that digestion in us is but a specialized form of the intracellular digestion of unicellular protozoans. As Andrewes has recently expressed it, "intracellular digestion is the primordial form of that function; seen to perfection in the ameba, it is still carried out by the mesoblastic cells of animals higher in the scale. Such, I take it, must have been the germ from which the battle of infective disease originally sprang. The primitive means of bodily defense must almost inevitably have been phagocytic. It must have included the two factors of ingestion and of digestion by whatever enzymes the cell possessed for its normal nutritional processes."[6] The sea anemones that lie between us and the unicellular organisms still continue to digest their food and to dispose of infecting parasites in the old way, notwithstanding the fact that they possess a food cavity or sort of stomach. Metchnikoff tells us that "when the actinian is hungry it protrudes its tentacles in order to seize marine animals, which it conducts to its mouth. The lips and the esophagus are used to estimate the quality of the capture, and if it is found unsuitable the anemone rejects it, first surrounding it with a layer of mucus. If, however, the food is found to be suitable, the actinian retains it in its large cavity and throws around it a multitude of its mesenterial filaments. These penetrate it in all directions, and as their epithelial cells are capable of sending out ameboid processes they seize and ingest the particles, which immediately enter the protoplasmic contents. * * * The nutritive parts of their prey pass into the ameboid epithelial cells and there undergo a purely intracellular digestion."[7] Lankester says that "the lowest multicellular animals provided with a digestive sac or gut, such as the polyps, have the sac lined by digestive cells which have the same ameboid character as 'phagocytes' and actually digest to a large extent by swallowing or taking into their individual protoplasm raw particles of food."[8] The earliest demonstrations of phagocytosis were made with transparent water fleas (Daphne), but now "the phagocytic action of the corpuscles on bacteria can be watched by placing a drop of blood on a slide and adding a loopful of culture of bacteria in broth diluted with sea water. The corpuscles can be seen to send out pseudopodia in the direction of the bacteria and engulf them."[9] Describing a slide containing blood and micrococci as watched under a microscope, Dickson says: "Many of the polymorphs showed the included cocci in all stages of disappearance, the cells apparently continuing to englobe fresh organisms, as those previously taken up were digested."[10] That phagocytosis in the higher forms is not confined to the blood cells is now known, and Wells tells us that "not only leucocytes but tissue cells are capable of moving and performing phagocytosis when properly stimulated, and apparently all or nearly all fixed cells may act as phagocytes under some conditions."[11] Abderhalden calls attention to the fact that the leucocytes "are present in the intestines in large numbers during digestion,"[12] seemingly indicating that they take some part in that function. While the polynuclear leucocytes appear to look after bacteria, the protozoa are apparently looked after by the mononuclear, as trypanosomes can be seen "while still living," surrounded by and being "digested by the mononuclear leucocytes."[13] Hiss has suggested that "phagocytic cells may depend naturally on other cells and bacteria as a part of their regular food supply,"[14] so that the hunting within the intestines and blood for dead cells, bacteria, and protozoa may be pursued by our cells with the same object in view as that of an ameba when it hunts for and ingests the bacteria of a pond. In this hunt either may englobe an organism that is more than a match for their digestive abilities and "overcharged with microbes" they may perish, for where these are endowed with unusual virulence "no struggle is possible."[15]

In the evolution of intestinal digestion from the primitive intracellular form it seems as if this did not exhaust the possibilities of such readaptations. The microbe-invaded cœloma and circulation seem to have followed along a similar path and acquired proteolytic powers. If we "take a guinea-pig that by successive inoculations has been rendered highly immune to virulent cholera spirilla and introduce into its peritoneal cavity five to ten times the ordinary fatal dose of an agar culture of the cholera spirillum, or inject into the normal guinea-pig a like dose of spirillum mixed with an excess of cholera immune serum from another guinea-pig, * * * by removing with a pipette some of the peritoneal fluid from time to time, it is seen that the injected bacteria undergo destruction, and this apart from any phagocytosis. * * * They become motionless, swell, become rounded like micrococci; * * * become progressively smaller, their substance undergoing solution."[16] This pen picture of what occurs during bacteriolysis, or digestion of bacteria, is quite like what happens to a mass of egg albumin when submitted to the action of the gastric juice. The same results have been secured in a test tube by adding immune sera of cholera to cholera germs or immune sera of typhoid to typhoid germs. The microbes gradually fade away and disappear as would a piece of sugar in a cup of tea. The inoculations of the animals that supply these immune sera causes them to secrete digestive enzymes adapted to the kind of germ inoculated. Each species of germ having a structure somewhat different from other species requires different enzymes and in different proportions in order to accomplish their solution. In ordinary digestion our various kinds of food require quite different enzymes to accomplish their solution. Carbohydrates like starch cannot be digested by the same enzymes as digest protein—the albumin of former days. A close fitting covering of either upon the other, placed in an enzyme solution ready to digest the interior one but not the exterior, would result in no digestion. The way the stomach would manage such a case would be to supply both the required kinds in the order in which required. The way it seems able to adjust these makes Abderhalden declare that it would "almost lead one to assume that the digestive glands are furnished with intelligence."[17] Chittenden tells us that "a diet of bread, for example, leads to the secretion of a smaller volume of gastric juice than a corresponding weight of meat produces, but the juice secreted under the influence of bread is richer in pepsin and acid, *i.e.* it has a greater digestive

action than the juice produced by meat." Concerning duodenal digestion he tells us that "on a diet composed mainly of meat, the proteid digesting enzyme is especially conspicuous, while on a bread diet, with its large content of starch, the starch digesting enzyme is increased in amount."[18] Of gastric digestion Abderhalden says: "The total acidity likewise varies according to the nature of the food. It is greatest with meat and least with bread. It is interesting, also, to note that the duration of the secretion is also regulated according to the nature of the food; and in fact during the course of secretion, from hour to hour, the composition adjusts itself qualitatively to the conditions."[19] These facts have been repeatedly verified by Pavlov and his pupils. In bacteriolysis a serum that will digest a comma bacilli promptly is one in which the enzymes are adjusted to its structure. Any other kinds of bacilli having different structures, containing substances indigestible by the enzymes of the serum that digests the comma bacilli, could not digest them completely. If the differences happened to be due to differences in their respective envelopes there might be no digestion of any except the one used in producing the serum. If our cells are unable to produce needed enzymes for some kinds of envelopes there will be no bacteriolysis. For some such reason as this "human serum exerts absolutely no bacteriocidal action on the *Staphylococcus pyogenes,* the *micrococcus melitensis,* and the plague bacillus."[20] As our stomachs cannot digest hair or feathers while the stomachs of moths can, so our serum is powerless as against these germs, but our phagocytes are able to dispose of them properly. Here we get a clear understanding of why it is that certain kinds of diseases do not have antitoxic serums in the blood by which to overcome them. The germs have, during their ages of past experiences, been permitted to survive through various kinds of adaptations. Not one but many paths have been followed by the different species. Because of this not one but various routes must be followed by us in our searches after means for overcoming their baneful influences.

The important part that a belief in natural selection, through parasitism, indicates may be played by the products of digestion in the mechanism of immunity demands some consideration of the nature of these products in order to understand what that part may be. The research work of the last quarter of a century has taught us that these products are entirely unlike what they had been imagined to be. Even the work done by the enzymes is different from that which they were supposed to do. Pepsin, once believed to be the chief digestive agent, is now relegated to an inferior position in the work of preparing food for bodily use. It is totally unable to digest some kinds, and while it can start the digestion of a beefsteak or an egg it cannot complete the task. It is only able to break up the large protein molecules into smaller ones known as proteoses and peptones, but these are relatively large as compared with the final products. Trypsin attacks and tears down the fragments produced by the pepsin into still smaller pieces, but it requires erepsin to finish the job. But erepsin could not begin the work of disrupting the proteins of eggs or meat. These must first be attacked by pepsin. The final fragments—the molecules out of which the body builds its tissues—are known to chemists as amino acids. One very important fact about these smallest fragments is that the process of digestion only cleaves them apart and does not produce them. As morphine preexists in its sulphate so these preexist in the protein molecule, whether that molecule comes from a plant or an animal. It is accepted as a fact that "on chemical grounds there is no more reason for dividing the proteins into two groups of animal and vegetable proteins than there is for making a similar distinction between the carbohydrates."[21] Lusk assures us that "all forms of proteid decomposition follow, therefore, the pathway of cleavage into amino acids."[22] Abderhalden asserts that "the amino acids which split off from albumin by the action of alkalis and acids are already formed in the albumin molecule and are not formed by a secondary process."[23] Plimmer tells us that "the hydrolysis of polypeptids by enzymes shows most conclusively that the protein molecule is built up of amino acids."[24] Long says: "It matters little how the decomposition is effected, the products of protein destruction are essentially the same. * * * The conclusion follows, therefore, almost of necessity, that these are true nucleus groups."[25] No wonder, then, that Curtis could forcibly assert that "the thing of legs and locomotion, of spine and speech, can build his organic walls only ont of organic bricks ruthlessly ripped from existing walls of other animals and plants."[26] A rather suggestive fact in relation to the philosophy of evolution is that these acids, that constitute the building material of all living things, are crystallizable and are thus a sort of connecting link between ourselves and the mineral world with its mimicry of life in the inorganic crystals. The work of separating the amino acids in a pure form from various proteins has been a tremendous task, but its importance is so great for future biology that it will well repay the effort. The honor of having done a very large part of it belongs to Professor Osborne and his associates of the Connecticut Agricultural Experiment Station. It is laying a foundation for a scientific system of dietetics that is bound before long to rid the world of the crude guesswork and faddish notions that to-day fill our textbooks on this subject. When medical men generally come to realize that what the arrangement of the bricks and stones of a building is to the beauty and permanence of that building so the arrangement of these amino acids—the plasm builders of our cells—is to our bodies, there will be a change made in a large part of what to-day masquerades as medical science. The facts already in our possession seem to indicate that as these acids are arranged within our structures so is the grade of our being on the tree of organic evolution. As regards their arrangement in the proteins of the vegetable world, Osborne tells us that "no two seeds are alike in respect to their protein constituents. Similar proteins are found only in seeds that are botanically closely related. * * * The leguminous seeds are similar in the general character of their proteins, but marked differences exist between the proteins of the various groups. * * * Although the data for generalizations are as yet few, those that are available plainly indicate a close connection between the chemical constitution of the seed proteins and the biological relations of the plants producing them. That similar differences exist between homologous proteins of different species of animals is becoming evident from the facts which are gradually accumulating, and these strongly suggest a chemical basis for the multitude of diverse forms of animal and vegetable life."[27] Let me ask the reader to concentrate his attention for a minute on the world of meaning that can be easily read into the last few lines of this quotation—

what it says by implication. When a man who has spent the best part of his life on work of this kind offers us such a conclusion as the summing up to date of that work it deserves, and should receive, from biologists, the most profound attention. To learn from him that amino acid distribution in our tissues is not haphazard—not meaningless—but orderly and significant and that it indicates the existence of a correspondence between the morphological characteristics of living things and their chemical makeup is certainly important. The distribution of these amino acids in proteins, if due to natural selection—and what else can an evolutionist imagine it to be due to?—should be such as would supply to the tissues the greatest possible resistance to the enzymes of parasites. Since various proteins are known to have various resisting powers toward bacteria and protozoa what is more reasonable than to suppose that these differences may be due in part, or in whole, to the kinds, proportions, and arrangements of the amino acids in their structures? There is a large amount of experimental evidence supporting the view that digestibility and indigestibility are due to these factors. This will have to be considered in another connection.

The following amino acids are known at present and most of them have had their constitutional structures investigated. Mann tells us that "the constitution of all the amino acids except diamino-trioxy-dodecanic acid is thus known, and with the exception of histidin they have all been synthesized."[28]

MONOAMINO ACIDS.
1. Glycocoll.
2. Alanin.
3. Valin.
4. Leucin.
5. Serin.
6. Amino - 4 - oxy - caproic acid.
7. Aspartic acid.
8. Glutamic acid.
9. Amino-hydroxy-succinic acid.
10. Amino-hydroxy-suberic acid.

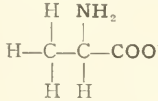
DIAMINO ACIDS.
11. Diamino-propionic acid.
12. Lysin.
13. Arginin.
14. Histidin.

DIAMINO ACIDS (Continued).
15. Diamino - 3 - oxy - dodeconic acid.
16. Diaminoglutaric acid.
17. Diamino-adipic acid.
18. Diamino-dihydroxy-suberic acid.
19. Diamino - oxy - sebasic acid.
20. Caseanic acid.
21. Caseinic acid.

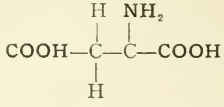
RING AMINO ACIDS.
22. Prolin.
23. Hydroxy-prolin.
24. Phenylalanin.
25. Tyrosin.
26. Tryptophane.

THIOAMINO ACID.
27. Cystin.

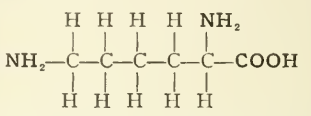
Concerning these amino acids Wells tells us "that there is one important point that they all have in common; each one is an acid which has an NH_2 group substituted for a hydrogen atom on the carbon nearest the acid radical. * * * Through this arrangement every one of the constituents of the proteid molecule is provided with a group with a strong basic character and a group with a strong acid character."[30] The following graphic formula of alanin, giving the basic and acid groups in prominent type, may help make clear Professor Wells' meaning to readers unfamiliar with chemistry.



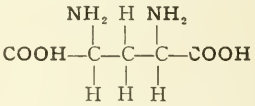
When an acid unites with alanin it links itself to the molecule through removing one of the H atoms of the NH_2 group. When an alkali unites with alanin it links itself to the molecule by removing the terminal OH of the COOH group. Vinegar is sour and has acid characters because it has a COOH group. In the absence of this group no organic molecule has been found with acid characters. The NH_2 group in organic molecules makes them more or less basic or alkaline. In the case of aspartic acid we have two COOH groups which make it much more acid than alanin and make it able to link itself to two alkaline molecules instead of one. Its formula is:



It is customary in writing the above formula to reverse the left-hand COOH and write it HOOC, but in order not to confuse readers but little familiar with chemistry both groups have here been made to face the same way. In the case of lysin and other diamino acids there are two NH_2 groups, thus:



These two NH_2 groups make lysin able to take up and unite with two acid groups. In diaminoglutaric acid we have still a different arrangement. The following is its formula:



Here we have two alkaline groups and two acid ones. It has therefore four points for union with other molecules. Let readers unfamiliar with chemistry try and work out how many combinations of horseshoe magnets they could make if they should unite them pole to pole—a single pole marked N to a single pole marked S. If both poles of one were united with both of the other that would end the combinations. If only one pole of each should be united there would always be two poles left uncombined, no matter how many magnets were used. As they were added the size of the combined magnets would increase, but there would always be two free poles. Now let the same readers imagine they have an indefinite number of magnets with their curved ends fused together forming a four-pointed magnet. The ordinary magnet would be like alanin. The four-pointed double magnet would be like diaminoglutaric acid. Now endeavor to conceive of the number of combinations possible with this if only one pole of each was united to one pole of another. Then think of the complex ways in which they would come together. In aspartic acid and lysin we have two three-armed magnets, but one has two positive poles and the other two negative ones. Bring magnets of these kinds into the combination and the complexity of forms possible would be inconceivably large. Note, however, the fact that the more aspartic acid molecules we link together by single bonds of each the more free COOH there is in the combination. It becomes more and more intensely acid. The reverse is true when we link lysin molecules together. The more of them there are thus linked the more and more alkaline the newly formed molecule becomes. If

linked so as to close up all bonds the resulting molecule would be neutral. The fact that proteins are both basic and acid proves that they are linked so as to leave many COOH and NH_2 groups free. Mann declares that "Egg albumin must be at least a thirty-five acid base, *i. e.* have thirty-five COOH groups unsaturated within a single molecule. He also tells us that "albumins must also be pluribasic acids."[31] To this we owe the great chemical plasticity of the protein molecules in living things, so that it would be difficult to overestimate its importance. Its selective value in every form of life is so great that it is inconceivable that anything other than natural selection could have produced it.

The study of the basicity and acidity of proteins has shown us that those found in germ and sperm plasm are predominatingly alkaline in character, while those found in somatic (bodily) structures tend toward acidity or are decidedly acid. In other words *animal vitality leans toward alkalinity* and animal protection toward acidity. Abderhalden says that "if we compare the relative amounts of the various amino acids occurring in the individual proteins we notice appreciable differences. This is especially striking if we compare the individual groups. In the first place we notice the varying proportions of the mono and diamino acids that go to make up the individual proteins. The latter are very strongly represented in the protamines (alkaline proteins) and least so among the albuminoids. Between these two extremes we find the common albumins and the histones. Very noticeable is the predominance of special monoamino acids, *e. g.* glutamic acid and leucin in the albumins present in the seeds of plants."[32] Chittenden also draws attention to this fact when he tells us that "the basic character of protamines with their large content of diamino acids is much more marked than that of ordinary proteins, such as are found in somatic nucleoproteins."[33] Mann tells us that the albumins proper are neutral or slightly alkaline, while the mucins are acid.[34] "The globulins," says Abderhalden, "are like acids and turn blue litmus red."[35] Is there any significance to these acid and alkaline relations of the tissue proteins? Are they survivals in the struggle with parasites, as the theory of natural selection would seem to demand? We have found that the mucins are not easily digested by bacteria and that they are a "means of steadily removing bacteria from mucous surfaces."[36] We have learned that these acid globulins may likewise be antibacterial, for "the antibodies are usually found in the globulin fraction of the native proteins,"[37] the precipitins may be bound up with them,[38] the agglutinins are precipitated with them, the antitoxins are related to them, and the amboceptors are associated with them, while they are actually found in snake venom constituting part of its composition.[39] Plant seeds require protection from bacterial destruction when exposed in the ground from season to season in dampness and changing temperatures and the "globulins form much the greater part of the reserve portion of all seeds except those of cereals."[40] Even the cereals have acid proteins.[41] Laurent in his studies of potato rot found that the *Bacillus coli communis* "produces a soluble ferment which has the power of digesting the cellulose membrane in the tuber of the potato and at the same time secretes an alkaline juice without which this digestion cannot go on. * * * The alkaline secretions of the bacillus studied by Laurent may be neutralized by the acid juice of the potato, and when certain races of tubers prove immune from decay it is, according to this observer, because of the production of sufficiently acid cell juice. Moreover, he actually succeeded in communicating an artificial immunity to varieties of the potato which were more susceptible to decay by immersing them for several hours in solutions of certain organic acids. On the other hand, when he treated varieties endowed with a well marked natural immunity with alkaline solutions the tubers became very susceptible to the decay set up by the bacillus. The struggle between the potato and the *Bacillus coli* reduced itself, then, to the chemical reaction between the alkaline cell secretions of the microorganism and the acid secretions of the potato."[42] Place this alongside the fact that "the greater number of important bacteria and all the pathogenic species thrive best in media containing albuminoid substances and of a slightly alkaline reaction to litmus."[43] "Only a few varieties," says the same author, "require an acid medium and none of these belong to the parasitic bacteria." In the face of facts of this kind what other conclusion can we possibly reach than that the protection of our most vital parts—the alkaline parts—requires acid tissues to beat back our bacterial enemies? If pathogenic bacteria are unable to live on acid tissues until they have neutralized them then the struggle between ourselves and these bacteria must have been in large part such another struggle as that between the colon bacteria and the potato. In the survival of the fit our somatic cells should have tended acidward during the milleniums of the past. Since they would themselves perish in an acid medium the acidity had to be available acidity while the circulation maintained its neutrality. The tissues had to be able at all times to present to the bacteria more acid than the bacteria had alkali, otherwise the latter would have been able to digest and thus destroy the former. That protein molecules are capable of becoming intensely acid we have already seen. The fact that they can form hydrochloric acid from salt to supply the gastric juice is evidence of the high point to which this power has been elevated. But the tissues of metazoa have found it necessary in this matter to avoid Charybdis in trying to steer clear of Scylla. The parasitic protozoa live a different life from that of the bacteria. They, like ourselves, begin their digesting with an acid medium. Tissues that the bacteria cannot digest the protozoa are able to attack. Proteins that are digestible only in an acid medium bacteria could do nothing with. Such proteins, however, would constitute a flaw in our armor when trypanosomes or malarial parasites had to be routed. They would have to be protected by different forms of indigestibility and it does not require a long hunt to find these. Substances containing large amounts of glucosamin, of glycocoll, etc., and that are represented by mucins, chitins, elastins, and the like, resist, in varying degrees, both tryptic and peptic digestion. These are found in the parts of the body most exposed to parasitic danger. But besides these, two very distinct types of phagocytes—distinct in this matter of digestive ability—are found in the circulation. One of these kinds does its digesting in an acid and the other in an alkaline medium.[44] It is thus evident that the cells as well as the tissues have been compelled to match these opposite kinds of danger by varying in methods of digestion. The fact is that the sole weapons of offence and defence, in both microbes and cells, up to the time Tennyson's "Nature red in tooth and claw with ravine"

came into being, were concerned with digestion. The struggle for existence was a struggle against the digestive powers of foes and a struggle to intensify the individual's digestive power against its foes. Only such variations as could hinder the digestion of the enemy and heighten the ability to digest of the individual against that enemy had any selective value. Every tissue that failed to erect barriers against digestion had to perish as unfit. There is no other conceivable way in which we can put reason into this problem, as they had only digestive mechanisms with which to fight. For long ages of time it has been "nip and tuck" between the cells of the higher forms of life and the parasites. Every tissue has been forced out of existence that failed to convert itself into a biological *chevaux-de-frise* in this hungry battle. Check had to oppose counter check again and again through countless generations, until each attacked tissue became deadly to the tissue that dared to attempt its absorption as food, *i. e.* by poisoning it. As a result "all foreign proteids when introduced into the circulation of animals are more or less toxic."[45] Why?

When completely digested meat, egg, or other protein passes the intestinal wall it reaches the cells as perfectly assimilable amino acids. The COOH and NH_2 groups in these acids constitute their points of chemical affinity with the cell receptors. When undigested meat, egg, or other protein is injected directly into the circulation of an animal they appear not to be assimilated until torn down into amino acid fragments. Notwithstanding the fact that they possess the same points of affinity for the receptors as do the amino acids, they are rejected as foods by the cells until decomposed. The differences in the arrangements of the different amino acids in different proteins shows that the order in which the COOH and NH_2 groups occur on the surfaces of the various kinds of protein molecules cannot be the same. In proteins from the same species of animals, *i. e.* in homologous proteins, the arrangement is probably the same. In proteins from different species of animals, *i. e.* in heterologous proteins, the arrangement must be quite different. Basic and acid affinities bristle all over the surfaces of all protein molecules, but in those from the same kind of animal they are arranged alike toward each other —they are amphoteric, through evenly neutralizing each other. Such molecules cannot rend each other by contact through hydrolytic cleavage. In heterologous proteins the groupings render them attractive to each other, but with an attractiveness that is probably destructive. Acid faces base with acidity sufficient to activate the ferments present in the cell and digest that part of the cell which its affinity has seized. The more unlike two species happen to be the more they have in their phylogenetic histories drifted asunder in the structures of their proteins because of their wars with parasites and readjustments to match the dangers from such parasites. The wider the differences in the acid and basic affinities of their respective proteins, in respect to the ways they are distributed in a molecule, the more able they will be to neutralize each other's effects and hinder each other's digestive ability. In the past struggles for existence digestion having played the chief and, probably, the only part, what other sort of fitness could aid survival better than a fitness that could destroy the enemy through its own attempts at digesting the fit individual? Why should we wonder at all proteins being toxic when we see that their salvation has, probably, depended upon this very quality? The severity of the tuberculin and mallein reactions in tuberculosis and glanders should not surprise us when we have discovered that in a parasitic natural selection the destructive agent is the activated enzyme and that the tissue proteins do the activating. Why should we deem it out of the ordinary "that anaphylaxis can be induced by bacertial proteins, and notably with those of the *B. coli* group?"[46] We are astonished at the exceedingly minute amounts of pure egg albumin that can kill an animal sensitized by a previous injection of the same albumin a couple of weeks before, and yet it is exactly what might be expected, *a priori,* if selection has worked through parasitic destruction of higher animals. "The sensitizing and intoxicating effects have been produced with such extremely minute quantities of protein," says Wells, "that it seems not unwarranted to maintain that these experiments settle this point conclusively. As repeatedly recrystallized egg albumin, giving every evidence of chemical purity, is capable of causing sensitization in doses of one twenty-millionth of a gram, and of killing sensitized pigs in doses of one twentieth of a milligram, it is evident that if either of these effects were due to something other than the egg albumin itself this contaminating substance must have a potency beyond the bounds of imagination." In the same article Wells tells us that "tryptic digestion of serum furnishes further evidence of the protein nature of the substances concerned in the anaphylaxis reaction. Both sensitizing and intoxicating principles are attacked and slowly decrease in strength as the coagulable protein disappears."[47] The fact that "the phenomenon of anaphylaxis with bacterial cultures corresponds exactly with the anaphylaxis to non-poisonous proteids, such as serum and eggwhite,[48] and that "with zein there was no difficulty in securing effective sensitization and fatal intoxication with all the characteristic symptoms[49] shows how universal it must be. The vegetable, the animal, and the protistan worlds all show this mark of continuous and general parasitism. It is evidently as widespread an internal adaptation against pathogenic organisms as is the external one of excessive indigestibility which is characteristic of the exposed surfaces of every thing that lives. The external protection against parasitic digestion is so ubiquitous that, like atmospheric pressure, few are ever conscious of its existence. Every kind of organized being is encased in what is well-nigh digestion-proof armor. The capsules of bacteria, the spore covers of sporozoa, the suberose and cellulose barks of trees and herbs, the chitinous encasements of insects and crustaceans, the mineral coverings of shellfish, the scales of swimming fish, the tough hides of amphibians and beasts, the feathers of birds, and even the delicate cuticle of man, all attest the antiquity of enzyme warfare on the part of parasites. They are all reflection images of the digestive ability of disease-producing microorganisms. In a similar way anaphylaxis appears to be an internal reflection-image of the same struggle for existence and survival against intracellular digestion. Both, however, are fitnesses that are as available for parasite against host as for host against parasite. Guns and armored cruisers, fortifications and mines are the monopoly of no nation and the defences against disease become in turn the offensive weapons of disease. When the proteins of dead and dying bacteria make us ill by their poisonous effects our proteins are taking revenge upon them by poisoning and digest-

ing them. If there is any place in nature where the struggle for existence and survival of the fit can be better seen than in a microbe-invaded body this writer does not know where it is. As soon as a fight begins the least resisting microbes perish first and the most resisting last, the least immune phagocytes die first and the most immune last. Both sides appear boldly at the commencement of the fray, but it is not long before one side or the other takes to flight, leaving victorious microbe or victorious phagocyte master of the battlefield. Soon there is a rally in which reinforcements appear and the fight begins anew. The victor may now become the vanquished and be compelled to fly or perish utterly. The flight of the phagocytes is technically known as leucopenia. In anaphylaxis they seem to lose their valor early in the fray and rush to the lungs as if gasping for breath. "I have," says Andrewes, "examined the lungs and other organs of seven rabbits killed while in the leucopenic condition—mostly about a quarter of an hour after the bacterial injection. Where the leucopenia has been pronounced the number of polynuclears in the lung is very much increased. Thus in a rabbit immunized against *Streptococcus fæcalis* and killed a quarter of an hour after a large dose of the living organism I found 51,000 polynuclears per cubic millimeter of lung tissue. In a coli-immune animal dying two hours after a moderate injection of vaccine, with a circulating polynuclear count of only 205 per cubic millimeter, there were 60,000 polynuclears per cubic millimeter of lung."[50] The same author says: "I am inclined, indeed, to think that initial leucopenia is a more delicate test of the occurrence of the reaction between antigen (antibody generator protein) and antibody in the circulation than the clinical symptom of anaphylactic shock. I have never seen shock without some degree of leucopenia, but I have seen a marked leucopenia without any symptoms of constitutional disturbance."[51] That there is real danger to the phagocytes in the condition of anaphylaxis has been made evident. "Experiments where guinea pigs were inoculated with tuberculosis bacilli," says Miss Reed, "show that the neutrophil first reacts by a rapid increase in the number of lobes. * * * Observations in the hospital, together with these experiments, seem to prove that the neutrophils first react to the presence of bacilli or a toxin by some metabolic change, which is shown by increase in the number of lobes in the nucleus; these reacted cells then break down or are used up in the blood."[52] Their lobes are first damaged and then they die. Since "the nucleus seems to act as the main (though possibly not the only) oxidizing agency of the cell,"[53] and, as Lillie working with "the cells of the blood, the liver, and the kidneys of frogs" found that "the oxidations were most rapid in those organs and those regions of organs where the nuclei were densest"[54] we have here what appears to be an adequate explanation of why the chief symptom of anaphylaxis is checked respiration. Breathing being but an expression of total cell oxidations, damage to cell nuclei should arrest it *pari passu* with the amount of such damage. The behavior of the phagocytes in leucopenia seems to admit of no other conceivable explanation than this.

The exceedingly great poisonousness of egg, meat, vegetable protein, and bacterial tissues, when they can reach the interiors of living cells in an undigested or partly digested condition, raises the question as to what constitutes poisonousness. Proteins are evidently not far short in their deadliness toward some animals from our most deadly toxins and it is possible that they may cast some light upon how the latter happen to be so terribly destructive. A preparation of botulinus poison has been made of which "one part of toxin to five hundred million parts of body weight suffices to cause death,"[55] and "a tetanus toxin has been prepared of which 0.00005 milligram killed a mouse weighing fifteen grams; a man weighing seventy kilograms, with the same susceptibility, would be killed by 0.23 milligram. This would make the poison 300 times more potent than strychnine."[56] Notwithstanding this great potency we are told by our textbooks that trypsin, pepsin, and papain destroy tetanus and diphtheria toxins[57] and that these enzymes do not merely neutralize the toxin but actually digest it.[58] By mouth, toxins, like foods, lose their poisonousness, "a fasting rabbit bearing a whole gram of typhoid toxin introduced into its stomach by means of a tube, without apparent effect"[59] and "one gram of the gastric juice of a dog will neutralize fifty fatal doses of diphtheria toxin, or 10,000 of tetanus toxin, using the guinea pig as the test animal."[60] Roux and Yersin prepared a very destructive diphtheria toxin and while it "acted with such extraordinary virulence when injected subcutaneously into guinea pigs and pigeons, it could be swallowed without danger."[61] With such an array of facts concerning the digestibility of these toxins and considering their relationship to the organisms that produce them, should we not be inclined to conclude with Adami that "it is most satisfactory to regard the toxins and particularly the bacterial exotoxins as cleavage products of protein metabolism and as approximating in their nature the primary nonpolymerized protein molecule?"[62] This would make them really foodstuffs. As gradually produced results of successive natural selections favoring the bacteria they could not possibly be conceived of in any other light. They must have evolved from our so-called non-poisonous protein. Our knowledge of anaphylaxis casts light upon just how such an evolution could occur. The toxin proteins have only to be in possession of the proper arrangement of COOH and NH_2 groups to be able to act upon the obstructing barriers the victims have thrown up, thus activating the enzymes of the cells and causing the digestion of these cells. By being arranged in a way that makes them specific for and chemotactic to the neurons of the central nervous system their deadly digesting character becomes assured. Varying in this direction would steadily keep removing them from the ordinary food proteins that are usually adapted in their affinities for many kinds of tissues. Nor was it necessary for such variations to be selected because they increased the deadliness of the toxin. It was enough that with smaller and still smaller amounts the parasite was enabled to check the digesting power of the host upon themselves. Prompt arrest of digestion could save them and let the host live. It is well known that under toxin intoxication hunger disappears. There is no cry of the cells for food. The microbes' lives would be saved more effectually the more promptly they became able to check the appetite of the host and this they apparently do by making hunger dangerous to the host. For the cells of the host to be absorbing food in the presence of toxin would mean the absorbing of the toxin as well. To stop feeding is to close the open gate of destruction. To have the nucleoplasm of the cell digested with its own

enzymes is a happy adaptation—happy for the disease germs but not for us. Natural selection is thus responsible for our undoing as well as our upbuilding and protection. To natural law the microbe is as great as is the man and, apparently, of as much importance. The poisonousness seems, thus, to be the digestibility of the vital part. Pfeffer rightly says: "It is the nature of the protoplasm which determines whether a substance shall act as a poison or not."[63] There are no such things as poisons *per se*. A poison is poisonous because we have not adapted ourselves to it in any considerable amounts. There is no line of demarcation between the most deadly poison and the food that nourishes our bodies. They merge into each other exactly as the deadly fire merges into the absolutely necessary normal temperature. Stahl trained *Æthelium septicum* until a 2 per cent. solution of grape sugar was deadly to one specimen and the food supply of another.[64] Pere trained *Thyrotrix tenuis* so that it fed and throve upon deadly formaldehyde.[65] Park declares that substances like carbolic acid "can, when in sufficient dilution, provide the necessary carbon and even act as stimulants to the growth" of bacteria.[66] Chittenden tells us that "the amount of hydrochloric acid secreted during twenty-four hours by the normal individual, under ordinary conditions of diet, amounts to what would constitute a fatal dose of acid if taken at one time in a concentrated form."[67] The relativity of poisonousness is one of the best established facts of modern science. The antidoting of poisons by the body is one of the most interesting of all the studies in biology. The production of antitoxins and other antibodies by the body seems almost miraculous and its mechanism will be taken up by the writer in a future article.

That cell nuclei are not left exposed to constant danger from bacterial products goes without saying. Every cell is a little organism—a machine—with many distinct parts having various protective functions. The nucleus, being, probably, the most vulnerable part, has, by natural selection, been, like our viscera, shielded by various devices. Among these is a surface film or membrane which has to be pierced before the nucleus is seriously open to danger. The same is true of microbes, and these frequently increase the thickness of this outer covering, sometimes adding two, three, or more layers, like the different coverings of an onion.[68] Being almost digestion-proof, they are of decided selective value. In the case of our cells such thick coverings would be injurious. In them the envelope is thin so as to permit of the free passage of such soluble materials as are required for active nutrition, for respiration, etc. Substances that stimulate the cell protoplasm must do so through this membrane. Lillie tells us that "stimulation in irritable or contractile tissues depends primarily on a temporary and readily reversible increase in the permeability of the surface films or plasma membranes of the constituent cells" and that "marked increase of permeability, if prolonged for more than a short time, is highly injurious to cells."[69] The exact chemical composition of these membranes is not known. We know that they contain lecithins, cholesterin, and proteins. If there are many kinds of cholesterin, as some chemists hold, it is possible that no two cells from different species contain the same kind of lecithin, cholesterin, or protein. Cells of all kinds —vegetable as well as animal—contain these. The vegetable cells have cellulose also as a protection, the bacteria, and, probably likewise, the protozoan parasites have chitin as a substitute for cellulose and many—possibly all—metozoa have such glycoproteids as mucin and mucoid as adhesive substances of a large number of cells. There is thus a chemical kinship of carbohydrate connecting all sorts of cells throughout the world of living things. Such a combination or blending is, or can be, of such baffling complexity from the viewpoint of digestion that it would seem to require all manner of enzymes and of activators to unravel and dissolve it. The lipoids require lipase, the carbohydrates probably various amylases, the acid proteins alkaline proteases, the alkaline proteins acid proteases, and the cholesterins a variety of oxidases. As soaps and oils can pierce erythrocytes it seems probable that the lipoids are, for animal cells, very important constituents. Their removal destroys the semi-permeability, laying the cytoplasm open to proteolytic digestion. Other kinds of cells seem less liable to such cytolysis. In sensitizing an animal with foreign proteins a period of about ten days is needed before a second injection will produce anaphylactic shock. It would seem from our knowledge of the cell membranes, the cytoplasm, and the nucleus that so slow is the digestive process in these that this period is consumed in increasing the permeability to an injurious amount. This we should expect, judging from the nature of the tissue to be tunneled. In bringing the chitin of bacteria into solution by digestion the first result we should expect would be the releasing of glucosamine and the further breaking of this down into glucose and acetic acid in accordance with the following equation:

$$2C_{15}H_{26}N_2O_{10} + 6H_2O = 4C_6H_{12}NO_5 + 2C_2H_4O_2$$

These products of digestion are positively chemotactic for phagocytes and softened chitin we should expect to be sticky in character. Cholesterin being related to the terpenes,[70] we might expect its oxidation products to resemble resins in stickiness and in chemotactic quality. The coincidence of these qualities being associated with the first point of attack in bacteriolysis should put us on the alert for a possibile connection of these with opsonins and agglutinius—the first responses in bacteriolysis. The specific character of both accords well with the digestion complexity of the membrane structure. Each species would require a different combination of enzymes and activators to dissolve it readily. J. Loeb thinks that the "agglutination of sea urchins, bacteria, etc., can be explained by a softening of the surface of the floating material and subsequent cohesion."[71] This sticking together of the bacteria on being acted upon by a serum made specific to that particular kind of bacteria is the basis of Widal's reaction in typhoid fever. The surface of the typhoid germs is, in this case, apparently being acted upon by a proper combination of enzymes to dissolve slightly the membrane. Before such dissolving has proceeded far traces of the membrane material would have diffused into the blood stream, reached the phagocytes, and through its positively chemotactic nature attracted them in the direction from which it was coming. The nearer the phagocytes approached the bacteria that the serum was thus acting upon the greater would become the proportion in the blood and the greater the attraction. Phagocytes have no mysterious way of finding bacteria that have reached the circulation in dangerous numbers. How else can we conceive of their crowding into the regions where not too virulent bacteria are found? That they fly from very virulent bacteria in leucopenia we have seen, and seen the prob-

able reason why. There must have been an incessant destruction of phagocytes, through all past time, that failed to be attracted to disease-producing bacteria and failed to be repelled from dangerous amounts of bacterial poisons. When the poisons became diffused to non-poisonous amounts and the opsonins increased to attractive amounts the conditions for their destructive work were favorable and disease was brought under control. There could, however, be neither negative nor positive chemotax is without real substances being dissolved into the blood-stream and acting as such. Phagocytes are indifferent until the opsonins reach them and stimulate them into activity. In every disease there is a local center of weakness—of vulnerability—where disease germs are able to multiply and live at the expense of the cells. In pneumonia it is the lungs. In typhoid fever it may be Peyer's glands. In meningitis it is the meninges. In rheumatism it is the joints. In every individual there are parts that are practically immune to any one particular kind of germ. Is there any way by which these immune parts can be compelled to help the vulnerable parts in the uneven struggle of active disease? In human warfare the stay-at-home people, who live remote from the national points of vulnerability that an enemy has attacked, are compelled to supply money and the munitions of war to maintain the armies. Does the body contain no medium of exchange that can be increased by stimulating invulnerable cells? We have seen how bacteriolytic enzymes can be forced to accumulate in the peritoneum and there to kill and destroy bacteria in a specific way. If the attacked cells and phagocytes of the body in pneumonia have not enough specific enzymes to dissolve the invading pneumococci why cannot we compel the uninvaded regions to produce enough enzymes and activators to hurry up the destruction of the foe? These idle, unattacked parts have a superabundance of such enzymes that are only awaiting a strong enough stimulation to cause them to be poured into the blood stream. Why not inject weakened or dead bacteria vaccines of the kind that is making the attack into the tissues that are invulnerable to their attack and thus hurry up the supply of destructive agents that the blood-stream can carry to the battlefield? The vaccines thus injected will be quickly digested, the circulation will carry the bacteriolytic serum to where it is most needed, the living bacteria of the dangerously diseased part will have their surfaces dissolved, the attractive substances they thus give up will reach phagocytes in the most remote parts of the body, these will be stimulated into hurrying to the seat of battle and the active leucocytosis thus started will mean victory for the patient over his disease. In the active field of battle the bacteria present deflect the enzyme (complement) to themselves, and there not being enough to reach them all many of them are left uninjured. To stir up the secretion of specific enzymes in immune parts is to get a sufficient supply to the vulnerable parts in time to be of service. This appears to be the secret of opsonic action, of bacteriolysis, and of the self-limitation of not-too-violent diseases. It is an expression of nature's primitive mode of warfare and of the decree of the ages that living things must digest or be digested in the fierce struggle for existence.

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THE PROBABLE DURATION OF LIFE.

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The growing realization that the old belief in the extraordinary strength, size, and longevity of the early inhabitants of the earth was founded chiefly on fiction. That all living things have a tendency, through the inherent property of protoplasm, to grow old from the very beginning of life, appears to have rather increased than decreased the tremendous interest that has always been associated with the question of the probable duration of life.

This is not surprising since the new biological conception of life and the recent discoveries in sanitary science place the chief responsibility of prolonging life, with certain limitations, upon the individual and the community.

Through the aid of the microscope we have learned that the several building materials—muscle, bone, nerve, etc., of which bodies are made up are not composed of homogeneous masses of these respective tissues, but are themselves built up of myriads of minute cells, which, with certain limitations, are themselves living organisms; for it is through them that the distinctive feature of living matter, assimilation, nutrition takes place. It is through these tiny cells that the constant stream of dead matter that is taken into the system is rearranged into living matter and the equally continuous outflow of dead matter that has once been in the living form is removed from the economy. This power of living matter to convert dead food into living substance like itself is one of the great physicochemical mysteries of life and is that which distinguishes living from dead matter. For all practical purposes these cells, with their cytoplasm and nucleus, are the smallest subdivisions into which the body need be divided. Commencing with the two parent cells, which possess the inherent property of mutiplication and growth by division and redivision and differentiation, the body is ultimately built up. But aside from this vital capital with which the young organism is endowed by the parent cells, how it grows, and the degree of perfection and vital resistance which it attains depend wholly upon the nutrition which it receives and assimilates. Since, then, all growth begins in the cells it is evident that the growth of the body is the sum of the growth of the tissues and the growth of the tissues is the sum of the growth of the cells of which the tissues are composed. The rate of growth is most rapid when the tissues are at their least density and decrease gradually as the density of the tissues takes place until the body reaches the average limit of the race. The slight variation in the normal rate of growth, a few days after birth, is not well understood but is believed to be due to the establishment of respiration and the extra expenditure of energy necessary to maintain body warmth, as during gestation this is furnished by the mother. It goes without saying that growth is accelerated by favorable and retarded by unfavorable conditions; that it is more rapid in the country than in the city, during vacation than while at school, is favored more by outdoor than indoor occupation, and is greater in summer than in winter. The rates of vertical and of horizontal growth, or of height and weight, appear to be inversely to each other. So is the rate of growth of organ and function. Aside from the well recognized period of accelerated growth at puberty, preceded and followed by a slightly retarded growth, there are numerous individual unclassified variations and rhythms. Although there appears to be a partial compensatory acceleration of growth after temporary retardation from sickness or deficient nutrition, it is questionable whether such rapidly accumulated tissue possesses the same power of resistance as in the case of uninterrupted growth. Nothing is more certain than that the rapid increase of weight that often follows recovery from protracted illness from the infectious diseases is often merely an accumulation of nonvital tissue due to a perversion of nutrition. Investigation among a large number of school children in large cities has shown that growth decreases with each lower stratum of society, indicating that continued denutrition leads to permanent physical deterioration somewhat proportionate to the extent of such denutrition. Notwithstanding the fact that the absolute height and weight increase gradually, the rate of increase gradually decreases. This is not only true of absolute height and weight, but of the relative weight per unit of body weight. This is strikingly shown in the following analysis of Quetelet's somewhat faulty tables of growth. According to these tables, a child that weighs six and one-half pounds at birth, if well nourished, will gain twelve pounds the first year but only four pounds the second year. Here the absolute gain the second year is only one-third that of the first year, but as the weight of the child is two-thirds greater at the beginning of the second than at the beginning of the first year, the rate of decrease per unit of body weight is much greater. In height, the gain the first year is 148 mm., the second year 93 mm., the third year 72 mm., while from the twentieth to the twenty-fifth years the average is 12 mm., and from the twenty-fifth to the thirtieth it is only 0.8 mm.

As variation in growth is less later in life than in early childhood, it is probable that the possible final achievement of the body, like a spent ball, is more easily affected adversely by deficient nutrition late than early in life. Contrary to the popular opinion that there is a period of development followed at maturity by a period of decline of the vital forces, there appears to be a continuous decline from the beginning to the end of life. This continuous decline of the vital forces of living matter has been roughly compared to a clock, the mainspring of which suffers gradual loss of elasticity from molecular changes until winding will no longer make it run. The renewed energy given to the clock by winding is supposed to represent the renewed energy that comes to the body through the food we eat and the air we breathe, while the loss of elasticity in the spring through molecular changes is supposed to represent the loss of vital force through molecular changes in the body. Again, the growth and decline of the body has been compared to a man building a wall. It is said that a man builds a wall which keeps on growing, but as the man becomes tired it will increase more slowly and finally ceases to grow altogether when he is worn out. So the vital forces build the body which develops, but all the while the forces are losing their power. The cessation of growth, then, is not due to the body

reaching maturity, but is merely a final term in a series of losses.

"As soon as we bee begunne, we did beginne to be undone."

In the illustration just given the time required for the man to become tired and finally worn out depends upon at least three factors: the stock of vital energy with which he commenced work, the amount and character of nutrition received and assimilated, and finally how he conserves his energies. There is nothing fatalistic about this. Admitting that through the inherent tendency of living matter to grow old there will come a time when he must lay aside his implements and rest under the shade, the time, within certain limits, when this shall be depends materially upon the conditions just mentioned. Although no law has been or probably can be formulated on the subject, a wide range of observations appears to indicate that the sooner an organism reaches maturity the shorter will be its duration and that in many animals the whole duration of life is some five or six times the period required for complete development. Thus as man is from twenty to twenty-five years in reaching maturity, he should live from one hundred to one hundred and twenty or thirty years. That even the greatest of these possibilities have been exceeded by both man and woman in many instances the records of centenarians abundantly prove. The fact that this is the exception rather than the rule does not prove that through new discoveries relating to life's processes and the conservation of energy the rule and the exception may be reversed. In its final analysis the question is how long may an adjustment be maintained between internal relations and external relations. If the vital force that comes with genetic continuity is of the highest intensity and external relations are favorable it should not only be possible but highly probable that instead of a very small minority, a very large majority of lives could be extended far beyond the century mark. The term vital force is here used in its modern sense as an expression of the physicochemical energy resident in living matter and not as a supposed mystic power independent of thermic electric or chemical energy. Thus the vital force inherent in the germ plan and the force added through nutrition is the initial and acquired capital or forces out of which our bodies are made up. Although the architectural plan of this structure is in a measure predetermined by the determinants in the germ plasm, how it will conform to the pattern depends materially upon the character of the initial and acquired capital and the conservation of energies. If these can stand the highest test there is no physiological reason, says Dr. W. A. Hammond, why mankind should not drive old Father Time down the highway of life beyond the one hundred-year mark. The so-called law that fixes man's time on earth at three score and ten years has no divine authority. We may as well live one hundred years as fifty years.

Prof. Fisher of Yale University in a recent address (Feb. 5, 1909) at New York said: "It has long been known that there is no iron law of mortality but that mortality depends upon the hygienic state of the community. Bains, in a recent paper in the *Journal* of the Royal Statistical Society, has calculated that the average duration of life in India is only twenty-three years for males and twenty-four years for females, or less than one-half the life space of the advanced countries of Europe. The estimates of Finkelburg show that in Europe human life has probably doubled in the last three hundred and fifty years. More recent and more reliable figures show that life is lengthening more rapidly to-day than ever. If we take life for different periods for England, France, Prussia, Denmark, Sweden, and Massachusetts, we find that human life lengthened during the seventeenth and eighteenth centuries at the rate of four years per century; that during the first three-quarters of the eighteenth century it increased at the rate of nine years per century; that at present it is lengthening in Europe generally at the rate of seventeen years per century, and in Prussia (which is perhaps the home of preventive medicine) at the rate of twenty-seven years per century." For this country the rate can only be judged by the statistics of Massachusetts, which show that life is lengthening by about fourteen years per century, or approximately one-half the Prussian rate. If the achievements in preventive medicine and sanitary science increase in the future as they have in the recent past the present average duration of life of about thirty-four years in this and most European countries ought to be materially lengthened before the end of the present century. There are constantly about 3,000,000 people seriously ill in the United States, one-half of whom suffer from preventible diseases. More than 500,000 persons are constantly ill of tuberculosis, one-third of whom die annually. Notwithstanding the effort at rigid exclusion, deaths from tuberculosis cost the insurance companies of this country nearly $50,000,000 annually. An eminent American physician said recently that the causes of nearly all the infectious diseases were so well understood and their prevention so easily accomplished that according to all the rules of liability for criminal negligence, for every man who died of typhoid fever some one ought to be shot. Again, an eminent English surgeon, Frederick Treves, said: "The time will come when it will be as anomalous for persons to die of scarlet fever, typhoid, cholera, or diphtheria as for a man to die of a wolf's bite in England." And it was Sir James Crichton Browne who said, "Every man is entitled to his century."

Fortunately we do not have to depend upon mythical characters of olden times nor even upon comparatively modern celebrities like John Parr, Thomas Jenkins, or St. Mungo, who are reputed to have lived 152, 160, and 185 years, respectively, for proof that the century mile post has been passed in many instances. Our own John Leonard Roeder, Sarah McDonald, and Noah Raby, who lived 109, 131, and 131 years, respectively, and William Macabee, Elizabeth Wonderly, and José Quirterrez, who are still hale and healthy at 107, 108, and 120, respectively, furnish incontestible proof of this fact. James Click of Prestonburg, Kentucky, with whom the writer was well acquainted, had family records to prove his claim of 104 years when I last saw him. He then appeared to be about seventy and asked rather seriously if I could not find him a nice young wife in my travels. He lived some years after this but just how long I have not been able to learn. The United States census for 1900 shows that there were 3,981 centenarians in this country at that time. The latest available statistics on the subject show the number of centenarians in each of the following countries at the time of such enumeration as follows: England, 146; France, 213; German Empire, 78; Spain, 410; Servia, Bulgaria, and Roumania, 5,540.

FURTHER NOTES ON THE TREATMENT OF PARALYSIS AGITANS WITH PARATHYROID GLAND.

By WILLIAM N. BERKELEY, A.B., B.Ph., M.D.,

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By way of introduction for those unfamiliar with the literature of this subject, some preliminary comment will perhaps not be unwelcome. It may be therefore briefly stated that when the parathyroid glands are removed from a dog or other suitable animal, a curious and characteristic train of symptoms follows,—hurried respiration, tachycardia, profuse salivation, twitching and shivering of the voluntary muscles, rigidity, intermittent convulsions, rapid wasting, and death. There is now an enormous literature on the subject. A fairly complete bibliography may be compiled from the writings of Jeandelise[1], Pool[2], Erdheim[3], Berkeley and Beebe[4], and Ochsner and Thompson[5].

MacCallum[6] in a further interesting and important contribution to the subject has shown that a suitable dose of a soluble calcium salt, injected into the veins of a dog that has been successfully operated upon in this way, will arrest the spasms and for a few hours restore the animal to a normal condition. He concludes that the parathyroid glands therefore preside in some way over the calcium metabolism of the body, and that the symptoms in question are caused by a deficiency of calcium. S. P. Beebe and I[4] have successfully repeated this experiment, which is one of the most striking phenomena in the physiological laboratory; from a series of additional experiments, however, we have been disposed to conclude that in such cases the calcium has a "drug effect," and that the parathyroid glands more likely furnish enzymes of prime importance in the intermediary metabolism of nitrogen. The subject is a difficult one and awaits further research.

Whatever the ultimate solution of the physiological problem may be, such remarkable and characteristic symptoms strongly suggest some causal relation between a defective secretion of these glands and one or more of the known convulsive diseases; and medical men have not been backward in guesses of various kinds. Exophthalmic goiter was long ago proposed by Gley[7] and afterward given over. Vassale proposed puerperal eclampsia[8]. Epilepsy was first suggested by MacCallum (acknowledgedly in a tentative way[9]), but further independent researches by this author[10] brought him to the conclusion (reached about the same time by Pineles[11] and Erdheim (*l.c.*) and rather vaguely suggested by Jeandelise (*l.c.*) in 1902, four years previously) that *tetany* is the final answer to this long-standing question.

Without going further into the extensive literature of this part of my topic, it will be enough to say that tetany—whether associated with surgical damage to the parathyroid glands in thyroidectomy, with infantile rickets, with pregnancy, or with dilation of the stomach—is unquestionably *one* of the answers. But a further inquiry remains whether this be the *only disease* having any relation to these glands; and it is now some years since the Swedish neurologist, Lundborg[12], and I[13], working along different lines, and each independently of the other, conceived the idea that *paralysis agitans* is possibly due to some chronic disorder or disease of the parathyroid glands.

In support of this hypothesis I have offered (*l.c.*) the following considerations: Paralysis agitans has all the marks of a chronic toxemia; the symptoms following parathyroidectomy are remarkably like those of paralysis agitans; in cases of myxedema and exophthalmic goiter paralysis agitans has not infrequently occurred as a complication or sequela; of fourteen reported autopsies on paralysis agitans, two by Erdheim (*l.c.*) and nine by R. L. Thompson[14], showed negative parathyroid glands, but two by C. D. Camp[15] and one by myself[16] showed distinct pathological changes; and lastly a remarkable percentage of cases of paralysis agitans treated with properly identified fresh gland, or a properly made extract, have been greatly benefited.

This statement brings me finally to the special object of this paper, which is to report some further improvements in the preparation of a glandular extract which will be suitable for the treatment of this disease.

My first cases were treated with commercial parathyroid gland. This worked well in a few cases, but was found so variable and uncertain in its action that it had to be given up. I next tried a preparation of properly identified gland rubbed up in the crude fresh state to a dry powder with milk sugar. This was distinctly better, but still seemed to be variable and unstable. Later on I tried a nucleoproteid solution of the parathyroid made up by Beebe's method[4] and preserved with a few drops of chloroform in the bottom of each bottle. This has still further raised the percentage and degree of improvement, but it precipitates rapidly, and is very susceptible to damage from temperatures above 5° C., therefore hardly admitting of transportation to any great distance.

My latest process, devised some months ago, and giving great satisfaction to five or six of my patients who had not done well on other preparations, is this: The nucleoproteid extraction process (Beebe's method, *l.c.*) is adhered to generally, but all the preliminary steps are hurried, and the precipitated nucleoproteid is not redissolved, but quickly dried in a draught of cold air; so that within eight or ten hours after the warm glands leave the bullock a minute amount of smooth yellow powder is obtained which stands physiological tests admirably, is stable, easily handled, and does not require a freezing temperature for its preservation (though for safety's sake it is recommended to keep it on ice).

The powder is rubbed up with milk sugar as a menstruum and is dispensed in sealed and dated bottles of sixty capsules (an average month's supply). Each capsule contains one-fiftieth of a grain of parathyroid nucleoproteid. The average dose is two per day—sometimes less than this where the patient is sensitive to the action of the remedy. The bottles are now to be had in several pharmacies in New York. This preparation is the best I have so far tried. It will give satisfaction not only in Parkinson's disease, but also in almost any form of tetany where the stomach can retain food. Otherwise a sterile hypodermic preparation of the nucleoproteid must be used.

In paralysis agitans there are no special contraindications, though some patients complain of "nervousness," inability to sit still, and an aggravation of their habitual constipation after a few days' dosage. Nothing is necessary in these cases except to diminish the dose and increase again more slowly. Little benefit can be expected of a satisfactory character except from small doses continued over a long period of time—three months to a year.

In looking over the notes of my own cases and of those treated in consultation (now upward of sixty in all) I find that between 60 and 65 per cent. of those who have given the remedy a fair trial have spoken favorably of it and have continued the treatment. More than a dozen, who began three or four years ago, have greatly improved and are now only uncomfortable when they are without the medicine.

With such a percentage of benefited cases as this there seems no longer any reasonable doubt of the etiological relation between the disease and the remedy. One or two cases in the hands of medical friends or correspondents appear to be almost cured, though of such a disease in a patient of advancing years a "cure" is always to be spoken of with reserve.

The hope seems justifiable that by further study of the complicated chemical problems involved it will be finally possible to cure paralysis agitans with parathyroid gland as surely as cretinic idiocy is cured with thyroid.

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ANOTHER CASE OF PYLORIC OBSTRUCTION.

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In studying a certain line of cases and observing that the same thing occurs every time under the same circumstances, one concludes that such is the law in these cases. In the Medical Record, February 19, 1910, I wrote an article on pyloric obstruction. It was the result of a study of a large number of cases at the Vanderbilt Clinic. I had selected a series of four cases to prove my contention that as soon as there is retention of food, as evidenced by the presence of food remains in a fasting stomach, in a patient showing any serious symptoms of digestive disturbance, it always meant pyloric obstruction, and that a laparotomy should be performed. We had a case recently in which, not to be considered too narrow, we had not applied this strict rule, and, as a result, the patient died of pyloric obstruction.

Mr. V., an Irishman by birth, grocery clerk, 50 years old, came to the clinic August 23, 1907. He did not remember any diseases of childhood; had always been well, had pneumonia at 41, smoked, did not drink, and denied all venereal diseases. One year previous (1906) he began to have sharp pains in the epigastrium, knife-like in character, almost continuous, and aggravated by eating meat, the attack lasting four weeks. Three weeks previous to the time he came to the clinic the symptoms returned, with belching and regurgitation of waterbrash, and vomiting which reduced the pains, the vomitus consisting of acid-tasting substance. He thought he had lost weight and strength. Physical examination: Physique well built, tongue dry, pulse regular and of good quality, heart overactive, second aortic slightly accentuated, lungs negative; abdomen; no pain or tenderness anywhere, stomach percusses 1½ inches above navel; weight, 158½ lbs. A test breakfast was given and removed one hour later; quantity extracted, 420 c.c.; quantity remaining, 56 c.c.; food, well broken up; mucus, normal; total acidity, 76; free HCl, 62. On the 29th his fasting stomach was pumped; quantity extracted, 60 c.c.; mucus, normal; no food remains; total acidity, 60; free HCl, 50. The patient felt well; alkaline treatment was given. He returned October 5, saying that he felt well until two days previous. During these two days he vomited sour material. His fasting stomach was pumped; quantity extracted 100 c.c.; no food remains; total acidity, 94; free HCl, 82. He was given bismuth, one drachm per dose, and came back to the clinic five days later, saying that during the intervening time he had had his stomach washed at the Hudson Street Hospital, and that blood had been obtained. He weighed now 151¾ lbs. He was ordered to rest in bed and apply an ice-bag to abdomen. He returned November 9, felt very good and weighed 155 lbs. The fasting stomach was pumped; quantity extracted, 70 c.c.; acidity, 74; HCl, 54. He continued to visit the clinic occasionally, calling for bismuth. He kept on gaining steadily in weight until, on October 3, 1908, he reached 185 lbs. He felt the same until July, 1909, when the stomach was pumped again; quantity extracted, 150 c.c., consisting of mucus, flakes, and shreds, but no visible food; acidity, 84; HCl, 64. He again had excruciating pains in the epigastrium, day and night, was constipated and weighed 146 lbs. Sigmoidoscopic examination was negative. The stomach when inflated percussed 1½ inches above navel, showing that it was not enlarged. He felt better until Jan. 11, 1910, when his fasting stomach was again pumped; quantity extracted, 200 c.c. of a greenish substance containing flakes and some shreds, but no solid food; acidity, 104; HCl, 80. On January 18 his fasting stomach was again pumped, and some mucus and bismuth taken at 10 o'clock the night previously was obtained. The fasting stomach was washed out and a substance obtained having a strong odor of fermentation, and small particles of meat, rice, and raisins. On January 30 the fasting stomach was washed, and much food and seeds eaten two days previously, farina, and other cereals were obtained. February 3 the fasting stomach was pumped, and meat, rice, raisins, and free blood were obtained. The patient weighed 153 pounds, and felt better again until June 9, when he

returned feeling badly, weak, vomiting, and weighing 136 pounds. The fasting stomach was pumped and a substance obtained consisting of finely broken up meat eaten 48 hours previously, and rice eaten 84 hours previously. He was then sent to the hospital, where he received the Lenhartz treatment. He returned to the clinic saying that he had been in the hospital four weeks under this treatment. He felt weak, had no pain, ate quite well, and vomited occasionally. July 22 he went to the country, started again to vomit everything he ate, and was getting worse and worse. August 11 he felt very badly, vomited great quantities of food and blood, and died.

This man came to the clinic at the very beginning of his illness, at a time when a diagnosis of ulcer alone could have been made. Step by step his condition was aggravated, and with every new attack he came nearer and nearer to the fatal stage. His first test breakfast showed 450 c.c., far above the amount obtained in a normally working stomach of normal size. The fasting stomach contained amounts of 60 to 100 c.c., quantities very large and very highly acid. All this pointed towards an abnormal stagnation of food in the stomach, which was not dilated, a condition very favorable to the man, showing that the obstruction was only recent and slight. January, 1910, his fasting stomach contained 200 c.c, with shreds and acidity, 104-80, a condition which should have pointed sufficiently towards an early diagnosis of pyloric obstruction. January 18 the first actual solid material was obtained from a fasting stomach, bismuth subnitrate, and then remains of meat, rice, raisins, etc. January 30 the fasting stomach gave up seeds and cereals eaten two days previously. February 3 the same condition obtained. On another occasion food eaten eighty-four hours previously was obtained, but the fact that a diagnosis of simple retardation had been previously made, the fact that the patient kept on getting better and worse, and that he kept on losing and regaining weight alternately compelled us to send him to the medical side of the hospital, where, it seems, the three years of study and treatment of the patient in the clinic were not taken into consideration. He was given the Lenhartz treatment, though he himself asked for an operation, having been told at the clinic that in the hospital he would probably be operated upon, as it had been considered that the case had gone too far for the palliative treatment. Of course the patient became very much worse under this treatment, and when he left the hospital he felt much worse than he was willing to admit to his friends.

There is no doubt in my mind that if a laparotomy had been performed at this early stage the man would have been alive to-day, as exemplified by the case operated on by Dr. G. E. Brewer in August, 1908, a case far worse and one much further advanced, which is doing well to-day.

This case indicates to the author's mind three points of greatest value: (1) The conservative procedure in serious gastric conditions that do not improve after a reasonable trial of medical treatment is to operate. (2) In all cases of retention of foodstuffs accompanied by serious symptoms the specter of pyloric obstruction asserts itself too strongly to permit fanciful diagnosis. (3) If hospitals were informed of what had already been done for the patients in dispensaries, much valuable time would be saved and many lives spared.

1789 Fulton Avenue.

A SIMPLE CLINICAL METHOD FOR MEASURING THE DIAMETER OF THE PUPIL.

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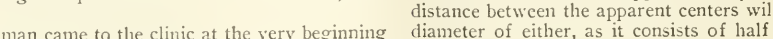
The method utilizes that generally used, which was first employed by A. Fick.[1] It depends upon the principle that a small aperture in a card placed a short distance from the eye appears as a circle, the diameter of which equals that of the pupil. If two holes are used it is evident that if the circumferences of the two circles appear exactly to touch the distance between the apparent centers will equal the diameter of either, as it consists of half the diameter of each. That is to say, it will equal the diameter of the pupil. Now, it is found experimentally that when the two holes are separated by a distance equal to the diameter of the pupil then the apparent images just touch. So that it is very easy to measure the pupil by placing before the eye a series of holes at varying distances from one another.

Accordingly a scale is constructed consisting of perforations in a card placed apart respectively one, two, three, four, five, six, seven, and eight millimeters. The diameter of the patient's pupil is then easily ascertained by the distance between the two holes of which the apparent images most nearly touch when he looks through them at a distant object.



Showing the distance in millimeters of the perforations in the test card. The pupil is normally not larger than the distance between the dots in the space marked 4. Inequality between the two pupils may be ascertained by making two holes at a distance exactly corresponding to the diameter of one pupil and then ascertaining whether the circles exactly touch when the holes are placed before the other pupil.

But this well-known method gives only the temporary pupil diameter, which is very variable in different persons. For purposes of absolute comparison, it is necessary to combine it with a standard state of pupillary adaptation. Now, it is known that although it requires two hours in the dark for maximal dilatation to occur, yet a convenient, practical, very extensive adaptation to dark occurs at the end of two minutes and is almost maximal in twenty. Upon reexposure to light the pupil contracts in proportion to the logarithm of intensity of the light to which it is exposed.

But Schirmer[2] has found that there is practically no variation in the amount of contraction within the very wide range of one hundred and eleven hundred millimeter-candles, and that in normal individuals the pupil measures between three and four millimeters after maximal adaptation to dark. Charpentier[3] found increased sensitiveness even greater than did Aubert after pupillary adaptation to darkness; but the clinical importance of the facts does not warrant their discussion in this place.

Hence if the patient to be examined is placed in the dark room for two minutes, and then placed so that his eye is exposed to a light between one hundred and eleven hundred candle-power, a standard stimulus is attained uniform enough for the practical purposes of the clinic, and accurate enough for statistical comparison.

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New York, December 24, 1910.

REPORT OF THE SURGEON-GENERAL OF THE NAVY.

THE report of the Surgeon-General of the Navy has just been issued. A satisfactory feature of the report is that the health of the navy, as a whole, shows decided improvement. The death rate of 5 per thousand is lower than has ever been previously recorded. The total damage for disease alone in percentage of sick was 3,952, which when compared with Medical Inspector Gatewood's ten-year tables is found to be lower than for any year since the Spanish-American War. The grand total damage in percentage of sick for 1909 was 4.619 as compared with 5.218, the average computed in the above-mentioned ten-year tables. There has been a shortage of officers for the medical corps, due, it is said, to the failure of Congress to enact any one of the four measures which provided for equalizing the compensation of acting assistant and assistant surgeons and which has made it imperative for the bureau to recommend the direct appointment of assistant surgeons from civil life and the elimination of the prescribed probationary period, which was authorized by the department on August 19 last. The lack of officers has pressed somewhat heavily on those in service and little leave of absence has been granted.

Conditions in the Hospital Corps as regards numbers and effectiveness are practically the same as reported last year, but the recruiting of women nurses has been very slow on account of the efforts to obtain only those best qualified. Emphasis is laid in the report on the need of legislation providing for the appointment of dental surgeons for the navy. Attention is also called to the benefits which would ensue from the formation of a medical reserve corps for the navy. Possibly, the most important part of the report is that in which General Stokes recommends alterations in the methods of physical training of the personnel of the navy. The manner in which such physical training is now carried out is stigmatized as being too much of the *laissez aller* character, consisting of walking or riding a prescribed number of miles within a time limit, and the report states that after the first year of the physical test the consensus of opinion of medical officers seems to be that it has utterly failed to accomplish the design to encourage regular daily exercise; very few have observed any real benefits, considerable tangible harm has resulted, and many officers justly question the expediency of placing what amounts to a severe strain upon the heart when adequate preparation is not made mandatory. The recommendation is put forward that more recreative and continuous exercises be substituted, while for the younger personnel the adoption is urged of the Swedish system of physical training as followed in the British service.

It is contended that taking into consideration the English, German, and American military statistics and experiences pointing to the protective properties of typhoid vaccination it should be adopted on such navy stations as are shown by annual experience to suffer from the disease habitually. As in the army so in the navy, venereal diseases cause an immense amount of sickness and disability. According to the report a fairly consistent estimate might now be ventured that the true incidence of primary venereal infections in the navy is not far from 200 per 1,000. The Asiatic stations showed an increase of 60 per cent. admission rate for 1909 over 1908. The first quarter of 1910 has exhibited an appreciable reduction of the admission rate for venereal diseases, so that it may be hoped that the turning point has come. The admission rate for pulmonary tuberculosis has continued to fall and the rate for all forms declined in the navy from 6.26 for 1908 to 5.60 per thousand last year. The admission rate for malarial affections declined from 29.8 for 1908 to 18.85 for 1909. It is also very encouraging to note that the admission rate for alcoholism has been lower for the past three years than for many years. Among the conclusions reached by General Stokes and which have not been referred to above are that medical officers of extensive practical experience should be assigned to duty under the "Aid for Inspections," one for hospitals and shore stations and one for the service afloat, that adequate sanitary facilities for the personnel of ships in dry docks should be provided, and that Congress should be urged to appropriate a sufficient sum for the building of two suitable hospital ships.

The report of the navy for the past year is satisfactory and affords evidence that not only is more careful attention being paid to the health of the sailor, but that in many respects, for instance, with regard to drinking, the sailor himself leads a more healthful life.

DORSAL PERCUSSION OF THE THORAX AND OF THE STOMACH.

IN the century and a half that have elapsed since Auenbrugger first showed the diagnostic value of percussion, its field of usefulness has gradually widened until to-day its applications are of the utmost complexity and precision. Among the other pioneers in this fertile domain were men whose names stand out in the history of internal medicine—Corvisart, the translator and commentator of Auenbrugger's work; Laennec, who with his method of mediate auscultation increased the clinical value of percussion; and finally Piorry, who

invented the method of mediate percussion and of pleximetric percussion, and who by means of these originated the new method of organic plexigraphy or organography. In spite of the valuable results of which the use of the pleximeter gave early promise, this instrument was for a long time all but abandoned, together with the practice of dorsal plexigraphic percussion.

The extensive clinical sphere of dorsal percussion has for many years been the subject of untiring investigation by Willam Ewart, who has already contributed amply the results of his work on the organic plexigraphy of the thorax. In his latest communication in the Proceedings of the Royal Society of Medicine, July, 1910, he has revised the delineation of the dorsal topography of the thorax, has contributed a new method of post-gastric percussion and has described a new clinical sign termed "the dorsal gastric nucleus of resonance." Among his practical conclusions it is noted that organ-plexigraphy, long restricted to the precordium and epigastrium, still calls for greater accuracy and completeness than have yet been given to it in these regions, and should no longer be restricted to them, but should be used in any situation, and whenever it may serve a useful purpose. Dorsal plexigraphy, although too long neglected by clinicians in spite of Piorry's writings and of more recent work, affords the larger field for normal organography, particularly in the abdomen, as from the front, apart from the lungs, percussion is still taught to be limited to an incomplete delineation of four organs only—the heart, the liver, the stomach, and the spleen. The list of its normal findings in the back includes the heart and its left auricle, the liver, the spleen, an indication of the mediastinal structures, the kidneys, the pancreas, and an indication of other mesenteric structures, besides the pelvic district. Moreover, it possesses a separate field and a method both exclusively its own in vertebral or spinous-process percussion. The total range of the dorsal examination exceeds anything to be obtained from the front, including the entire contents of the trunk.

For clinical diagnosis more pathology is revealed by percussion in the back than in front, and a large field for surgical diagnosis is opened up by this procedure. Spinal percussion is not limited to mere scoliosis and kyphosis, but includes the earlier diagnosis of vertebral and intervertebral disease, of rheumatoid ankylosis and deformity as distinct from merely functional rigidity, and of spinal neoplasms. New fields for diagnosis by the surgeon and by the physician alike are opened up by dorsal percussion in three most important regions inaccessible from the front, namely, the posterior mediastinum, with its glandular, inflammatory, aneurysmal, tracheal, esophageal, and other affections; the mesenteric region, no less vital and no less remote in connection with the varied affections of the central abdominal organs, and the iliac region, which is of special importance in these days of pandemic appendicitis. The value of Grocco's triangular dullness for the diagnosis of empyema *versus* serous effusion, of supradiaphragmatic *versus* infradiaphragmatic fluid collections, is still imperfectly understood, but is of growing practical importance.

In the field of stomach diagnosis a fresh departure is contained in the demonstration that normally the stomach is distantly accessible to examination in the back. Ewart describes a hitherto unrecognized "dorsal gastric nucleus of resonance," a circular area from two to two and a half inches in diameter, situated immediately below the inferior angle of the left scapula. Over this area the percussion note is one of increased resonance and of tympanitic quality, the result of the deep-seated resonance of the stomach, the constancy of position and the circular shape being determined by sound-refraction, the liver acting as a lens for the resonant waves. The clinical value of this sign is concerned chiefly with the diagnosis of the various forms of dilatation of the stomach. The loss of a perfectly circular outline is the first step towards the disappearance of the gastric nucleus, which may be the starting point of progressive encroachments outward of an enlarging area of dorsal gastric resonance. This occurs in the dorsal or backward type of upward dilatation of the stomach, first definitely described by Ewart, who conceives this as the cause of one of the most severe and dangerous forms of heart distress of mechanical gastric origin.

Open-Air Schools.

The experience of European countries has shown the value of open-air schools in the treatment of early tuberculosis, or the pretuberculous state, a fact which is also beginning to be well recognized in America. A very interesting account of the school at Vernay, which is maintained by the city of Lyons, is given by Paul Vigne in *Annales de Médecine et de Chirurgie Infantiles* for July 1 and 15, 1910. It was in 1906 that Grancher pointed out that to cure tuberculosis in children the malady must be diagnosed in its earliest stage and that it is not sufficient to rely on the addition to the general work of the ordinary school of merely an additional meal, but that a more serious and prolonged effort must be made by the municipality because the poverty of the parents makes it impossible for them to procure sufficiently nourishing food for their children. He advocated taking these children from their parents and placing them in the best possible hygienic surroundings, while allowing them to continue their studies. He said that the amount of fresh air and of nourishing food must be doubled and the number of school hours halved. In pursuance of this idea the city of Lyons established a school on the lines suggested by Grancher. It is in a large, well appointed building situated in the midst of a park. It has a hall for play, to be used in bad weather, paved with tiles so that it can be washed and disinfected. There are a spacious dining room, large dormitories, which can be entirely opened to the air at night, a medical director, and all necessary appliances for treatment. It has been open for three seasons and has accommodated about two hundred boys in all. It is open from May to the end of September. The children stay for about two months at a time. In general they are children of tuberculous parents, and in

43 per cent. there were decided signs that the tuberculous process had begun. The day consists of thirteen hours, of which only two and a half are spent in the out-of-door school. Two hours are spent in gardening and several more in recreation. There are five plentiful meals of the best quality and milk warm from the cows owned by the school. All the children show a gain in weight and in many cases physical signs in the lungs recede or disappear. The benefits have been found to justify the expense. The open-air schools in Germany and England for the most part are only day schools, the pupils going home each night. The children received are in the pretuberculous stage only. These day schools are of the greatest benefit to pretuberculous children by way of prophylaxis, but if really tuberculous patients, those with the fully developed disease, were taken it would be necessary to resort to the Vernay system in order to get a permanent cure.

Decline of Vaccination in London.

Statistics relating to hospitals and vaccination in London and to other kindred matters have been published recently. According to the London *Times* of October 15 figures respecting London hospitals show that the total expenditure of these institutions during the year 1908 amounted to rather over $5,000,000; that their total incomes were in excess of this expenditure by nearly $500,000; that they received 118,867 in-patients and had a daily average of 8,759 in residence and that they treated more than one million and a half out-patients. The hospitals of the Metropolitan Asylums Board received 35,967 patients during the year, all of them, of course, suffering from some form of infectious disease. The vaccination statistics of London are most discouraging and afford ample evidence that in the metropolis of Great Britain vaccination is steadily falling into disrepute. The vaccination figures for London are not available for the year 1908, but are given for 1906 and 1907. From a study of these it is obvious that the materials for a severe epidemic of smallpox are being accumulated. Out of 126,475 children born in 1906 only 68.1 per cent. and out of 122,831 children born in 1907 only 65.9 per cent. are known to have been successfully vaccinated; while the "conscientious objections" which amounted to 1.5 per cent. of the births in the former year rose to 3.1 per cent. in the latter. "Moreover," remarks the writer in the *Times*, "these do not nearly account for all the children born, and there must be a large unvaccinated residue, and it is needless to state that such a residue among careless parents is a constant source of danger to the rest of the population. It might be useful to obtain the figures regarding vaccination in New York and compare them with those of London. Now that by universal vaccination in civilized countries smallpox has been robbed of all its terrors disbelief in its efficacy has developed among the unthinking. However, the proofs of the value of vaccination are so abundant even at the present time that an intelligent perusal of the history of what has been accomplished in this line in Porto Rico and the Philippines should convince the most skeptical. Unfortunately, the anti-vaccinationist is not endowed by nature with the ability to study any medical records of vaccination intelligently.

News of the Week.

To Investigate Typhoid Fever at Annapolis.—A board of inspection, consisting of Medical Inspector John M. Edgar, Surgeon Edward G. Parker, Surgeon Charles St. J. Butler, and Passed Assistant Surgeon Owen J. Mink, was appointed by the Secretary of the Navy on December 12 to investigate the epidemic of typhoid fever which occurred recently at the Naval Academy at Annapolis. The department is said to be concerned over the cause of the disease more than over its prevalence at present, as it is believed that no new cases are likely to develop.

Civil Service Examination.—The New York State Civil Service Commission announces examinations, to be held on January 28, 1911, for the purpose of filling vacancies in the positions of Medical Superintendent, Erie County Home and Hospital, at a salary of $2,000, and laboratory assistant in the State Cancer Laboratory, Buffalo, at a salary of $720 to $1,000. The first examination is open only to men who are residents of Erie County. Details, circulars, and application blank may be obtained from the State Civil Service Commission, Albany, N. Y.

Aged Negro Woman.—Dinah Hicks, a negro woman born in slavery, died at her home in New Rochelle, N. Y., on December 12, at the reputed age of 110 years.

Charitable Bequests.—A number of Brooklyn, N. Y., institutions received bequests under the will of the late Mr. George L. Fox of that city, who died on December 5. Among them are the Jewish Hospital, $25,000; Industrial Home for the Blind, $15,000; Brooklyn Home for Consumptives, $10,000; St. Catherine's Hospital, $25,000; the Brooklyn Hospital, $20,000; the Eastern District Hospital, $100,000; St. Mary's Hospital, $25,000; the German Hospital, $25,000; Brooklyn Eastern Hospital Dispensary, 5,000. In addition to these the New York Ophthalmic and Aural Institute receives $10,000, and St. John's Hospital, Long Island City, $20,000.

The will of Morris J. Bluen of New York bequeaths $2,000 each to the National Jewish Hospital for Consumptives at Denver, the Montefiore Home, and the Hospital for Deformities and Joint Diseases, New York.

Tuberculosis Hospitals.—The Boards of Supervisors in the various counties in New York are rapidly establishing hospitals for sufferers from tuberculosis. Fourteen counties already have fairly adequate provision. Ontario County will open its institution for phthisis patients in a few days, while Ulster, Monroe, and Schenectady counties are caring for such patients in temporary hospitals until permanent buildings are completed. Dutchess County cooperates with the city of Poughkeepsie, Albany County sends its patients to the City Hospital Pavilion, and Chemung to the Elmira Hospital. Three counties in addition recently voted to establish hospitals, and in twenty the matter is under consideration.

Hospital for the Bronx.—The Tremont section of the Bronx, New York, is soon to have a new hospital of from 50 to 100 beds. A certificate of incorporation was recently issued to the organizers, a number of New York physicians, who form the Board of Directors. Among them are Drs. Abraham Jacobi, Willy Meyer, Samuel W. Lambert,

H. H. M. Lyle, Wolff Freudenthal, and George W. Jacoby.

American Hospital in India.—Cable dispatches announce the dedication on December 8 of the Ellen Thoburn Cowen Memorial Hospital at Kolar, South India. The hospital, which has been erected and equipped at a cost of about $12,000 by the Woman's Foreign Missionary Society of the Methodist Episcopal Church, is in charge of Dr. Margaret D. Lewis of Chicago.

Damages for Autopsy.—An unusual case, said to be the first of its kind in New York State, was heard before the Supreme Court of Queens County, New York, on December 12, the defendants, two physicians, who are accused of having performed an unauthorized autopsy on the body of a woman who died at St. Joseph's Hospital, Far Rockaway, last February, and of having removed portions of the body after the autopsy. The action was brought by the children of the dead woman, and the jury returned a verdict awarding them damages in the amount of $8,000.

Dr. Edwin B. Cragin has resigned from the position of Consulting Obstetrician to the Sydenham Hospital of this city.

Dr. Louis Plumer Posey has been appointed by Governor Stuart to membership in the Pennsylvania State Board of Medical Examiners in succession to Dr. C. S. Middleton, resigned.

A Memorial Hospital.—Preparations are being made by the residents of Lakewood, N. J., for the erection of a hospital as a memorial to the late Dr. Paul T. Kimball, who died there last month.

Barnard Skin and Cancer Hospital.—The Board of Directors of the Barnard Free Skin and Cancer Hospital (St. Louis Skin and Cancer Hospital, announces the completion of the new hospital building, which was opened for inspection, prior to its occupancy, on December 20.

Cholera in Italy.—That the cholera situation in Italy has not yet been fully controlled is shown by the report from Rome on December 12 of six new cases and three deaths, and again on December 16 of five new cases.

The Gaynor Fund.—The money received in response to the appeal for a Thanksgiving Fund to be presented to St. Mary's Hospital, Hoboken, amounting to $15,184.73, was given to the sisters in charge on December 18. A part of this will be used for the endowment of a bed to be known as the "Gaynor Bed."

Measles in Newburgh.—Two hundred cases of measles in the city are reported by the Health Officer of Newburgh, N. Y. The teachers of both public and private schools have been asked to have all classrooms thoroughly cleaned and fumigated so as to eradicate all possible sources of contagion. The cases are said to be of a particularly mild character.

The American Dermatological Association will hold a brief winter session at the invitation of its New York members on Thursday afternoon, December 29, at the Academy of Medicine in this city. The meeting will be devoted entirely to the exhibition of rare and interesting cases. Before the meeting the New York members will entertain the visiting members at a luncheon at the Yale Club. In the evening many of the visitors will attend and take part in a symposium on leprosy at a stated meeting of the Academy, arranged under the auspices of the Section on Dermatology. The local committee is Dr. S. Pollitzer, Chairman; Dr. John A. Fordyce, and Dr. Howard Fox.

The National Confederation of State Medical Examining and Licensing Boards will hold its twenty-first annual meeting in Chicago, Ill., on Tuesday, February 28, 1911, at the Congress Hotel. The subjects to be taken up at this meeting will be a consideration of the State Control of Medical Colleges; a report by a special committee on Clinical Instruction; a report on a proposed Materia Medica List by a special committee; the report on a paper presented at the St. Louis meeting by Mr. Abraham Flexner of the Carnegie Foundation for the Advancement of Teaching, and some special papers on such subjects as the Regulation of Medical Colleges, Necessity for Establishing a Rational Curriculum for the Medical Degree, and others, by men eminently qualified to prepare papers upon such subjects. The symposium will be composed of ten papers presented from the viewpoints of the State, the law, medical colleges, State medical examining and licensing boards, and the medical profession. The chief object of the symposium is to determine, as far as possible, the feasibility of placing medical colleges under State control. An invitation to this meeting is extended to all members of State Medical Examining and Licensing Boards, teachers in medical schools, colleges, and universities, and all others interested in securing the best results in medical education. The officers of the confederation are: *President*, Dr. J. C. Guernsey, Philadelphia, Pa.; *Secretary-Treasurer*, Dr. George H. Matson, State House, Columbus, Ohio.

Bibb County (Ala.) Medical Society.—At the annual meeting held at Centerville on December 9 the following officers were elected: *President*, Dr. W. B. Buntin; *Vice-President*, Dr. W. J. Nicholson; *Secretary and Treasurer*, Dr. M. B. Williams; *Censor*, Dr. W. M. Peters; *County Health Officer*, Dr. L. E. Peacock; *County Physician*, Dr. S. C. Meigs.

Jefferson County (Ala.) Medical Society.—The annual meeting was held in Birmingham on December 5. Officers were elected as follows: *President*, Dr. James McLester; *Vice-President*, Dr. Mann of Ensley; *Secretary and Treasurer*, Dr. C. E. Dowman; *County Health Officer*, Dr. H. N. Rosser; *County Physician*, Dr. R. H. Hamrick; *Assistant County Physician*, Dr. George Stubbins; *Censar for five years*, Dr. Frank Lupton, reelected.

Morgan County (Ala.) Medical Society.—Election of officers at the annual meeting on December 2 resulted as follows: *President*, Dr. F. B. Hunter, Falkville; *Vice-President*, Dr. M. W. Murray, New Decatur; *Secretary*, Dr. J. L. Gunter; *Censar*, Dr. T. J. Russell, Woodland Mills.

Monterey County (Cal.) Medical Society.—Officers were elected at the annual meeting on December 3, as follows: *President*, Dr. T. C. Edwards; *Vice-President*, Dr. A. M. Ritchie; *Secretary*, Dr. H. T. Crabtree; *Treasurer*, Dr. John Parker.

Bibb County (Ga.) Medical Society.—The following officers were elected at the annual meeting in Macon on December 7: *President*, Dr. G. T. Miller; *Vice-President*, Dr. A. P. Kemp; *Secretary and Treasurer*, Dr. Carl Anderson; *Censors*, Dr. J. W. Duquid and Dr. G. P. Gostin.

Clarke County (Ga.) Medical Society.—At the annual meeting on December 4 the following officers were elected for the ensuing year: *President*,

Dr. D. H. DuPree; *Vice-President,* Dr. S. S. Smith; *Secretary and Treasurer,* Dr. John Gerdine; *Censor for three-year term,* Dr. M. M. Mathews; *Censor for the one-year term,* Dr. A. C. Holliday; *Delegate to the Georgia Medical Association,* which will meet in Rome next year, Dr. H. M. Fullilove; *Alternate,* Dr. J. C. McKinney.

Madison County (Ill.) Medical Society.—Officers were elected at the annual meeting on December 2, as follows: *President,* Dr. W. H. C. Smith, Godfrey; *Vice-President,* Dr. E. C. Ferguson, Edwardsville; *Secretary and Treasurer,* Dr. E. W. Fiegenbaum; *Delegate to Illinois Medical Society,* Dr. J. M. Pfeiffenberger.

Johnson County (Ia.) Medical Society.—At the annual meeting at Iowa City on December 7 the following officers were elected: *President,* Dr. F. L. Love; *Vice-President,* Dr. Jessie Hudson; *Secretary and Treasurer,* Dr. J. J. Lambert.

Shawnee County (Kan.) Medical Society.—The following officers were elected at the annual meeting on December 4 in Topeka: *President,* Dr. M. C. Porter; *Vice-President,* Dr. S. A. Johnson; *Secretary,* Dr. H. M. Connor; *Treasurer,* Dr. J. N. Beasley.

Shreveport (La.) Medical Society.—At the annual meeting on December 6 the following officers were elected: *President,* Dr. Milton F. Smith; *Vice-President,* Dr. J. E. Knighton; *Treasurer,* Dr. J. A. Hendricks; *Secretary,* Dr. A. A. Herold.

Minnesota Valley Medical Society.—The following officers were elected at the annual meeting held on December 6 at Mankato: *President,* Dr. L. A. Fritchie, New Ulm; *Vice-Presidents,* Dr. H. B. Aitken, Le Sueur Center, and Dr. J. J. O'Hara, Janesville; *Secretary,* Dr. A. G. Liedloff, Mankato; *Treasurer,* Dr. G. F. Merritt, St. Peter.

Jackson County (Mo.) Medical Society.—At the annual meeting held in Kansas City on December 6 officers were elected as follows: *President,* Dr. J. D. Griffith; *Vice-President,* Dr. J. Q. Chambers; *Secretary,* Dr. E. L. Stewart; *Treasurer,* Dr. W. F. Kuhn.

Platte County (Mo.) Medical Society.—At the annual meeting held on December 7 at Platte City, the following officers were elected: *President,* Dr. E. R. Hull, Camden Point; *Vice-President,* Dr. J. W. Shultz, Weston; *Secretary,* Dr. A. S. J. Smith, Dearborn; *Treasurer,* Dr. Frank Shafer, Edgerton; *Delegate to State Convention,* Dr. J. J. Carter, Weston.

St. Joseph-Buchanan County (Mo.) Medical Society.—At a meeting held in St. Joseph on December 7 officers for the ensuing year were elected as follows: *President,* Dr. S. F. Kessler; *Vice-Presidents,* Dr. J. I. Byrne and Dr. J. F. Owens; *Treasurer,* Dr. J. M. Bell; *Secretary,* Dr. Herbert Lee; *Delegate to State Convention,* Dr. C. O. Jeffries.

St. Louis (Mo.) Medical Society.—Officers were elected at the meeting on November 25, as follows: *President,* Dr. Robert E. Schleuter; *Secretary,* Dr. Fred C. E. Kuhlmann.

Lancaster County (Neb.) Medical Society.—At the annual meeting at Lincoln on December 3 the following officers were elected: *President,* Dr. J. M. Mayhew; *Vice-President,* Dr. W. M. Cowgill; *Secretary,* Dr. R. R. Adams.

The Seaboard Medical Association of Virginia and North Carolina held its annual convention in Kinston, N. C., on December 7 and 8, officers being elected for the ensuing year as follows: *President,* Dr. Clarence Porter, Newport News, Va.; *Vice-Presidents,* Dr. N. M. Gibbs, New Bern, N. C.; Dr. J. H. Hiden, Pungoteaque, Va.; Dr. H. M. Carson, Edenton, N. C., and Dr. James H. Culpepper, Norfolk, Va.; *Secretary,* Dr. J. R. Parker, Goldsboro, N. C. The next annual meeting of the society will be held at Newport News, Va.

The Late Dr. Brothers.—At a meeting of the New York Obstetrical Society, held December 13, the following resolutions were adopted:

WHEREAS, The New York Obstetrical Society has learned with deep sorrow of the untimely death of our esteemed Fellow, Dr. Abraham Brothers, and, *Whereas,* For many years he has been an earnest and able worker in this Society, giving freely of his best efforts to its scientific interests throughout his fellowship, and, *Whereas,* It is greatly to be regretted that his life work should have been cut off in the fullness of his manhood and at the height of his powers, it is therefore

Resolved, That the New York Obstetrical Society recognizes with profound regret and sorrow the loss of a greatly esteemed fellow, and that the Society begs to extend its sincere sympathy to the sorrowing family in their affliction, and be it further *Resolved,* That these resolutions shall be spread upon the minutes of the Society, and that copies of the same shall be transmitted to his widow and the medical press as a token of our respect and as a reverence to his memory.

Signed: GEORGE GRAY WARD, JR., Chairman; HERMAN J. BOLDT, JAMES N. WEST, *Committee.*

Obituary Notes.—Dr. CARL H. KROEBER of Yonkers, N. Y., a graduate of the College of Physicians and Surgeons, New York, in 1896, visiting physician to St. Joseph's Hospital, Yonkers, and a member of the Jenkins Medical Association, died at the Loomis Sanatorium in Liberty, on December 12, aged 41 years.

Dr. CLARENCE W. ERWIN of Erwinton, S. C., a member of the Medical College of the State of South Carolina, Charleston, in 1880, died at his home on November 24, after a long illness, aged 53 years.

Dr. O. A. HARRISON of Meridian, Miss., a graduate of the University of Louisville, Medical Department, in 1882, a member of the Mississippi State and Lauderdale County Medical Societies, died at his home, on December 3, aged 65 years.

Dr. MONTREVILLE MCHENRY of Benton, Pa., a graduate of the University of Vermont College of Medicine in 1878, died of paralysis following injuries received in an accident several weeks before, on December 3, aged 74 years.

Dr. JOHN S. SHRAWDER of Collegeville, Pa., a graduate of the Jefferson Medical College in 1865, died at his home, on December 7, aged 71 years.

Dr. JERE M. MAIN of Laredo, Tex., a graduate of the Medical Department of New York University in 1859, died at his home, on December 9, of senile debility, aged 94 years. Dr. Main was attached to the flagship *Constitution* at the time when Commodore Perry, commanding the American fleet, first visited Japan.

Dr. JULIEN E. HEQUEMBOURG of Chicago, Ill., a graduate of the Rush Medical College, Chicago, in 1882, attending gynecologist to St. Joseph's Hospital, Chicago, and a member of the American Medical Association, the Illinois State and Cook County Medical societies, the Medico-Legal Society of Chi-

cago, the Chicago Society of Internal Medicine, and the Physicians' Club of Chicago, died at St. Joseph's Hospital of an attack of heart disease immediately after performing an operation, on December 10, aged 54 years.

Dr. Richard L. Cook of Sturgeon Bay, Wis., a graduate of the Medical School of Maine, Portland, in 1860, and a veteran of the Civil War, died suddenly of heart disease on December 2, aged 77 years.

Dr. Walter J. Wait of St. Louis, Mo., a graduate of the Medical Department of Washington University in 1880, died at his home on December 6, aged 70 years.

Dr. Martin J. Thompson of Meridian, Miss., a graduate of the Medical College of Alabama, Mobile, in 1873, and of the Medical Department of the Tulane University of Louisiana in 1889, formerly vice-president of the Mississippi Medical Association and president of the Lauderdale County Medical Association, died at his home on December 5, aged 65 years.

Dr. James F. Dick of Dongola, Ill., a graduate of the Medical Department of the University of Tennessee, Nashville, in 1878, died at his home on December 2, aged 63 years.

Correspondence.

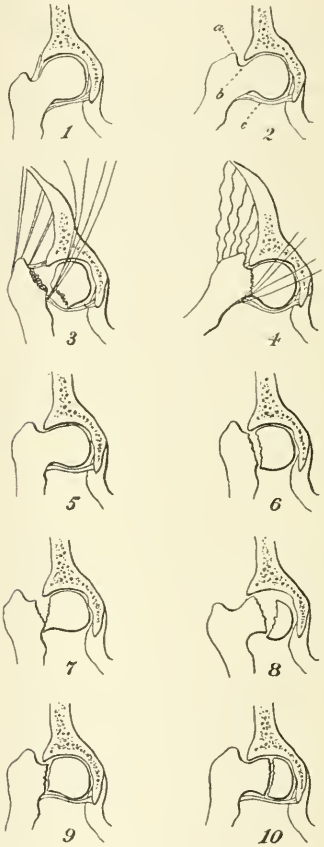
THE ABDUCTION TREATMENT FOR FRACTURE OF THE NECK OF THE FEMUR,

AND ITS INTERPRETATION, IN A PRACTICAL TREATISE ON FRACTURES AND DISLOCATIONS.

To the Editor of the Medical Record:

Sir:—In the Medical Record of March 19, 1904, the Abduction Method, which had been tested for a number of years, was formally presented as a routine treatment for Fracture of the Neck of the Femur. The method is a mechanical adaptation to the anatomy of the joint that enables one to correct deformity and to fix the fragments securely; viz., the normal inclination of the neck of the femur (130 degrees) (Fig. 1) permits a range of abduction at the hip of from 40 to 60 degrees, a movement that is definitely checked by contact of the upper border of the neck with the projecting rim of the acetabulum. During the movement of abduction the head of the femur glides downward until its lower third emerges from the acetabulum and distends the lower part of the capsule. At the limit of normal abduction under anesthesia the base of the neck is in contact with the rim of the acetabulum, the tissues covering the trochanter are apposed to the tissues covering the pelvis and the capsule is tense (Fig. 2).

In complete fracture of the neck of the femur the limb is usually shortened, somewhat flexed, rotated outward and often slightly adducted. Thus the outer fragment is turned forward, displaced upward and usually lies on a lower plane than the head (Fig. 3). As one has no control over the inner fragment, contact can be assured only by adjusting the outer fragment to it. This is accomplished as follows: The patient having been anesthetized is lifted to a sacral support, the shoulders resting on a box of equal height, while the extended limbs are supported by two assistants. The assistant holding the uninjured limb then abducts it to the anatomical limit, to illustrate the normal range, which varies in different individuals, and incidentally to fix the pelvis by direct bony contact. The operator first flexes the thigh to disengage the fragments. The assistant then extends the limb and by manual traction overcomes the shortening, as demonstrated by the relation of the trochanter to Nélaton's line, and by measurement. He then under traction abducts it to the normal limit, the operator meanwhile lifting the thigh from beneath. Inspection should now show absolute correspondence between the extended limbs, as to abduction, rotation, length, and position of the trochanters. In this attitude the injured part is securely fixed by a plaster spica extending from the nipples to the toes.



Diagrams to Illustrate the Text.—1. The normal hip joint. 2. The anatomical checks to abduction: *a*. Impact of the trochanter with the ileum; *b*. Contact of the upper border of the neck and the rim of the acetabulum; *c*. Tension of the capsule. 3. The deformity of complete fracture, showing the influence of the muscles. 4. Reposition by traction and abduction, showing the relaxation and change in direction of the muscles and the security of the position. 5. Coxa vara deformity, showing the direct limitation of abduction by the deformity. 6, 7 and 8. (Epiphyseal fracture.) Varieties of fracture usually classed as impacted. 9 and 10. Correction of deformity by the abduction method.

The advantages of the abduction treatment should be obvious if one understands the mechanism of the joint. (1) In abduction the outer fragment is turned downward and inward toward the inner fragment; (2) in full abduction, under traction, the capsule is made tense, and being attached about each fragment this tension should align them; (3) at the limit of abduction the trochanter is brought into contact with the tissues covering the pelvis, or if the fracture is near the head, the

outer fragment is engaged beneath the rim of the acetabulum, thus providing a direct check against displacement; (4) in full abduction the direction of the muscles is so changed that their contraction can no longer displace the fragments; (5) finally, the attitude of abduction, which is directly opposed to that indicative of deformity and symptomatic of weakness, is the attitude most favorable to restoration of function when the support is removed (Fig. 4).

The Abduction Method of Correcting the Deformity of Impacted Fracture.—The essential deformity of incomplete fracture is a depression of the femoral neck (coxa vara) (Fig. 5), and unless this is corrected disability is inevitable. In most instances the fracture is complete with but slight displacement, and in such cases it may be corrected by the manipulation already described. If, however, it is incomplete, a form most often seen in early life (Fig. 7), it may be easily and safely corrected by the aid of slight leverage, as follows: As normal abduction depends upon the upward inclination of the neck, it must be limited in direct proportion to the lessened or lost angle. Thus, the range of abduction under anesthesia is checked by contact of the neck with the upper border of the acetabulum, a contact that fixes it. Now under steady traction, aided by downward pressure on the projecting trochanter, the limb is still further abducted with the aim of overcoming or lessening the deformity. In other words, the deformed neck lies in a plane representing normal abduction while the shaft is in the median line. The shaft is therefore abducted until the normal relation is restored, at least to the degree that is practicable. When this is accomplished, the outward rotation having been reduced, a plaster spica is immediately applied. This method, in which the only movements permitted are those required to reduce deformity, and in which secure fixation is assured, has no relation whatever to the "breaking up of an impaction," so deplored by the authorities. The deformity in either variety of fracture having been corrected and the limb securely fixed, the first step, in a treatment which to assure functional cure should extend throughout a year, is accomplished.

In the fifth edition of "A Practical Treatise on Fractures and Dislocations," by Dr. L. A. Stimson, the following appears: "Whitman's proposal to abduct the limb under anesthesia until the trochanter rests against the ileum and then to force the abduction, using the trochanter as a fulcrum, so as to restore the normal angle, does not commend itself to me." From the sixth edition of the same treatise I quote further: "The generalization of this hasty, forcible correction by wide abduction has of late been urged, it seems to me, with more zeal than attention to the anatomy of the region and the pathology of the injury. No abduction which is wider than a normal neck will permit can recreate a normal neck. The alleged use of contact between the top of the trochanter and the ileum as a fulcrum for such abduction is fanciful, no dissected hip that I have examined would permit the trochanter to be brought within an inch of such contact while the head remained in its socket."

Comment on the main issue is unnecessary. There are, however, two minor points to which I would call attention. Dr. Stimson states that no dissected hip that he had examined would permit the trochanter to be brought within an inch of such contact. The context is obscure. If the dissected hips were specimens of Coxa Vara the abnormal interval was the inevitable consequence of the deformity and the limitation of abduction consequent upon it (Fig. 5). Furthermore, the trochanter is never used as a fulcrum under this or any other condition. It is this persistent misapprehension that I am attempting to correct. If he refers to the relation of the trochanter to the pelvis in full abduction under normal conditions I shall, in reply, quote from the investigations of Dr. A. S. Taylor on eight cadavers at the College of Physicians and Surgeons with reference to the abduction treatment. (*American Journal of the Medical Sciences*, May, 1905.) "Abduction was limited by (*a*) The inferior ligaments and capsule; (*b*) impact of the posterior part of the trochanter upon the soft tissues just above the acetabulum. Both of these obstructions seem to occur simultaneously. . . . Tension of the inferior capsule and its ligaments during abduction tended to cause spontaneous alignment of the fragments. The influence was more marked as the line of division approached the great trochanter."

I quote further from Dr. Stimson: "The maintenance of abduction which forms a part of the same proposed practice (abduction treatment) is also an imaginary difference, for continuous traction assures and always has assured abduction of the joint by tilting of the pelvis even when the limb is in line with the body."

The purpose of traction, as applied in the treatment of a fracture, is to draw the displaced fragment down to the level of its fellow and to maintain it there by preventing muscular contraction. If traction distorts the pelvis both fragments are drawn down, and in proportion to this distortion the direct effect is lessened. For this reason counter traction, to restrain the tilting of the pelvis, is always necessary if effective traction is required. Furthermore, this incidental abduction, whose advantages were not apparent to the originators of the traction ("extension") method, must be hampered by the long side splint, which, in routine practice, is bound to the body and the limb. I can not admit that this indeterminate degree of abduction obtained by traction in the line of the body, a traction that does not even assure reduction of the shortening, corresponds in the slightest degree with fixation in full abduction on a level pelvis, after the shortening has been reduced under anesthesia. The statement that the difference is imaginary is further evidence that Dr. Stimson does not understand the principles of the abduction treatment.

A final quotation, "The first indication is to save life, the second to get union, the third is to correct or diminish displacements." I suggest that all cases be divided into two classes, those suitable and those unsuitable for the treatment of the fracture as a fracture, the latter to include cases in which the saving of life is the first consideration, and, to limit the argument to the point at issue, all other cases, in which for any cause, real or imaginary, the application of surgical principles seems inadvisable. The remainder of the sentence might then be transposed to read as follows, The first indication is to correct or diminish displacements in order to obtain union and to restore function.

In other words, age and physical weakness should no longer set the standard of treatment nor be permitted to excuse results which are the inevitable consequences of inefficiency and neglect.

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OUR LONDON LETTER.

(From Our Regular Correspondent.)

MEDICAL OFFICER OF EDUCATION BOARD'S REPORT—BELLADONNA IN DYSPEPSIA—AIR-DRIED CANCER CELLS—GASTRIC ULCER—YELLOW FEVER—OBITUARY.

LONDON, December 2, 1910.

THE annual report of the medical officer of the Education Board appeared on Wednesday. It is only the second of the series, but is a more important document than its predecessor, as sufficient time has elapsed to enable some summary to be given of what has been attempted by the local authorities. Indeed, Dr. Newman ventures not only to review the work, but to estimate the merits of the organization. In 314 areas schemes for medical inspection of the school children have been authorized. In more than two-thirds of these districts the medical officer of health has been appointed to the school office. The advantage of this is recognized, but it is admitted that the unification of the two medical services is not always possible or even desirable. Still, intimate co-operation between them is held to be necessary, for school hygiene "cannot be divorced from home hygiene on the one hand or from the health conditions of the community generally on the other." In respect to the connection between home and school the "care committees" formed in many places are cordially commended as an almost essential part of the organization. Voluntary service is recognized as quite as important as that of paid workers; accordingly, a pretty full summary of the duties of such "care committees" is embodied in the report.

The question of establishing school clinics, to which I have at times referred as under discussion, could not be ignored, and although a decided part is not taken the report seems to incline in favor of them. In London the hospital part of the county council's scheme is said not to have yet had a fair trial, and so no judgment is pronounced.

The extent to which physical defects have been revealed by inspection has created surprise in many quarters and excited public discussion, and the report gives some figures. Among the six million children in the elementary public schools of England and Wales about 10 per cent. suffer from serious defects of vision, from 3 to 5 per cent. from defective hearing, 1 to 3 per cent. have suppurating ears, 8 per cent. have adenoids or enlarged tonsils, requiring surgical treatment, 20 to 30 per cent. require dental treatment, 40 per cent. have unclean heads, 1 per cent. have ringworms, 1 per cent. are tuberculous, ½ to 2 per cent. have heart disease.

The unthinking part of the public express astonishment at the existence of this mass of disease, and cry out that something must be done—in some instances that something is suggested and is usually impracticable. Inspection, of course, shows the prevalence of disease in children, and the medical inspector who sees naturally would like to treat the cases. But it by no means follows that all these children are neglected. The pressure of an excessive supply of medical practitioners in almost every district, as well as the existence of numerous hospitals, should rather suggest that they are mostly under treatment. Those enamored of state interference in every direction are calling out for another set of official doctors to take charge of the children. They forget, or do not care, that to take all these cases away would spell ruin to a number of local practitioners who are thoroughly qualified to deal with them, and in whom the parents have every confidence. No doubt there are cases of neglect, but they are rare, and it would be better to compel such parents to do their duty than to encourage them in their evil ways and teaching them that the state will make good the results of their criminal negligence. To the profession as a body this question is of the greatest importance, but its leading members display little sympathy for their less prosperous brethren.

I suppose most practitioners have at some time or other tried the addition of an anodyne to mixtures directed to the relief of obstinate dyspepsia. Hyoscymus and belladonna are perhaps the most commonly used for this purpose. A paper on the value of the latter, read in the medical section (R. S. M.) by Drs. Craven Moore and L. Kilroe, is therefore calculated to attract attention. They found clinically that certain cases were relieved, and so they proceeded with a systematic investigation into the action of belladonna on the functional activity of the stomach. Their results confirmed and even amplified Riggel's earlier observations, which showed that the drug decidedly diminished secretion. Whether given with or shortly before a test meal a diminution of both acid and peptic values was observed. This was more marked in cases of hypersecretion, but still obtained in the opposite condition. The effect on the volume of the stomach contents was slight and variable.

So far the drug seemed to have little influence over the emptying of the stomach, but radiographic observations led to a belief that it had an influence in inhibiting and relieving spasmodic contractions.

Several speakers said their clinical experience was explained and confirmed by the author's investigations. One suggested that some variations in the results might be due to differences in the amount of the drug absorbed in different conditions. In duodenal ulcer it was said that when spasm was present so also was dilatation of the stomach. The president (Dr. Bruce) asked if the relief was permanent or did patients come to depend on the drug. Dr. Moore replied that the effect was not permanent any more than with other drugs, but it kept the local condition within normal limits and so overcame the tendency towards a vicious circle. Dr. Kilroe added that in some cases of spasm associated with hyperacidity definite relief had been obtained. Moreover, in a few cases of cancer marked relief had followed the use of belladonna.

Experiments at the Imperial Cancer Research Laboratories confirm Jensen's statement that the simple drying of cancer pulp in the air at body temperature is lethal to the cells. Messrs. Shattock and Dudgeon have reported to this effect to the Pathological Section of the Royal. We have very little evidence that cancer is ever air borne, and the experiments seem to indicate that the fatal effect of drying is the reason, for in the undried condition the vitality of the cells is remarkable. Mouse cancer cells suspended in salt solution were sprayed into the mouths of mice more than once without effect. The authors and others experimented with air-dried cancer by subcutaneous injection, and found this set up no immunity to subsequent grafting of undried growth. Nor did such injection have any effect on the growth of a graft which had previously been made. Equally inert was a centrifugalized extract, or, rather, the use of extract as a prophylactic served to accelerate the appearance of the growth instead of retarding it, as if a hypersensitiveness had been induced.

At the same meeting Dr. C. Bolton related some experiments made to determined the effect of diet on acute gastric ulcer set up by injecting gastrotoxic serum. He confirmed the view that gastric juice played a part in producing ulceration, as he found the longer its contact with the stomach wall the more rapidly could ulceration be produced. The epithelium would grow more rapidly over the base of the ulcer when the animal was kept on a milk than on a meat diet. On the twentieth day of milk diet the ulcer would often be covered, but on a meat diet this would not be the case. From this he deduced that the best treatment in the human subject was rest in bed with food that would not remain long in the stomach and the control of hyperacidity.

At the Tropical Society Sir Robert Boyce reported the results of his fourth expedition to inquire into yellow fever. It was undertaken for the colonial office and occupied June, July and August in examining the gold coast and Sierra Leone. He soon satisfied himself that the *Stegomyia calopus* was the commonest mosquito in West Africa. The history of epidemics and sporadic cases, and the absence of any destruction of infected stegomyia in the past accounted for the disease having been endemic on the coast. The reluctance to diagnose it had generally existed and continued to this day, so that some had supposed it only attacked new arrivals, while others were so fearful of exciting a panic that they made light of it, and some went so far as to justify a denial of its presence. Until the dreaded black vomit appeared experienced physicians hesitated to announce it, and meantime it had spread. Consequently, yellow fever masqueraded under a number of euphemisms, such as inflammatory fever, bilious remittent, or intermittent fever. In all the outbreaks he had investigated he had encountered these obstacles to diagnosis and notification, although writers on the disease had drawn attention to the matter. Carrol had said that the disease might be so mild that the most experienced would hesitate to diagnose it unless it happened to be prevalent at the time. Sir Robert seemed to agree with this, and he asserted that yellow fever was endemic in West Africa, where it was common in all its varieties. Consequently there was only one remedy—destruction of stegomyia. A marked improvement in the health and prosperity of the coast would follow such destruction.

Dr. T. N. Brushfield, formerly superintendent of Chester and Brookwood asylums, died yesterday, aged 80. He was a London Hospital student, took M. R. C. S. in 1850 and M. D. St. And., 1862. He was a fellow of several societies.

Dr. C. C. Forrester, M. B., C. M., Edin., died on the 28th of November. He was adviser of the University of the Interior in Egypt.

The deaths have also occurred of D. W. Marston Clark, M. O. H. for 26 years of Quickenham, aged 53, and Dr. Hugh Norris, a retired Somerset surgeon, aged 89. He was at one time president of the Royal Medical Society of Edinburgh, and corresponding member of the Paris Medical Society.

Fatal Chorea; Meningoencephalitis.—J. Lépine, A. Giraud, and J. Rebattu report the case of a female patient forty-nine years of age in whom a diffuse meningoencephalomyelitis manifested itself by means of a choreiform syndrome, and terminated fatally with septicemic symptoms. The lesions were revealed at autopsy. This case presented characteristics similar to those of cases of fatal chorea that have been reported.—*Revue de Médecine.*

OUR BERLIN LETTER.

(From Our Regular Correspondent.)

CENTENNIAL OF BERLIN UNIVERSITY—ITS HISTORY—ENDOWMENTS FOR RESEARCH—PROMOTIONS TO DOCTORATE—THE LATE PROFESSOR VON LEYDEN.

BERLIN, November 15, 1910.

It is impossible to render a good report of medical life at Berlin without referring to the centennial anniversary of the University of Berlin, even though the medical faculty took but little part in the celebration. We have already described the jubilee of certain medical institutions early in the year. Nevertheless the celebration of the literary divisions of the University deserves at least a short notice. Like a mother in behalf of her children, she displays the same interest toward all branches of knowledge. The festivities began October 10, with a commemorative service. The great multitude did not take part in this ceremony, but on the evening of this day the entire city of Berlin was transformed into a festive city. Several thousands of students, males and females, formed a torchlight procession such as is rarely seen in this locality. It moved from the suburbs toward the University, while from thousands of throats the *"gaudeamus igitur"* of the ancient college song echoed throughout the city, and injected a truly ideal note into the noisy life of the never-resting city. In the new hall of the University, the former library, on the following day, there was given a festival play in the presence of the Kaiser and Kaiserin. This was made memorable by the speech of the rector, and the convocation of so many illustrious delegates from the republics of learning of all nations, and more so by the speech of the Kaiser. The rector began by recalling the two Humboldt brothers, whose monuments stand in front of the University, who represented ideally at the very foundation of the University the two great divisions of philosophic and natural sciences. He spoke of the distinguished teachers, Fichte, Schleiermacher, and Hegel, and of our own Liebig and Johannes Müller. He referred to the manner in which these latter laid the foundations of modern chemistry and medicine, not to forget the labors of the physicist Helmholtz. The present time demands a wider revelation of the University's treasures than formerly, nevertheless one must never forget that the foundations are not sunk upon a narrow level.

The Kaiser's speech culminated in the announcement that, according to the original plan of Wilhelm von Humboldt, the extension of the University in the establishment of institutions for scientific research would now be realized. With this end in view, a society has been organized under the presidency of the Kaiser, with the object of raising funds for this purpose. The first gifts that the Kaiser would hand over to science would amount to nearly ten million marks. This sum comes chiefly from commerce and industry, and is contributed substantially for research in natural science and in medicine. It is understood that there is next contemplated the establishment of a research institute for physical and for general chemistry; later an institute for the study of radium and the problems of immunity. A banquet in the evening closed the day's festivities. The following morning another celebration was held in the hall of the University, at which the Professor of History gave a lengthy lecture on the history of the

University. In 1810 the number of teachers was 52, and of students 256. To-day the teaching corps consists of 508 members, while there are 226 *privat docents,* 8,000 students, and 14,000 auditors. In the first decades the property of the University amounted to 300,000 marks; now it totals 5,000,000 marks. While formerly all branches of the University were sheltered under its roof, with the exception of the medical and surgical clinic, which had twelve beds in a lodging house, to-day not even the collective psychological sciences alone can find sufficient room within its walls.

Following this lecture there was an unusually large number of promotions to the doctorate, *honoris causa.* Particular applause greeted three promotions of the medical faculty, the poet Wilhelm Raabe, the painter Hans Thoma, and the composer Max Reger. The dean of the medical faculty, Professor Bumm, announced that these men had accomplished great services in medicine, for nothing so cheers and exhilarates the sick as genuine art.

A garden party in the afternoon with historic costumes and tableaux and an immense *commers* in the evening concluded the festivities.

Early this month there died a Berlin clinician who for decades has been regarded as the leading physician of Germany, Ernest Leyden. Throughout almost his entire life he occupied a prominent position. Without Leyden's familiar personality the medical life of Berlin is hardly conceivable. It was his fate to have sustained an accident that after many long months terminated in death. The living figure of the deceased was conjured up once more by those who took part in the memorial service, to which the Society of Internal Medicine had invited them at the Medical Clinic. Leyden had founded the society and had always presided over it. The eulogy was delivered by F. Kraus. "Work, service, and gentleness," began the speaker, "constitute the formula that sums up the life and influence of Leyden." After describing his life the orator referred to the deceased as clinician and investigator. Leyden was no specialist. His investigations embraced every branch of medicine. Imperishable were his services in the sanatorium movement, and his provision for those afflicted with cancer. If he had not attained any true success in this direction at any rate it must be admitted that the not distant future will show how full of blessings his work in this domain happened to be. The following day witnessed a similar celebration at the scene of Leyden's service of many years, the First Medical Clinic. The memorial address was delivered by Leyden's successor, Professor His.

Progress of Medical Science.

Boston Medical and Surgical Journal.

December 8, 1910.

What Medical Societies Can Do for the Health of the People. J. Ritchie.

Experiments on Transmission of Bacteria by Flies with Special Relation to an Epidemic of Bacillary Dysentery at the Worcester State Hospital, Massachusetts, 1910. S. T. Orton and W. L. Dodd.

Report of a Study of Brown Séquard's Epilepsy in the Guinea Pig. A. E. Taft.

An Extrauterine Pregnancy at Full Term. C. H. Hare.

Medical Societies and the Public Health.—J. Ritchie states that medical societies, representing the best thought in the medical work of a great city, can speak with a voice that cannot fail to be heard or ignored. They can have a decided power in suggesting and influencing appropriate legislation. The following subjects are mentioned in which medical societies can advantageously proclaim their attitude: the questions of tuberculous cattle, the city milk supply, pasteurization, the notification of infectious diseases, the contagious character of poliomyelitis, disinfection, the typhoidal oyster and the typhoid fly, vaccination, animal experimentation, the abolition of the public drinking cup, the hygiene of sex, and the relation of medical men to the public press. In regard to the last, it is possible that the essential matters of consequence in medical discovery may be given to the people in an interesting and trustworthy manner.

Bacterial Transmission by Flies.—S. T. Orton and W. L. Dodd investigated an epidemic of bacillary dysentery at the Worcester State Hospital occurring in July and August, 1910, with the object of ascertaining, first, the causative organism; second, the method of transmission from case to case; and, third, prophylactic measures against such transmission. They came to the following conclusions: An organism conforming to the Shiga type of *B. dysenteriæ* was recovered from 10 out of 15 cases examined. *B. prodigiosus* planted in the laundry was recovered from flies caught in traps in the scullery and five screened ward dining rooms at an interval of from two to six days after the original plant. It proves impracticable in most insane hospitals to keep the flies from access to fecal matter and from food when they are present outside in large numbers and, therefore, the best prophylaxis against fly-borne epidemics is in cleaning up the breeding places of the fly, to reduce its numbers or eradicate it. The typhoid fly—*Musca domestica*—breeds in tremendous numbers in decaying vegetable waste of varying sorts, and a search for maggot-infested places with subsequent attention thereto offers the best line of attack. The house fly's egg to adult cycle is ten days, so that vegetable waste should be cared for at least once a week during fly season. Horse manure may be treated by chemical means, but it is probable that, if it is kept dry and in the dark, but little breeding will take place. Mixing with many times its bulk of cow manure may prove effective. When possible, all waste material should be plowed into the land without accumulating. Spreading over the land will probably suffice to reduce the pest markedly. In hospitals surrounded by considerable ground it is probable that the great majority of the flies are home grown, and the extermination of their breeding places is an object which cannot be overlooked.

Brown-Séquard's Epilepsy in the Guinea Pig.—A. E. Taft found that lesions occurring in the cord or principal nerve trunks of guinea pigs produce a tendency to convulsions resembling epilepsy. The attacks, however, have not been proved spontaneous, but may be elicited by irritation of a specific zone of skin on the side of the face and neck corresponding to the injured nerve. The scratch reflex, the first manifestation of the nervous lesion, developed at the end of a period averaging eighteen days after the division of the nerve. The complete convulsion appeared on an average of one month and nine days following the injury to the nerve and eighteen days after the development of the scratch reflex. Age proved not to be an absolute factor in relation to the time of development of the convulsions. The zone of irritation varies in extent. The sensitive area is at first limited to the skin over the side of the face. This extends progressively with the further development of the convulsive tendency to include the shoulder and often some distance beyond the border of the scapula. The degree of sensitiveness varies in individual cases. Sometimes merely touching the hair will produce an attack, while in others definite molding of the skin is required. Trophic changes occur in the zone of irritation, manifested often by falling of the hair, leaving the skin exposed; or it may be the hair becomes brit-

tle and breaks off, thus causing a roughening of the coat. In extreme cases the skin may ulcerate. As a rule parasites accumulate over the area and there is some anesthesia. The convulsion follows irritation of the sensitive zone and is preceded by the scratch reflex. Following this, the animal falls on its back with eyes closed, insensible, and all its muscles in a state of tonic, followed by clonic, convulsion. The attack is usually brief, but may be spontaneously repeated several times. For some time following the return of consciousness the animal is somewhat stupid and dazed. The effect of convulsions was productive of a marked loss of flesh, and this bore no relation to the quantity or quality of food given. Lessened reproduction was also universal, and in almost every instance of birth of young they were not alive or died immediately after birth. This was proved not to be due directly to the division of the nerve, for by limiting attacks to not more than one each week, perfectly normal offspring were born. This would seem to show a marked disturbance in metabolism due to frequent convulsions. The study of 128 offspring of epileptic animals to observe the transmission of epilepsy, reported by Brown-Séquard to have been seen in his series, was absolutely negative. Four young were very weak at birth and died on the second day, but showed no other symptoms. The fact that convulsions in the offspring of epileptic animals always, in Brown-Séquard's experience, existed with a lack of toes, makes it seem possible that there may have been some prenatal injury which would produce the same effect as a division of the nerve. The thirteen young of the second and third generations were also negative.

Extrauterine Pregnancy at Full Term.—C. H. Hare reports a case of this condition in which he had made a diagnosis of abdominal pregnancy at full term with death of the child. Upon operation a dead baby, weighing four and three-fourths pounds, was removed. The patient made an ideal recovery. The author quotes the conclusions of Peterson recently published in regard to extrauterine pregnancy as follows: Whenever conditions permit, operation for the removal of the gestation sac is indicated in the first half of an extrauterine pregnancy since at this period the mother is in great danger from rupture and sepsis and the chances for the removal of the fetus are very poor. During the latter part of an extrauterine pregnancy the chances of rupture and fatal hemorrhage are very much less (4.8 per cent.), and the chances of survival of the fetus are very much greater. While malnutrition and malformation of the extrauterine child are more common than with the fetus under normal conditions, they are not frequent enough to contraindicate attempts at saving its life. Hence, under favorable surroundings, when the patient can be watched, she should be allowed to go within two or three weeks of term before operation. Since the maternal mortality is more than twice as great after operations in advanced extrauterine pregnancy where the placenta is left behind, its removal should be one of the cardinal principles of each operation. In the "discoid" variety of placenta, where only a small surface of this organ is not attached the blood supply must be controlled, either by tying the vessels or by compression of the aorta before an attempt be made to remove the placenta. When, for any reason, removal of the latter is impossible, the sac should be stitched to the parietal peritoneum and the placenta shut off from the peritoneal cavity by gauze. Dependent drainage through the vagina should be secured whenever possible.

New York Medical Journal.

December 10, 1910.

606 or Dioxydiamidoarsenobenzol. E. G. Ballenger.
Hospital Day Address. C. W. Burr.
Some Remarks on the Differential Diagnosis of Typhoid Fever P. H. Markley.
The Present Status of the Psychoneuroses and of Psychotherapy. E. E. Mayer.
Acute Primary Polymyositis, with Report of a Case. C. F. Clowe.
Our Experience with Vaccine Therapy in Acute Infections. E. Martin.
Some Surgical Consideration of Nonmalignant Ovaries. R. F. Ward.
Report of a Case of Pelvic Peritonitis Complicated by Postoperative Hysteria. J. D. Whitall.
A Case of Hepatic Syphilis. M. Goldsmith.

Ehrlich-Hata Preparation.—E. G. Ballenger gives an account of his visit to Dr. Wechselmann's clinic in the Rudolph Virchow Hospital, in which 500 of the 2,000 beds are devoted to skin and venereal diseases. He admits that the results of the use of this remedy are marvelous and have exceeded all reasonable expectations. The more active the lesions and the more malignant the disease the better seem the results or, at least, the more apparent and startling. From a clinical study of the results and from a careful review of the reports upon this remedy the author feels justified in stating that it is the most wonderful therapeutic discovery the medical profession has ever made. In something like 13,000 patients treated with 606 there have been about twelve deaths in adults. Only one or two of these, however, were apparently due to the remedy itself, but most of them showed serious organic lesions or were already in a moribund condition, and should not have received the treatment. A few deaths have been caused by imperfections in the technique that have already been overcome. The mortality was rather high at first in luetic infants until the danger was more fully realized and the dosage reduced or preliminary treatment given. It has been reported that 606 applied locally to chancres promotes prompt healing when this does not follow quickly the injection. Nervous diseases which occur late as parasyphilitic affections and are not due to such lesions as gummata are apparently not benefited by 606. Beginning locomotor ataxia and beginning syphilitic insanity may be checked or cured by this remedy, but so far the results are not conclusive and one must wait for further trials before formulating a rule. If destruction of the nervous system has occurred it would be foolish to expect such lesions to be repaired by any remedy.

Hospital Day Address.—C. W. Burr states that one cause of failure with recent graduate nurses is forgetfulness of the human aspect of their work and an undue magnification of technique and scientific matters. Another cause of failure is lack of tact which in itself depends upon ignorance of human nature plus a contempt for such knowledge and forgetfulness of the fact that on it depends ability to manage people.

Differential Diagnosis of Typhoid Fever.—P. H. Markley states that examples of irregular typhoid are constantly encountered and present difficulties in diagnosis which, clinically at least, may be insurmountable, and in not a few instances defy even the bacteriologists, and are solved only by the autopsy. Typhoid fever is, perhaps, more often confounded with tuberculosis than with any other disease, especially with acute miliary tuberculous peritonitis, and with those cases of profound toxemia sometimes seen in cases of pulmonary tuberculosis. Of these the acute miliary is undoubtedly the most confusing. The Widal test, while not pathognomonic, is entitled to very great respect, being positive in about ninety per cent. of typhoid cases. The diazo reaction is of but little value in differentiating typhoid fever, being present in so many febrile conditions. Other bacteriological methods, such as the detection of bacilli in the blood, stools, urine, etc., are not available by the average practitioner, as the detection of the typhoid bacillus requires the careful technique of a skilled bacteriologist. Nor is the leucocyte count of value in differentiating typhoid fever from tuberculosis, as leucocytosis is not present in either disease; a differential count, however, may be of some value, as in typhoid there is an increase of the lymphocytes, constituting a relative lymphocytosis which is not present in tuberculosis.

Psychoneuroses and Psychotherapy.—E. E. Mayer discusses the inexactitude of terms and definitions, the nature of neurasthenia and of hysteria, the hysteria theory of Freud, the psychic epidemic among physicians due to the pernicious use of Freud's method of psychoanalysis, the theories of hysteria formulated by Babinsky and Janet, the relationship between psychoses and psychoneuroses, psychoanalysis, and simplified psychotherapy.

Acute Primary Polymyositis.—C. F. Clowe reports a case of this condition. Three distinct varieties of the disease have been described: 1. Simple acute myositis. Onset is with lassitude and mild constitutional disturbances, pain, and tenderness in certain groups of muscles. Patients either improve after a few days or the type lapses into one of the other varieties. 2. Acute infectious. Great lassitude and marked pain. Constitutional disturbances are severe. Affected muscles are prominent, very tender, woody, hard, or doughy to the feel, and sensitive. Patient takes position to relax the affected parts. When suppuration begins high fever, cutaneous eruption, and severe symptoms are present. Usually ends with diarrhea. 3. Primary subacute infectious. Prodromes are long, lasting from three to five weeks, pain, lassitude, slight fever, nausea, headache, and weakness, then chills, some fever, edema of face and extremities, pain, and redness, macular eruptions on the face and extremities, gastric disturbances, patient grows rigid and helpless; reactions and reflexes are much lessened or almost disappear, constipation marked, thirst, etc., occur. Form two lasts from five to twenty days, and most patients die. If they recover they do so in three or four months. In form one the patients as a rule recover unless they lapse into form two. Form three lasts from three to four months and few patients recover. If they do it is a matter of many months or of years before recovery is complete. Differential diagnosis must be made from rheumatism, typhoid, suppurative arthritis, trichinosis, multiple neuritis, and osteomyelitis. It is almost often and likely mistaken for multiple neuritis and trichinosis.

Vaccine Therapy in Acute Infections.—E. Martin reaches the following conclusions: 1. The opsonic index, as a guide to treatment, is not an essential element if the clinical symptoms be carefully observed and the dose regulated accordingly. 2. Acute infections, such as acne, furuncles, and subcutaneous abscesses, show brilliant and uniform results. 3. The best results are obtained when the dose is slowly increased through successive inoculations. 4. Autogenous vaccines are not essential in the treatment of staphylococcus processes. 5. The duration of infections is perceptibly shortened by the use of vaccines.

Nonmalignant Ovaries.—R. F. Ward states that sufferers from the different nonmalignant forms of ovarian inflammation and degeneration constitute one of the most satisfactory classes of patients upon whom the surgeon is called to operate, provided the greatest care and discretion are exercised in selecting the cases which really require operation, doing only that which is necessary, and always endeavoring to save as much ovarian tissue as is compatible with complete amelioration of the symptoms for which the operation was undertaken.

Pelvic Peritonitis and Hysteria.—J. D. Whitall, using his case as a text, makes a plea for the more thorough attention to the after-treatment of cases of pelvic peritonitis.

Hepatic Syphilis.—M. Goldsmith reports a case of this condition which does not correspond with any of the clinical types described, resembling hypertrophic cirrhosis more than any of the others.

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Use of Typhoid Vaccines in Typhoid Fever. J. M. Anders.
Fundamental Principle Underlying the Treatment of Wounds on the Body Surface. C. E. Tennant.
Some Effects of Bright Light on the Eyes. J. H. Parsons.
Physiological Action, Uses and Abuses of Alcohol in the Circulatory Disturbances of the Acute Infections. J. L. Miller.
Magnesium Poisoning. The Study of Ten Cases. W. F. Boos.
Different Forms of Mediastinal Pleurisy, with Report of Three Cases. A. Frick.
Traumatic Rupture of Fixed Portion of Male Urethra. O. J. Gauh.
The New Treatment of Syphilis. Ehrlich-Hata. Observations and Results. H. L. Elsner.
The Cultivation of the Tissues of the Chick Embryo Outside the Body. M. T. Burrows.
The Renal Activity in Pregnant and Puerperal Women as Revealed by the Phenosulphonephthalein Tests. F. C. Goldsborough and F. C. Ainley.
Obstruction of Bowel—Dietl's Crisis. R. Brown.
Extracerebellar Tumor. E. L. Moorhead.

Typhoid Vaccines.—J. M. Anders states that in serious cases of typhoid, when the system is overwhelmed with the toxins, the vaccine treatment may be a source of fresh danger and aggravate the symptoms. Typhoid is an acute bacteremia plus toxemia, often fulminating in character, and not a localized infection. Hence brilliant results from vaccine treatment can hardly be looked for. It is doubtful whether it is safe to use typhoid vaccines in severe cases. It is in chronic infections, in which the specific organism is walled off from the general circulation with slow absorptions of toxins into the blood, that vaccine therapy is most useful. In eight cases the author used small doses, 25,000,000 in the beginning and subsequent ones of 50,000,000 each, repeated as a rule at intervals of seventy-five hours. His observations do not show that small doses stimulated phagocytosis very much, but he thinks the effects of the vaccines on the leucocyte count should be carefully investigated. If, however, the process of immunization is dependent chiefly on phagocytosis, and it can be shown that the bone marrow can be thus stimulated, then vaccine therapy is advisable. The routine use of vaccines is not to be encouraged, but an antiendotoxic serum would, by neutralizing the endotoxin, be an ideal treatment. The author concludes that vaccines are of value as a means of prophylaxis: in suitable cases when continued during convalescence, to prevent relapses; to combat local infections with the typhoid bacillus, as, for example, bone suppurations which arise in the period of convalescence; and for the removal of the typhoid bacilli from the feces and urine in the case of typhoid-carriers.

Surface Wounds.—C. E. Tennant states that when infection is definitely present free incision and copious wet dressings which will raise the polymorphonuclear blood-content are advised to overwhelm the invading organism, and the simplest and safest solution to moisten the dressing is the hot sterile physiologic salt solution. Other safe solutions are equal parts of alcohol and saturated boracic-acid solution, which also stimulate the tissues to an active local hyperemia, or Thiersch's solution. Unless the dressings are large enough to retain moisture and heat for long periods of time they are worse than useless. They should be changed once in from twelve to twenty-four hours, according to the amount of discharge, but the solutions should be used as often as necessary, and a change from one to another solution is often of great advantage, especially if the alcohol solution has been used first. Where infection has not occurred and is not expected it is better to keep dressings from contact with the wound, especially if it is extensive and moist. It has long been known that burns and traumas of the face where dressings are not applied heal with little inconvenience and scar, and the same principle applied elsewhere is equally effective. It is difficult, however, to effect this, and surgeons have invented almost as many appliances as they number themselves. The author describes two methods which he has been using for a number of years with great satisfaction. One is the use of a sheet of light aluminum as a base on which is fastened a cage made of poultry wire of any size of mesh desired. This he has found of special use in extensive burns of the extremities. The other method is the use of copper or aluminum-coated fly screen cut to the desired size, bound with adhesive tape, and set on strips of adhesive felt sheet-

ing which have been first cut, fashioned, and attached to the skin about the outer margin of the wound. This is fastened by adhesive straps and covered by gauze dressing and bandaged, nothing directly touching the wound.

Effects of Bright Light.—J. H. Parsons directs attention to the effects of excessive light in the production of such conditions as snow blindness, ophthalmia electrica, and glass-worker's cataract. He gives the results of experiments which show that the lens has a very powerful capacity for absorbing ultraviolet rays, which is easily demonstrated by the strong fluorescence which occurs when these rays fall on it. There is no doubt about the absorption of those rays between 300 and 350 microns in length, and it is, therefore, not illogical to assume that these rays may produce pathologic changes in the eye. The pathologic changes in the lens in which bright light may be a prominent factor in glass-worker's cataract are mentioned. These are attributed by Schanz and Stockhausen to the ultraviolet rays, but Parsons is not satisfied that this is absolutely so. It is difficult to devise conclusive experiments for the elucidation of a problem in which the causal agent acts slowly over a very long period, and, until further experiments have been made to eliminate the heat factor, it would be unwise to make any dogmatic statement as to the true cause of glass-worker's cataract. The effects of light containing violet rays on the conjunctiva are also noticed, as shown in snow blindness, electric ophthalmia, and sunburn. Red vision, which is often a troublesome symptom after exposure to bright light, has also been attributed to the ultraviolet rays, but the author thinks we cannot consider them solely responsible. The protective measures which have been devised are noted and heavy flint glass is stated to meet most requirements, as far as impenetrability to ultraviolet rays is concerned, but its weight renders it unsuitable for spectacle glasses. He believes, however, that it will be easy to solve the problem of protective measures. Much still remains to be done in the direction of determining with greater accuracy the physiologic and pathologic potency of the ultraviolet rays.

Alcohol in Acute Infections.—J. L. Miller concludes that impairment of the vascular regulating mechanism is more apparent than active disturbance of the heart in the circulatory derangements of the acute infections. Treatment should therefore be directed to the prevention or correction of these vasomotor disturbances, and, while alcohol in small doses sometimes acts as a cardiovascular stimulant, its mode of action is not quite clear. In larger amounts, in individuals not accustomed to its use, it invariably acts as a depressant, paralyzing the vasomotor center. The borderline between doses that act as a stimulant and those which act as a depressant is very uncertain. Some investigators have been unable to detect a rise in blood-pressure, even with very moderate doses, and this uncertainty renders it an undesirable therapeutic agent. Even in small doses it may and in large doses it always depresses the circulation, and other drugs more constant in their action are advisable and less likely to affect the patient unfavorably.

Magnesium Poisoning.—W. F. Boos concludes that magnesium sulphate, in bulk or in concentrated solution, is absorbed, in part at least, from the gastrointestinal tract into the blood, and if a sufficient amount is absorbed at a time poisoning will result. Of the ten cases he has collected, six resulted fatally, and the symptoms and autopsy findings corresponded very well with those obtained in animals after intravenous injection of the salt. The slowness of its excretion renders its repeated dosage in concentrated solution risky on account of possibility of poisoning by cumulation. Under normal conditions and in proper dilution Epsom salts is a valuable cathartic, but it is not wise to give it indiscriminately in cases of possible obstruction of the bowel on account of the above-mentioned danger. Its subcutaneous use is not only irrational but dangerous. The symptoms of poisoning, as noted in the ten cases, are largely those of paralysis and irritation of the bowel, diminution of the urine and, in the majority, a marked paralyzing effect on the respiration. It has also an effect on the reflex centers of the cord and on the sensibility as shown by Meltzer. Boos questions Meltzer's recommendation of the subcutaneous use of magnesium sulphate, and says that it should be employed, if ever, only with the greatest care. In cases of suspected magnesium poisoning large quantities of normal salt solution should be given intravenously, and Meltzer's experiments on animals suggest the possible value of the subcutaneous use of lime salts in dilute solution.

Mediastinal Pleurisy.—A. Frick presents this paper, which was reported in MEDICAL RECORD, Vol. 77, page 1,074.

Rupture of Male Urethra.—O. J. Gaub describes the anatomic mechanism of rupture of the fixed portion of the male urethra, and describes the methods of its treatment. He points out that it is an injury of serious import and should receive prompt attention when it occurs. If the condition of the patient permits immediate operation, the call to restore the natural passage is imperative. This can be done at any point of the urethra through a median perineal incision. The question of shock should be considered as a primary measure, and leakage of the urine in the early hours is not to be feared. Proper drainage should be instituted to prevent infection. The author lays special stress on the position of the patient during operation. The exaggerated dorsal position is advised, using the old Clover's crutch, supplemented by a sand bag under the sacrum, which flexes the pelvis on the vertebral column so as to bring the perineum in the horizontal plane and render the structures taut, permitting an anatomic dissection.

Arsenobenzol in Syphilis.—H. L. Elsner concludes as follows: The treponema is positively destroyed and the living contagion of syphilis removed by 606. It promptly and favorably affects visible and palpable syphilitic lesions, staying the destructive and onward march of ulcerations and causing rapid healing. It also removes deep-seated gummata. It is more rapid in its effects on specific disease and is likely to prove more valuable in the treatment of internal syphilitic disorders than any other known remedy. It cannot replace cicatricial tissue. Neither does it affect favorably chronic syphilitic nervous diseases in which there is a break in the continuity of the nerve-structure, though in some cases it seems to favorably influence the continuous crises of tabes. In all cases it causes leucocytosis and the formation of antibodies. It modifies, and, in most cases, ultimately negatives the Wassermann reaction. It unquestionably floods the circulation with endotoxins resulting from the death of millions of spirochetes, and in all probability an antitoxin is developed in the blood. These facts must be considered in connection with the treatment. In acute and threatening deposits in vital organs it may be life-saving by its prompt action. It ought not to be given to ambulatory patients, nor is it safe in the hands of careless or inexperienced individuals. The hospital is the best place for the use of the method, and patients who are injected should be kept in bed for seven days under close observation, and longer is needed. Second injections, if needed, should not be earlier than eight weeks after the first. Contraindications should be carefully considered. It should not be given when other infections than syphilis exist, however mild they may be, nor should the feeble or old, or those with other than specific organic disease, be injected. Congenital syphilis calls for the treatment, either directly or indirectly, through the mother. The living contagion is destroyed; hence, the spread of syphilis can be prevented by its early use, a point for sanitarians. In occasional well-selected cases the use of iodides by the method of

Wechselmann will increase the efficacy of 606 when second injections are necessary. Two to three weeks should have passed after thorough mercurial treatment when this has been used before the injection of arsenobenzol. While its effects are magical, it is not yet certain that a single injection will prevent the secondary or tertiary stages in all cases. Further observation is needed as to this point. The dose is given by the author as 0.5 gram for men, 0.45 gram for women, and there is a tendency to slightly increase this dose to 0.8 and 0.6. The dose for children ought not to be higher than 0.02.

Embryonic Tissue Growth.—M. T. Burrows describes the results of his experiments in cultivating the tissues of the chick embryo outside the body, in blood plasma of the frog.

Renal Activity in Pregnancy.—F. C. Goldsborough and F. C. Ainley conclude that normal obstetrical patients eliminate phenosulphonephthalein more slowly that normal non-pregnant women. Whether this is connected with the ordinary changes in metabolism observed at that time or is due to some other factor one is at present unable to state. In the last month of normal pregnancy the power to eliminate this drug may be very low and falls far below the limits set for non-pregnant individuals. Until more extensive observations are at hand this test should be applied with great caution in toxemic cases, although it is possible that further study will show that it may afford valuable diagnostic and prognostic information.

Bowell Obstruction and Dietl's Crisis.—R. Brown reports a case in which twisting of a kidney pedicle was a factor in causing adhesions to close the bowel lumen and blood-current.

Extracerebellar Tumor.—E. L. Moorhead reports a case in which at autopsy there was found a fibroma firmly adherent to the side of the pons, its origin apparently being from the auditory nerve.

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December 3, 1910.

The Treatment and Prognosis of Exophthalmic Goiter. W. Hall White.
Recurring Arterial Hypertonus in Granular Kidney and in Migraine. W. Russell.
The Diagnosis and Treatment of Cystic Disease of the Breast. D'Arcy Power.
Heart Strain and Dilatation. J. F. Goodhart.
The Motor Functions of the Stomach. H. M. W. Gray.
Intramedullary Lesion (Gumma?) of the Spinal Cord with Brown-Séquard Phenomenon and Recovery. A. Bernstein.
A Case of Intestinal Obstruction Caused by an Enterolith Spontaneously Cured by Evacuation Through an Umbilical Fistula. D. M. Grieg.
Notes Upon an Outbreak of Illness Due to Tinned Meat in the City of Carlisle. J. Beard.

Exophthalmic Goiter.—W. Hall White states that in some persons, at least, there is a natural tendency for exophthalmic goiter to get well. No doubt this operates more often than figures show, for it must have helped some of those who improved while in the hospital. We also learn that some who are afflicted with this disease recover without treatment. We rarely see death due to exophthalmic goiter and we do not often see elderly women with it. These two facts illustrate the natural tendency of the disease to get well. It seems, however, a fair conclusion that the expected deaths among sufferers from exophthalmic goiter is somewhat, but not very much, greater than among the healthy—in other words, they are rather bad lives. If one follows the after-histories of cases of exophthalmic goiter they teach that the great majority do well. The private cases do better than the hospital cases, but really much better than the figures show, for the mortality is higher among the hospital than among the private cases. The private cases probably do better than the hospital cases because they are better able to rest. The proportion of four deaths out of eleven cases operated on is about the same as that given by Dr. Hector W. G. Mackenzie for similar operations. It must be specially remembered that this serious mortality of nearly forty per cent. is an immediate mortality, some of the patients even dying on the operation table, the others within twenty-four hours of the operation. If the patients are not operated on there is no immediate danger in the great majority of cases, the disease frequently gets quite well, and the actual deaths among those with exophthalmic goiter are not very many greater than among healthy females. A further argument against operation is that in several cases the patient is not cured by the operation. Inasmuch as in some patients there is a natural tendency for the disease to get well, it is difficult to come to a precise opinion about other treatments than the operative, but the author's belief is that the most important is absolute rest in bed for many weeks. During the daytime the bed should, whenever possible, be out of doors, and if the weather permits, the patient may be out of doors at night, at any rate she should sleep with her windows wide open. Next to rest, the most important feature of treatment is food; most patients with exophthalmic goiter are thin, and they will improve as they gain in weight; plain, simple food, and plenty of it, is needed. They must not be worried, the rest must be tranquil, they must be spared the housekeeping and other domestic duties, and it is because private patients can, so much better than others, rest quietly that they do better. It is extremely hazardous to try to estimate the value of drugs for this disease. Lately the author has often given Moebius' antithyroid serum. It may be given in milk, five-minim doses to begin with, but rapidly increased to thirty minims, three times a day. It has appeared to do good, and some patients think they are better for it, but certainly other patients do just as well without it. For extreme restlessness hyoscine is recommended.

Recurring Arterial Hypertonus.—W. Russell describes the importance of recognizing this condition with the aid of the hemomanometer, in granular kidney and in migraine. He reports illustrative cases. In the former condition he alludes to the phenomena which are commonly recognized as presaging paralysis, hemiplegia being the commonest, associated or not with aphasia. Very many of these cases are preceded for days or for longer periods by recurring sensations of numbness or tingling, by temporary slight loss of power in a hand, an arm, a leg, difficulty in articulation, temporary loss of speech, feeling of mental confusion, temporary loss of memory, and so on. All these are associated with arterial hypertonus and a high hemomanometer reading. The nervous phenomena can only be explained by the participation of the vessels in varying parts of the brain in a constriction in which the whole systemic circulation is affected. These local angiospasms in the brain lead to anemia of the areas involved, the clinical phenomena being referable to the areas so affected. The angiospasm in brain areas favors thrombosis, and its consequent deplorable brain softening, or leads to hemorrhage on the heart side of the region of spasm. Now if these phenomena are duly observed, correctly correlated and interpreted one has it in his power in many instances to save one's patients from disaster, preventing their being deprived of the power of locomotion, of speech, of mental power, perhaps for years longer than would otherwise be the case.

Cystic Disease of the Breast.—D'Arcy Power states that cystic disease of the breast is not a distinct entity. It is associated with almost every variety of disease of the mammary gland, and requires careful investigation, which is best carried out by a combination of clinical and pathological research. He describes the diagnosis and treatment of the different forms of benign and malignant cysts of the breast.

Heart Strain and Dilatation.—J. F. Goodhart sums up as follows: True heart strain—by which he understands

a state of muscle that, if not dealt with by retreat from all active exercise for long periods, leads to dilatation of the heart—is a rare condition. Dilatation of the heart, in its beginning, is evidently not easy to determine with certainty, for it may share signs and symptoms in common with many emotional and other nerve disturbances of which the heart is a past-master of expression. Cases of doubt one must admit to be common, and they call for circumspection as regards their management, but one must beware of timidity, and the author cannot but think that this has of late years been much abroad to account for the frequency and the looseness with which the term dilatation of the heart seems to have been applied.

Motor Functions of the Stomach.—H. M. W. Gray states that many observations show that a physiological "middle sphincter" exists, and that in normal stomachs the parts of the organ on each side of this "sphincter" must be regarded as acting separately. The "middle sphincter" can be likened in some manner to the pylorus in that it holds back the stomach contents in the cardiac portion until they are in proper condition for being passed into the pyloric tubular portion, just as the pyloric sphincter acts in retaining the pyloric contents till they are in proper physical and chemical condition to be treated in the duodenum.

Intramedullary Lesion of the Spinal Cord.—A. Bernstein reports the case of a female, aged eighteen years, who was admitted complaining of pain in the back of the head and neck with stiffness and weakness of the right arm and leg. She first noticed stiffness in the neck about three years ago. About two months ago there was slight pain in the back of the neck radiating over the back of the scalp, especially on the right side. There was also some numbness on the posterior right scalp. This had continued till the present. Later there was some weakness in the right arm first noticed in the shoulder, which gradually got worse, and extended down to the hand. About the same time there was weakness in the right leg, which also got steadily worse. There was no numbness, but some slight tingling in the finger-tips. The father died from phthisis. The mother and the other children had excellent history—no syphilis, cancer, or tuberculosis. The case improved rapidly under antisyphilitic treatment. The lesion in this case was evidently situated in the right half of the substance of the cord, especially the anterior horn in the upper dorsal region. But the nature of the lesion was more difficult to determine. Tumors of the cord, tubercle, a plaque of disseminated sclerosis, would hardly have cleared up so rapidly after advancing so far and so quickly. Neither would anterior poliomyelitis account for all the physical signs. Hysteria was excluded by the marked rapid wasting of the intrinsic muscles of the hand and the absence of other hysterical stigmata. The rapid development of all the symptoms followed by as rapid a recovery after antisyphilitic treatment seemed to point to the specific origin of the lesion, which was supported by the fact that mercury was so well borne.

Intestinal Obstruction.—D. M. Greig reports a case of this condition caused by an enterolith spontaneously cured by evacuation through an umbilical fistula.

Illness Due to Tinned Meat.—J. Beard reports an outbreak of sudden illness affecting 21 persons who had partaken of the contents of a tin of American corned beef. He states that outbreaks of food poisoning are not altogether uncommon and do not always terminate so favorably as the one under review. In this class of poisoning the ill effects are due to the ingestion of preformed poisons which are elaborated by the microorganisms in the infected food. The poisonous agent does not undergo any further bacteriological change in the human system, and thus, there being no period of incubation, the symptoms come on suddenly, which constitutes an important comparison to that class of cases in which the illness is due to the development or proliferation of the microorganisms within the blood or tissues of the body.

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Prophylaxis in Obstetrics. A. W. Russell.
The Treatment of Hypertension, Based upon the Consideration of the Cause. H. B. Shaw.
The Estimation of Blood Pressure by Means of the Sphygmooscillometer. K. Eckenstein.
The Control of Venereal Diseases at Their Source in Civil Communities. H. C. French.
A Note on the Combined Use of Spinal and General Anesthesia. A. E. Johnson.
Thyroid Extract in Rheumatoid Arthritis. H. Wilson.
A Case of Intestinal Reflex. Sir E. S. Stevenson.
Proof of the Endemic Origin of Yellow Fever in West Africa. Sir R. W. Boyce.
Case of Fatal Trichocephaliasis in a Child. J. G. S. Jamieson and J. M. Lauder.

Prophylaxis in Obstetrics.—A. W. Russell states that a contracted pelvis is mostly a legacy of the rickety infant Much can therefore be done by way of prevention if enlightened attention is paid to the feeding and hygiene of the baby from birth. The education and physical culture of the growing girl must be supervised. This is specially important at the onset of puberty and during adolescence. The young woman should understand her functions, and in her work should be protected from debilitating influences. The young wife, and especially the expectant mother, should receive the further information that is necessary for her guidance in relation to the sexual functions and the preparation for motherhood. As to the complications of pregnancy it does not seem to be generally realized by the busy practitioner out of how trifling ailments overlooked the most serious troubles arise, and how much special obstetrical studies have in recent years contributed to their more scientific treatment. The author refers to pernicious vomiting of pregnancy, which so often develops out of the ordinary digestive disturbances, and eclampsia which results from renal or hepatic disorders which have not been looked for or have been left untreated. Abortion or miscarriage is really a miniature labor and should receive at least the same prophylactic care as ordinary labor. The mother needs to be taught this otherwise and earlier than by the unhappy lesson of a weakening hemorrhage or a septic infection. The induction of premature labor has still a place among obstetric operations, but it must be done after careful, and even repeated, examinations under an anesthetic, so that the pregnancy may be allowed to run as near the full term as is consistent with spontaneous delivery. When this is done the results are most satisfactory. The forceps should be considered a surgical instrument, and its use a surgical operation. As a consequence the sterilization of instruments and the disinfection of all parts of operator, nurse, and patient that are liable to be touched should be thorough, and this asepsis should be maintained.

Treatment of Hypertension.—H. B. Shaw describes the clinical associations of hypertesion, the method of its determination, the theories of its causation, which are either mechanical or chemical, and briefly discusses the treatment. This is mainly symptomatic. All patients with hypertension should be made to rest recumbent during a much longer period than is usual with them, the diet should be easily digestible, and purgatives should be freely used. The author states unhesitatingly that when the patient arrives—as he or she most surely will, provided other maladies such as pericarditis do not cause the closing scenes—at the stage of what one still persists in speaking of as uremia, one should not hesitate to bleed one's patients and use sedatives when the symptoms are convulsive in character, a condition in which lumbar puncture appears in some cases to give relief.

The Sphygmooscillometer.—K. Eckenstein describes this instrument and its advantages over the sphygmoma-

nometers already in use. One great advantage is the absence of the personal equation. Those who have worked with instruments of the Riva-Rocci type must have been struck with the difficulty that is sometimes experienced in determining the exact moment at which the registering finger can no longer distinguish the pulse. This difficulty may be made still more marked if two observers perform the experiment, one of whom is engaged in watching the sphygmomanometer while the other is occupied solely with feeling the pulse. With the oscillometer there is no such difficulty, as the disappearance or reappearance of the pulse is indicated by the needle. The oscillometer should be used exactly as a Riva-Rocci instrument—that is to say, the armlet should be applied over the brachial artery and the finger on the radial pulse.

Control of Venereal Diseases.—H. C. French advocates the thorough application of the modes of state intervention for the control of venereal disease, namely, constant sanitary supervision and compulsory notification of cases of venereal disease. It has been urged in favor of the latter method that it is not open to the objections brought against the former, as being unequal between men and women, or as encouraging immorality by superintending, in its interests, the health of those who minister to it.

Combined Use of Spinal and General Anesthesia.—A. E. Johnson states that by far the most important and interesting question in considering the advantages of spinal anesthesia is its action in the prevention of shock. It is now generally admitted that if all impulses from the area of operation or injury be prevented from reaching the central nervous system by the employment of this method, shock from this source is either absolutely prevented, or at any rate, minimized. It must, however, be remembered that psychic influences may bear no small part in the production of shock, and impulses from the highest centers may affect the vital centers just as seriously as the effects of trauma at the periphery. The author expresses the opinion that many advantages might be gained by the use of a combination of spinal anesthesia with a light degree of general anesthesia. By the spinal injection the vital centers will be protected from injurious impulses from below, while by general anesthesia the effects of fear will be prevented.

Thyroid Extract in Rheumatoid Arthritis.—H. Wilson reports two cases in which favorable results followed the use of thyroid extract. In the first of these the author had been struck with his rough, dry, harsh skin, crisp hair, husky voice, and deep suprasternal notch; the prominence of the trachea and apparent absence of thyroid gland, analogous to other conditions suggesting deficiency of thyroid secretion. In the author's opinion the group of cases likely to receive benefit are those in which changes are chiefly confined to the synovial membranes, without erosion of cartilage or eburnation of bone, such cases, in fact, as Schüller describes as "chronic villous arthritis." The theory of the improvement is open to much discussion, but the author is of the opinion that the cause of the pathological synovial change is metabolic, and that the chemical pathologist, rather than the bacteriologist, can find the key to the problem. Myxedema is characterized by an increase of connective tissue in and under the true skin, with more than the usual amount of that substance (mucin) in the subcutaneous tissue. There seems a distinct resemblance in the synovial deposits to the above condition in myxedema, which may account for the influence of the thyroid extract on the pathological metabolism.

A Case of Intestinal Reflex.—Sir E. S. Stevenson describes a case in which abdominal pain with periods of obstinate constipation, looseness, straining, together with the passage of blood and mucus, suggested intestinal ulceration. Upon operation, however, the trouble was located in the gall bladder and the bile ducts. Three calculi were found in the common duct, and many small ones in the gall bladder. Both gall bladder and bile ducts were greatly dilated.

The Endemic Origin of Yellow Fever in West Africa.—Sir R. W. Boyce from analysis of all the facts comes to no other conclusion than that a very large proportion of the "remittent" and "bilious remittent" fevers of West Africa to-day are the well-known mild forms of yellow fever. The African native is as saturated with yellow fever as he is with malaria, and his escape from severe yellow fever and its very frequent occurrence among the whites is proof of this contention.

Trichocephaliasis.—J. G. S. Jamieson and J. M. Lauder report a fatal case of this condition occurring in a child, and emphasize the necessity for examination of the stools in children suffering from anemia of unknown cause.

Berliner klinische Wochenschrift.

November 28, 1910.

Progress in Our Knowledge of Pancreas Necrosis.—In recent years, according to Coenen, the tendency has been toward an early operation in acute cases, thus paralleling the management of acute appendicitis. While we are far from having secured the object desired, we have at least secured the abandonment of the conservative therapy. Körte, who has had more experience in this affection than any other German surgeon, formerly (1898) advised against operation in acute hemorrhagic pancreatitis, regarding the collapse and prostration as contraindications. Seven years later, however, we find him recommending early intervention. In 1907 Ebner was able to show by statistics the great value of surgical methods on the mortality. In 1909 Dreesmann collected notes of 118 cases of acute pancreatitis and pancreas necrosis. In this series forty cases treated by early laparotomy and pancreas tamponade gave eighty per cent. of recoveries. The entire mortality of the 118 cases was fifty-five per cent. In regard to pathogenesis, the old controversy was whether microorganisms or enzymes were chiefly responsible for the necrosis. There is evidence that both agencies may be held to account. In many cases bile enters the pancreatic duct and the microorganisms therein may play a causal rôle. It is likely that the latter or their toxins may activate the pancreatic enzymes and set up autolysis. The mixed toxic substances not only cause necrosis and hemorrhage but also seep through into the abdominal cavity, with resulting lesions in the latter and general toxemia. An early operation is likely to be successful if done in time to prevent the escape of the toxins into the abdominal cavity. Mild attacks of acute pancreatitis may end in recovery. Diagnosis is naturally much more difficult than that of acute appendicitis. It is necessary to exclude dynamic ileus and perforative peritonitis, either of which, especially the former, closely simulates it.

Pathological Action of Ferments.—Wohlgemuth states that there is hardly a field in pathology in which enzymes do not take a prominent part. Wherever one finds living cells ferments must be actively present. Thus far an objective, that is a microscopically evident, location of an enzyme has never been demonstrated. We know that a single one, or many which cannot be differentiated, is present in all organs. This is the autolytic ferment, which in the liver appears to be indispensable in the pathogenesis of phosphorus liver and acute yellow atrophy. Next to the general autolytic ferment should be mentioned the enzyme of the leucocytes, which is particularly in evidence in pus, through its power to cause the breaking down of tissues. These enzymes, while pathogenic, may also exert a salutary rôle, chiefly in producing the absorption of clots, exudates, etc., and causing the reduction in

size of the pregnant uterus. Next to be named are the enzymes of malignant growths, which exert an autolytic action within the latter, and are also indispensable for the extension of the tumor cells into sound tissues. We see tumor ferments and tissue ferments antagonizing each other. A liver enzyme, probably a catalase, can destroy cancer cells, and a cancer enzyme tissue cells. Recent literature is replete with interesting data obtained as to enzymes in general, but thus far these do not suffice for the establishment of dogmas.

Münchener medizinische Wochenschrift.

November 29, 1910.

X-Ray Diagnosis of Gastric Ulcer.—Riedel's brief conclusions from his long article on this subject are as follows: Recent ulcers cannot be photographed. Deep, indurated ulcers, with or without perforation, may be recognized indirectly; that is the lesions which result in the periphery of the diseased stomach are rendered apparent. These lead to alterations of the form and size of the stomach proper and the pylorus. The diagnosis is of sufficient value for prognosis and treatment. The *x*-rays also make it possible to differentiate between gastric ulcer and carcinoma. The presence of the latter disease is recognized by the alteration in the stomach outline when bismuth is introduced.

Clinical Behavior of the Liver in Scarlatina.—Hildebrandt states that by far the greater majority of scarlatina cases show a pathologically increased urobilinuria, the curve of which is frequently parallel with the temperature curve. In certain cases the two curves do not correspond. In the convalescent period urobilinuria is generally present in normal degree. The presence of an unusually high degree of urobilinuria will even serve to differentiate scarlatina from measles, diphtheria, rötheln, anginæ, etc. The increase of urobilin excretion is believed to be due to a certain amount of parenchymatous hepatitis; hence, when the latter does not develop, as in very mild cases, we are not surprised to find the phenomenon absent. Increased degree of urobilinuria is typical of acute parenchymatous hepatitis, whatever the cause and nature of the latter. The author advises the practitioner to test the functional capacity of the liver with levulose whenever an acute infectious disease appears to be impending, as diagnosis by palpation and percussion is not always possible.

606 in Leprosy.—Gioseffi of Trieste has recently tested a single case of lepra with 606. The Wassermann reaction was negative and no spirochetes were found in the nodules. These precautions were evidently taken, not alone on general principles, but because clinically the nasal lesions suggested syphilis rather than leprosy. Records made before and after the use of 606 appeared to show definitely that the remedy neither destroyed Hansen's bacillus nor helped to form soluble toxins, nor in any way modified the leprous process. The author admits that his case was a very confirmed one, and believes that tests should be made on recent cases in which the disease has not progressed so far.

Adreninemia in Pregnancy.—Neu finds definite variations in the blood during gestation, labor, and the puerperium; also very high values in retroplacental hematoma and blood from the cord. The highest values of all were found in the serum of pregnant women suffering from glycosuria and in those who showed extreme degrees of chloasma uterinum.

Deutsche medizinische Wochenschrift.

December 1, 1910.

Recent Progress in the Topical Diagnosis of the Pons and Medulla.—Wallenberg and Marburg give separate reviews of this subject without coming to formal conclusions. In regard to characteristic disturbances of sensibility it is claimed that pain and temperature are conducted to the opposite side through the tractus spinotectalis et thalamicus, in the most medial section of which pain is conducted, while temperature travels through the most lateral sections. Heat proceeds in the outside of the tract, while cold lies between the paths of heat and pain. Deep sensibility seems injured when the fibers of the inner arch are implicated. In regard to motor phenomena unsteadiness of gait, rhythmic nystagmus, falling to one side, abnormal head positions, conjugate deviation, etc., are referred to Deiter's nucleus. Similar isolated generalizations are cited. We have progressed essentially since Nothnagel's monograph appeared, but no general advance has been made. What we have learned since consists of refinements of the older diagnostic methods. Some authorities regard such progress as tending to a narrowness in diagnosis, which loses sight of the entire pathological alteration. The authors hold to the contrary opinion, claiming that these refinements in the methods of diagnosis will also enable one to understand the evolution of the disease.

Bloodless Treatment of Phimosis in Childhood.—Stuhl refers to a substitute procedure for circumcision which may be done without narcosis, and the production of a wound surface with persistence of a so called preputial apron. The operation is not wholly bloodless, but no cutting instruments are used. The foreskin is gradually pulled back over the glans, one session or several being required. After the meatus is exposed a blunt sound may be used to separate adhesions. To avoid paraphimosis the prepuce must then be replaced. A very narrow preputial orifice must be dilated progressively for several days. If, despite this resource, paraphimosis result from the next exposure of the glans, this must be at once reduced, care being taken to avoid contact with the newly exposed surfaces. From four to eight days are required for the entire treatment. A few slight tears in the prepuce may be unavoidable and should be treated with some antiseptic dusting powder. Phimosis is often accompanied by an unusually short frenulum, which should in such a case be incised.

Tendinitis of the Quadriceps Femoris.—Bähr first refers to the term achillodynia, which is a symptom of several conditions including tendinitis. The tendon becomes hypertrophied and indurated in local areas. This condition seems to be of traumatic origin. Writers have described similar conditions in other tendons (peroneus). He then relates the case of an analogous lesion of the quadriceps femoris tendon of traumatic origin, to wit, a fall upon the knee. There was pain in the knee region, and the leg was bent at ninety degrees. The obstacle to complete extension was evidently a nodule in the quadriceps. Knee joint intact. No possibility of an old bony or cartilaginous deposit in tendon. The *x*-ray showed a shadow the size of a large bean *in situ*. The case was of some additional interest because patient was suspected by his employers of simulation.

Bursitis Over the Metacarpophalangeal Joint of the Great Toe.—The same author describes the case of a woman who after mountain climbing experienced pain in the extensor tendon of the great toe, which was found in hyperextension. Flexion was painful and could not be completed. Diagnosis lay between inflammation of the synovial sac described by Hartmann with or without participation of the tendon sheath and paratendinous tissue. The condition appears to be unique, differing from the so called hallux reflexus of soldiers in certain particulars; the latter, for example, exhibits flexion of the distal toe joint upon the proximal one. Nevertheless, the author thinks, the two conditions should bear some definite relationship to each other.

Book Reviews.

Vaccine Therapy. Its Theory and Practice. By R. W. Allen, M.D., B.S. (Lond.), Late Clinical Pathologist to the Mount Vernon Hospital for Diseases of the Chest; Late Pathologist to the Royal Eye Hospital; Late Gull Student of Pathology, Guy's Hospital. Third Edition. Philadelphia: P. Blakiston's Son & Co., 1910.

This work has been completely rewritten and brought up to date, and the attempt has been made to render available the experience of the past five years by including illustrative cases for the guidance of the general practitioner. The text covers completely the subject of the opsonins, the determination of the opsonic content of the blood, the preparation of vaccines, and the opsonic index in health and disease, and there are separate chapters on the various microorganisms and their toxins, their relation to pathological conditions, and to immunity. The chapter on the colon, typhoid, and dysentery groups illustrates the eminently practical nature of this work, since it includes the subjects of antityphoid vaccination and typhoid carriers and their treatment. The chapter dealing with the subject of the infections by the *Bacillus tuberculosis* group is masterly, omitting nothing that has been contributed to the knowledge of fighting the enemy with his own weapons, namely the various tuberculins and their specific indications.

Hydrotherapy. A Work on Hydrotherapy in General, Its Application to Special Affections, the Technic or Processes Employed, and the Use of Waters Internally. By Guy Hinsdale, A.M., M.D., Secretary of the American Climatological Association; Lecturer on Climatology in the Medico-Chirurgical College of Philadelphia; Fellow of the College of Physicians, Philadelphia; Corresponding Fellow of the Royal Society of Medicine of Great Britain, Balneological and Climatological Section, and of the International Antituberculosis Association; Ex-President of the Pennsylvania Society for the Prevention of Tuberculosis; Member of the American Neurological Association and of the American Academy of Medicine. Illustrated. Philadelphia and London: W. B. Saunders Company, 1910.

Although the use of water in disease may be traced back to the distant past as one of the first therapeutic resources, it is quite strange that hydrotherapy has only within recent years received due recognition as a science and as an art. A surprising realization of the numerous forms of the application of water in pathological conditions dawns upon the reader as he turns the pages of this book, which presents the subject in exceptional fullness, and free from the inaccuracies of enthusiasm and overstatement. The rationale of hydrotherapy, including the physiological effects of baths of various kinds, forms the introduction to the subject of special hydrotherapy, or its applications in different diseases, as in typhoid fever and tuberculosis; in the former the Brand baths and their modifications and substitutes are described in detail. In the section on diseases of the heart the Nauheim baths and Schott treatment are fully described. The section on the technique of hydrotherapy includes a description, with the aid of numerous illustrations, of the many diverse forms of hydrotherapeutic application, including the various rubs, douches, sprays, packs, hot-air and electric baths, artificial Nauheim, oxygen, mud, and sand baths. The recent methods of rectal proctolysis are described in detail. There is a chapter on crounotherapy or the use of mineral waters internally. One cannot conceive of a work more useful to the general practitioner than this, nor one to which he would resort more frequently for reference and guidance in his daily work.

Elementary Materia Medica for Pupil Nurses. By F. W. Scott, Jr., Ph.G., Instructor in Materia Medica, Long Island State Hospital Training School for Nurses, Brooklyn, N. Y.

This book is commendably small, and the main part of the work (pages 37 to 98) is well done. The chapter on solutions, a subject of prime importance, is too brief and at the same time too painfully accurate to be of any service to the class of readers for whom the book is intended. In Chapter 6 the Latin is as bad as it is in most books of this class; it should either be corrected or eliminated. The author's explanation of alkaloids is most unfortunate; he says they combine with sulphuric acid to form sulphates "just as metals do." But this is exactly what they do not do; for, whereas the metals replace part or all of the hydrogen of the acid, the alkaloids form salts without any elimination of hydrogen, behaving like ammonia rather than metals.

Practical Obstetrics. By E. Hastings Tweedy, F.R.C.P.I., Master of the Rotunda Hospital, and G. T. Wrench, M.D., late Assistant Master. Second edition. London: Henry Frowde, Oxford University Press, and Hadder & Stoughton, 1910.

The reputation of the Rotunda Hospital of Dublin has been justified by its numerous contributions to obstetrical science. Its present master, in speaking for himself, states that this book is a record of at least 30,000 cases for which he has been personally responsible, and to those who would differ from the method of treatment advocated, he pleads this large experience and the progressive improvement of results in every direction. This book deals almost entirely with the practical aspect of obstetrics. In this edition the chapters on the toxemia of pregnancy, uterine inertia, and contracted pelvis have been rewritten, and articles on subcutaneous pubiotomy, hysterotomy, and infant digestion have been added. In the articles on uterine inertia, the treatment of contracted pelvis and rupture of the uterus, the views expressed are somewhat different from those advanced in the first edition. One of the admirable features of this book is the clear and direct statement of the management of the normal and abnormal phases of obstetrics by methods that have been tried out in extensive hospital experience. In the treatment of eclampsia the authors do not advocate *accouchement forcé* in any form. They wait until the os is sufficiently open and the head fixed enough to apply forceps, or the os is sufficiently open to deliver as a breach. The chapters on puerperal infection are a masterly presentation of this subject and strictly modern in their recognition of the advances made in serum and vaccine therapy.

The Surgery of Childhood. Including Orthopedic Surgery. By De Forest Willard, A.M., M.D. (University of Pa.), Ph.D., Professor of Orthopedic Surgery, University of Pennsylvania; Surgeon (26 years) to the Presbyterian Hospital; Surgeon-in-Chief Widener Industrial School for Crippled Children; ex-President American Surgical Association, American Orthopedic Association, Philadelphia Academy of Surgery, Philadelphia County Medical Society; ex-Chairman Surgical Section American Medical Association, Fellow Philadelphia College of Physicians, etc., etc. With 712 illustrations, including 17 in colors. Philadelphia and London: J. B. Lippincott Company, 1910.

The recent lamentable death of the author of this treatise occurred shortly after its publication, before he had an opportunity to witness the appreciation with which the medical public would receive his last literary labors. As an orthopedic surgeon he was peculiarly well fitted to prepare a work upon the surgery of childhood in which orthopedic surgery forms the major part. For this reason, also, the chapters dealing with the diseases of the bones and joints form the most valuable and complete portion of the work, and one that can be of the greatest value to the general practitioner. The wealth of photographic reproductions, including many of *x*-ray plates, is an admirable feature. The non-surgical treatment of bone and joint diseases is presented with full appreciation of modern teaching and practice. The surgical aspects of poliomyelitis are described with a comprehensiveness and minuteness of detail demanded by the growing importance of this subject. Those portions of the book dealing with the surgical disorders of childhood that are not essentially within the province of the orthopedic surgeon, while presenting many excellent features, are not entirely without defect, which is probably to be attributed to the impossible task of presenting the extensive subject of pediatric surgery within the limits of one volume. Nevertheless, some of the subjects that appeal strongly to the needs of the general practitioner are given but scant attention. Thus, tonsillar hypertrophy and adenoids are dismissed in two pages. The modern operation of tonsillectomy is not at all mentioned, the old-fashioned operation of guillotining the tonsils being the only one described, and that in the most cursory manner. The operation of adenectomy is merely alluded to in five lines of text. It is quite natural that in the midst of active professional labors, the preparation of this book did not prevent errors from creeping into it. Thus the statement is obviously incorrect that the bacteriological examination of the cerebrospinal fluid has not thrown any light upon the diagnosis of tuberculous meningitis, nor will any one perceive the reason for the employment of antimeningococcic serum in this condition. Nevertheless, in spite of these and a few other shortcomings, this book, on the whole, is a valuable contribution to pediatric literature.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Anniversary Meeting, Held November 17, 1910.

THE PRESIDENT, DR. JOHN A. WYETH, IN THE CHAIR.

Objections to Proposals of Further Legislation to Regulate Animal Experimentation. — Dr. WM. H. WELCH of Baltimore said that he thought it might seem somewhat out of place for one to come to New York at this time to present the subject of animal experimentation in any of its different aspects, because they had had their attention drawn to this important subject probably more in this than in any other State in the country. Among the most important contributions to the campaign on which the medical profession was obliged to enter were those issued from the State of New York. He referred especially to the leaflets that were issued by the New York State Association. Dr. Welch said he had some hesitancy in speaking on a subject with which his hearers were doubtless familiar and which had been brought to their attention many times so forcibly. However, this was a subject in which he had been interested very much and some twelve years ago he was compelled to be active in the efforts to prevent injurious legislation on this subject of animal experimentation in one of the national congresses. He did not believe any apology was necessary in bringing this subject before the members of the Academy of Medicine, because it was of such great importance and the issues which were connected with it were of such import for the future of medicine that it behooved them to give it all possible attention. In view of the perils to the advancement of the science of medicine and the medical knowledge concerned in this crusade, it behooved them to be vigilant and active. What would be the state of medicine to-day if only thirty years ago such prohibitory legislation had been successfully enacted and placed in operation. Great advances had been made possible through animal experimentation especially in their knowledge of the causes of infectious diseases; the possibilities based upon that knowledge which made possible measures toward the restraint and control of these diseases were evident to all. Therefore, this subject of animal experimentation was one of vast importance because it involved the progress of medical science and the possibility of restraining the spread of disease and controlling the suffering of mankind. There were, however, many aspects of this subject of animal experimentation, but only one theme concerning this subject had been assigned to him, namely, "Objections to Proposals of Further Legislation to Regulate Animal Experimentation." There were several points upon which it was extremely important that the general public, as well as the medical profession, should be informed, and one of them related to the very fundamental, ethical, and moral questions involved; some authors on ethics had written pamphlets for the general public setting forth what was correct and ethical and moral. In his opinion the efforts of these antivivisection agitators were antihuman, indeed inhumane, and they were so because at the bottom they set the lives and sufferings of the lower animals above the lives and sufferings of man. They need not fear the judgment of fair-minded men in this respect, nor the judgment of posterity. Another very important aspect was the question of the utility of animal experimentation. Such experimentation was the greatest lever of advance. They were right, therefore, in laying so much emphasis upon the question of the utility and service to mankind resulting from animal experimentation in medicine. Dr. Welch recalled a hearing some ten or twelve years ago before the Senate Committee in Washington on a Federal bill; it was then remarked that it was not necessary for any one to speak on the subject of the utility of experimental research; that was granted. All that it was necessary for them to do was to point out in what regard any specific provisions in the bill interfered with legitimate experimentation. All members of that committee practically conceded that mankind was benefited by experiments on animals. Many physicians thought that the real foundation of medicine rested upon a knowledge of the structures and functions of the body; this knowledge came partly from observation and partly from experimentation; it was possible to unravel the intricate weaving together of observation and experimentation. Any physician who thought at all on this subject realized that he could not interpret the significance of pulse, nor the significance of the respiratory disturbances, the digestive disturbances, nor the significance of urinary disorders without the knowledge that came to him from experimental methods. When talking about the benefits to mankind of experimental research, and when one singled out striking instances which might be said to be arguments for the man of the street, one must realize that such arguments were limited and gave an inadequate view of the situation. Dr. Welch thought it was very important that the general public and the profession at large should have clearly in mind what were the conditions and methods of progress in science; they should be made to understand just what rôle experimentation played in this. The phenomenon with which they were dealing was the experimental, produced experimentally by nature. Disease in fact was an experiment upon a human being, but the interpretation of this phenomenon was not clear; the conditions were too complex to permit of clear deductions. They must bring about some phenomena under control conditions which would enable them to make proper deductions. In educating the general public they should present statements regarding all the conditions which surrounded their experimental work; they should make clear just what the conditions were in the laboratories. More education was required which related to the sentiment prevailing on the subject of the cruelty to animals. They should not be lacking in participating in movements against cruelty to animals. Dr. Welch said that the theme assigned him related to the question of the legal restrictions which should be placed about experimentation on animals; there was a demand loudly expressed for control by legislation of such experimentation; this was not a new demand; the agitation for it was older in this country than it was on the other side. What was the nature of this demand for the legislative control of experimental medicine? The backbone of the movement which had been designated the "antivivisection movement" was this: Did not the majority of the women place philozoic movements before the philanthropic? They all must recognize the fact that these advocates for severe prohibitive legislation of this kind had always existed and had always assumed this attitude toward scientific research. One might call them obscurantists if he liked. They were so constituted that they were unable to appreciate the advantages of scientific knowledge, or the conditions under which progress was secured. It seemed that the opposition to scientific research had gradually subsided except in the field of medicine. However, there were those who remained fair minded and who were able to judge whether or not further legislation was needed in animal experimentation. Doctors, as a rule, were busy men, and they had little time to meet these statements which were spread broadcast before the general public. These fair-minded people were not misled by the statements of these agitators in the antivivisection cause; they were the ones they were trying to reach by arguments. They were open to argument in this matter and it was their duty to try to influence these individuals who made up a part of the opposition. Should there not be legislation to reach the alleged abuses? There must be, of course, legislation which prevented cruelty to animals used for experiments as well as

legislation which prevented cruelty to animals in general. Their contention was that animal experimentation was as much under statute control or law as that which controlled the subject of cruelty to animals. As far as New York State was concerned, he said that it had one of the most drastic laws in existence anywhere. The question arose, did animal experimentation come under this law? This was a question or issue to be decided by the high legal authorities. Were the conditions which surrounded animal experimentation under the statute law which related to the general subject of cruelty to animals? That was the question for the legal authorities to settle. The practice of animal experimentation certainly was under legal control, and convictions had already been secured in two instances under this law. That this law was sufficient for the purpose was the attitude of the medical profession. It had been claimed that the pathologists, the physiologists, and the bacteriologists were the ones to be watched and who were not to be trusted; that was an imputation upon the character of those engaged in medical research; it was an outrageous imputation. Certain contentions were based upon the abuses in animal experimentation, but in Great Britain not one single instance could be learned of. These abuses were imagined. Such abuses must not be sporadic, but so common as to constitute a public scandal; but no such abuses existed in this country. The question then arose, if such special legislation did not interfere with proper experimentation, why not allow it to be enacted? Could any think of the enactment of any bill that could be acceptable to those engaged in this work? Not one would be enacted but what would contain provisions which would hamper experimentation and, therefore, the progress of medical science. There would be too many vexatious restrictions in these laws. Dr. Welch, in closing, called attention to some of the salient features of some bills that were injurious to the progress of science and which did not deserve support. He ridiculed particularly some of the British bills, with their licenses and certificates issued by the Home Secretary or by some one under his authority, persons who were absolutely incompetent to judge of these experiments It was placing the whole matter in the hands of those who could not be able to judge of the qualifications of those engaged in this work. Even Lister crossed to France in order to avoid the humiliation involved in asking for certificates which granted him the privilege of doing certain work for the bettering of mankind; he said that such laws as they had on the subject should never have been passed and should be repealed. The restrictions, the details, and the formalities were so irksome in such legislation that as early as 1876 they had been warned not to make the mistakes that had been made in Great Britain. The public should come to the aid of those engaged in the advancement of medical knowledge: their work should not be hampered by any such restrictions or such provisions as were embodied in some of the bills.

Some Characteristics of Antivivisection Literature.—Dr. Walter B. Cannon of Boston read this paper. Last year he obtained from the four prominent antivivisection societies of the country copies of the pamphlets and leaflets which had been distributed widely to school teachers, clergymen and others who were influential, but not medically instructed persons. He had also obtained letters and articles which had been published on the subject in the daily press and in magazines. In all of this there was the dreary iteration of the same opinions, the same "eminent authorities," the same tales, etc., and these publications, sent broadcast, were used again and again for texts, examples and references by contributors to newspapers and journals. Any one whose intelligence was not stupefied with weariness could perceive that if the identical names and phrases, with the identical instances, had to be cited continuously the cause must be short of both men and ammunition. To go through these writings with serenity was a difficult task. One found foolish misrepresentations, garbled and inaccurate accounts, base imputations against good men, cunning tricks long ago exposed and all these were put into the hands of persons whose experience had given them no sure basis for judgment. There was little wonder that poets and artists and novelists, and representatives of the church and the law could be found willing to express opposition to the methods of medical research when both the methods and the results were presented to them so falsely. One of the most impressive displays which the antivivisectionists made was their list of "eminent physicians" whose opinion they quoted. The author proceeded to examine this list and showed that many of these "eminent physicians" had been dead many years and that many others were aged men unfamiliar with modern methods, while still others were prominent in literature or other lines and were likewise unfit to make authoritative statements on the subject of vivisection. The vast majority of these opinions were advanced before the discovery of anesthesia and before many of the great discoveries of recent times were made. Lawson Tait had been widely quoted, but he was one who had been described by a competent and trustworthy surgeon as a "man of wild statements." Again it was said of him "he enjoyed being in the minority, and this led him to champion many lost causes." Among the living men quoted by the antivivisectionists Sir Frederick Treves was most prominent. In 1898 he stated incidentally that some experiments which he had performed on the intestines of a dog had done little but unfit him to deal with the human intestine. Sir Frederick was quick to point out the false implication placed upon him. He wrote: "Those who are familiar with the controversial methods of the antivivisection party will not be surprised that certain of my remarks have been cunningly isolated from the context, and have been used in advertisements, pamphlets, and speeches, to condemn all vivisection experiments as useless. The fallacy of vivisection can hardly be said to be established by the failure of a solitary series of operations dealing with one small branch of practical surgery. No one is more keenly aware than I am of the great benefits conferred upon suffering humanity by certain researches carried out by means of vivisection." This was written more than eight years ago, yet Treves continues to be quoted as opposed to vivisection. The speaker cited a number of similar instances in which medical writings had been misrepresented by taking portions from the context and by omitting parts of sentences. When the attention of the antivivisectionists had been called to these errors and the real facts laid before them they had failed to make the corrections. Dr. W. W. Keen had written a paper nine years ago pointing out a number of these misrepresentations and thus far the antivivisectionists had made no retraction. In this pamphlet were mentioned Dr. Berkeley's observations on the effects of administering thyroid extract to insane patients. Although Dr. Keen showed that the therapeutic use of thyroid extract varied between 15 and 60 grains per diem, and that Dr. Berkeley's maximum dose was only 15 grains per diem, the vivisectionists did not distinguish between the toxic effects of these small doses in some cases and the beneficial effects in others, but declared that Dr. Berkeley was poisoning his patients The pamphlet stated that "Two patients became frenzied, and of these one died before the excitement had subsided." In the original the sentence was completed by the words "the immediate cause of the exitus being an acute disseminated tuberculosis." The absurdity of attributing death by galloping consumption to thyroid tablets, which had not been given anyhow for seven weeks, was clearly explained by Dr Keen in his paper nearly a decade ago. A decent sense of honor would have impelled an instant correction of this

wrong, yet the antivivisectionists had continued these nine years to deceive the credulous public without any moving consideration that their imposture involved a man's good name. Antivivisectionists had persistently ignored in their lectures and publications the fact that anesthetics were used in animal experimentation and even after their attention had been called to this omission repeatedly, still continued to ignore the fact. Experience had proved that the false story once well told need not be withdrawn or altered, even if its falsity had been exposed, for that part of the public that liked to be humbugged was ready to listen and to give its humble credence. Dr. Cannon then outlined the great discoveries and benefits that had resulted from animal experimentation and said in conclusion that before the antivivisectionists could command the respectful attention of intelligent people they must fundamentally change their tactics. They must clear their literature of the anachronistic hostility of men long since dead, men who had no conception of the merciful procedures of modern experimentation, nor of their lifegiving results. They must rid their publications of the testimony of spurious experts whose reputations were made in literature, art or theology, and not in the service of healing. They must purge their propaganda of the trickery and evil insinuation that had for years characterized it. The process of making their methods clean and their ways straight involved paying some respect to the high purpose of biological investigation and its beneficent achievements for human welfare, which together gave meaning and sanction to the experimental use of animals.

SECTION ON SURGERY.

Stated Meeting, Held November 4, 1910.

Dr Charles N. Dowd in the Chair.

Large Benign Tumor of Bladder Removed by the Intraperitoneal Route.—Dr. A. A. Berg presented this specimen which the microscopist pronounced to be a pure fibroma. The patient came to the Mt. Sinai hospital during the early part of June because of vesical symptoms, painful micturition and increased frequency of urination. Her pain was not very severe. There were no uterine disturbances and her menstruation was normal. The physical examination revealed a round smooth tumor, that had close relations with the anterior wall of the uterus. He took it to be a myoma of the uterus pressing upon the bladder and causing symptoms referable to this organ. About the middle of June the abdomen was opened; the uterus was found to be normal in size, and the tumor was not connected with it. The latter could be readily raised from the uterus; it was incorporated with the base and posterior wall of the bladder, was the size of a fist. The bladder was opened through the peritoneal portion of the posterior wall by a vertical recission. The lining mucosa was everywhere intact and normal and the right ureteral orifice was readily identified and probed. The left ureteral orifice could not be seen. The mucous membrane was divided in the median line over the tumor from before backwards, and the tumor shelled out from the muscularis of the bladder, leaving a very large cavity which could not be entirely obliterated by sutures. The cavity was obliterated as much as possible and then a drain of small size was inserted. The patient made an uneventful recovery. He presented this patient to draw attention to the advantage of the intraperitoneal route in attacking tumors of the bladder and for all operations upon the bladder attended with aseptic condition of the bladder interior. Access to the tumor was immensely better by this route than by the extra-peritoneal route; in this way one came down directly upon the tumor. Again leakage would not occur as often as through the supracystic route. The objection to the intraperitoneal route was based on the possible infection of the peritoneal cavity. Dr. Berg said he had operated upon four cases of malignant disease of the bladder and on one of benign nature, and in no case had he witnessed any tendency toward infection of the peritoneal cavity. By the intraperitoneal route the healing was quick and convalescence was rapidly established.

Dr. Martin W. Ware claimed for Rydygier priority in the performance of intraperitoneal operations. He believed that any extirpation of trigonal tumors by that route, if they were then radically performed, ought always to include an operation on the ureter, ending in its transplantation. This procedure necessitated extraperitoneal transplantation of the ureter in addition.

Cases Illustrating Method of Nephrectomy and Ureterectomy.—Dr. Howard Lilienthal presented these cases, which illustrated his method of nephrectomy and ureterectomy. Briefly this method consisted of extraction of the lower part of the ureter through an inguino-abdominal incision instead of the prolonging of the nephrectomy wound. If this method was more generally adopted a great many more ureters would be removed than were removed at present by the old methods.

Stab Wound of Heart; Recovery.—Dr. John F. Erdmann presented this patient. (See page 1095.)

Pneumococcus Peritonitis.—Dr. George Woolsey read this paper. He said that after the full development of the surgery of the appendix it was an opinion generally felt and often expressed that acute peritonitis was always due to an inflammation of the appendix, or a pelvic viscus, or a perforative lesion of one of the abdominal viscera, or of the abdominal wall. As experience increased cases of acute peritonitis occurred in the experience of many surgeons which could not be accounted for by any of these causes. The peritonitis might be a part of a pneumococcus septicemia, with multiple foci of infection, but more often it was secondary to another pneumococcus focus as a pneumonia, empyema, etc., "secondary cases," or it was the first point attacked by the organism, "primary cases." Among the secondary cases the primary focus was pulmonary in the great majority of the cases. Next in frequency came otitis media and throat infections. In cases secondary to pulmonary lesions did the infection reach the peritoneum through the blood or by penetrating the diaphragm? There was no evidence of the latter course. It had been definitely established and accepted that the infection might and did occur from the gastrointestinal tract in primary cases and the condition of this tract appeared not to have been investigated in secondary cases. Quervain thought the appendix the commonest source of origin of the peritonitis in primary cases. Of 91 cases collected by Annend and Bowen, 73 per cent. of all cases, 84 per cent. of the primary cases and 67 per cent. of the secondary cases were females. This suggested as an important etiological factor the female genitals. But there was little pathological support to this theory. It was possible that the pneumococci might pass through the tubes causing but little local reaction; but it must be admitted that there was singularly little pathological proof of the genital being the common channels of infection. It was quite possible that in some cases the pneumococci had entered the circulation through an apparently intact mucosa and found in the peritoneum conditions favorable for development. Clinically as well as pathologically two types were distinguished, the circumscribed and the diffuse forms. The difference was one of degree only. Dr. Woolsey said his experience was limited to the diffuse form. The characteristics of primary diffuse pneumococcus peritonitis were the acuteness of the onset and the severity of the symptoms, intense pain, vomiting, diarrhea and prostration, passing on to the terminal symptoms of peritonitis if unrelieved by operation. The

temperature, pulse and leucocyte count were all high. The signs were those of a diffuse septic peritonitis. In the primary circumscribed form the onset was acute with abdominal pain, vomiting and diarrhea. The fever and other constitutional symptoms subsided in ten or fourteen days. In this form the inflammation became encapsulated by adhesions and the fibrinous character of the exudate, so that in the second stage they had the formation of an intraperitoneal localized abscess. From the brief summary of the clinical manifestations of pneumococcus peritonitis, it was observed that there was little to distinguish it at the onset from an appendicular or perforative peritonitis. The fact that pneumococcus peritonitis occurred most often in children and in females and that it was regularly accompanied by diarrhea were the only distinctive features to assist in the diagnosis. The secondary diffuse form was no easier of diagnosis, for in more than half the cases the onset was obscured by the symptoms of the primary infection or by other secondary lesions. In the circumscribed form unless the history of the acute onset, or, in some cases, of the previous pneumococcus infection, was obtained the diagnosis was not likely to be made until the appearance of the localized abscess. Sometimes it had not been made until the latter burst, or was on the point of bursting. At the time of operation the gross pathological character of the pus was sufficiently marked to suggest the diagnosis, for the pus was odorless, yellowish, or greenish-yellow, and was distinguished by fibrinous flakes or masses in the pus, and on the bowel. Whether the peritonitis was primary or secondary did not appear to affect the prognosis. The treatment was surgical. Early operation afforded the best prognosis. The operative treatment was the same as that of other varieties of diffuse or circumscribed peritonitis, except that there was usually no portal of infection that required removal or local treatment. It was probably better for each operator to follow the technique he was accustomed to in acute diffuse peritonitis from other causes. Personally he generally employed drainage. In the encapsulated form the operation merely consisted in opening and draining the localized intraperitoneal abscess.

Dr. A. A. Berg said that it was his privilege to see a patient with basilar pneumonia of the right side; the pneumonia existed for four days; then there developed symptoms referable to the right hypochondrium. He thought there might be a perforation of a pyloric ulcer, and he kept the patient closely under observation for forty-eight hours. The question of a diaphragmatic pleurisy came up. Finally the question narrowed itself down to whether there was a peritonitis or a liver abscess which was approaching the liver surface causing peritoneal signs. When the peritoneum was opened there was a gush of almost clear fluid. Flakes of fibrin were noted on the right lobe of the liver. There was no perforation of the stomach or duodenum. He neglected to have a culture taken of the peritoneal fluid. He was surprised not to find any perforation. He was unable to state whether or not the exudate contained pneumococci. This patient went on to complete recovery. With regard to pneumococcus appendicitis he recalled the case of a physician who, after a severe pneumonia, developed a pneumococcus appendicitis.

Dr. Charles R. L. Putnam reported a case of pneumonia; the patient improved and developed pain in the abdomen which directed attention to the appendix. The abdomen was opened and the appendix was found to be normal, but the peritoneum was covered with flakes of fibrin such as were seen in pleurisy. No culture was made, but a smear revealed the pneumococcus. The patient died. One year ago he saw a patient with a localized pneumonia on the right side, but without very severe symptoms. There was extremely severe pain in the appendix. The abdomen was opened and the appendix was found to be but slightly inflamed; on account of the severe pain, the appendix was removed and there was no more trouble. This was a case of localized pneumococcus irritation cured by appendectomy.

Dr. Howard Lilienthal said that the care of these cases differed according to whether they were due to focal disturbances or not. If the appendix was the cause of the disturbance it should be removed; remove the focal cause of the disease whenever possible. It was not understood how the pneumococci gained entrance to the peritoneum. Patients with peritonitis of this nature usually got well without operation. The time to operate was when it was thought that there was a suppurative peritonitis; before that time it was better to play a waiting game.

Dr. George Woolsey said that often the diagnosis of these cases was not made until operation.

Tumors of the Bladder.—Drs. John F. Erdmann and Joseph F. McCarthy presented this communication. As a preliminary procedure in determining the nature of the surgical intervention to be followed one should, by means of cystoscopic examination, ascertain the exact location, whether the cause for removal be single or multiple, pedunculated or sessile, villous or cauliflower in appearance. The occasion for such examination would prove to be an intermittent spontaneous hematuria which was capricious, entirely independent of external causes. It was more marked when the patient was in bed, disappearing and reappearing without discernible cause. There might be intermittent obstruction to the outflow by either the mass or fragments plugging the internal orifice, as observed in one case of papilloma. For the cystoscopic examination it was best to employ an instrument carrying a direct and an indirect telescopic tube, thus giving a vertical as well as a horizontal picture. In this way one obtained a better idea as to the extent of the pedicle, a most important item in determining the mode of approach. Careful but thorough irrigation was a very important requisite in the conduct of this procedure. Beyond ascertaining the exact situation, the extent of the pedicle and the size and general physical characteristics of the growth one should not go. Least of all should one attempt anything more than a tentative diagnosis, inasmuch as pedunculation was by no means a definite indication of benignancy. Too much dependence should not be placed on the microscopic examination of particles expelled spontaneously and frozen sections at the time of operation might also be misleading. An induration of the pedicle at the site of implantation might be the result of a hypertrophy of the connective tissue element of a benign growth, rather than an indication of malignancy. It was well to reinforce a cystoscopic examination with a stone searcher examination as by this means one might determine fairly accurately the degree of infiltration present. Rectal palpation should always constitute a step in examination. It might also be advisable to catheterize the ureters before operation. Inasmuch, however, as the growth in the majority of cases was situated near one or the other of these orifices this procedure was frequently impossible. In the event of complete obstruction of one orifice the other should be catheterized to serve as a guide in locating the obstructed orifice. This should be attempted with the indirect prismatic cystoscope, or, this failing, with the Buerger cystourethrascope, or the aspirating cystoscope of Luys. The operative procedure would depend upon the pathological appearance, the location of the tumor, the type of attachment and whether one had a single growth or multiple ones with which to contend. Tumors which presented an appearance of infiltration about the pedicle or about the margins in sessile growths should be as fully removed as those pronounced malignant. In the soft pedunculated and

sessile type excision through the mucosa was all that was necessary. One could not attack a growth in the immediate vicinity of the ureteral orifice without being prepared to do a new implantation. When multiple growths were present either a wide removal of the surrounding mucosa or a partial resection of the bladder might be found necessary. Pedunculated growths of an apparently benign character situated in the immediate vicinity of the ureteral orifice might be removed as in another situation, without much fear of injury to the ureter. Infiltration growths situated about the ureteral orifice or on the anterolateral wall near the internal vesicle opening required fairly extensive resection through the entire bladder wall, at least two centimeters beyond the infected area. Infiltrated growths of questionable malignancy from a clinical standpoint and necessitating the removal of considerable bladder area might be removed after the method of Charles Mayo (*Annals of Surgery*, Vol. XLVIII, p. 107.) In view of the great number of intraperitoneal ruptures of the bladder operated upon, both by the general and special surgeon it appeared rather strange that the transperitoneal operation for the removal of bladder tumors had not been advocated years ago. In this operation, having stripped the peritoneum laterally down to and beyond the ureter, one resected through the entire bladder wall, either from without inward, or from within outward, as the case might be, employing the tumor mass and the ureter with its catheter as a pedicle. The bladder wall should be cut so as to permit of proper closure of the wound. The ureter might be implanted in that angle of the wound approximating its original situation, or it might be relocated by buttonholing the bladder wall, having in mind at all times the desirability of placing it as near its original position as possible, as well as the avoidance of kinking. Cystoscopic operative procedures should be limited to small pedunculated growths and the alleviation of hemorrhage in extensive recurrences. In three cases of well-pedunculated growths operated upon by Dr. Erdmann, the usual suprapubic operation was performed and it was found that a small portable electric light and a Kelly proctoscope or Ferguson speculum were of decided benefit. The former allowed of free inspection of the bladder, while the latter was a useful contrivance during cauterization, preventing burning of the healthy bladder beyond the seat of involvement. Although they did not close the bladder in these three cases of pedunculated papilloma Dr. Erdmann stated that he would certainly do so in any subsequent non-infected cases. The writers of this paper called attention to the effect of fulguration, which, although it was too soon to make definite statements, seemed to bring about a cessation of the hematuria in the vast majority of cases and this in itself was a distinct gain. The authors reported in detail ten cases and drew conclusions which were published in the MEDICAL RECORD, October. 22, 1910, p. 739.

Dr. MARTIN W. WARE spoke of the relative hopelessness of these cases; one could not tell whether or not such growths would become malignant. In the face of such a proposition they were only prepared to recommend operation on the basis of some strict indication. Was the growth obstructive? Was hemorrhage very excessive? Dr. Ware thought it was advisable to have a cystoscopic examination made if there was hematuria present. If there was not much obstruction and if the growth appeared benign it was advisable to watch the tumor for a while, asking the patient to return at stated intervals in order to determine if there was much increase in size of the tumor. In the mere presence of a growth, if there was not much bleeding, or if there was no strict indication, why interfere? He recalled a case that had been under observation for seven years; every once in a while there occurred a hematuria, but he was not much concerned regarding this. At last he removed the growth and promptly another growth appeared in the line of the cicatrix, and also a much more severe hematuria, and finally this patient succumbed. So far as the extraordinary radical operation for tumors of the bladder was concerned, the fact that there was a death rate of over 50 per cent. was a deterrent factor. With regard to the recommendation to remove the lymphatics concerned, that hardly seemed tenable. The observations of French urologists showed that there was nothing to fear in malignant disease of the bladder, on the part of the lymphatic glands such as they had to fear in malignant disease of the breast. In tumors of the bladder the essential thing was the infectious involvement of the kidney and ureters; this had culminated in the teaching of Watson of Boston that they should do something to prevent an eventual infection of the kidney by the performance of ureterotomy. If the hematuria was slight and the tumor was small, and if the patient could be kept under observation, operation was not indicated. The high frequency current had been effective in a few instances.

Dr. BENJAMIN S. BARRINGER said he was very much interested in the use of fulguration in the treatment of bladder tumors and had had the opportunity to assist Dr. Keyes in a number of cases. He had seen ten cases and there were two points in which he differed somewhat with what had been said by those preceding him. First was the ease with which fulguration was done. In the ten or more cases he had had there was no more difficulty in applying the wire to the tumor than there was in catheterizing the ureters. It was the mere matter of touching the tip of the wire to the tumor. Secondly, there was nothing unusual about the effect of fulguration; this was simply an intense cauterization.

Dr. LEO BUERGER said that fulguration was not a difficult procedure at all and was productive of very satisfactory results. He recalled one case of a large papilloma of the bladder situated over the left ureteral orifice. This case was under observation for some time. After the hematuria ceased the growth was removed. He also reported one case of a small papilloma in which but one treatment caused its disappearance. The fulguration treatment in his opinion was an excellent method.

Dr. A. A. BERG took exception to Dr. Ware's attitude that because of the high mortality attending operative removal of malignant disease of the bladder one should remain inactive and do nothing for this disease. That was by no means the attitude of the advanced surgeon. Malignant disease of the bladder, if left alone, would cause the death of the patient. He did not think that fulguration would be of much benefit in malignant disease of the bladder. He was unwilling to admit that carcinoma of the bladder was an inoperable and incurable condition. If one could readily get at the disease and resect a sufficient portion of that viscus, say one-half of it, there would be a chance for a permanent cure. In cases of pure papillomata of the bladder fulguration might offer the best treatment.

Malignant Growth Implanted on Cystocele.—Dr. A. E. GALLANT presented this specimen. The growth was as large as a child's head and so interfered with locomotion that it was removed.

Method of Preparing 606.—Kromeyer recommends the following method of preparing Ehrlich's arsenobenzol, 606: A stated amount of the drug, 3.0, for example, is thoroughly rubbed up in a mortar with a small quantity of liquid paraffine, and more and more is added up to 30.0; then each cubic centimeter will contain 0.1 of 606. Put up in dark glass-stoppered bottle and keep in a dark place. With this emulsion the intramuscular injections are made precisely as is done with that of salicylate of mercury, slowly, to prevent tissue damage, using also a somewhat stouter needle. In the course of 100 injections made, neither severe pain nor swelling was observed, and the clinical effect was prompt. Dr. Treupel and others believe that Kromeyer's way will very probably be followed by most practitioners.—*Berliner klinische Wochenschrift.*

Philadelphia County Medical Society.

At a stated meeting held October 26 Dr. G. Betton Massey exhibited a series of cases of malignant disease in various situations treated by means of zinc-mercury cataphoresis. The results were excellent and in some instances of long standing. Dr. Frances Ashley Faught read a paper entitled "The Clinical Value of Blood-Pressure Studies." He pointed out numerous directions in which estimation of the blood-pressure can be made of value in the recognition of morbid states and in the determination of therapeutic indications, and he contended that the sphygmomanometer should have a place in clinical medicine alongside of that of the thermometer and the stethoscope. Dr. Samuel D. Risley presented a communication entitled "Ocular Manifestations in Cardiovascular Disease." He described the thickened spiral retinal arteries of arteriosclerosis, with their marked light reflex, and compressing veins over which they passed as distinguished on ophthalmoscopic examination in cases of arteriosclerosis. Retinal hemorrhages may be due to the same cause, and hemorrhagic glaucoma may have a like origin. A number of illustrative cases were cited in which the underlying vascular condition was discovered on scrutiny of the fundus of the eye, with gratifying results from appropriate treatment. Dr. George W. Norris discussed "Sphygmographic Studies from a Case of Valvular Heart-disease, with Especial Reference to the Effects of Medication." He demonstrated by means of tracings the phenomena developed in the peripheral arteries as a result of disease of the heart, muscular and valvular, and the therapeutic indications derived therefrom, as well as the actual results of treatment. Dr. Henry D. Jump presented a communication entitled "The Value of Blood-pressure Estimation in Clinical Medicine." He pointed out the value of high pressure as a sign of arteriosclerosis and of its usefulness in the recognition of impending eclampsia; the occurrence of low pressure in typhoid fever, except on the occurrence of perforation of the bowel; of the indication for stimulating treatment in cases of pneumonia, when the pulse-rate approaches in number the blood-pressure expressed in millimeters of mercury; of the value of differences in pressure between the lower and upper extremities and between one side and the other in cases of aneurysm of the aorta. Drs. Myer Solis-Cohen and Albert Stickler presented a paper entitled "The Leukocyte Picture as It Reflects the Progress of Disease, Especially in Pulmonary Tuberculosis." They found that as the disease advances an increase takes place in the number of polymorphonuclear leucocytes, with a corresponding diminution in the number of mononuclear cells. Dr. Gordon J. Saxon discussed the question of "The Needle versus the Scalpel in Intravenous Saline Infusion." He pointed out the inconveniences of making an incision for the isolation of the vein and the introduction of a cannula, as contrasted with the simplicity and the convenience of merely introducing through the sterilized skin a needle attached to a rubber tube and a funnel.

The Hypophysis and Castration.—G. Fichera gives a résumé of the papers that have been written on the effect of castration on the hypophysis cerebri. In a case on which an autopsy was performed after castration it was found that congestion of the pituitary gland was marked; there was a condition of hyperactivity of the gland with chromophile cells. In animals an increase in volume of the hypophysis was noted and a functional hyperactivity. The whole gland was increased in size and the blood supply was increased by new capillaries. All the various authors speak of the hypertrophy of the gland after castration. In early pregnancy the gland hypertrophies, but this condition is only transitory.—*Il Policlinico.*

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week of December 17, 1910.

	Cases	Deaths
Tuberculosis Pulmonalis	612	151
Diphtheria	269	23
Measles	180	5
Scarlet Fever	253	14
Smallpox	—	—
Varicella	133	—
Typhoid Fever	63	9
Whooping Cough	78	5
Cerebrospinal Meningitis	8	8
Malarial Fever	—	—
Totals	1,596	215

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, during the week ended December 16, 1910.

CHOLERA

PLACE	DATE	CASES	DEATHS
Arabia: Mascat	Oct. 29–Nov. 5	8	8
Surur	Oct. 29–Nov. 5	..	..
Present and in vicinity.			
Austria-Hungary: Gratz	Nov. 7	1	..
China: Fa Ti	Oct. 21	6	5
Across the river from Canton in the insane hospital.			
Pathoi	Sept. 17	..	Present
Federated Malay States: Kwala Lumpur	Oct. 22	..	..
Present in rubber estates of Krian.			
India: Bombay	Nov. 2–8	..	1
Calcutta	Oct. 16–22	..	25
Madras	Oct. 28–Nov. 2	..	3
Italy		..	..
Total for Italy, Dec. 1–6, cases 55; deaths 6.			
Provinces—Caltanisetta	Nov. 13–19	2	1
Campobasso	Nov. 13–19	1	..
Caserta	Nov. 13–19	25	6
Girgenti	Nov. 13–19	1	..
Lecce	Nov. 13–19	1	1
Naples, exclusive of the city of Naples	Nov. 13–19	6	1
Palermo	Nov. 13–19	10	..
Rome	Nov. 13–19	10	1
Japan: Kobe	Nov. 6–12	..	5
Tokyo	Oct. 17	1	1
Java: Batavia	Oct. 23–29	6	3
Pasoeroean	Aug. 11–Sept. 10	68	63
Samarang	Aug. 1–Sept. 10	189	170
Philippine Islands: Manila	Oct. 16–29	3	..
Provinces—Ambos Camarines	Oct. 23–29	10	10
Batangas	Oct. 16–29	31	25
Bulacan	Oct. 16–29	14	13
Cavite	Oct. 23–29	4	3
Ilocos Sur	Oct. 16–29	24	20
Mountain	Oct. 16–22	3	2
Nueva Ecija	Nov. 16–29	6	4
Rizal	Nov. 16–29	26	14
Tarlac	Nov. 16–29	5	5
Russia		..	..
Total for Russia, Oct. 23–29, cases, 449, deaths, 279.			
City of St. Petersburg	Oct. 23–29	76	29
Cronstadt	Oct. 23–29	..	3
Russia		..	..
Total for Russia, Oct. 30–Nov. 5, cases, 170, deaths, 110.			
City of St. Petersburg		25	15
Servia: Belgrade	Oct. 7–Nov. 8	4	1
Passarowitz	Oct. 7–Nov. 8	1	1
Turkey in Asia: Basra	Oct. 28–Nov. 5	97	61
In vicinity, cases, 112, deaths, 76.			

YELLOW FEVER

Brazil: Manaos	Oct. 23–Nov. 12	..	4
Para	Nov. 13–19	46	18
Including cases of fever not specific.			
Ecuador: Guayaquil	Oct. 16–31	8	2
Venezuela: Caracas	Nov. 13–26	3	3

PLAGUE

Brazil: Bahia	Oct. 1–7	1	1
China: Shanghai	Oct. 28–Nov. 5	6	6
Ecuador: Guayaquil	Oct. 16–31	85	33
India: Bombay	Nov. 2–8	..	12
Calcutta	Oct. 16–22	..	7
Kurrachee	Oct. 31–Nov. 5	6	6
Rangoon	Oct. 23–29	..	3
Manchuria: Hailar	Nov. 10	3	1
Harbin	Nov. 10	1	1
Jalai Nor Mines	Nov. 10	14	12
Manchuria Station	Oct. 25–Nov. 10	188	166
Three cases and two deaths among Russians.			
Mauritius	Sept. 2–29	41	26
Peru: Departments-Arequipa—Mollendo		..	..
Nov. 15, one fatal case.			
Callao	Sept. 1–Oct. 31	6	..
Nov. 12, one case.			
Lambayeque	Sept. 1–Oct. 31	2	2
Libertad	Sept. 1–Oct. 31	18	27
Nov. 12, present in Trujillo and Chicama Valley.			
Lima	Sept. 1–Oct. 31	18	8

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Original Articles.

A CONSIDERATION OF SURGICAL METHODS OF TREATING HYPERTHYROIDISM.*

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IT is only within a comparatively recent period that our knowledge of diseases of the human body has progressed beyond new growths, degenerations, and infections. At the present time there is a return to the study of physiology, and many investigators are working actively on the normal and abnormal functions of the various glands of the body. While all of the glands may be classified as nutritive, eliminative, and protective, they are, nevertheless, so intimately associated in their function that it is difficult to estimate observations made upon healthy animals that are unable to record their sensations. In some of these cases the glands studied are evidently of much less importance in the economy than are the same glands in the human being.

The glands of elimination are provided with ducts, as are some of the glands of nutrition, and they are subject to intermittent discharge, while a few of the more necessary glands, so far as their secretion is concerned, are more slow in delivering an active secretion through the lymphatic system. The thyroid, parathyroid, and hypophysis glands belong to the latter classification.

It is difficult to estimate the degree of hyposecretion. Its entire absence could occur and ill effects be prevented by the activity of other glands of associate function. It is equally difficult to estimate the quantity of oversecretion which may be neutralized by the glands and organs of elimination.

From observations made in over 2,000 operated cases of thyroid disease, it is evident that there is a wide range in the changes manifest in the gland before it produces symptoms which we are able to recognize. Most of these glands are securely hidden from view, and observations as regards their condition have been developed upon the firm basis of pathologic study rather than the far less accurate observation of symptoms.

For a century and a quarter many observers reported well-investigated cases of hyperthyroidism from the standpoint of symptoms, and it was not until 25 years ago that Moebius advanced his theories regarding the disease known as exophthalmic goiter, Morgagni's disease, Flagani's disease, Graves' disease, and Basedow's disease, a condition due to an increase or perversion of secretion of the thyroid gland. The thyroid gland, which is usually accessible and even visible in the neck, is but little in advance of the other ductless glands in having established an accurate record of its diseases. The thyroid gland is of invertebrate origin and was originally a sex organ. This association is still retained, and is seen in the goiter of adolescence, in the goiter of pregnancy, and in goiters which not infrequently accompany uterine tumors and the temporary congestion of the thyroid at the menstrual epoch.

The changes seen in the thyroid gland, other than malignant or infectious, will be found to fall into one or more forms of the brief classification given by Dr. MacCarty:

1. The process of goiter may be a process of reversion of the thyroid gland to some former function.

2. Hyperthyroidism is a toxemia, the result of absorption of the products of the hyperactive thyroid.

3. The stimulus causing the hyperactivity may be the same that stimulated the thyroid activity in primitive man.

4. This stimulus was then probably a normal stimulus to the gland, just as we have normal stimuli for glandular activity in man in his present condition.

5. This stimulus may still be present in the food or water formed through some process in the intestine or in the metabolism of the body, or it may exist in the air.

6. The types of goiter are probably not types but stages in a general process.

7. Goiter may be classified upon a pathologic basis as follows: (*a*) Cystic goiter (thyroidea cystica); (*b*) hypertrophic parenchymatous goiter (thyroidea parenchymatosa hypertrophica); (*c*) papillary cystic goiter (thyroidea cystica papillare); (*d*) hypertrophic fetal thyroid (thyroidea fetalis hypertrophica); (*e*) fetal adenoma of the thyroid (thyroidea fetalis adenomatosa).

8. Hyperthyroidism always occurs in *b* and *c*, and may occur in *e*.

The surgical treatment of simple goiter is so nearly crystallized there is little to discuss concerning it. The operative mortality is very low, being reduced to complications and accidents. The operative treatment of hyperthyroidism is an entirely different proposition. The condition itself often causes death, and patients who suffer from it may be incapacitated, helpless individuals for long periods of time.

The greater number of patients who seek relief from goiter are to be found in these two classes; viz., simple goiter and hyperthyroidism. The first condition, which causes more or less pressure, is a nuisance to the individual affected, while the second condition causes ill health, affecting nearly the entire body. The local symptoms or size of the growth are of secondary importance.

It must be admitted that reversion of the structure toward simple goiter may occur at any time or

*Read before the New York Academy of Medicine, December 1, 1910.

stage of the condition, with, so far as is known, no more cause than that due to its origin. Other cases are apparently favorably influenced by some form of treatment. It is a matter of common observation that hyperthyroidism seldom progresses continuously without intermission toward a fatal termination of gland destruction unless it results disastrously during the first few weeks. It is now generally conceded that a reduction of the secretion is desired in hyperthyroidism, and to this end many varieties of treatment are employed.

From a surgical standpoint the ligation of vessels with nerves and lymphatics included seems to favor a reversion of the hyperthyroid condition to one of simple goiter. Dr. Miles Porter believes that the injection of a small amount of boiling water into the gland substance, after the Wyeth method in angioma, accomplishes the same purpose.

The early surgical work in hyperthyroidism, to a large extent, was done upon the most aggravated types of cases which had resisted other forms of treatment. The mortality of early operations made operative procedures almost prohibitive. The present low mortality has resulted less from an increase of operative skill than from a selection of the time for operation with reference to the activity or severity of the condition, and the type or extent of the operation.

The history of chronic hyperthyroidism usually gives many periods of fluctuation from mild to almost moribund conditions. The condition in the majority of cases is not so extreme that a partial thyroidectomy cannot be made with comparative safety. In the severe cases preparation of the patient should be an important consideration before advising any kind of operative interference. Early cases which might possibly be benefited for a time under medical treatment are often delayed until a condition develops which justifies a thyroidectomy. Such cases are now being treated by an early safe ligation of vessel groups at the upper poles. Very serious conditions complicated with dilatation of the heart, fatty degeneration of the heart and liver, nephritis, and possibly edema and cerebral incoordination are also benefited by a ligation of the vessels at the upper poles, at the same time or at separate operations. The mortality in these cases is about the same as it is for thyroidectomy, but the operation enables the operator to make an effort to relieve some of the patients who are so near moribund that an extirpation can not be considered.

The average gain in weight following operation upon patients below average weight is twenty pounds within four months. At this time, or later, a partial thyroidectomy can be made with almost no mortality, especially if patients who have relapsed are again tided over the exacerbation period by the ligation of one inferior artery, with an interval of a few months before extirpation is made. These conditions are due to an activity of function of the gland, and some few cases do not recover their normal health after operation because either too little of the gland was removed or the remaining portion of the gland increased its size and output of secretion. Such cases require ligation of some of the vessels, and a resection of the remaining lobe may even be necessary at a later period.

Over 1,100 patients have been operated upon for hyperthyroidism in St. Mary's Hospital. The mortality following ligation is 3 7-10 per cent., and that following extirpation is 3 9-10 per cent. This includes the high mortality of our early work when surgical deaths included many that should have been medical. It is true that we could count out continuous runs between deaths of 76 cases and 90 cases, even 150 cases with two deaths, but the general average is not so good. About 70 per cent. of the patients consider themselves cured, and apparently they are well. The others are improved but not well. Unfortunately they were not operated upon until they were suffering from extensive secondary degeneration and cytolysis of the gland. While the operation checked the toxemia, the result may be compared to that following the removal of a bullet from its location in the neck, without removing the damage done by its passage through the body.

The anesthetic given in these cases has usually been ether, preceded by 1/100 gr. atropine and 1/6 gr. morphine. Local anesthesia is occasionally considered best for the patient when the general condition is serious, or there are heart complications.

EXPERIENCES WITH ARSENOBENZOL.*

By WILLIAM S. GOTTHEIL, M.D.,

NEW YORK.

I DESIRE to put on record a series of cases of syphilis treated with "606" in my service at the City Hospital. The drug itself I owe to the courtesy of Dr. Flexner, and Dr. Noguchi of the Rockefeller Institute did many of the injections and most of the Wassermann tests. The remainder were done by the assistant visiting physician on my service, Dr. Satenstein, and the Sage Institute of Pathology connected with the hospital. I shall not refer to chemical, theoretical, or historical considerations about the drug, but shall confine myself to recounting my own experiences. These, I may say at the start, while in general satisfactory, have been in no way marvelous from the syphilographer's viewpoint. I must also premise that everything herein recorded refers to immediate results alone; there has not been time to form any opinion as to permanence of effect, and it must long still remain entirely uncertain whether that most devoutly to be wished for result, the complete and permanent cure of the luetic infection, can be attained by the new method or not.

The Cases.—Up to date I have given thirty-one injections in twenty-nine cases, two of them receiving it twice. A few of these cases are useless for our purposes, the patients for various reasons having disappeared from observation immediately after the injection or the treatments having been too recently administered. There remain twenty-five cases which have been observed for a minimum time of one week in one instance to three months. These were all hospital cases, under control and close observation, and they were watched and the results noted not only by myself, but by the assistant visiting, the house staff, the experienced permanent nurses in the wards, and various colleagues.

The patients themselves were of the types usual in a large public hospital, mostly rough and careless individuals of the lower classes, not sensitive to pain, and attracted to the hospital by the newspaper publicity that the new remedy has unfortunately got prematurely, and filled with the hope of getting rid of their infection at once and permanently. Their disease manifestations embraced the ordinary types, from the initial lesion to the late gumma, and a few

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of the unusual ones also. Most of them, of course, showed more than one type of lesion, so that the twenty-five cases included four chancres, sixteen general secondary eruptions, eight cases of mucous patches, two cases of iritis, four cases of condylomata, six cases of tertiary ulceration of the skin and mucosa, and four gummata.

The Injections.—In the first sixteen injections the emulsion was employed, injected into the muscles of the subscapular region. In the remainder the clear solution was used, three cases receiving the medication in the two buttocks, divided into two equal doses, and the remaining six being injected in the right quadratus lumborum muscle. Almost without exception the injections were very painful. Even our very insensitive patients, on whom we make biopsies without local anesthesia and often without complaint, had to have morphine hypodermically at once, and now we give it in every case immediately after administering the arsenobenzol. Even with its aid there are always one or more pain-filled and sleepless nights. The one or two patients who did not complain loudly afterwards acknowledged the pain and insomnia.

At the present time we are using the clear solution and the quadratus lumborum route exclusively. The emulsion made after the method of Wechselmann, and injected into the deep muscles below or between the shoulder blades, gave us in almost every case a large persistent induration. In many instances it was the size of an orange, and in five cases it gave the patients so much trouble that interference became necessary. In about six weeks after the injection incision and drainage had to be done; there was always a small amount of arsenic in the fluid center of the tumor, but the most striking change was in their thick walls. The subcutis and muscle were in a state of dry necrosis, deep black in color, and entirely insensitive. In none of these cases that are still under observation has the process of slough extrusion yet ended, and it is a question whether the extensive tissue destruction by the arsenic has not to some extent interfered with the absorption and activity of the drug.

The gluteal site was rejected after trial on three cases. There was intense discomfort occasioned by having both glutei occupied by large, tense, tender infiltrations; the patients had to lie on their abdomens in bed, and could not sit down at all. In these three cases the clear solution was used, and the infiltrations did not require subsequent interference.

The quadratus lumborum site seems to be distinctly the best. In some of the six cases where we have used it a large, tense mass, extending down to the front of the abdomen, was formed; in one of these the skin over the tumor became dusky red, and it seemed as if something would have to be done, but it retrogressed in the course of three weeks, like the others. Of course, the occurrence of a necrosis like that observed with the emulsion in the subscapular injections would be a serious matter in the lumbar site, so near the kidneys and the abdominal organs, but we have not observed this necrosis in the nine cases in which the clear solution was used. The pain was about the same whichever method was employed.

The dosage has been practically uniform—0.6 for men, and 0.5 for women.

Renal Effects.—In not less than ten out of the twenty-five cases there occurred after the injections distinct symptoms of renal irritation in varying degree. This was shown by the presence of red blood cells in the urine, usually appearing the third day after the injection, but in four cases not seen until the seventh to the fourteenth day. In three cases this was merely temporary, the abnormal find disappearing in from two to twelve days, and in another case, in which albumin was also present, the same occurred. Three patients who left the hospital shortly after their injection still had red blood cells when last seen. In the three remaining cases hyalin and granular casts appeared later, and persisted up to the time of discharge, which in one case was two months afterwards. Every one of these injected patients had a negative urine before the medication was administered, since it was not deemed proper to inject it where there were any renal changes, and the patients were kept under observation for a few days before it was given. That the use of the emulsion cannot be blamed for this by-effect is shown by the fact that four of these ten renal cases occurred after the injection of the clear solution into the quadratus lumborum site.

Therapeutic Action.—Since my observation of the therapeutic effects of the new remedy differ to some extent from the unreservedly laudatory and almost hysterical praise with which it has been received, it will be well to intercalate here the briefest kind of a synopsis of the histories of the cases from which my conclusions are drawn. I submit the following cases:

Case I.—William H., 26; June, 1910. Pharyngeal mucous patches and eruption; 0.3, 606, Fordyce. Disappearance of mucous patches in two weeks; improvement of throat. By end of July mucous patches again, and moist papules of scrotum and prepuce (patient's history). October 6, 606, 0.6, emulsion, subscapular. In six days disappearance of moist papules; mouth unchanged. In two weeks, extension of mouth lesions; in fourth week, improvement; disappearance in six weeks, in spite of disadvantageous circumstances.

Unsatisfactory results from 0.3 dose; relapse; two weeks after 0.6 dose, extension of mucous patches; improvement in four and disappearance of lesions in six weeks. Successful case, but not comparing favorably with Hg. in time required. Steady diminution but not disappearance of the Wassermann.

Case II.—Alfred J., 20; colored. General miliary and pustular syphiloderm. October 11, 606, 0.6, emulsion, subscapular. Lastingly painful. No result in one month; new skin lesion, mucous patches, cephalalgia. November 11, 606, 0.5, solution, quadratus lumborum. Skin lesions still appeared; marked subjective symptoms, remittent fever. Ten days after second injection, sinovitis of left knee. Seven weeks after first injection, three weeks after second, patient left with skin eruption unproved and sinovitis still present. Red blood cells in urine one week after second injection still present when discharged.

Unsuccessful, in spite of two injections, one emulsion, and one solution. Marked renal irritation after the second. Six weeks' observation.

Addendum, Case II, December 18, 1910—Report by Dr. C. W. Bonney, Philadelphia, and Dr. E. H. Funk, Jefferson Hospital: Skin eruption unchanged; much joint pain; palpitation; urine negative. "A very low grade optic neuritis, not amounting to swelling or choking. No loss of visual activity; fields are normal."

Case III.—Mary G., 19. General macular; muc-

ous patches throat and labia. October 27, 0.5, 606, solution, buttocks. Pain and disability. In thirteen days slight fading af macular, disappearance of labial and buccal patches.

Fair result; time of observation too short.

Case IV.—Alice C., 50. Exulcerated gumma of leg. November 12, 606, 0.5, solution, quadratus lumborum; very painful. Stayed only one week in hospital; very slight improvement.

Time of observation too short.

Case V.—Sophie H., 22. Gummatous ulceration of palate and fauces. October 26, 606, 0.5, solution, buttocks; moderate pain. In two weeks marked improvement.

Good result; not striking.

Case VI.—George A., 29. Rupial general syphiloderm, pharyngeal ulceration, uninfluenced by short Hg. course. October 11, 606, 0.6, emulsion, subscapular. Improvement for three weeks; then periostitis patellæ. Refused a second 606 injection. Satisfactory improvement under mercury.

Failure, in spite of improvement of skin lesions.

Case VII.—Charles J., 23. General maculopapular eruption, angina, etc. September 30, 606, 0.6, emulsion, subscapular. Prompt disappearance of cephalalgia, spirochetes, and diminution of the Wassermann. In two weeks disappearance of eruption, save on palms. In four weeks, reappearance of the general and palmar eruption, with cephalalgia and general symptoms, increase of intensity of positive Wassermann and reappearance of spirochetes.

Failure; refused a second 606 injection.

Case VIII.—Edward B., 39. General tubercular syphiloderm, angina; mucous patches. November 11, 606, 0.6, solution, quadratus lumborum. In two weeks disappearance of the patches, considerable improvement in the eruption; patient then left. Red blood cells in urine one week after injection; present three days.

Good result, so far as observation went.

Case IX.—Frank K., 40. Chancre and macular exanthem, present since August. October 6, 606, 0.6, emulsion, subscapular. In three days initial lesion healed (patient's statement); in fourteen days eruption disappeared. The chancrous induration and the adenopathy remained, however, during the six weeks of observation. Red blood cells appeared in urine on fourth day post injectum and then disappeared.

Moderately good result; chancre had been present over two months and exanthem over one month when injected and were due to disappear. Wassermann practically unchanged twenty days after injection.

Case X.—Annie L., 46. Gummatous ulceration of palate and tonsil for six weeks, interstitial keratitis. October 13, 606, 0.5, emulsion, subscapular. Pain. Throat improved by fourth day, renewed ulceration on fifth day, then steady improvement and healing of throat in eighteen days. Eye lesion unaffected; serum test unchanged; induration mass at injection site. Time of observation, one month.

Fair result, with intercurrent relapse, in three weeks for throat; no effect on keratitis.

Case XI.—Isaac J., 18. Tuberculoulcerative syphilitic glossitis. October 11, 606, 0.6, suspension, subscapular. In two days pain in tongue gone, improvement beginning; in ten days erosions healed, ulceration less deep, tubercles smaller. Subscapular mass.

Fair therapeutic result in ten days.

Case XII.—Thomas A., 30. Extensive general tuberculoulcerative syphiloderm; retrogressing; iritis. October 13, 606, 0.6, emulsion, subscapular. In first week, exacerbation of iritis, increase of the skin lesions; in two weeks, iritis gone, skin lesions improved; in three weeks skin lesions healed; Wassermann positive reaction but slightly lessened.

Good result in three weeks.

Case XIII.—John H., 47. Papulosquamous syphiloderm, body, palms, and soles; moist papules of prepuce; nocturnal pains. September 26, 606, 0.6, emulsion, subscapular. No retrogression in one week, then pharyngeal mucous patches; Wassermann strongly positive. Urine, red blood cells; eruption got worse. In one month first betterment of eruption and moderate improvement in Wassermann. In six weeks marked improvement in eruption and negative Wassermann.

Neither subjective nor objective symptoms improved till four weeks; new symptoms had appeared. Noticeable betterment in six weeks, such as has occurred several times before under treatment (patient's statement). Time of observation, seven weeks. Improvement only; not successful.

Case XIV.—Charles K., 28. Extensive rupial general syphiloderm; mucous patches, tonsils, and velum. Wassermann strongly positive. October 2, 606, 0.6, emulsion, subscapular. Pain, forty-eight hours. Improvement began in three days, when red blood cells appeared in urine; later hyalin and granular casts repeatedly. On fourth day some new dermal lesions; on tenth day a new mucosal one. By fifteenth day most of the skin lesions were cicatrizing or healed, but by eighteenth day many new lesions and ulceration of tip of nose. In fourth week was given two salicylate of mercury injections, and then, through error, 606 again, 0.6 solution, buttocks. For four days after this general condition and lesions got worse; then steady improvement. All through November albumin and hyalin casts persisted. Large mass at site of first injection, with fluid inside containing some arsenic. Steady improvement in Wassermann until negative. December 11, all skin lesions healed.

Malignant case of doubtful significance; nine massive Hg. injections, as well as the two 606.

Case XV.—Ernest A., 29. Two exulcerated chancres, macular eruption, buccal mucous patches. October 13, 606, 0.6, emulsion, subscapular. In seven days slight improvement in symptoms; same in three weeks. Then periositiis of tibia, gumma of skin of leg, anal moist papule, faucial mucous patches. Large indurated injection mass, necrotic, with fluid containing arsenic. One month after first injection patient refused a second one.

Practical failure of 606; improvement slow and halting, as if with no treatment at all, and with new symptoms. Observed one month.

Case XVI.—Gustav J., 28. Phagadenic chancre, tuberculoulcerative and rupial general syphiloderm, mucous patches, ulceration of ala nasi. Many of the lesions retrogressing and partly cicatrized. September 26, .05, 606, emulsion, subscapular. The skin lesions improved for fourteen days, many of them healing; but in the third week there set in periostitis of a metacarpal bone of each hand, followed by periostitis of the malleoli; the nasal and penile ulcerations extended, and the general condition got much worse. The patient implored that something be done for him and he was put on a vigorous Hg. and K. I. treatment under which for two weeks he

improved only moderately. All treatment was then stopped, and under absolutely nothing but feeding and hygiene improvement was extremely prompt. Its beginning was apparent in two days, and in less than three weeks all the lesions had healed, ten pounds in weight was gained, and the patient was up and felt entirely well. He left the hospital in excellent health one month after all treatment was stopped. This patient also showed red blood cells in the urine for a few days after the 606 injection.

This must be put down as a failure; temporary improvement and then relapse with symptoms of serious import. In my opinion he was suffering from mercurial and iodic intoxication as much as from his infection.

Case XVII.—Andis D., 24. Indurated remains of chancre, palmar and plantar syphiloderm, papules of penis, mucous patches of lips, fauces, and uvula. Wassermann and spirochetes positive. October 7, 606, 0.6, emulsion, subscapular. Improvement in three days, but spirochetes still plentiful and red blood cells and granular casts in urine. Distinct improvement in six days, spirochetes disappeared, urine normal. One month after injection renewed outbreak of pharyngeal mucous patches. Being a recent immigrant, the patient was then deported.

Non-success. As usual, mucosal symptoms responded quickly, but relapsed first.

Case XVIII.—William L., 33. Exulcerated gumma of glands and sheath, very extensive; buccal mucous patches; Wassermann strongly positive. October 14, 606, 0.6, emulsion, subscapular. Improvement for several days, then stoppage and subsequent extension of ulcerative process. New gummata appeared and the ulceration was not entirely healed in six weeks. Large tumor at injection site, finally incised and found to contain arsenic. Patient refused a reinjection of 606.

Time of observation, six weeks; improvement extremely slow and hesitating.

Case XIX.—Gustav N., 30. General macular syphiloderm, condylomata, and moist papules of anus, perineum, and scrotum. November 19, 606, 0.4, solution, quadratus lumborum. Next day, red blood cells in urine, persisting one week. Prompt improvement in all the lesions; in seventeen days they had disappeared entirely.

One of the most successful cases, in spite of the small dose; renal irritation marked.

Case XX.—Elizabeth M., 30. Multiple chancres of labium majus, general maculopapular syphiloderm, angina, mucous patch of tongue. Eruption was already fading (patient's statement). October 27. Has had 1½ grains Hg. Sal.; 606, 0.5, clear solution, both buttocks. Much pain; no sleep. One week later genital lesions looked cleaner, otherwise unchanged; the eruption was still fainter and the mucous patch was gone. During the six weeks since that time the chancre has been steadily healing, but very slowly; it was still present and exulcerated on December 8. New moist papules have appeared on labia and perineum. Painful buttock induration persisted one month.

Practically a failure in six weeks.

Case XXI.—Sadie D., 20. General macular syphiloderm, angina; condylomalata of vulva and perineum. November 19, 606, 0.5, solution, quadratus lumborum. Much pain. Two days later, red blood cells in urine, persisting, with a trace of albumin for a week, and then disappearing. Condylomata disappeared in ten days, skin eruption in nineteen days.

Successful case, though not remarkably fast; marked renal irritation. Time of observation, three weeks.

Case XXII.—Isabella F., 23. Secondary macular syphiloderm, mucous patches of genitals, partly exulcerated. Wassermann positive. October 11, 606, 0.5, emulsion, subscapular. In two weeks all symptoms had disappeared (local treatment was used also). In third week relapse of plantar papules, lasting only one week. Induration mass troublesome and incised at sixth week. Necrotic tissue and some fluid containing the arsenite found.

A fairly successful case; symptoms disappeared in two weeks, with a temporary relapse in the third.

Case XXIII.—Annie S., 45. Induration of chancre in labium, with genital moist papules; general macular and papulosquamous syphiloderm; iritis; vaginal mucous patch; palmar and plantar syphiloderm. The iritis was retrogressing under atropin. November 11, 1910, 606, 0.5, solution, quadratus lumborum. Very painful, but gave no further trouble. In four weeks all lesions had disappeared. Red blood cells in urine two days after injection, persisting twelve days, then disappearing.

Successful result in a fairly malignant case; not especially rapid; marked renal irritation.

Case XXIV.—Louise C., 53. Ulcerated gummata of both legs. Wassermann very strongly positive. October 7, 606, 0.5, emulsion, subscapular. Painful. Red blood cells in urine once, three days after injection. Moderate improvement in gummata for ten days, then an intercurrent attack of erythema multiforme; stoppage of the improvement; new gumma one month after injection. No further improvement up to eighth week; then put on Hg.

Distinct failure. The erythema multiforme appeared ten days after the injection; query as to possible connection between them.

Case XXV.—Abraham G., 45. Extensive gummatous ulceration of dorsum of penis and glans. Under local treatment alone this has been steadily getting cleaner and smaller. October 6, 606, 0.6, emulsion, subscapular. Its influence on the gummatous ulceration was very slight; healing continued to progress slowly for six weeks and then stopped. Patient put on mercury and potassium iodide. Large injection site mass opened six weeks later, with the usual findings. Time of observation, eight weeks. Patient refused another 606 injection.

Failure; very little arsenic was found in the fluid of the injection tumor.

In the observation of these cases it has been my earnest endeavor to preserve an impartial attitude, and in judging of the results attained the purest objectivity has prevailed. Neither our natural and proper disapprobation of a proprietary remedy that has been marvelously exploited in the public press on the one hand, nor our respect for the great teacher who has proposed it and the many authorities who have advocated it on the other, should greatly influence our decisions. Of course the latter factors necessitate the greatest care in drawing conclusions, and more especially require a full consideration of any special factors that may have been the occasion, in part at least, of a record of results that are not in entire accord with those of others.

Two other points deserve consideration here. The attitude of the syphilographer, who sees lues every day, is very different from that of the general

practitioner toward it. The former finds in syphilis, in the vast majority of cases, a tractable and readily controllable disease; and he has, in the remedies habitually employed, most potent weapons that very rarely fail him. He is not surprised to see them effective in a few hours, or a day or two. It is of common occurrence to see a subjective symptom like the cephalalgia relieved in an hour and gone in a day after an effective mercurial dose; to note a gumma of the tongue, softening and threatening to break, disappear after one dose; or to find distinct signs of improvement in ulcerative lesions that may have been present for months, in two or three days. These things seem wonderful to those who do not see them often; but they are of everyday occurrence to those dealing largely with the affection. Our judgment, then, of the action of a newly proposed remedy for the disease is made by comparison with what we should expect from the older method of treatment in similar cases.

The second point is of equal importance. There is a radical difference of attitude to the disease in many parts of the Continent of Europe from that entertained here and in England and France. We look upon the malady as a long continued infection of gradually decreasing severity, to be treated with more or less persistence, symptoms or no symptoms, for long periods of time. On the Continent each outbreak is looked upon as an entity, a relapse, and each cessation of symptoms as a cure, at all events temporarily. More especially is this the case when in addition to the cessation of ordinary signs the serum reaction becomes negative. Looking over the lists of cases published in many of the European journals one cannot but be struck with the frequency with which patients in whom the symptoms have disappeared and the Wassermann has become negative are discharged as cured cases. The same thing occurs every day with mercury; yet we do not consider these cases as cured.

Analyzing the list above presented, it is evident in the first place that arsenobenzol exercises a distinct and powerful immediate curative effect on the manifestations of the luetic disease. The exceptions to this were only cases 2, 24, and 25, in which in six to eight weeks there was practically no effect. But in cases 6, 7, 13, 15, 17, and 20, while there was improvement, it stopped after a time, or there appeared new symptoms of the disease. Case 6 had a periostitis patellæ after three weeks; case 7 had a reappearance of eruption, general symptoms, increased Wassermann, and spirochetes once more four weeks later; 13 had new mucous patches at the fourth week; 15 had periostitis of the tibia, skin gummata, and moist papules at the same period; 16 had renewed ulcerations, bone, and general symptoms at a like time; 17 had mucous patches after one month, and 20 had new moist papules five weeks post injectum. Now I hasten to say that of these ten practical non-successes eight had been treated by the subscapular emulsion method and had larger or smaller persistent tumors; two of them were subsequently operated on, with the finding of necrotic tissue and arsenic-containing fluid in their mass. The other six, however, had the tumors that usually occur under this method, disappearing spontaneously in time. Of the two remaining failures one was treated in the glutei and the other in the quadratus lumborum, with the clear solution. It is quite reasonable to suppose that in some of these cases, at all events, and especially in those in which necrosis occurred, absorption of the arsenic was greatly interfered with; yet in the remaining six non-successes treated in this way there was no necrosis, and six other cases, with the same method, showed better results. I think it is fair to put down eight as the number of non-successes, possibly due in part to the method employed.

Nine cases I have noted as moderate successes, the symptoms either improving very slowly or the patients leaving the hospital prematurely. These are 1, in which it took six weeks for the mucous patches to disappear; 3 and 5, only under observation two weeks; 4, in the hospital one week; 9, in the hospital three weeks; 10, in which the interstitial keratitis remained unaffected; 12, in which the first improvement was not noted till twelve days after the injection; 14, in which two injections and six weeks were needed to make the symptoms disappear, and 18, which also took six weeks. Of these nine partial successes six got the subscapular emulsion and two were subsequently operated on; two received the clear solution in the buttocks and one in the quadratus lumborum muscle.

Frank and gratifying success was achieved in six cases; 8 had his mucous patch disappear and his exanthem almost go, though he was only observed two weeks; 11 had his pain in the tongue quickly relieved and many of the ulcerations healed, though only under observation one week; 19 showed disappearance of his macular eruption in one week and of his genital papules in two weeks; 21 lost her condylomata in ten days, her skin eruption in nineteen; 22 had her eruption and exulcerated mucous patches disappear in two weeks, and 23 had her skin and mucous membrane lesions and her iritis healed in one month. Some of these results were probably quicker than could be got from mercury; but in most of them our judgment was that it was about the same. Of these six best cases three received the subscapular emulsion and three the solution in the quadratus lumborum. One of the former (23) was a necrotic and operated case, and four of the entire five showed marked renal symptoms.

Out of the entire twenty-five cases there is no one that could be classified as an unusual or astonishingly brilliant result. The very best one or two were perhaps quicker than might be expected from mercury; but some of them were slower than we are in the habit of seeing. On the whole, and leaving out of account the necrotic subscapular emulsion cases, in which it may be assumed that arsenical absorption was largely interfered with, we concluded that similar results in a similar series of cases treated with mercury could be regarded only as moderately satisfactory.

General Considerations.—It seems probable that with the new drug we have to reckon with the possibility of damage to the kidneys in a certain proportion of cases. How large that proportion is, or how permanent the damage, are some of the many questions that only the observation opportunities of private practice can determine. Ten of our twenty-five cases had renal symptoms, in most instances transitory; but some had them when last seen, and one or two had casts. Similar occurrences under mercury are extremely rare; so rare that we practically never take them into account.

Severe pain seems to be an inevitable feature of the arsenobenzol injection, however administered.

This is controllable, of course, by morphia; but I am sure that some of our more sensitive private patients will demand anesthesia.

Rest in bed under skilled observation for several days or a week I consider an absolute necessity. A preliminary careful physical examination, to determine the absence of possible contraindications to the treatment in the form of lesions of the internal organs should never be omitted.

It seems premature for the present to attempt to give the indications for the use of arsenobenzol in syphilis; but it is my opinion that it is not as yet the treatment of choice in the ordinary run of cases. Definite lesions of the internal organs, syphilitic or other, are recognized contraindications and have so been proclaimed by Ehrlich. On the other hand, there are cases, though extremely rare, that are recalcitrant to the mercurial medication of a rational kind; these are subjects for arsenobenzol. And there are cases also in which, for personal and other reasons, haste is necessary, and in which any treatment that offers a chance of relief more quickly and more permanently than the mercurial one should be employed.

Of course the foregoing statements are based on our present knowledge of the drug, which is as yet without data as to the future fate of patients treated with arsenobenzol. If it should turn out that one or two injections, or a whole series of them, will permanently and indubitably cure the disease, then all considerations as to pain, hospital care, etc., will be entirely negligible; and even some degree of danger will be no contraindication. It cannot be said, however, that we have attained that knowledge as yet.

Finally, I may mention incidentally a fact of interest as regards our patients' attitude to the treatment. In our dermatological ward in the City Hospital this fall we had a regular syphilis club. Patients came in attracted by the knowledge that the treatment was given there; they watched all the cases and compared observations. It is a noteworthy fact that four patients there refused reinjection absolutely; one said that "he would not take it if it were offered to him on a golden plate," and the three others declared that they would leave unless they were given murcury.

I think I may venture from the foregoing to formulate certain statements premising that they are based on a comparatively limited experience.

1. Arsenobenzol is of undoubted efficacy in syphilis of various forms, more especially in early cases and in mucosal lesions.

2. Its immediate effect may be better, in some cases, than that of mercury; in others it is slower and less certain. In some cases it fails.

3. It must be used with care, since we are by no means fully informed as to its effects on the kidneys and other internal organs.

4. It should never be given in ambulant or office practice; the patient should be carefully examined before it is administered and should remain in bed under observation for several days after.

5. It is indicated in especially severe or malignant cases, in cases where mercury has failed, and in other instances in which there are reasons for unusual antiluetic measures.

6. While the luetic symptoms usually recede after one or two doses, we are as yet without knowledge as to the permanency of its effects.

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MENTAL DISTURBANCES FOLLOWING TRAUMATISM; MEDICOLEGAL CONSIDERATIONS.*

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Nervous and mental disturbances may occur after a traumatism of any intensity. They may develop immediately after the injury, or sometimes later, and in other instances at a very late period. The character of the disturbances may vary considerably, viz., from an ordinary irritability or slight mental obtusion to a high degree of mental confusion, with or without hallucinations, or else to a group of phenomena simulating the classical psychoses. Neuroses, such as traumatic hysteria and neurasthenia, will not be considered here. Although hysteria is a psychic malady, nevertheless this great neurosis with its physical and well-known phenomena, such as we observe in various forms of insanity, will be discussed in the present essay. A series of thirty-seven personal cases have been studied by the writer during a period of eight years. Great care was taken to accumulate only such cases, in which the onset of mental symptoms was in a more or less direct relation to traumatism. Consequently individuals, who, in the course of previous mental disorders sustained a traumatism and thus aggravated the preexisting mental malady, were not included in my series.

My thesis deals exclusively with cases apparently free from diseases, but in which mental manifestations made their first appearance either immediately after a traumatism or some time later. The conclusions at which I endeavored to arrive concerned four special problems: First. Does, scientifically speaking, a mental disorder follow traumatism? If so, what must be the nature and severity of the traumatism? Second. To what particular psychosis do posttraumatic mental disturbances belong? Third. What is the relation of traumatism to paresis as cause and effect? Fourth. What are the medicolegal inferences to be drawn from this study? The thirty-seven cases are an especially selected group out of several hundred traumatic cases which came under my observation for neurological reasons. The study was undertaken without any preconceived idea and irrespective of similar studies of other writers.

The first problem, viz., the relation of trauma to mental disorders as cause and effect, can be answered in the affirmative by all the thirty-seven cases. In twenty instances the mental derangement followed immediately the accident. In fifteen of the twenty there was loss of consciousness, and in five consciousness was preserved. The mental manifestations made their appearance as soon as consciousness was regained and continued for a period of from three days to three months. The nature of the manifestations will be discussed later. The minimum and the maximum of duration of the disorder in the twenty cases is pointed out as termination, either by recovery or death. It should also be mentioned that no history of mental disturbances preceding the traumatism could be elicited after a most diligent investigation among relatives and friends. In the remaining seventeen cases con-

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spicuous mental phenomena began to make their appearance at a period varying from five weeks to three months after the traumatism. In order to determine the direct relationship of the latter, a prolonged and most careful investigation of the patients' previous medical life was undertaken. A special questionary was submitted to every one of the relatives, also to a number of friends and neighbors, and their answers compared and studied. Some of the cases were seen by me from the time the accident occurred. The conclusion at which I arrived was that, while the prominent mental disturbances appeared some time (see above) after the accident, nevertheless mild, almost imperceptible signs of some disorder relating to the psychic sphere were present in every one of the seventeen cases. Insomnia, more or less pronounced, irritability, slight lapses of memory, tendency to automatism in action and words, some indifference or indolence, frightful dreams are all symptoms which have been traced and observed. The latter subject is of a great practical value, as the slight or very slight degree of the disorder may be frequently overlooked and lead to erroneous etiological diagnoses. The recognition of these apparently insignificant manifestations is a weighty element, also in the medicolegal diagnoses where the determination of trauma as an etiological moment is of paramount importance, but this subject will be discussed later.

It is, therefore, evident that while the conspicuous manifestations of mental derangement made their appearances in the seventeen cases only after a more or less considerable period of time following the accidents, nevertheless some mental phenomena existed in a so to speak prodromal stage and prepared the individuals to grave disorders at a later stage. The latter can be considered as the result of a final and logical evolution of the former.

From an etiological standpoint it is important also to consider the patient's neurological status of health prior to the accidents. A very careful investigation in every one of my cases revealed the fact that all belonged to the category which it is customary to call "neurotic." While they were almost all free from well-defined nervous diseases, nevertheless a more or less marked degree of functional nervous disturbances was present. As soon as the trauma occurred, the latter became accentuated, new symptoms developed, or else the former went to the background to be overshadowed by manifestations of a more serious or more turbulent nature, and, as we have seen above, either immediately or some time after the accidents. The problem, therefore, of individual predisposition should be always taken into account while considering the etiological moments in the broadest sense of the term. The occurrence of such a predisposition existed in all the thirty-seven cases studied.

Having answered in the affirmative the direct relation of trauma to mental disorders, let us consider for a moment the nature and severity of the traumatism. In the majority of my cases (25) the accidents were of no serious immediate consequences as far as solution of continuity of tissues or organs is concerned. There were no fractures of the skull, no hemorrhages, no paralysis, or other apparent material damage visible to the naked eye. Intentionally is the latter circumstance emphasized, as absence of it does not always exclude a possibility of small hemorrhages within the cranial cavity, and in the brain, hemorrhages so situated as not to infringe upon important portions of the cerebrum the disturbance of which gives rise usually to external manifestations of paralytic or convulsive nature. This is the so-called "concussion of brain" cases. But the term concussion may imply a simple circulatory disorder which is momentary or else a genuine damage to the blood-vessels. Under the term "concussion" cases have been reported in which, in spite of a prompt recovery of consciousness and apparent freedom from immediate paralytic symptoms, serious organic conditions gradually and insidiously developed. In such cases there was a primary disturbance of blood vessels (nerves and arterial walls). Hyalin degeneration and round cell infiltration of arterial walls, dilation of blood vessels, aneurysms, and premature capillary endarteritis with obliteration of their lumen have been observed. As a secondary condition, degenerative changes in neuroglia and ganglion cells, with vacuolation, chromatolysis, varicosity, and atrophy, and finally disappearance of cells naturally follow. In cranial traumata of old or very old standing the following conditions had been found on autopsies: Cranio-meningeal, or meningocerebral adhesions, osteophytes, foci of softening, cicatrices, cysts, aneurysms, and neoplasms. Such conditions, as I said, have been observed in so-called concussions. This term, therefore, does not imply absence of serious damage. Kocher says that even after restoration of cerebral functions momentarily suspended from the shock one is never certain whether there is nothing left that may eventually create serious disturbances.

Ten out of the twenty-five cases lost consciousness, but promptly recovered. The others were merely stunned, severely shocked, but apart from a momentary vertigo, consciousness was preserved. In the series of twenty-five cases of which I am now speaking, without apparent material damage, are included twelve cases in which the conspicuous mental disturbances developed some time after the traumata. These findings are of great importance, as they tend to show that apparently insignificant accidents may lead to grave mental disorders and therefore, in any apparently slight trauma, the prognosis must be guardedly announced. This fact should always be taken into consideration when one is confronted with medicolegal problems. Concussion does not always mean a recoverable traumatic shock.

As to the character of the traumata in my cases, falls from a height were in the majority of the accidents; in some cases patients were thrown off trolley cars and train cars, and in some cases intentional blows on the head with heavy objects occurred. In all cases the head was the principal part of the body which sustained the injury.

Of the entire group of cases (37), twenty-five, as it was mentioned, suffered no external injury. The remaining twelve patients received quite serious injuries. There were six fractures of the skull and six patients with deep lacerated wounds of the scalp. In the latter class one could not tell whether in addition to the scalp condition there was not some small fracture of the inner table of the skull or meningeal hemorrhages. In the cases with the fractured skulls four were at first in a comatose state and grave psychic disturbances began to develop as soon as consciousness was regained. They all became hemiplegic on the left. Two patients did not lose consciousness, but im-

mediately showed abnormal mental manifestations, such as hebetude, confusion, amnesia, also delirium. The six patients with lacerations of the scalp, apart from a slight mental hebetude, which naturally would follow such a shock, began to show their conspicuous mental disturbances, but a more or less long time after the injury, viz., between two and six weeks. However, strictly speaking, they were not entirely free from symptoms during the interval. Mild, and very mild signs of abnormal cerebration could be detected by a close examination. Disturbance of attention, rapid fatigue when a conversation was carried on, and a certain degree of indifference to surroundings were some of these mild manifestations, but they were not sufficiently striking to attract a casual observer's attention. Here again we see that, should the slight symptoms occurring during the interval be overlooked, one would hesitate to explain the onset of the mental phenomena by the traumatic injury after a period of six weeks. The medicolegal importance of the subject is self-evident.

Let us now take up the second problem in our investigations. To what particular psychosis do posttraumatic mental disturbances belong? Do the latter present a special or a well-defined clinical picture? First of all, my cases show that slightness or severity of trauma does not always lead to corresponding clinical consequences. Some cases without apparent immediate results were followed by mental symptoms of a very serious character. On the other hand some of the cases with fractured skulls and with lacerated scalps remained mildly affected. However, it is safe to assert that generally speaking mild injuries and mild immediate symptoms are frequently followed by transitory mental disturbances. Loss of consciousness is equally not a guarantee for development of serious mental manifestations, as in some of my cases the consequences were not as tumultous and not as durable as in the cases without loss of consciousness.

Among various manifestations met with in various forms of insanity a *confusional state* occupied the first place in my cases. The majority (25) showed immediately or shortly after the accidents conditions that are not infrequently found in intoxications or infections of any origin. Loss of realization of things, impairment of memory, narrowness of the field of conscience, disorientation in space and time, and impairment of perception and comprehension were the chief manifestations of the confusional state of my patients. In certain cases delirious outbreaks with and without hallucinations of visual and auditory character, or else hallucinations in the sphere of general sensibility, were added to the above confusional phenomena. There is a symptom which was quite frequently encountered in the confusional cases. It is the so-called "Ganser's symptom" (*vorbeireden*). It is characterized by senseless answers to elementary questions asked of the patient and it is due to disorientation in space and time. Such patients give the impression of feeble-minded individuals or of simulators. Ganser himself (*Archives für Psychiatrie* Bd. 30, H. 2) believes it is specifically a hysterical symptom, but we know that it may be encountered in other conditions and affections, such as hebephrenia and catatonio. I have observed it in chronic intoxications and in confusional states, as also in hysteria. The symptom, therefore, cannot be considered characteristic of hysteria, as some writers with Ganser are prone to believe.

Several of the patients presented confusional states only periodically with intervals of apparent lucidity. One of them had four such attacks, the first immediately after the accident and lasting two weeks, the last one six months later. He finally recovered. Five patients of the confusional type died from intercurrent diseases, such as pneumonia and profuse diarrhea, at the end of between three and nine months after the trauma. While individual symptoms of the confusional state became ameliorated, nevertheless a gradual slowness of mentality with depression developed. It is difficult to say whether the dementia would have disappeared if death had not supervened. Complete recovery occurred in the majority (19), even in a few of the patients with severe injuries (3).

Five of the patients in whom immediate mental disturbances appeared and who lost consciousness, after a period of confusion, as described above, eventually, at the end of five months, simulated the picture of dementia precox and particularly the catatonic form. They showed a certain degree of resistiveness and negativism. They would not obey promptly the orders to move about, to take certain food, to answer certain questions, to sit down or get up. On rare occasions they would refuse altogether to carry out any of these orders. At all events there was a certain delay in actions. The analogy with catatonia appeared still greater at the time when they began to assume certain fixed positions. For several hours, for example, they would remain either sitting or standing and gazing in one direction. Curiously enough, in spite of this fixed attitude, they did not refuse food when offered. When not in the position, they were responsive to stimuli, would answer certain questions. The catatonic manifestations eventually disappeared, but a certain mental weakness remained for eight months. Four of these five patients recovered completely, one died.

Were they cases of true *dementia præcox?* At a superficial examination the picture just described reminds one of this psychosis, but a careful analysis of the phenomena forces us to reject that diagnosis. The resemblance is only apparent, but not a profound one. The chief characteristics of dementia precox are entirely wanting. The profound disturbances in the spheres of will, initiative, memory, attention, the lack of interest, the feebleness of affective sentiment, the absence of fear, hopes, and desires, the presence of apathy, indolence, abundance of hallucinatory images, which are all fundamentally characteristic of dementia precox, were completely absent in my patients. Besides, the absolute recovery without the least trace of remaining perversion of mentality or of affect is another argument against the above diagnosis. Moreover, the picture of catatonic stupor was very fragmentary and incomplete in my patients. Stereotypy was totally absent. The negativism and resistiveness were of very short duration and came on at rare intervals. The absoluteness in resisting all external influences, which is so typical of catatonia, was wanting here. We have seen above that, in spite of this somewhat continued fixed attitude, the patient did not refuse food. This easy breaking up of a catatonic position is very unusual, if not impossible, in genuine catatonia as a variety of dementia precox. As a last differential feature of the diagnosis should be mentioned the absence in my cases of a gradual accentuation of mental enfeeblement. It is, therefore, evident that the five cases with mental dis-

turbances following traumatism did not belong to the classical psychosis dementia precox, although at a superficial examination they could give the impression of the latter.

Three patients of the entire series were men somewhat advanced in years, above sixty. One of them fell down in a cellar and sustained a fracture of the skull, the other two belonged to the group with deep lacerations in the scalp. Two of them lost consciousness and their mental disturbances began to be manifest only two weeks after the accidents. Gradually delusive ideas developed in these individuals. Persecutory ideas of the vaguest nature and directed against the physician in charge, the nurse, the wife, and neighbors, all in succession, never persistent, not complete, changing the subject of persecution from day to day and sometimes in the same day—such was the state of mentality of my patients. One of the patients developed auditory hallucinations which did not enter into the delusional conceptions. The third patient had a hypochondriacal delusion with reference to the brain, which he claimed was replaced by sand. All the three patients were extremely emotional and restless. The hallucinatory patient either cried or screamed at the top of his voice, hearing spirits talking about him. At other times he was depressed so much that there was great difficulty in feeding him. In this state there were involuntary micturition and defecation. Gradually two of three patients lost their former delusions, lost their outbreaks of excitement, and imperceptibly began to develop the picture of pathological senility with impairment of memory, deterioration of judgment and comprehension, and loss of sustained attention. One lived five and the other eight months. The man with the fractured skull began to improve, and finally, at the end of the twelve months, made a complete recovery and resumed his former occupation as clerk.

Do these three cases belong to the group of *senile dementia?* The fact that their age was above sixty does not constitute a sufficient reason for the diagnosis of senile dementia. While delusive ideas and hallucinations, also depressive or exciting phases, are usually present in senile dementia, nevertheless they alone do not justify such a diagnosis, as these phenomena are observable in other psychoses. What characterizes senile dementia is a gradual and progressive deterioration of mental faculties. A progressive loss of memory, especially for recent events, with preservation sometimes of memory for old events, loss of knowledge of dates, absolute inability of holding attention, inability to acquire new facts and to retain them for any length of time, these are the main symptoms which are characteristic of senile dementia. Delusions, hallucinations, and illusions are not infrequently superimposed, but they do not necessarily characterize the psychosis. In my three patients the evolution of the symptoms differs totally from the picture just described. Recovery of senile dementia is an impossibility. My third patient, while he presented some manifestations of senile dementia, made, nevertheless, a complete recovery. In the other two patients the course of events does not justify the diagnosis of senile dementia. The mental disturbances, therefore, in the three aged individuals simulated, one may say, the clinical picture of senile dementia, but do not constitute a type of the latter affection. We cannot say that trauma is a direct cause of senile dementia.

The symptoms of the *manic-depressive* psychosis were observed in four patients. In them, shortly after the trauma, there developed a state of depression which was more or less marked in every one. A prolonged observation revealed the fact that the depression was not continuous, but it was frequently and sometimes very frequently interrupted by excitability. For example, in the morning a patient is morose, inaccessible; would sit in one place, refuse food, and be apparently deep in thought. Then a couple of hours later he would become very irritable and scream out, order people around, and move about. But what is particularly interesting is the state of confusion, with occasional delirious behavior, that predominated in these patients. At times they appeared to have hallucinations, as they gesticulated and talked to themselves. This group of symptoms was not complete in all the four cases, but the general picture was identical in each case.

To be sure, at first glance the elements of the manic-depressive psychosis are to be found here. Do they, however, constitute the typical picture of this form of insanity? In the first place, the individual phases of the latter are of longer duration. The patients usually go through the entire state of depression or excitement, get apparently well, and then, after a certain interval, which may be weeks or months, a new phase sets in, which again lasts a certain length of time. In my patients the morose, depressed attitude was frequently broken only for a very short while (half an hour or an hour). Besides, the excitement manifested was not of that vivid, alert state of mind characteristic of the maniacal phase of the manic-depressive group. My patients merely remained depressed, and showed rather outbursts of anger, irritability, than genuine gaiety, and overflow of mental and physical activity, which are so characteristic of the genuine psychosis. What particularly speaks against the latter conception is the state of extreme confusion observed in my patients, which is usually not present in the typical psychosis under consideration. The condition of my patients continued unaltered for a period of from three to nine months. Three made a complete recovery and one died from pneumonia, contracted during his depressed state.

A chapter of unusual importance is the relation of trauma to paresis. Much has been written on this subject and, while the majority of competent writers deny any relationship whatever, others consider trauma as an indirect cause, and still others (very few, however) look at trauma as a direct cause of paresis. Let us consider the problem as it presented itself in six of my entire series of patients.

One patient, a male of forty-six, business man, began to show suspicious symptoms on the fifth day after the trauma. Tremor of hands, lips, of speech, some ataxia of the lower extremities, increased knee-jerks, inequality of pupils, but no Argyll-Robertson pupils, and some mental depression with insomnia were the initial symptoms observed. They gradually became accentuated and a weakening of memory for recent events imperceptibly developed. The patient soon began to lose in weight, suffered attacks of *petit mal*, had several seizures in which he lost his speech for a period of two or three days, and complained of vertigo and of paresthesias in the lower extremities. At the end of three months he presented an unmistakable picture of paretic dementia of the depressive type.

The second patient, a bookkeeper of thirty-nine, developed symptoms of paresis eight days after a trauma. There was loss of consciousness during the first ten hours and then a semi-comatose state for twenty-four hours. The shock evidently was severe. Among the paretic symptoms the tremors were the first noticeable. Euphoria was the first mental manifestation. Self-contentment, with a tendency to expansion in every mental operation, was strikingly marked. The physical symptoms rapidly made their appearance, and when he came under the writer's observation he presented a typical picture of paresis.

The third patient, a man of fifty, business man, developed symptoms of general paralysis immediately after an accident. There was no loss of consciousness following the trauma. Rapid loss of mnemonic faculties, with a certain amount of depression, gradual loss of moral sense, and a tendency to excesses were the mental manifestations which developed rapidly. The usual physical signs were all present. The patient had also occasional attacks of *petit mal*. The course of events proved it to be a case of typical paresis.

The fourth patient, a man of fifty-eight, a tailor, sustained an apparently slight trauma. He fell down a flight of stairs, striking his head against the sharp corner of woodworks in the hall. There was no loss of consciousness. He got up and went about his work as usual. On the next day he complained of severe headache, had several chills, and felt weak. He remained in bed three days, still complaining of frontal pain and photophobia. He then had an epileptic convulsion of the general type. Mental hebetude followed for several days. His wife then noticed a peculiar manner of speaking, which gradually became more and more accentuated. Soon other typical signs made their appearance. He then began to have sudden paresthesias in the right arm and leg, but no convulsive seizures. Mentally, he was exceedingly depressed. His indifference and indolence to surroundings and to his family, of which he was very fond, became particularly striking. The picture was that of typical paresis.

The fifth case was that of a middle-aged man who fell down in a cellar. There was no loss of consciousness. On the next day his speech was so much affected that he could not be understood. Soon a tremor of the hands made its appearance. The speech became more distinct, but it was slow, and the r's and m's could not be pronounced without difficulty. The rapidity with which the symptoms developed was astonishing. At the end of three weeks he presented the typical picture of paresis. The mental manifestations consisted of a marked depression and total indifference to conventionality. He would urinate and defecate in presence of people and was extremely unclean about himself. Subsequent course proved the diagnosis to be correct.

The sixth case was that of a man of forty-three butcher by occupation, who was known to the writer for six months prior to the accident. The latter consisted of a fall from a trolley car. There was no loss of consciousness and no external injury. Before the accident the patient presented a slight inequality of the pupils, and a very slight intention tremor of the fingers. He also complained that for the last six months he would quite frequently make mistakes in figuring and in names. However, he attended to business regularly. Fatigue was also his frequent complaint. The sleep was somewhat disturbed. The knee-jerks were slightly increased. These few symptoms were, of course, insufficient for a final diagnosis. During six months there was no change in the patient's condition. When the accident occurred, the most remarkable transformation took place. On the next day a generalized tremor was noticed. Severe headache, with a slight elevation of temperature (99.5°), appeared. The speech became indistinct. The knee-jerks were much increased. Micturition was somewhat embarrassed, so that at times catheterization had to be done. Mental hebetude became apparent. At times he had visual hallucinations. The memory became markedly deficient. Gradually the entire picture of typical paresis became evident. In this case the symptoms of paresis were evidently present before the traumatism, but they were extremely slight, inasmuch as the relatives did not suspect the least disturbance, and I was consulted exclusively for the sense of fatigue. For six months the condition remained unaltered; the accident undoubtedly was a very violent stimulus for a rapid aggravation of the old symptoms and for development of additional symptoms of paresis.

A review of the six cases related would lead *a priori* to the conclusion that there is a direct relationship as cause and effect between trauma and paretic dementia. A careful analysis, however, does not permit such a conclusion. A close investigation of the previous medical histories of the first five patients revealed the fact that some of the manifestations of paresis existed before the traumatism. Relatives had been repeatedly questioned in that respect and in all cases, without exception, there were evidences of a gradually oncoming meningoencephalitis. In all I succeeded in obtaining a history of neurasthenoid manifestations with some weakening of mnemonic faculties. In all a certain tremor of the hands was mentioned. Vertigo with lapses of words was related as being frequent, and in case three a sudden loss of speech and two mild attacks of right hemiplegia six months before the accident were cited by the patient's wife. It is true that conspicuous mental manifestations were absent, as otherwise they would have been noticed by the patient's relatives, but that mild physical and very mild mental disturbances were present was proven beyond doubt after a very close questioning of relatives and friends. Moreover, suspicious evidences of a syphilitic infection were equally present. The first two patients gave a history of three and five miscarriages, respectively, the third lost his hair at the age of thirty-two and had ulcerations in the pharynx, the fourth patient presented thickened areas of both tibias, with four large scars in front of the legs; his wife had three miscarriages and one stillborn child that had patches on the face. The fifth and sixth patients presented cicatrices on the prepuce. With the exception of the last case, in which unquestionably paresis existed before the accident, the five patients presented strong evidences of the existence of paretic manfestations prior to the traumata, and the latter, however mild they might have been, were undoubtedly an exciting cause for a *further* development of the preexisting morbid condition. In the last case this cause was very conspicuous.

The six observations, therefore, do not permit one to assume that an external violence is capable

of creating an affection which ordinarily is independent of an accidental lesion. There is no probability that even very serious traumata could be the sole cause of paresis. They may serve as stimuli to a more or less rapid development of preexisting morbid phenomena. The latter may be so mild that they may pass unnoticed. In such cases trauma appears to be the direct cause of paresis, but, as we have seen above, the causation is only apparent. All that can be admitted is that it is possible that paresis without a traumatic shock would have perhaps developed less rapidly and followed a slow or a very slow course.

Medicolegal Considerations.—A problem of a most difficult and delicate nature is that of the relation of traumatism to mental disturbances from a legal standpoint. Not infrequently the physician is asked to determine whether a more or less old accident may be followed some time later (weeks, months, or even years) by morbid mental manifestations, such as dementia, paresis, etc., and whether the latter can legitimately be connected with the former. On the other hand, when mental disturbances make their appearance immediately or very shortly after a trauma, it is important to determine to what extent the traumatic shock enters as a causative factor in the etiology of the disorder. Finally, is trauma the only cause or does it play the rôle of a revealing agent, which acts on a brain endowed with a latent morbidity?

For a judicious discrimination of all the points bearing on the solution of these problems a knowledge of the pathogenesis and prognosis is essential. All cranial traumatisms are not followed by serious results. Sometimes severe traumata pass without consequences, but sometimes most insignificant traumatic shocks are followed by very serious results. Then again, if conspicuous mental phenomena develop some time after a traumatic shock, after the patient has resumed his usual mode of living, the expert should, in his investigations, consider also other exciting or predisposing elements that may lead to nervous and mental disorders, such as worry, undue fatigue, excesses, mental preoccupation, etc., which *per se* are sufficiently powerful factors in causation of mental disorders. It is, therefore, evident that no strict rules can be laid down for medicolegal diagnosis, but that each case must be studied on its own merits.

An examination must be conducted on the broadest principles. A careful and repeated investigation of the previous medical life of the patient is essential. Various diatheses and intoxications should never be overlooked. Syphilis or heredosyphilis, alcoholism, and saturnism may remain latent for a long period and be awakened by a traumatism. Alcoholism will alter the character of a posttraumatic delirium. Besides, a man may become a dipsomaniac following a shock and later on present mental disorders of alcoholic nature. In such cases there will be a striking disproportion between the physical or mental shock and subsequent mental disorder.

The most important element in the medicolegal arguments of cause and effect between the psychosis and traumatism is the presence of cerebral symptoms at the time of the accident and *their persistence*, even in the mildest form, during the interval between the traumatic shock and the confirmed insanity. Another important feature in posttraumatic psychosis is the appearance of mild and even insignificant symptoms immediately after the shock. They will remain as such a certain time and even a very long time, so that the impression is formed that the patient has recovered. Nevertheless these slight manifestations exist and may at any time, under the influence of some cause, become accentuated and become so conspicuous as to necessitate commitment of the patient to an asylum.

The histories of my six paretics are very instructive from this standpoint, that, while the morbid phenomena became manifest almost immediately after the traumata, nevertheless the latter were not the direct cause of the psychosis. A very careful investigation demonstrated the fact that imperceptible phenomena of a paretic nature were in existence prior to the traumatic shocks, but in all patients the symptoms were so mild that they could readily be overlooked. Should such a possibility be ignored or overlooked, grave errors will be committed, as otherwise the psychosis will be attributed directly and exclusively to the trauma, while, in reality, the latter was only an exciting factor for the rapid development of a grave cerebrospinal affection which had already existed in a mild form. It is, therefore, the expert's duty to bend every effort to make in every instance a most thorough investigation before rendering a medicolegal opinion on the relation of trauma to psychosis. This investigation must bear upon the following elements: Time of appearance of the mental phenomena; their character and intensity; their persistence or disappearance and reappearance; their amelioration or aggravation; the date of improvement or aggravation; the degree of improvement; the degree of aggravation; the existence of mild morbid phenomena before the traumatic shock, which can be determined only after a close and repeated questioning of relatives and friends. The medicolegal expert is also obliged to determine the curability or incurability of the mental disturbances, although this question is one of the most difficult ones, as it is impossible to ascertain in advance the damage done by the traumatism in spite of total absence of clinical manifestations. General experience teaches that delayed mental disorders, or those that appear conspicuously late after the trauma, are particularly grave. An apparently rapid recovery from the trauma does not always imply a favorable prognosis, as in some cases slow and insidious alterations may develop gradually a progressive mental deterioration.

Conclusions.—The present study permits one, I believe, to formulate the following remarks: Trauma may be a determining cause of abnormal psychic manifestations. The latter may follow immediately or some time after the trauma. When they become apparent weeks after the shock there is a suspicion that in a mild form they existed immediately after the accident. A thorough investigation will frequently reveal the presence of mild symptoms. Sufficient precaution should be exercised in regard to a possible existence of mental disturbances prior to the trauma. Trauma may act as a powerful stimulus to further development or accentuation of a preexisting psychosis.

Confusional states and delirium are the most frequent forms of insanity that follow traumatism and are caused by the latter. There is nothing especially characteristic in the traumatic confusional and delirious states that can differentiate them from similar states caused by other factors, such as intoxications and infections. Delusions and hallucinations may accompany the psychosis, but again they do not present special characteristics.

Dementia may be the ultimate result of persistent confusional and delirious states. There is, however, nothing characteristic in the slowness of mental processes and in the intellectual feebleness, and the inability of retaining various impressions typical of all dementias. Manic-depressive insanity, dementia precox, senile dementia are not caused by trauma. Traumatic psychosis may simulate some of the elements of these psychoses, but there is only a *simulation* and *not identity*. Paresis does not develop as the result of trauma, but the latter may hasten the development of the disease, and sometimes the development may be exceedingly rapid. This contention is in accord with the extensive researches of Gudden, Siemerling, Wollenburg, and others (see E. Meyer, *Deutsche medizinische Wochenschrift*, page 1329, 1905). On the whole it may be said that traumatic psychoses do not present a strictly defined morbid picture, but present a great variety of psychic manifestations which partly suggest the well-defined psychoses and partly are unclassifiable. Finally disturbances of a psychic order develop after a trauma, particularly in predisposed individuals whose nervous system is constantly threatened with a break and who are easily influenced by a shock of any origin. They are the so-called neurotic individuals.

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LONG-CONTINUED HIGH BLOOD PRESSURE;

ITS RESULTS AND PREVENTION.

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In these days of conservation it seems not unreasonable to speak of the conservation of elderly persons. Now we no longer consider the person of ripened years an encumbrance, but rather pay him our highest tributes. Unfortunately, it is but too common to read in the daily papers of this or that prominent citizen stricken by cerebral hemorrhage or slowly dying of a failing heart. Can we do aught to prevent these numerous casualties? Can we do aught to conserve the strength of this or that useful personality that it may continue to contribute to the good of the world? I think we can, and the excuse for this paper is to point out some results produced by long-continued high blood pressure, which could be prevented if attention were paid to the first evidence of increased pressure.

Much is written about high blood pressure as if it were a disease in itself. Let us call it a condition rather than a disease. Its causes are diverse, and I wish to emphasize the fact that *its relief can be attained only by removal of those causes* and *not* by methods directed to relieve the high blood pressure itself. When high blood pressure has been long established a pathological condition is produced which is such that medical reduction can do little, if any, good. Long-continued high blood pressure produces a condition whereby there is a leakage of cardiac energy. Just as in the case of a badly leaking mitral valve there is an uneconomical waste of force, so is there in these cases. Moreover, while in the mitral cases we cannot measure the leakage, in these cases we can.

Let us review a few facts. With each systole of the ventricle blood is thrown into the arterial tree and distends it. It is by virtue of the elasticity of the vessels that diastolic pressure is maintained. Of course, we are assuming that the capillary and arterial resistance remains the same at diastole and systole. Now if the pressure is increased, the elastic traction is increased also. This, however, is only true when dealing with normal arteries. Whether arterial degeneration precedes or comes after high pressure matters little in the discussion. All admit that increased tension causes changes in the walls of the vessels. If we have a degenerated artery we would naturally expect reduced elasticity and, therefore, a failure of diastolic pressure to maintain its normal relation to systolic pressure. That is exactly what I have found to be the case in a series of thirty cases of high systolic pressure.

In the series given below records of systolic blood pressure and diastolic blood pressure were carefully taken by the Erlanger Graphic Blood Pressure Apparatus. They were chosen from several hundred records for the reason that none of the patients had valvular lesions. Many of the cases answered the description of chronic diffuse nephritis, in others the causes of high pressure were difficult to determine. I do not go much into the etiology of the production of the high pressure as I wish to point out the *results* and I think the various causes all lead to the same result. The ages of the cases given varied from forty-two to eighty years and, as frequently happens among persons of this class, many presented a diversity of conditions —cirrhosis of the liver, varying degrees of emphysema, etc. They all, however, had three features in common, sclerosed vessels, high blood pressure, and enlarged hearts.

	Systolic Pressure	Diastolic Pressure	Pulse Pressure
1.	212	120	92
2	160	100	60
3.	178	100	78
4.	202	120	82
5.	200	120	80
6.	198	112	86
7	170	90	80
8.	148	80	68
9.	190	112	78
10.	160	90	70
11	190	120	70
12.	190	90	100
13	200	120	80
14	210	90	120
15	216	120	96
16.	160	90	70
17.	250	180	70
18.	196	80	116
19.	160	90	70
20.	200	98	102
21.	170	100	70
22.	250	152	98
23.	152	92	60
24	196	98	98
25.	180	130	50
26.	200	140	60
27.	210	140	70
28	170	100	70
29.	150	88	62
30	150	100	50
Average.....	187.2	108 7	78.5

It is to be noted that the average systolic blood pressure in these cases is 187.2 and diastolic blood pressure 108.7, giving an average pulse pressure of 78.5. These figures give some interesting percentages.

Systolic pressure is made up of diastolic pressure and pulse pressure. The latter is obtained by subtracting diastolic pressure from systolic pressure. If we divide the pulse pressure by systolic pressure and diastolic pressure by systolic pressure we get the percentages of which systolic pressure is made up. Taking a normal systolic pressure of 130, diastolic pressure of 90, we have the

highest normal limit of pulse pressure, *i.e.* 40. By simple calculation we learn that systolic pressure is made up of 69 per cent. diastolic pressure and 31 per cent. pulse pressure. Now by a similar calculation of the averages given above we find that systolic pressure is made up of 58 per cent. diastolic pressure and 42 per cent. pulse pressure. It is evident, therefore, we have decidedly altered conditions to those we have normally.

The question naturally arises: Is the high systolic pressure in the nature of a compensatory act? If we have an arteriole that requires a pressure of 108 m.m. to force blood through it and the arteries are so degenerated that they require a systolic blood pressure of 187.2 to produce that pressure at diastole, it is evident that here there is a condition of decided loss of energy. To explain this a little more fully—the active energy of the circulation comes from the systolic contraction of the ventricles, the passive energy results from the storage of part of their energy in the elastic coats of the vessels. Anything that interferes with the efficiency of the latter increases the work of the former. If there is required a diastolic pressure of 108 a normal arterial tree will support such a pressure if systolic pressure is 148, therefore, we can measure its loss of energy, as it requires a systolic pressure of 187.2 in these cases: thus, $187.2 - 148 = 39.2$ m.m. A loss of 39.2 m.m. per beat of the heart is one of considerable importance. I wish to emphasize the point that blood must flow through the arterioles during diastole and that when there is an increased resistance and there are degenerated arteries, the systolic pressure output of the heart is enormously increased. The result of this is a tremendous strain upon the heart which, perhaps, is already infiltrated with connective tissue. The result of the strain is cardiac hypertrophy and later dilatation with failing compensation. Another question arises. Why are there signs of poor circulation with high systolic pressure? The answer is that diastolic blood pressure is not high enough to force the blood efficiently through a contracted vessel or if the vessel be dilated the diastolic blood pressure falls too low to allow of a perfect circulation.

As regards treatment, I think it is clear that in cases where high tension has been long continued we have an unalterable pathological condition. Therefore, we must concentrate our efforts on prophylaxis. As long as physicians neglect to include in routine examination the taking of blood pressure we shall see these advanced cases. An apparently insignificant rise of 20 m.m. to 40 m.m. is worthy of attention, and it is the duty of the physician to ascertain the cause of this increased pressure, and to remove it, thus preventing the inevitable bad results. In a number of cases the cause of heightened pressure is simply an irrational mode of life, and when this is corrected the pressure falls to normal again. Careful attention to the many etiological causes of high blood pressure will suggest its cure in the early stages. Too often the high tension is treated with vasodilators, as if it were in itself a disease, whereas observation should have been directed to the cause and its removal. One cannot lay too much insistence on the fact that high tension is only a signal with its red light to warn the physician of a danger that lies in the pathway and menaces the life of his patient.

When the high pressure has been long continued and a pathological condition established, efforts must be directed toward maintaining compensation. In one respect at least we are dealing with a condition similar to that which exists in valvular lesions, namely, a leakage. If, as often happens, the arterioles are incapable of dilatation we must consider the effect alone on the heart. The question arises: Is or is not the heart compensating? If it is, we must do all we can to keep it so, urging an easy life with much rest and moderate exercise, a sensible diet, baths, and massage. If the heart is not compensating the high tension seems no contraindication to digitalis. Indeed, I have seen the alternating pulse disappear under the use of that drug, which is contrary to Dr. MacKenzie's experience. Chloral sometimes has a magical effect in restoring the circulation without very often greatly affecting blood pressure. I am at a loss to explain its effect unless a greater amount of sleep and a sense of equanimity are responsible. Potassium iodide after prolonged use in some cases reduces systolic pressure and lowers the pulse pressure. Its effect, therefore, must be attributed to the actual changes it brings about in the arterial wall. The ordinary vasodilators have not met with favor as I have been unable to reduce the blood pressure with them and have produced disordered stomach and headache. Moreover if the arteries are so degenerated that they will not maintain normal pulse pressure, it seems illogical to try to dilate the arteries, as by so doing we would too greatly lower diastolic blood pressure and the heart responding to the reflex would have to pump the harder to maintain a balance. With regard to the headache and dizziness supposed to be due to high pressure, I have again and again seen them disappear with laxatives and diet, with no change in blood pressure. Most of the cases given above had excessive indican in the urine and I am inclined to believe that the headache and dizziness are due more to intestinal putrefaction than to high pressure.

Lastly I wish to urge the use of instruments in taking systolic and diastolic blood pressure. The usual method of taking it, by watching the movement of a mercury column, is misleading and, therefore, worse than useless. The graphic instruments of Gibson and Erlanger are admirable, but are too bulky and expensive for ordinary clinical work. An instrument has been devised by Mr. Nathaniel Fedde, a student of Cornell University Medical College,* which seems to meet all clinical needs. I have tested it, comparing its reading with those of the Erlanger instrument, and found it remarkably accurate. By this sphygmomanometer advantage is taken of the air compression produced by each pulse beat. The alternating increase and decrease which have so little effect on the mercury column cause oscillation of a pithball, the movements of which are of sufficient amplitude to be easily discernible and the last point of maximum excursion can be determined without difficulty.

Conclusions.—1. Attention should be drawn to the fact that high blood pressure is a condition and not a disease.

2. Long continued high blood pressure produces a condition whereby there is leakage of cardiac energy.

3. The arterial tree in health maintains diastolic pressure in normal relation to systolic. In cases of long-continued high blood pressure there is failure of diastolic pressure to maintain its normal rela-

*Medical Record, July 16, 1910.

tion, therefore, there must be lessened elasticity of the arteries.

4. The increased strain on the heart is in accordance with the amount of diastolic failure.

5. In a series of thirty cases the average pulse pressure was 78.5 m.m. while a normal arterial tree will give a pulse pressure of 20 to 40 m.m. Therefore, there was a loss of 38 to 58 m.m. of high pressure.

6. It would seem that in these cases the high systolic pressure was in the nature of a compensatory act, as in order to maintain a diastolic pressure of 108.7 it was necessary to have a systolic pressure of 187.2.

7. There are signs of poor circulation with high systolic pressure if the diastolic pressure is relatively too low.

8. If attention were paid to the first indication of increased pressure and the cause removed, the inevitable bad results noted could be prevented.

9. When the pathological condition of failure of diastolic pressure has been established our efforts should be directed toward maintaining the compensation of the heart.

I wish to acknowledge the courtesy of Professors Thompson, Coleman, and Meara for the opportunity afforded me to work in their wards in Bellevue Hospital and also for their kindly criticism and encouragement.

50 West Thirty-seventh Street.

THE APPROXIMATE ESTIMATION OF PROTEIN (GLOBULIN?) CONTAINED IN THE CEREBROSPINAL FLUID.

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A few years ago Nonne introduced the ammonium sulphate test for the detection of globulin excess in the cerebrospinal fluid, and from the degrees of opacity obtained with this reagent arrived at conclusions which for a time attracted considerable attention. I followed closely the results of his work, but could not obtain sufficiently constant reactions to be able to depend upon it to any great extent. In America the butyric acid test introduced by Noguchi promised better results. He does not arrive at any quantitative conclusions, but claims that a negative butyric acid reaction indicates the absence of syphilitic changes in the nervous system. The butyric acid test was performed by me in a large number of cases, and although this is not the place to go into the comparison of results by different methods I am, however, prepared to say that a negative reaction with the Noguchi method performed *lege artis* does not always signify the absence of syphilitic change from the nervous system. In my opinion an increase of protein does not mean syphilis, nor is an absence of an excess of protein a guide sufficiently safe to point to the non-specificity of a given case. The only safe and more or less certain indicator of a syphilitic involvement of the nervous system is the presence of an unquestionable positive Wassermann reaction in the serum together with a marked pleocytosis (increase of cells in cerebrospinal fluid) and a strong globulin reaction, using minute quantities of fluid.

Using the Nonne reaction one has to become familiar with degrees of opacity in the fluid, which requires a retentive memory and a trained eye; a rather difficult state of affairs where standards are absent. The four degrees of opacity suggested by Nonne are empirical and by no means easily grasped even by experienced workers.

For the last six months I have endeavored to obtain a test which would not depend so much upon personal equation, as is the case with the Nonne method, as upon actual test tube appearances. I worked at first with various ammonium sulphate concentrations in decreasing quantities from 0.1 c.c. to 0.5 c.c., using increasing quantities of cerebrospinal fluid—from 0.1 c.c. to 0.5 c.c. No reliability was obtainable as the end reaction was never sharp enough nor constant enough to warrant its adoption for further study.

Having abandoned the ammonium sulphate method, I have experimented with the Noguchi butyric-acid test. Using 0.1 c.c. of cerebrospinal fluid, I was able to obtain tolerably sharp end reactions, but when I used larger quantities of fluid my aim of obtaining a more or less useful quantitative method was frustrated. It was impossible to obtain constant results, using the original Noguchi prescription of 0.1 cerebrospinal fluid 0.5 c.c. 10 per cent. butyric acid and 0.1 c.c. normal NaOH.

The chief reaction takes place between the fluid and the acid, and very little improvement or clearness in the end result is added by the use of NaOH. Bearing this in mind, I tried the butyric acid in much smaller amounts and obtained quite satisfactory results. It became apparent that the reagent, which will bring out in unmistakable clearness the end result, will also be able to show this in small quantities as in larger amounts of cerebrospinal fluid.

Ammonium sulphate added subsequent to the addition of the butyric acid seemed to do this admirably. I used increasing quantities of cerebrospinal fluid, starting from 0.1 c.c. up to 0.5 c.c., 2 drops of a 5 per cent. butyric acid solution, and 0.5 c.c. of a solution saturated with ammonium sulphate. Every case showing a lymphocytosis (I have access only to neurological material) also showed unmistakably the butyric acid-ammonium sulphate reaction, and the greater the lymphocytosis, the sharper the end reaction and the more constant its appearance in the tubes with the smaller quantities of cerebrospinal fluid. This finding impressed me very favorably, and I resolved to follow up its behavior in various conditions. Undoubted syphilis with a positive Wassermann reaction always gave the reaction when a pleocytosis was obtainable. Where no cells were found no reaction was evident.

I do not cite the number of cases this test was applied to, but I feel satisfied that preliminarily this reaction will be readily accepted, for the reason that its end results are conclusive and sharp, and that its appearance in the smaller quantities of cerebrospinal fluid could permit of quantitative deductions. The technique is as follows:

1. Centrifugalize the fluid and use the supernatant liquid.

2. Into each of five small test tubes introduce from 0.1 c.c. to 0.5 c.c. of clear fluid. The obtained fluid must be blood-free.

3. Heat the first tube (0.1 c.c.) gently and add 2 drops of a 5 per cent. butyric acid solution and heat until it bubbles—but does not spurt.

4. Holding the tube almost horizontally permit 0.5 c.c. of a supersaturated ammonium sulphate solution to float on top of the cerebrospinal fluid. The same is performed with the other tubes.

5. Stand aside, noting the time when the last portion of ammonium sulphate was added to the 0.5 c.c. tube.

In case of a protein excess a distinct ring appears in the middle of the fluid. This ring appears from 5 to 25 minutes after being set aside, is of a coarse granular appearance (cheesy) of a cream color. The greater the protein content the more apparent the appearance of the ring in the tubes with the smaller amounts of cerebrospinal fluid. The rings that appear later than 25 minutes are not characteristic. Negative fluids at times show a ring, but it takes from 30 minutes to over one hour before its appearance and the rings in this case are not composed of the coarsely granular material which is seen in the case of fluids with a protein excess.

Compared with other methods, my reaction, as said before, conforms to clinical diagnosis and other laboratory results oftener than the protein reactions of Nonne and Noguchi.

To illustrate: Mr. Z., 352 cells to the c.mm. Globulin reaction: Nonne method + No. 1; Noguchi method —; D. M. Kaplan method 0.1 +, 0.2 +, 0.3 +, 0.4 +, 0.5 +. Wassermann reaction serum +; cerebrospinal fluid —. Clinical diagnosis Lues of brain and cord.

Mr. O. R. No cells in fluid. Globulin reactions, Nonne, + No. 1; Noguchi — E; D. M. Kaplan, 0.1 —, 0.2 —, 0.3 —, 0.4 —, 0.5 —. Wassermann reactions, —; serum, —; cerebrospinal fluid.

Mr. R. Ten cells to the c.mm. Globulin reactions: Nonne —, Noguchi +; Kaplan 0.1 —, 0.2 —, 0.3 +, 0.4 +, 0.5 +. Wassermann reaction, serum —; cerebrospinal fluid —.

Mr. H. L. Forty-one cells to the c.mm. Globulin reactions: Nonne —, Noguchi —; Kaplan, 0.1 —, 0.2 +, 0.4 +, 0.5 +. Wassermann reaction: serum —; cerebrospinal fluid —. Clinical diagnosis — general paresis.

Mr. H. L. Forty-one cells to the c.mm. Globulin reactions: Nonne —, Noguchi —; Kaplan 0.1 —, 0.2 +, 0.3 +, 0.4 +, 0.5 +. Clinical diagnosis — general paresis.

The above cases are but a few of a larger number tested with the various globulin reactions. The D. M. K. reactions never showed the slightest trace of a positive outcome when the Nonne and Noguchi and the cell count were negative. The last case shows a negative Nonne and Noguchi—a positive D. M. K.—and a positive cell count. In one instance it gave a negative result together with the Nonne and Noguchi methods. No cells in the cerebrospinal fluid—with a positive serum Wassermann and a negative cerebrospinal Wassermann; the patient gave a history of lues. In another instance all globulin reactions were negative, 24 cells to the c.mm. were found in the cerebrospinal fluid—with a positive serum and a negative cerebrospinal Wassermann—in a patient with tabes.

I am at present engaged in a more extensive trial of this method and have in view the possible differentiation between cerebrospinal syphilis and general paresis, using the above test as my globulin indicator as well as other tests in vogue in serological research. My conclusions regarding the above test are rather brief; I wish, however, to emphasize: (1) The clearness of the end reaction; (2) Its possible use as a quantitative method; (3) Finally, the distinct differences between positive and negative fluids.

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MERCURY SUCCINAMID IN THE TREATMENT OF TUBERCULOSIS.

By LEROY S. PETERS, M.D.,

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The treatment of tuberculosis by the hypodermic injection of mercury has risen, flourished, and fallen; at least few men have been able to get results as claimed by Surgeon Wright of Fort Lyons, Col. The treatment created more or less interest both among the laity and physicians in general; among the laity, perhaps, owing to the wide advertising given it by the associated press dispatches; among physicians, no doubt, by the eagerness of the profession to grasp at any new remedy that offers a possible chance of curing the disease or lessening the ravages of the great white plague. We as physicians are a little too prone, perhaps, to rush in where angels fear to tread, and yet without this spirit of curiosity the science of therapeutics would forever be at a standstill and medicine to-day would stand where medicine stood in the dark ages.

Still the fallacy of all new methods of treatment, the use of old or new remedies now for a period of time, then the replacing of these same curealls on a corner of the back shelf and the trying of a new specific all point to the timeworn fact that nothing has been found in the drug line that justifies us in announcing a cure or even a remedy that works wonders, so to speak, in the treatment of tuberculosis. It is true that a few measures aid us in the fight, but as for knowing of any remedy that even hints at a specific we are as much in the dark as ever. It was not so many long years ago that Robert Koch announced to the profession a cure or what he thought might prove curative in tuberculin. Then as a body we flew to the new discovery, and even tuberculin fell into disrepute until recently and now again in a far less degree it is being used in suitable cases with apparently good results. I say apparently good results, because no one can say just how many given cases would or would not have attained the same happy outcome had the usual routine treatment and that only been followed. And now what I have said in general applies to the hypodermic injection of mercury in particular. With all due respect to Surgeon Wright I feel that he is wildly enthusiastic over the use of this drug, and that he has let his enthusiasm blind him in his reports from time to time. He has let the pendulum swing too far on the high road to recovery, and now after about two and a half years it has returned with a resounding whack and shattered all the fondest dreams of those who looked for wonderful results from the hypodermic injection of mercury. It is true, I suppose, that the doctor still has faith, and possibly a few others that have had better results than the majority of us less fortunate fellows. But from a study of current literature over this period of time and from personal experience covering a year and a half I fail to see why this particular method should longer be held up to the profession as a wonder worker or even a possible aid in our fight against tuberculosis.

A year ago, after six months' use of mercury, I predicted this outcome in a paper read before the New Mexico Medical Society at Roswell,* and now after adding another twelve months I feel that I have no reason to step aside from the stand I took at that period. Years ago this selfsame drug was used in the treatment of tuberculosis but with apparently no effect, and was then discarded for other

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"sure specifics" until the work of Wright again gave it impetus, and now a second time other investigators having proven its uselessness it is doomed to be cast into the field of oblivion and we trust allowed to rest in peace as far as its value in tuberculosis is concerned.

The other syphilitic who failed gained for a time, but from a pulmonary standpoint was hopeless in the beginning. Of the two non-syphilitic individuals one improved and one made a cure. However, I am firmly convinced that either would have done the same under any treatment, for both were excellent

TABLE OF CASES.

Case.	Status.		Temperature.		Hemoglobin.		Blood Pressure.		Sputum.		Pulse.		Weight.		Complications.	Result.
	Before.	After.	Before.	After.	Before.	After.	Before.	After.	Before.	After.	Before.	After.	Before.	After.		
1	III	III	99²	100⁴	100	100	136	136	+	+	98	96			. . .	station.
2	III	III	99²	99²	100	100	132	132	+	+	96	100			hemor.	died
3	III	III	100⁸	100	90	100	120	120	+	+	108	106			tb int	died
4	III	III	99⁸	98⁶	95	100	150	148	+	+	106	74			. . .	imp.
5	I	I	98⁸	98⁶	100	100	145	148	+	+	99	100			. . .	station.
6	III	III	98⁸	100²	95	100	140	150	+	+	100	100			. . .	failed
7	III	III	100⁶	99²	95	100	110	120	+	+	120	120			syph.	failed
8	III	III	100	100	100	100	140	140	+	+	100	100	106	106	tb. int.	failed
9	II	II	n.	n.	100	100	140	140	+	+	78	78	143	145	syph.	imp.
10	I	I	n.	n.	100	100	156	156	+	+	88	88	135	135	. . .	station.
11	III	III	99²	99²	100	100	160	148	+	+	90	90	172	170	tb. larynx	failed
12	II	II	n.	n.	100	100	130	142	+	−	90	76	152	176	. . .	cure
13	II	II	100	n.	100	100	136	148	−	−	120	72	134	165	syph.	cure
14	III	III	100	99⁶	100	100	114	132	+	+	108	110	116	119	fist.	station.
15	III	III	99²	99²	100	100	146	146	+	+	100	100	149	149	tb. larynx	failed
16	III	III	101	101	100	100	130	130	+	+	120	130	136	125	. . .	failed
17	II	II	99¹	100	95	100	136	136	+	+	90	90	112	112	. . .	failed
18	II	II	100	103	95	100	136	146	−	−	114	120	110	120	syph.	failed
19	III	III	99	n.	100	100	140	176	+	+	63	66	105	120	syph.	imp.
20	II	II	n.	n.	90	100	140	132	+	+	100	80	113	139	syph.	imp.
21	I	I	n.	n.	100	100	130	130	+	+	90	90	130	130	. . .	station.
22	I	I	n.	n.	100	100	140	140	+	+	72	90	179	177	. . .	station.
23	III	III	n.	n.	100	100	148	128	+	+	100	78	147	140	aortic regurgitation	failed

Abbreviations used: station., stationary; hemor., hemorrhage; tb. int., tuberculous intestines; syph., syphilis; imp., improved, fist. fistula.

This much credit can I give, and my statement is borne out by the appended table. In cases giving a history of syphilis marked improvement is seen from the beginning of treatment. And here it is well to state that although Wright has excluded syphilis to his own satisfaction, no doubt much of his apparent success has been due to a syphilitic taint perhaps undiscovered, but nevertheless a silent factor. I cannot agree with Hartz of Philadelphia* when he claims that equally bad results are obtained with syphilitic and non-syphilitic individuals, and of course his work lacks weight when we consider the dosage he used—grain 1/5. This I found too high in the very beginning, and, as I showed in my first report, I was compelled to cut this in half in order to give the drug at all. The past year I have followed Wright's technique exactly, making my dilutions so that ten minims equal one-fifth grain, starting then with three minims and increasing one minim a day until the maximum dose of ten minims was reached, then after a few injections dropping back to seven and holding this to the end of the first series, unless contraindicated.

My work covers a series of twenty-three patients treated in a closed institution under perfect dietetic and hygienic conditions, and by following the tabulated report one can easily see that the results are far from confirming the work of Surgeon Wright, and that they do conform to the results of the majority of investigators along this line.

From an analysis of the foregoing table we get the following results; Stationary, 6; died, 2; failed, 9; improved, 4; cured, 2. It is interesting to note that of the six patients classed as improved or cured four were syphilitic and two cases of simple tuberculosis. One syphilitic made rapid gain under mercury but developed in the course of treatment a neuritis which was extremely painful and because of it we abandoned the injections. He went down rapidly from then on and is now a hopeless case.

*Journal American Medical Association, September 10, 1910.

patients with little pulmonary involvement. The nine who failed and the six remaining stationary were non-syphilitic with the exception of the two cases mentioned, numbers 18 and 7. Case No. 23 also developed a neuritis of the 3rd division of the 5th nerve and the injections had to be abandoned.

The two who died were also free from any syphilitic taint, one dying of bronchopneumonia following hemorrhage and the other was sent home as hopeless and died a few months later.

The number of cases would not justify one in making radical or dogmatic statements regarding the use of this particular form of treatment were it not for the fact that my observations are borne out by other investigators, and until we get a drug, serum, or what not that shows results that cannot be disputed, let us not be too prone to herald the long-looked-for cure for tuberculosis.

Value of Radiography in the Treatment of Adenopathies.—P. Oudin and A. Zimmern says that in several forms of adenopathies the use of the *x*-rays causes diminution of the size of the glands. The method, when properly controlled by shields over the normal parts, is without danger, and the only unpleasant effect observed is pigmentation of the skin. Irradiation much less in strength than to cause skin burns will destroy lymphocytes. The rays diminish the size of the glands in inflammatory swelling of the glands, in lymphatic leukemia, in cancer, and in tuberculosis, when treated early before caseation has occurred. Lymphosarcoma may be successfully treated with the rays. In tuberculosis of the glands we get first a parenchymatous reaction with proliferation of the gland follicles. Later the connective tissue elements undergo hypertrophy, followed by sclerotic action. Early tuberculosis offers a rich field to the treatment by the *x*-rays; in the stage of suppuration if the pus be evacuated a cure may be obtained; in the stage of atrophic sclerosis they have no further action. In chronic adenitis just below the skin the action is most remarkable. The glands soften gradually and finally entirely disappear. There is no reason to fear generalization of the disease as a result. The best method of treatment is by a series of short sittings. When atrophy is complete we should continue the sittings in order to prevent recurrence. The rays have an excellent effect on old fistulæ.—*Gazette des Hôpitaux.*

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SURGICAL VERSUS EXPECTANT TREATMENT OF BRAIN TUMORS.

THE latest word on this subject emanates from the acknowledged master of brain surgery, Sir Victor Horsley, who in the *British Medical Journal*, December 10, 1910, surveys the experience of the past twenty years, which shows that the time has arrived for a complete reconsideration of the subject. The so-called expectant treatment is a delusion, he says, the administration of drugs for intracranial tumors is wrong, because it is useless. With this sweeping enunciation Horsley urges the absolute necessity of a recognition of the earliest pathological manifestations of brain tumor in order that surgical intervention may be prompt and therefore more probably effective.

These manifestations may be those of overaction, the irritative effects of lesions, or those of want of action, the destructive effects of lesions. The following propositions are advanced, namely, every case of focalized epilepsy not definitely proved to be idiopathic in origin must be treated by exploratory operation; the latter should be resorted to also in every case of progressive motor or sensory paralysis of intracranial origin. It is important to recognize the earliest symptoms of destruction in the various lobes of the cerebrum. The more frequent and systematic clinical inspection of cases will reveal the early deterioration of mental powers so characteristic of tumors of the frontal lobes. In lesions of the Rolandic region so much attention has been bestowed on coarse motor loss that the far earlier loss of Munk's "memories of movements" has been overlooked. Atopognosis may be present for months before there is any detectable loss of motor power, while astereognosis does not develop until motor paralysis is well marked. The early recognition of commencing restriction of the fields of vision, of alteration in tone appreciation, and of slight disorders of equilibration will secure early treatment of tumors of the occipital and temporal regions. Operation is thus indicated on the detection of earlier sensory loss; the loss of motor power, which is the last phenomenon to appear, is the one usually waited for before surgical steps are undertaken.

The conclusion is reached that every case of intracranial tumor definitely diagnosed must be treated according to its situation, either by removal of the neoplastic tissue or by release of the intracranial hypertension. Although Horsley has already observed that a simple decompression operation may cause arrest and complete degeneration of a glioma, he believes that, except in the case in which the field of removal involves direct destruction of the representation of such a single faculty as speech, free extirpation of neoplastic tissue should be the rule and mere decompression the exception. There are two conditions under which a palliative operation of simple decompression should be employed, namely, cases in which the neoplasm is known to be situated in a position from which it cannot be safely dislodged, and cases in which no localization is possible. In both these instances, Horsley maintains, the careful execution of a subtemporal decompression operation is the best procedure.

In regard to the treatment of syphilitic tumors of the brain, Horsley takes a stand directly opposite to the usual procedure in neurological practice. In the case of tumors which in spite of a negative Wassermann reaction cannot be pronounced definitely and at once as non-syphilitic, he urges, as he did seventeen years ago, that six weeks of antisyphilitic treatment is the utmost that should be allowed and that unless within that period not merely temporary alleviation but very substantial improvement occurs, the case should at once be treated surgically. Furthermore, it is noted that Sir William Gowers first pointed out the fact that syphilitic lesions of the brain are not really cured by antisyphilitic treatment and that after a period of respite the symptoms tend to recur. Horsley declares himself a partisan of this opinion and holds it applicable to gummata, pachymeningitis (including hemorrhagic pachymeningitis), both acute and chronic, and also the so-called syphilitic optic neuritis.

Sir Victor Horsley therefore declares himself absolutely against the proposition that was originally advanced by von Bergmann and that has been accepted as an axiom by the surgical world, namely, that syphilitic lesions, especially gummata, ought not to be subjected to surgical treatment. Horsley believes that the present lines of treatment should be remodeled in view of the analogy between the subdural and the intraperitoneal spaces. In cerebrospinal syphilis, just as in tuberculous peritonitis, he has obtained the most rapid improvement by opening the subdural space and irrigating with sublimate solution (1 to 1,000). Further, he suggests that since a gumma consists of a wholly necrotic focus of infective material it is important that it should be thoroughly eradicated as a similar tuberculous focus is treated. In addition, the subdural space should be irrigated with sublimate solution in order that one may secure the most direct treatment of the pachymeningitis which always surrounds a gumma cerebri, and also obtain a more immediate effect on the meningeal vessels which are affected with endarteritis. It is concluded on the basis of successful practical experience that in all syphilitic conditions of the nervous system the problem of rapid treatment is the same, namely, the local application of mercury by means of subdural irrigation.

THE INEXHAUSTIBLE TOPIC OF THE DAY.

To borrow a German expression, one might speak of "606 und kein End." The most influential German weeklies simply teem with articles on this subject. The current number of the *Deutsche medizinische Wochenschrift* (December 8), with no pretentions toward a symposium, contains no less than six elaborate articles, while the *Münchener medizinische Wochenschrift* (December 6) has three and the *Berliner klinische Wochenschrift* (December 5) two. We see here over half a score of articles published in a single week by three journals.

With the exception of the flood of commendatory articles after the announcement of the discovery of tuberculin, we cannot recall the parallel of this in the entire history of medical journalism. Michaelis covers the subject from the standpoint of the general practitioner. This article does not lend itself to abstraction, but the entire subject is exhaustively covered and the paper as such is worthy of a literal translation. Following Michaelis's article (in the *Deutsche medizinische Wochenschrift*) comes one by Oppenheim, which is wholly personal in character. This author's opinion as to the value of 606 in the neurological trinity of cerebrospinal syphilis, tabes dorsalis, and paresis is worthy of the most thoughtful attention. He cannot see that 606 does more for gummata of the central nervous system than mercury and potassium iodide. In regard to tabes dorsalis a few cases show notable improvement, but others again show injurious effects, while the majority are not influenced. The practitioner therefore assumes much responsibility in using 606 for tabes. In regard to paresis, Oppenheim has, however, seen one remarkable case of improvement among many indifferent results. This article is followed by a record of Rumpel's personal experience. The author in question is known for his monograph on lues of the nervous system published many years ago. He has, however, tested 606 in a great variety of non-syphilitic maladies, the microbic cause of which stands in some definite biological relationship with the *Treponema pallidum*. Rumpel appears to be an enthusiast. Not alone, according to him, is 606 a specific for syphilis, but it prevails over malaria and the Plaut-Vincent angina.

Next to Rumpel's article comes one from Carl Stern, well known for his work on the Wassermann reaction. Stern concludes that 606 is a remarkable specific, but not a cure-all. Stern is followed by Kromayer, a dermatologist, who gives valuable testimony. This writer decides that 606 does not evoke supersensitiveness when given in small doses. He would administer it in fractional doses.

In the *Berliner klinische Wochenschrift* (December 5) Touton of Wiesbaden begins a serial article, which, being unfinished, cannot be abstracted. Géronne, whose article follows the preceding, deals wholly with the intravenous method, which possesses little interest for the American practitioner.

Hirsch (*Münchener medizinische Wochenschrift*) sums up the general experience of ophthalmologists in the statement that 606 does not *per se* affect the optic nerve.

Has the Recognition of Bacilli Carriers Added to Our Prophylactic Resources?

The bacillus carrier is naturally most to be feared in institutions, especially in those which are overcrowded or poorly equipped and manned. The problems of this sort presented by insane asylums are clearly more difficult to deal with than those of institutions for the sane. Neisser (*Berliner klinische Wochenschrift*, Nov. 21) has recently discussed the experience of certain insane asylums from the carrier point of view and is forced to conclude from his limited and special experience that the discovery and isolation of the diphtheria carrier cannot prevent the recurrence of institutional epidemics. Lighting up of new epidemics and mere cumulation of cases in certain years are quite enigmatical in their causation. We must indeed continue to discover and isolate carriers, but the problem of sanitation must be equally considered, with special reference to the avoidance of overcrowding, and a sufficiency of intelligent nurses and keepers to offset the lack of cooperation by the irresponsible wards of the State. The special treatment of typhoid carriers is not difficult. The diphtheria carrier, on the contrary, sometimes requires months of isolation before he is free from disease. Preventive inoculation of diphtheria suspects may show up well in one institution, and may appear to cure the carriers. In other institutions it has been necessary to isolate the carriers until recovery. But the latter, as already stated, does not prevent renewed epidemics.

Injections of Cancer Residue.

In a paper read at the annual meeting of the Michigan State Medical Society at Bay City on September 28-29, 1910 (*Journal of the Michigan State Medical Society*), J. Walter Vaughan recounted his experience with the use of cancer residue. The object of injecting the non-toxic protein of the cancer cell, or cancer residue, was to find proof with regard to the formation of a specific ferment by means of a study of the various blood elements, particularly the leucocytes. Vaughan experimented on twelve persons suffering from malignant growths and drew the following conclusions: 1. The injections should always be small in amount, preferably 5 to 10 minims of a ½ to 1 per cent. solution. 2. Injections, according to present knowledge, should be controlled by daily differential leucocyte counts. 3. Injections should only be made when the percentage of mononuclear cells is on the increase. 4. A good blood reaction, by which is meant an increase of from 10 per cent. up of uninuclear cells following residue injection, tends toward a favorable prognosis. 5. If the blood count does not respond smaller doses should first be tried. If this fails to produce the desired change different residues should be used until one is found which will bring about this result. Vaughan's investigations are, at least, instructive and suggestive and it is possible that they point to a new method of treating cancer. If the principle of vaccine therapy is correct, then it would seem that Vaughan is working in the right direction, since the principle of his method and that of vaccine therapy are virtually the same. At any rate, according to those who have been in a position to pass opinions on the results of this treatment, the injection of cancer residue has had the effect of relieving the pain attendant on cancer. This alone would be an immense boon.

News of the Week.

Public Health Lectures.—During January and February a series of lectures on public health will be given at the Museum of Natural History, New York, under the auspices of the Board of Education, admission to which will be free. The program is as follows: January 7, "The Health of New York," by Dr. H. M. Biggs; January 14, "Communicable Diseases," by Dr. William H. Park; January 21, "The Relation of Flies to the Transmission of Disease," by Dr. H. D. Pease; January 28, "The City Milk Supply and Its Control," by Health Commissioner Lederle; February 4, "Tuberculosis," by Dr. Livingston Farrand; February 11, "Tuberculosis as a Social Problem," by Dr. James A. Miller; February 18, "Water Pollution and Water Purification," by Dr. C. E. A. Winslow; February 25, "Housing and Health," by Mr. Lawrence Veiller. The lectures are given at eight o'clock on Saturday evenings, and the course partially duplicates that given earlier in the year by Columbia University at the Horace Mann School.

Registration of Deaths.—In furthering its advocacy of a more careful and exact registration of deaths throughout the United States, the Bureau of the Census has issued a physician's pocket reference to the international list of causes of deaths. The bureau will upon application furnish copies of this leaflet, which has been prepared by Dr. C. L. Wilbur, together with specimen copies of the United States standard death certificate and of the model law governing registration.

Health Test for Hotel Employees.—In one of the large hotels of New York a system of supervising the health of the employees, in order that the guests may be protected, has recently been put into force.

Union of Hospital and Medical School.—Through the proposed agreement between the College of Physicians and Surgeons, Columbia University, and the Presbyterian Hospital, which awaits only the formal action of the trustees of the former, it seems probable that New York will at last approach more nearly to the ideal in medical education. This union has been made possible by gifts to the hospital from Mr. Edward Harkness of a building to be used for a teaching and research pavilion, and from an anonymous donor, through Mr. Harkness, of a sum amounting to $1,300,000 as an endowment fund to be used solely in support of the educational and scientific work of the hospital. The condition of the gifts is that the hospital ally itself with an educational institution to which shall be given the right to make nominations to all the positions on the hospital staff, the ranking professors in medicine and surgery in the school to hold appropriate positions on the hospital staff, and not to be connected with any other hospital; the departments of pathology and bacteriology in the college to be allowed to conduct classes in the hospital, and a director of the surgical research laboratory to be appointed who shall be a member of the teaching staff of the college and shall be allowed to teach in the hospital. As a further condition, the College of Physicians and Surgeons is named as the medical school with which the hospital allies itself so long as the college is in a position to carry out its share of these conditions and complies therewith. In the event of its failing to comply with the conditions another medical school may be selected by the hospital. The Presbyterian Hospital not long ago acquired property on the east side of the city comprising the entire block between Sixty-seventh and Sixty-eighth streets, Avenue A and the East River, and adjacent to the grounds of the Rockefeller Institute. On this it is proposed to erect a new group of buildings which will afford ample ward and laboratory facilities.

Cost of Hospital Patients.—In its appeal for funds for the coming year the Hospital Saturday and Sunday Association includes a statement as to the increase in the expense of maintaining hospitals as compared to ten years ago. It has been found that in one institution, selected as typical, the daily cost per patient in 1900 was $1.17, while in 1910 it was $2.06. At the institutions represented by the Association over one million days of free treatment were given last year.

Von Leyden's Clinic.—Dr. H. Serena Mendes writes to deny the reports current in this country to the effect that Dr. von Leyden's clinic in Berlin has been closed since his death. On the contrary the clinic is being continued at 4a Corneliusstrasse, under the direction of Prof. Dr. Paul Lazarus, Dr. von Leyden's pupil and assistant.

Child Mortality in Detroit.—Following the publication of the mortality statistics for 1909, prepared by the Bureau of the Census, a protest was heard from the health authorities of Detroit, who claimed that the ratio of deaths under one year to the total deaths in that city was incorrectly given. The Detroit people asserted that this rate was only 20 per cent., while the Census Bureau gave it as 29 per cent. Dr. Wilbur, therefore, himself went to Detroit and with State representative made a careful inquiry into the records, with the result that the Detroit health officers have admitted the correctness of Dr. Wilbur's figures, and have decided to change the present system used in the registration office. In view of the criticisms from many parts of the country of the figures issued by the Bureau of the Census, the results of this careful investigation are of particular interest.

Civil Service Examination.—The United States Civil Service Commission announces an examination to be held on January 21, 1911, for the purpose of filling a vacancy in the position of physical director and assistant disciplinarian at the Haskell Institute, Kansas, at a salary of $800 a year. Applicants must be graduates of medicine, between the ages of twenty and fifty years, and should apply at once to the United States Civil Service Commission, Washington, for Form 1312. The application must be properly executed and filed with the Commission before the closing hour on January 21, eligibility for the position being determined solely by the evidence furnished by the application and examination form.

The Chattahoochee Valley Medical and Surgical Association will hold its ninth semi-annual session at Columbus, Ga., on January 10 and 11, 1911. An interesting and comprehensive program has been arranged. The president of the association is Dr. J. S. Horsley of West Point, Ga., and the secretary, Dr. W. L. Love of Opelika, Ala.

Colbert County (Alabama) Medical Society.—The annual meeting of the society was held in Tuscumbia, on December 14, officers being elected as follows: *President*, Dr. C. W. Williams, Chero-

kee; *Vice-President,* Dr. J. W. Maxwell, Sheffield; *Secretary-Treasurer,* Dr. J. T. Haney.

Insurance Company Hospital.—Notwithstanding the opposition of the residents of Saratoga Springs, the Metropolitan Life Insurance Company of New York has been granted permission to establish a hospital for the treatment of tuberculosis at Mount McGregor, the permit being issued by Dr. Porter, State Commissioner of Health, and Dr. J. S. White, Health Officer of Town of Moreau. The residents of Saratoga Springs who opposed the plan urged as an objection the possible damage to the mineral waters and to the property interests of the town; but the commissioners declare that the sewage of such an institution can be easily disposed of, and any possible contamination of the waters prevented. The site selected is about eight miles from Saratoga. The hospital will be maintained by the company for the benefit of its employees suffering from tuberculosis.

Straus Depot in Washington.—The authorities of the District of Columbia having failed to take over the pasteurization plant established in Washington by Mr. Nathan Straus of New York, the donor has announced that he has reconsidered his determination to withdraw his support on January 1, and will continue to operate the laboratory for the present. It is hoped that the Government will eventually decide to carry on the work itself, and that Congress may at this session take the necessary action.

Bridge for Charity.—The directors of the New York Throat, Nose, and Lung Hospital have received $2,050, to be used for their Tuberculosis Department and Night Camp, as the result of a bridge tournament held recently at the Plaza Hotel.

Head of Ambulance Board.—The New York Municipal Civil Service Commission has finally approved the appointment of Dr. Daniel C. Potter as Director of the new Board of Ambulance Service.

Epidemic of Mumps.—The bluejackets in the Naval Station at Norfolk, Va., are suffering from an epidemic of mumps, and one entire company of 136 men has been placed under strict quarantine.

More Centenarians.—At the age of 107 years, James Foster of Kansas City is reported as seeking work and refusing charity. Mrs. Rosanna Carroll, probably the oldest resident of Brooklyn, N. Y., died in that city, on December 18, aged 102 years.

New Brooklyn Hospital.—The Caledonian Hospital Society of Brooklyn, which was organized two years ago, has purchased an old mansion and the spacious grounds around it at the junction of Woodruff and St. Paul's avenue, Flatbush, on which it proposes to erect a modern hospital. The present house will probably be remodeled and equipped for use until funds can be obtained for a more suitable structure.

Operation on a Lion.—Surgery under somewhat difficult conditions was carried on at the Zoo in Central Park in New York recently when Headkeeper "Bill" Snyder operated on a fourteen-months-old lion cub, removing a fibrous tumor mass from its throat. After some strategy the animal was blindfolded and tightly lashed to the bars of its cage. Cocaine in liberal quantities was then injected into the neck in the region of the tumor and the mass removed. Unfortunately, although the operation was said to be an entire success, the patient died the next day—a result which, it must be confessed, sometimes attends operations done under far more favorable circumstances.

Charitable Gifts.—By the will of the late Mr. Michael Cudahy of Chicago, bequests of $2,500 each are made to St. Elizabeth's Hospital and St. Joseph's Hospital of that city.

Lebanon Hospital, New York, receives $2,500 under the will of the late Mrs. Charles W. Rockwell of Scranton, Pa., while in Scranton the West Side Hospital and the West Mountain Sanitarium each receive $10,000, the Hahnemann Hospital $5,000, and the Taylor Hospital and the Carbondale Hospital each $3,000.

The Flower Hospital, New York, receives a bequest of $5,000 for the endowment of a bed under the will of the late Miss Charlotte Dellinger of New York.

The Babies' Dispensary and Hospital Association of Cleveland, O., has received a gift of $100,000 from Mr. and Mrs. J. H. Wade, in memory of Mrs. Anna R. Wade, for the purpose of completing the dispensary building and milk laboratory.

Christmas gifts amounting in all to $1,500 were sent by the treasurer of the Friendly Sons of St. Patrick to various hospitals in New York as a recognition of their services to the Irish poor. This is a time-honored custom.

The Anna Jaques Hospital of Newburyport, Mass., receives a bequest of $200,000 by the will of the late Mrs. William O. Moseley of that city.

Phi Alpha Sigma.—The first chapter of this, the oldest medical fraternity in the country, to be organized in the West, was established in Chicago on December 17, when a class from the Northwestern University Medical Department was initiated. The initiation was in the charge of Dr. Thomas C. Chalmers and Dr. N. B. Van Etten of New York, and Dr. R. V. Patterson of Jefferson Medical College, Philadelphia.

Society of Hospital Internes.—The first regular clinical meeting of this newly organized society was held at St. Luke's Hospital on December 19, when an interesting program was presented by the members. Dr. N. B. Potter, the originator of the idea, also spoke on the purposes, scope, and advantages of the society. Representatives were present from St. Luke's, the Roosevelt, New York, City, Post-Graduate, Bellevue, and Mt. Sinai Hospitals. The next meeting will be held at the Roosevelt Hospital in January, the exact date to be announced later, at which the Committee on Constitution will report and the society will be permanently organized. Internes of all the New York hospitals are cordially invited to be present. Dr. H. W. Ernsheimer of Mt. Sinai Hospital is the chairman of the committee.

Obituary Notes.—Dr. David Sherwood Kellogg of Plattsburg, N. Y., a graduate of the University of Vermont College of Medicine in 1873, health officer of Plattsburg from 1878 to 1880, pension examiner from 1883 to 1900, and for several years acting assistant surgeon in the United States Army, a charter member of the Northern New York Medical Association, and a member of the New York State and Clinton County Medical Societies, died at his home, on December 19, aged 63 years.

Dr. Thomas J. Collier of Griffin, Ga., a graduate of the Tulane University of Louisiana in 1867, and a member of the Georgia State and Spalding County Medical Societies, died at St. Joseph's In-

firmary, Atlanta, on December 12, aged 69 years.

Dr. Charles E. Stone of Marysville, Cal., a member of the American Medical Association and of the California State and Yuba County Medical Societies, and superintendent of the County Hospital, died at his home on December 10, aged 82 years.

Dr. James Edgar White of Springfield, Ill., a graduate of the Rush Medical College of Chicago in 1883, and of the New York Post-Graduate Medical School and Hospital in 1894, a member of the Illinois State and Champaign County Medical Societies, and supreme medical director of the Court of Honor, died at his home on December 10, after a long illness, aged 55 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

BRADSHAW LECTURE AT R. C. S.—SIR A. P. GOULD ON CANCER—HEART STRAIN AND DILATATION—TWO EVENINGS' DISCUSSION AT THE MEDICAL SOCIETY OF LONDON.

London, December 9, 1910.

The Bradshaw lecture at the Royal College of Surgeons was delivered on Wednesday by Sir Alfred Pearce Gould, senior surgeon of the Middlesex Hospital. Cancer being his subject, he referred at the outset to the excellent work of the Imperial Research Fund directed by Dr. Bashford. Having remarked on the little influence of environment, though certain occupations were attended with special liability to the disease, Sir Alfred said it occurred in cell vertebrates, could be transferred from host to host, but the fact was far more important that it could not be transferred to an animal of another species. Passing to the work of the Middlesex Hospital Cancer Research Laboratories, he said the cancer cell was not an alien cell, but was under the same influence as its normal neighbors. Its life was disorderly, irregular, with a minimum of differentiation and function. Cancer was not a disease attacking the body from without, it was the result of some failure or breach of fundamental cell law, obedience to which resulted in perfect development, health, and length of days. Certain conditions had an influence on its causation, as age and sex, the effects of *x*-rays and alcohol. Mortality statistics showed its incidence in any occupation varied with the attendant habits as regards alcohol. Among the men insured in the Temperance and General Provident office the deaths from cancer in abstainers were 72 as against 100 in the moderate drinking section.

Sir A. P. Gould then expressed the opinion that clinical experience and experimental pathology threw a ray of hope across the dark sea of malignant disease. The primal laws of development held the cells of the tissues in true and loyal obedience to the very end in an almost infinite variety of conditions and the great majority of persons. The initial fact of the immunity of people from cancer was that 90 per cent. of men and women held the dread enemy at bay as they passed down the hill of life in spite of added years and other conditions which tended to wear down the obedience of cell life to its fundamental laws.

As to the disappearance of a cancerous growth, those who were studying the disease in mice reported that in them it was quite a frequent occurrence for a grafted growth, after attaining some size, to shrink slowly and completely away, and in some series of experiments a large proportion of the grafts which had "taken" had, after a period of growth, spontaneously vanished. Sir Alfred then referred to some cases he had treated in the Middlesex Hospital in which, though the disease was not cured, in the sense of being completely and permanently removed, yet there was reason to think that the word "cure" might be justified. He did not mention the treatments employed, as his purpose was not to vaunt a remedy but just to state a fact—that cancer, even where advanced and of long duration, might get better, might even get well. There was cure of cancer apart from removal. All therapeutical cures were obtained only by the working of physiological forces, and the first hope of therapeutic success came from observation of the efficiency of unaided nature to accomplish cure. In the darkness of night it is everything, he said, to know "there is a sun, and if we fix our eyes on the east we shall soon see the dawn and then the many colored heralds of the golden sun himself." It is much to the cancer-stricken to know there is a sun of healing. "When the biologist shall know the laws that govern cell growth, with a knowledge akin in its sweep and accuracy to that of the astronomer, he will have power—the power to prevent, to control, and to cure cancer."

Heart strain and dilatation was the subject of a discussion at the Medical Society of London, opened by Dr. Goodhart, and although he confessed at the outset that he had only undertaken the task on account of the president's kindly pressure, the fellows present could not but feel grateful to their president for having secured them this treat. Heart strain is common enough in the view of some practitioners, though others are inclined to pooh pooh it. But even the latter meet with cases difficult to account for which they cannot satisfy themselves amount to real injury, although the symptoms have come on, perhaps, after some unaccustomed exertion too insignificant in itself to satisfy the observer that it could have been the cause of the patient's distress. The doubts of the clinician were admirably expressed by Dr. Goodhart. He mentioned some cases in which unnatural sensations of illness, sighing, irregular pulse, with possibly nausea, and fainting and collapse gave rise to alarm. Pains over the region of the heart might follow with extreme lassitude. Then the impulse might be found somewhat outside the usually accepted normal limit, the beat variable, and some intermissions. No murmur or only a systolic bruit at the base, varying in extent and intensity with the posture. Prolonged rest is generally ordered on the strength of such symptoms, but is that the best treatment? Dr. Goodhart would hardly support it, for he held that true heart strain, by which he understood a state of the muscles that if not so dealt with would lead to dilatation, was a very rare condition. What, then, are the signs that dilatation has arrived? He thought the position of the impulse and the precordial dullness—so commonly relied on—were insufficient. The dullness was fairly reliable for enlargements of the right side, but of little value in the apical section. The impulse is a fairly constant landmark in relation to the chest wall, but what of the conditions that tend to alter its position, suspended as it is between the lungs and resting on the diaphragm? Then the tone and precision of the muscular contraction must be remembered. The ven-

tricular muscle twisted up into a tight spiral, but that was not a complete history of any living muscle. Considerable allowance must be made for contraction in the healthy play of any muscle and the distension or relaxation in a series of cavities linked together will cause variation in shape of the organ. Percussion could not then adequately gauge "the physiological play of the healthy heart." To what extent such variation reached Dr. Goodhart thought we had not any accurate knowledge. He instanced further the shape of the chest and said in the narrow chests too often met with the heart would occupy more of the front of the thoracic cavity.

Passing on to murmurs as evidence of dilatation, he said many are not valuable. Some often regarded as indicating valvular, or worse, muscular disease could not be explained except as functional, that is, excluding organic change in valves or muscle because the health remained good. It was said they disappeared with rest, but that was not his experience. Examination for life insurance revealed many. The subjects were nervous. It was unreasonable to expect a muscular organ with a throbbing vitality, nerve controlled, to be always in tone. There was a physiological up and down—hardly failure or imperfection—to which might be attributed many muscular rumbles, systolic souffles, and purely postural murmurs. He admitted many of the last-named might be mitral leaks, though not due to disease, and claimed they might be consistently spoken of as "valvular leakage without disease." A further argument against a too prodigal use of the term dilatation was that the symptoms which sent patients for advice were not those found when dilatation was beyond dispute. Fainting, one of the commonest in spurious cases, was rare in pronounced heart disease. The vascular mechanism prevented it and a dropped beat in the pump was not instantly noted in the capillaries. Faints were peripheral phenomena due to peripheral spasm, or relaxation, to nerve storm, etc. So an intermission of a beat, if unassociated with obvious disease, was one of the most unimportant of cardiac aberrations, and a weak pulse, "often made too much of, had seldom a sinister meaning *quâ heart.*" Another complaint, fatigue, is no indication of cardiac failure. So of pain in the region—there was no evidence that the heart showed more than a dull muscular sense, but plenty to show the surface area a neuralgic region. In over-distension of the right from excessive exertion, as in racing, there was little evidence of mischief on the left. A man might be played out by excitement or by physical expenditure and his nerve current cease for a moment to run. If it were possible to force it to continue the struggle damage would follow, but though the man looks so ill in most cases the heart will soon be working as well as ever. It might be asked whether true heart strains—however possible to locate them—might not be due to defective innervation, abortive messages, rather than to damaged muscle. It must be admitted that the heart has a magnificent power of resisting strain and dilatation seldom other than the result of real disease at a late stage. Early dilatation was not easy to determine, for it would share the signs of emotional and other disturbances of which the heart was the pastmaster of expression.

A discussion followed, extending over two evenings, being concluded on Monday.

Sir Douglas Powell admitted that many cases were imaginative and that the patients should be reassured. The chief point was careful diagnosis. In his experience many cases attributed to athletic exercises were really due to anemia. Patients who overdid muscular work often became anemic.

Sir Lauder Brunton compared heart-strain with joint-strain. If a joint were slightly strained it could bear gentle movements, but if severely strained absolute rest was best at first and when exercise was begun it should be very gentle. Cardiac dilatation might result from nervous causes, though he had seen a case in which it evidently originated in a great physical effort. In elderly patients the general state of nutrition was of course shared by the heart.

Dr. Henry Davy related two cases which he attributed to extensive decay of the teeth, the patients being brother and sister. The man had been a "blue" in football and cricket, but the lady could hardly be said to have undergone muscular fatigue once in her life.

Dr. Collier of Oxford, who has had great experience among undergraduates, said he had frequently had to consider whether athletes might continue their games. When there were definite signs of dilatation he generally advised discontinuance. Systolic murmurs running up the left side of the sternum, with abdominal epigastric pulsation, should prohibit athletic exercises. At the same time, patients with strains should not be frightened into thinking themselves "heart crocks." Rowing and competitions in races should be given up, and then they might be reassured that they might improve by living a quiet life, keeping seasonable hours, not smoking, continually limiting their exertion, and so forth.

Dr. S. West argued that supervised exercise was better for muscles than prolonged rest, under which wasting occurred.

Dr. W. Broadbent said in functional cases the jugular tracing was normal. In others there was a very large auricular wave, showing hypertrophy of auricle. Then violent exercises should be discontinued and relief to symptoms followed soon. But if the ventricular wave was higher, though rest reduced it, there was likelihood of relapses on exertion of any importance.

Dr. Alex. Morison thought hearts became inefficient without gross organic disease, but the condition was important and we must not be too optimistic.

Sir John Broadbent said percussion was overrated in the diagnosis. An athlete would have a bigger heart than a bookworm. It was not size that mattered so much as functional capacity.

Dr. L. Guthrie distrusted physical signs of strain or dilatation, though they might indicate a past strain or potential dilatation under stress, and so caution should be enjoined.

Dr. C. W. Chapman said in the young and strong a short rest would suffice. Past middle life it should be longer, depending on the state of the vascular system and the viscera.

OUR LETTER FROM PARIS.

(From Our Regular Correspondent.)

INTERNATIONAL CONGRESS FOR THE STUDY OF CANCER.—NEUROLOGY.

PARIS, November 30, 1910.

On October 5, at Paris, the International Conference for the Study of Cancer was held under the presidency of the Minister of Public Instruction. Twenty-three countries were represented by delegates and had answered the invitation trans-

mitted to them by the Minister of Foreign Affairs, and the President of the Republic had added his patronage to the conference. After the opening discourse, given by the Minister of Public Instruction, Professor Czerny, of Heidelberg, President of the Conference, gave an interesting address on the actual knowledge of cancer at the present day. The statistics of the past ten years seem to prove that cancer is increasing, and that it already has the second rank among the causes of mortality of adults. By injections of substances formed in the human body (indol, scatol), by the decomposition of albuminous bodies under the action of microbes, we have succeeded in producing on the ear of a rabbit, and once only on the skin of the human foot, atypical growths of the epithelium, whose histological appearance could not be distinguished from those of true epithelioma. In the beginning cancer is always a local disease and one perhaps generally curable easily by radical measures. Unfortunately cancer is not recognizable in the first phases of the disease; this is the explanation of the fact that cures are rarer as the disease advances.

Landouzy gave in a few words the history of the studies made of cancer, and represented the modern acquisitions in the etiology of this terrible affection. According to him we may actually be permitted to foresee the hour in which, by prophylaxis and serotherapy, medicine, repelling the spectre of cancer, will make of this fatal disease a malady curable and preventable.

Delbet believes that to-day the cure of cancer may be obtained by an operation done early and done well. Unfortunately the public puts off as far as possible that operation, and this is the reason why we must see a considerable number of victims of this terrible disease.

Dollinger of Budapest gave the result of cancer statistics. Sex has a certain influence. There are generally 40 men to 60 women. Cancer cases are more frequent in the cities than in the country. Cancers of the skin, lips, and breast, easy to operate on, furnish mortality figures lower than deep cancers. There surgical therapeutics is more difficult and less generally employed. In man 85 to 90 per cent. of cancers are located in the digestive tube. The value of fulguration in the treatment of cancer has been studied by Segond. He believes that the employment of fulguration is always indicated in presence of any neoplasm which it is possible to remove largely. The only application of fulguration is to be made in extended tumors in which the surgeon can take away the neoplastic mass that is visible to the eye, but cannot remove largely the healthy tissue.

Keating-Hart detailed all the benefits that may be expected from fulguration well applied.

Zimmern also thinks that fulguration is a good adjuvant to surgical action, for the electric spark has the property of exciting wounds to connective tissue proliferation, which modifies the neoplastic area and may form an obstacle to recurrence. He believes that whenever a neoplasm has been removed we should practise fulguration with the object of preventing local recurrence.

Vidal of Angers has studied the serotherapy of cancer. The injection in cancer subjects of the normal defibrinated blood of the pig or sheep has produced a temporary amelioration of cancers. But Vidal thinks that the best results have been obtained in anticancerous serotherapy by the employment of serum of immunized animals. We may make use of the sera of the patients themselves, of animals cured of cancer, of animals immunized by the aid of various supposedly cancer-producing agents, or by the aid of the cancer cells themselves.

Immunity to cancer has been studied by Georges Schöne of Marburg, who has shown that tumors do not take at all or do not take well in animals which are insufficiently nourished, in subjects of febrile infectious maladies, which had the pancreas removed, or are intoxicated by certain poisons. On the other hand, substances like chloride of sodium in large doses seem to favor the proliferation of neoplasms. Malignant tumors in the domestic animals have been studied by Gabriel Petit of Paris. He believes that cancer in domestic animals is identical with that of man. It strikes the carnivora and herbivora, the rodents and birds. The different categories of malignant tumors studied in man—epitheliomata, sarcomata—are also seen in animals. No carefully observed fact supports the theory of heredity and contagion of cancer.

Gaylord of Buffalo has observed epidemics of thyroid tumors in salmon. In a few months he saw 3,000 fish acquire tumors spontaneously. The malady followed the course of the river and attacked indiscriminately fish of various ages, as well those that were free as those that were captive. The inhabitants of the villages strewn along the banks of the contaminated river frequently had goiter.

True neoplasms of plants have been studied by Jensen. According to this author there exists a tumor of beets called commonly "beet goiter," which is very similar to the tumor in animals. The tumor proliferates indefinitely, bringing beet cachexia; it recurs after removal and is easily grafted. The seeds obtained from diseased beets produce healthy beets. This shows that in plants as well as animals there can not be recognized any hereditary influence for neoplasms.

The International Conference for the Study of Cancer was closed by Professor Czerny of Heidelberg, who announced that the third conference would take place in 1913 at Brussels. In the conference there were delegates from seventeen countries who took part in the discussion.

Dr. Lancereaux, former President of the Academy of Medicine, has just died at the age of 81 years, taken away quickly in a few days of pneumonia. Named Interne of the Hospitals in 1857, he became hospital physician in 1860, Agrégé in 1872, member of the Academy of Medicine in 1877. It was in the year 1908 that he occupied the chair of President of the Academy of Medicine. Lancereaux was especially known by his interesting investigations in the domain of pathological anatomy. The directing idea in these studies was to study the pathological alterations of the human body, taking for the basis of this study the changes which the tissues and organs undergo in the various phases of existence. It is to Lancereaux that we owe the description of the nosological types of epithelial nephritis in contradistinction from interstitial nephritis, of parenchymatous hepatitis from cirrhosis. If these divisions, so sharp and systematic, are not accepted to-day, still they have allowed of systematization which has been useful. Later, Lancereaux studied intoxications, and his writings on saturnism and alcoholism are extremely interesting. Among the discoveries of Lancereaux one should be men-

tioned; it is the frequency of lesions of the pancreas in diabetics which has led to the description of a special form, pancreatic diabetes. Lancereaux was an original man who by his fine qualities, his intelligence, and his works has a marked place in medical history of the later years.

Progress of Medical Science.

Boston Medical and Surgical Journal.

December 15, 1910.

Phylogenetic Association in Relation to Certain Medical Problems. G. W. Crile.
The Tuberculosis Problem as Applied to Children. J. B. Hawes, 2d.
The Therapeutics of Light. H. McIntosh.
Extraperitoneal Cesarean Section. J. L. Huntington.

Phylogenetic Association.—G. W. Crile states that the body has had implanted within it mechanisms of ancestral or phylogenetic origin whose purpose is the discharge of nervous energy for the good of the individual. In the skin are implanted many receptors for receiving specific stimuli which are transmitted to the brain. The receptors for pain have been designated noci-ceptors. The author coins a new word, "anoci-association," which designates the condition in which the nervous system is protected from stimuli from the noci-ceptors by means of a blocking of the nerve-paths with cocaine, and from fear, shock, and postoperative neuroses. In operations under inhalation anesthesia the nerve impulses from the trauma reach every part of the brain—the cerebrum that is apparently anesthetized as well as the medulla that is known to remain awake, the proof being the physiological exhaustion of and the pathological change in the nerve cells. Under ether anesthesia the damage is at least four times greater than under nitrous oxide. Inhalation anesthesia is, therefore, but a veneer, a mask that "covers the deep suffering of the patient." The cause of the exhaustion of the brain is the discharge of nervous energy in a futile effort to energize the paralyzed muscles in an effort at escape from the injury just as if no anesthetic had been given. The exhaustion is, therefore, of the same nature as that from overexertion. But if the nerve paths connecting the field of operation and the brain be blocked by means of cocaine then there is no discharge of nervous energy from the trauma, and consequently no exhaustion, however severe or prolonged the operation. Fear is a factor in many injuries and operations, and is born of the innumerable injuries in the course of evolution. Fear, like trauma, may cause physiological exhaustion of and morphological changes in the brain cells. The representation of injury, which is fear, being elicited by phylogenetic association, may be prevented by the exclusion of the noci-association or by the administration of drugs like morphine and scopolamine, which so impair the associational function of the brain cells that immunity to fear is established. Animals whose natural defense is muscular exertion, among which is man, may have their dischargeable nervous energy used up by fear alone, by trauma alone, but most effectively by the combination of both. What is the mechanism of this discharge of energy? It is the adequate stimulus of the noci-ceptors—the electric buttons—and the physiological response for the purpose of self-preservation. According to Sherrington, the nervous system responds in action as a whole and to but one stimulus at a time. The integration of the individual as a whole occurs not alone in injury and fear, but also, though not so strong, under other phylogenetic associations, such as the chase and procreation. When adequate stimuli are repeated in such a rhythm that the new stimulus is received before the effect of the previous one has worn off, a higher maximum is reached than is possible under a single stimulus, however powerful. What is the practical application of this? In operative surgery there is introduced a new principle, which removes from surgery much of the immediate risk from its trauma by establishing anoci-association; it places on a physical basis certain of the phenomena of fear; it explains the physical basis for the impairment of the entire individual under worry or misfortune; the daily noci-associations of the individual as a social unit; or a noci-influence of a part of the body. On the other hand, it explains the power of therapeutic suggestion and other influences which serve for the time to change the noci-integration, the physical basis for the difference between hope and despair; it explains some of the phenomena of Graves' disease, of sexual neurasthenia, possibly of hay fever, and the genesis of the common cold. The principle is probably equally applicable to the acute infections whose chemical noci-association gives rise to many of the phenomena of the disease and explains their cure by natural immunity and by vaccines; it should teach one to view his patients as a whole ;and especially should it teach the surgeon gentleness. It should teach one that there is something more in surgery than mechanics; and something more in medicine than physical diagnosis and drugs.

Tuberculosis and Children.—J. B. Hawes, 2d, states that every effort should be made to get the State and local authorities to provide adequate facilities for the care of children with pulmonary tuberculosis. One effective way of doing this is to make application for the admission of all such cases to the State sanatoria. The strongest argument which the board of trustees of the State sanatoria can use before the legislature is a long list of applications from children for whom there is no place, nor for whom, with the present appropriation, can a place be provided. There should be earnest and intelligent cooperation with the local school board to provide an outdoor school or fresh-air room for pretuberculous children; if such a school or room is established, the attention of the city legislature and Board of Health should be called to the good which it does. It should be insisted upon that tuberculosis and its prevention shall be taught in the public schools. This can best be done by means of tuberculosis exhibits prepared along the lines of those now loaned by the State, placed in all the public schools, and demonstrated wherever possible by doctors, nurses, or social workers.

Therapeutics of Light.—H. McIntosh concludes that light penetrates the tissues; that in so doing the chemical rays produce fluorescence of the blood and serum which is reduced or absent in pathological states, as, for example, in malaria; that the action of light upon the blood stream reduces oxyhemoglobin and thus stimulates the chemistry of the tissues, that is to say, improves metabolism. The most useful portion of the spectrum is not the heat or luminous portion, but the chemical portion. The physiological effects of light flow easily from the marked penetration of the light rays, particularly the chemical portion of the spectrum. The blue light has a peculiar field in the control which it has over pain and hyperemia. Red light by its exclusion of the chemical rays plays an important rôle in the treatment of smallpox.

Extraperitoneal Cesarean Section.—J. L. Huntington, after showing the advantages of the Solms flank cesarean operation, concludes that the experienced obstetrician should make himself familiar with the technique, so that in a case of contracted pelvis, moderate in degree, the patient should be allowed the test of labor with the possibility of a successful cesarean and a living child should the head fail to enter the superior strait.

New York Medical Journal.

December 17, 1910.

Certain Aspects of Rhinolaryngology and Their Relation to General Medicine. H. Arrowsmith.
A Contribution to the Etiology of Poliomyelitis. F. Proescher.
Epidemic Poliomyelitis. W. S. Bryant.

Report of a Case of Congenital Hypertrophic Stenosis of the Pylorus. R. Harrison.
A Case of Mixed Cell Sarcoma of the Pituitary Body, with Report of the Autopsy Findings.
Froehlich's Syndrome in Cases of Pituitary Tumor. R. Ottenberg.
Spontaneous Appearance of Indigo Blue in the Urine. A. L. Benedict.
Insufficientia Pylori. B. Frankel.
Magic and Medicine. A Study in the Borderland of Scientific Light and Darkness. J. Knott.

Rhinolaryngology and General Medicine.—H. Arrowsmith believes that one can state as an axiom that the non-specific acute inflammations of the nose and throat and the phenomena of "taking cold" are never due to exposure and never occur unless the patient is in a condition of perverted metabolism. The patients who consult one for these disturbances are almost invariably overclad, overfed, and under-exercised and under-aerated. In taking a stand against the indiscriminate enucleation of the faucial tonsils the author concludes as follows: 1. That pure hypertrophy of the faucial tonsil is essentially a phenomenon of early life; that, except in rare instances, it is rather protective than pathological, and that even a moderate number of attacks of acute amygdalitis rather substantiate than vitiate the presumption of this protective function. 2. That the cause of this hypertrophy is very often disease of the pharyngeal tonsil, ablation of which will frequently lead to retrogression of its faucial neighbor. 3. That up to the age of puberty, at least, a moderate, pure hypertrophy should be respected as an evidence of some important functional activity, probably protective in its nature. 4. That in case this hypertrophy, by reason of its excess and consequent mechanical interference with respiration or audition, demands action, the only justifiable operation is that of amygdalotomy, with preservation of the functionating tissue not in excess, and not of enucleation. 5. That if the disturbances in the tonsillar structure have been, beyond reasonable doubt, the source of neighboring glandular involvements, which in time may menace the general health, the only justifiable operation is not amygdalotomy, but complete enucleation. 6. That, after the age of puberty, when the tonsil, like the thymus, perhaps loses its physiological importance and should normally retrogress, pathological conditions in the way of cryptic, parenchymatous, or adjacent inflammations and infections, with their possible remote evil results, should be dealt with as thoroughly and as radically as our surgical resources enable one, the same, however, to be employed with a discrimination which sees beyond the obvious local phenomena and comprehends their general importance.

Etiology of Poliomyelitis.—F. Proescher describes a peculiar kind of microorganism that he has found in a fatal case of poliomyelitis. This was observed in smears of the spinal cord and closely resembled Negri bodies.

Epidemic Poliomyelitis.—W. S. Bryant calls attention to the prodromal nasopharyngitis, the numerous abortive cases with nasopharyngeal symptoms alone, and the spread of the disease by association with either simple nasopharyngitis or complicated paralytic cases. He is driven to the conclusion that in epidemic poliomyelitis, as in cerebrospinal meningitis, lobar pneumonia, true influenza, and diphtheria, the symptoms remote from the nasopharyngitis are not really pathological entities of the disease itself. They are to be considered in the light of compli cations. The disease proper, in contradistinction to the sequelæ, is amenable to local pharyngeal treatment. Prophylaxis is attained by nasopharyngeal hygiene. In times of epidemic poliomyelitis all cases of nasopharyngitis should be regarded with suspicion; they should be treated promptly.

Congenital Pyloric Stenosis.—R. Harrison reports a fatal case of this condition with the autopsy findings.

Sarcoma of Pituitary.—M. O'Malley reports a case in which the only symptoms manifested during the month the patient was under the author's care were mental confusion with the appearance later of stupor; occasional attacks of vomiting, which, with one exception, followed tube feeding and appeared to be due to irritation from this procedure. The double positive reaction of the blood serum to the Wassermann test, the great prevalence of syphilis in the negro race, together with the stated symptoms, led the author to make a provisional diagnosis of luetic disease of the brain.

Froehlich's Syndrome.—R. Ottenberg states that this syndrome occurs generally in cases in which the hypophysis is injured or destroyed. The symptoms are adiposity, loss of genital functions (atrophy), and loss of secondary sexual characters, particularly of hair on face, axillæ, and pubes.

Indigo Blue in Urine.—A. L. Benedict reports a case of this condition in which it is suggested that benzoic acid may have acted as an oxidizing agent.

Pyloric Insufficiency.—B. Frankel states that the diagnosis of this condition is completely at variance with the clinical experience of gastrologists.

Magic and Medicine.—J. Knott believes that it might not be inopportune to call a momentary halt in the self-satisfied appreciation of one's present attainments, while taking a bird's eye view of the tortuous passage of human opinion during the past ages through one of the domains of thought and discussion most nearly outlying the borderland of medicine. The result, as presented to the reader, is an expansion, with connecting and collateral comment, of some notes and observations which the author published five years ago.

Journal of American Medical Association.

December 17, 1910.

Metabolism in Diabetes. G. Lusk.
Recent Advances in Treatment of Diabetes Mellitus. G. B. Wallace.
Action of Glycol Aldehyde and Glycerin Aldehyde in Diabetes Mellitus and the Nature of Antiketogenesis. R. T. Woodyatt.
Relation of the Pancreas to Diabetes. J. H. Pratt.
Hairy or Black Tongue. M. L. Heidingsfeld.
Comparative Pathology of Hyperplastic and Suppurative Ethmoditis. R. N. Skallern.
Tuberculosis of the Ankle Joint and Tarsus. J. W. Sever.
Various Forms of Experimental Diabetes and their Significance for Diabetes Mellitus. J. R. Macleod.
Dehydration by Dietetic Measures: An Interpretation of the Karell, Oertel and Widal Treatment of Circulatory and Renal Diseases. A. Magnus.
House Quarantine. H. Cohen.
Treatment of Wounds. A First Article. A. Carrel.
Vapor Anesthesia Apparatus. J. T. Gwathmey.
Eye-Strain a Cause of Exophthalmic Goiter. G. M. Gould and A. C. Durand.
Elephantiasis of Scrotum and Penis with Operation. R. Russ.
A Case of Chronic Appendicitis Simulating Neopolasm. W. H. Boese.

Metabolism in Diabetes.—G. Lusk states that while authorities whom he respects have claimed that fat may be converted into sugar in the metabolism of diabetes, he can only say that he has never seen any evidence of it. The sugar certainly does not come from any pre-existing sugar in the protein molecule, but must be a derivative of the lactic acid. The intensity of diabetes should not be determined by the percentage of sugar in the urine, but by the relationship between the intake of sugar plus the possible maximum of sugar production from protein as compared with the total sugar output. In diabetes one is dealing with an organism which has no carbohydrate metabolism, with a high protein metabolism, and a more or less pathological fat metabolism, requiring sodium bicarbonate and abnormal quantities of water in order to dissolve the unoxidized products formed. The heat production is not diminished in diabetes as compared with the normal man. The diabetic obtains his calorific energy from fat instead of from carbohydrates, and if fat is not given him in sufficient quantity to maintain his requirements, he uses his own body fat. Benedict and Joslin have declared that the heat production of the diabetic may be 15 per cent. above the normal. This rise in metabolism is attributed by Zuntz to increased renal activity. One must take to heart these lessons. The physician can be sure that he is treating his

patient properly only when he knows that he is giving him at least the 35 calories per kilogram required normally, and these must be contained in materials which the patient can oxidize. Protein will not give more than 10 or 15 per cent. of this requirement of energy. To give fat in sufficient quantity requires all the arts of cookery. Here, as always, when the appetite is no longer a proper guide, the physician's knowledge of the patient's requirement is the only possible resource. When instinct fails science must be invoked.

Treatment of Diabetes Mellitus.—G. B. Wallace states that in diabetes certain principles may be laid down for practically all cases. First, the tolerance for sugar is determined by gradually increasing the bread in the test diet until glycosuria reappears. The patient is then placed on a carbohydrate-free diet for at least two weeks. The sugar tolerance will gradually increase, the hyperglycemia disappear, and it is rarely that acidosis to any dangerous extent occurs during this period. A mixed diet is now given and the new degree of sugar tolerance is determined as before. In many cases it will be found that it approaches the normal. In others it may show only a slight increase. In all cases, however, the subsequent diet should be such that the urine remains sugar-free and a carbohydrate-free diet should be given for a week or two at least once in three months. This may not seem necessary to some patients, but it must be enforced. In severe cases the qualitative management of the diet is of greater importance. The fact is now well established that high protein feeding is not desirable in severe cases. The proteins of eggs and vegetables are to be preferred to those of meat. As regards carbohydrates, in severe cases most patients do better with one kind of starch alone than with several kinds. This is the basis for the rice, potato, and oatmeal treatments. Of these, the last is of the greatest importance, and it is sometimes remarkably beneficial. Though it may decrease glycosuria, its chief value is in lessening acidosis. It is to be given alone as gruel, with no other carbohydrate, to the amount of 250 grams a day. As regards fat feeding, the amount of fat in the diet does not increase the acetone bodies unless it is taken in enormous quantities. Our knowledge concerning acidosis is incomplete and the latter is not always in proportion with the sugar intolerance. It may be slight when the other is great, and *vice versa*. Allard has pointed out that in dogs the acidosis is not due to a non-utilization of carbohydrates, but probably to a pathological state of the liver. It seems determined that the condition is not strictly an acidosis, but rather an intoxication by specific poisons. One of these we know—oxybutyric acid—and its salts are also poisonous. One should try to prevent the formation of these substances and hasten their excretion. A strictly protein diet increases the acetonuria, but, if it can be persisted in, an ultimate decrease can often be obtained. The addition of carbohydrates lessens the acidosis but increases the glycosuria, but in threatening coma the latter is of less importance. The periods of vegetable or oatmeal feeding exclusively are especially useful in persistent acidosis. Sodium bicarbonate aids the excretion of oxybutyric acid, and to get the best effects it should be given in large doses. The author lays out a general line of treatment of severe diabetes, avoiding a strict diet for any length of time or alternating it with vegetable diet. Each case, however, must be studied individually. Thus only can it be learned what is best for each individual.

Antiketogenesis.—R. T. Woodyatt found that though a diabetic cannot oxidize glucose, he may be able to oxidize other substances chemically allied to it, and which, having the power to lower acidosis, are known as antiketogenetic substances. A study of antiketogenesis may justify a hope that, among the many substances possessing antiketogenetic properties, there may be some which will not have the injurious by-effects of the antiketogens now known. He has, therefore, studied two substances which produce the phenomenon in the laboratory experiments. The first of these is glycol aldehyde or diose, the simplest possible sugar. This was fed in a single 20-gram dose to a patient with severe diabetes who was kept in bed, and all necessary precautions taken with regard to diet and the collection of excretions, to insure a consistent metabolism experiment. There was no increase in the urinary-reducing substances, no appearance of glycol aldehyde in the urine, and no significant change in the general acetone bodies or ammonium. The patient, however, had some nausea and loosening of the bowels. In view of the fact that P. Meyer saw toxic effects in animals from this substance, and the other fact that some of its oxidation products are toxic, it seemed likely that the gastrointestinal symptoms produced were not merely incidental to the existing acidosis. No further use was therefore made of this product in diabetes, though animal experiments show that it can act as an antiketogenic body. The next substance that the author experimented with was glycerin aldehyde, which is formed, among other changes, when glucose is placed in an alkaline solution. When given to a healthy individual large doses are tolerated without any apparent effect, and in diabetes as high as 50 grams have been given without causing glycosuria or the appearance of any reducing substance in the urine. The effects of continuous doses, however, have not been reported. But in four separate experiments, single large doses given to severe diabetic cases, the results were identical, namely, an increase in the urinary glucose and a marked reduction of acidosis. There was no gastric disturbance more than can occur from an equal dose of sugar and the substance is not toxic. The author offers an explanation of antiketogenesis as follows: This process appears to be the expression of a simultaneous oxidation and reduction reaction in which the acetoacetic acid, by virtue of its ketone group, acts as the oxidizing agent, and hence undergoes reduction, while any substance containing alcohol groups, notably sugar, acts as a reducing agent, and hence becomes oxidized. The process is stated in further detail in his article.

The Pancreas and Diabetes.—J. H. Pratt concludes that the total removel of the pancreas always leads to a fatal diabetes. Atrophy of the pancreas produced by excluding all the pancreatic juice from the intestine is associated with a marked decrease in the limit of assimilation for sugar. Transplantation of a portion of the pancreas prevents the development of diabetes when the rest of the gland is extirpated. Lesions of the islands of Langerhans are found in most cases of diabetes. They are usually associated with changes in the acini. In the progressive atrophy which follows the occlusion of all the pancreatic ducts in dogs and cats both islands and acini are gradually destroyed. All the islands may disappear without diabetes resulting. The conclusion is justified that the pancreas has an internal function concerned with the metabolism of sugar. The nature of this function, the relation of the islands of Langerhans to the acini, the significance of histological changes in both structures, these and other problems still await solution.

Hairy Tongue.—M. L. Heidingsfeld concludes that hairy tongue may be conveniently divided into two general classes: (1) true, idiopathic, or genuine cases, characterized by well-defined, stable, black-brown or yellow-brown thick, soft, fur-like patches covered with densely intertwined hair-like filaments; and (2) false, pseudo, or spurious cases characterized by thickish yellow-brown or greenish discolorations of evanescent character, covered with a soft mushy detritus occasionally containing short filaments, shorter than in the other form. The true cases originate in some developmental anomaly, developing from germinal products present at birth, but showing themselves

in early adolescence or later. The pseudo cases probably owe their origin to general or local irritation or disease and are not uncommon in the early stages of syphilis. A parasitic nature has not been demonstrated.

Pathology of Ethmoiditis.—R. H. Skillern in discussing the comparative pathology of hyperplastic and suppurative ethmoiditis, presents the microscopic pathology of these two conditions which shows that the ethmoidal structures and their components are, under certain conditions, dissimilarly affected, and often in diametrically opposite ways.

Tuberculosis of Ankle-Joint.—J. W. Sever concludes that tuberculosis of the ankle-joint and bones of the foot in children is insidious in its onset, chronic in its course, and attacks usually young children. The expectant or conservative method of treatment is preferable to the operative one. Time is saved and deformity less under the conservative plan than by the operative method. There is also less danger of secondary joint involvement and general tuberculosis by pursuing the non-operative plan. The disease may be associated with bone and joint tuberculosis in other parts of the body. The prognosis is fairly good for life, but poor for a good ankle-joint in which there is no disability. A certain number get a good functional ankle, with but slight deformity. In regard to the smaller metatarsal bones the results are good for joint motion.

Experimental Diabetes.—J. J. R. Macleod concludes that in the utilization of carbohydrates in the animal body the glycogenic function of the liver is at least as important as the glycolytic action in the tissues, and, since there is plenty of evidence that this glycogenic function is easily deranged so as to cause diabetes, it should be more carefully investigated as to its participation in the cause of those forms of diabetes which, at first sight, may seem to be quite independent of it.

Dehydration by Dietetic Measures.—A. Magnus-Levy states that the essential feature of the Karell treatment is the exclusive use of milk in relatively small quantities at definitely stated intervals. The idea underlying Oertel's method is a great reduction in the quantity of food ingested, while the Widal treatment, on the other hand, consists in excluding sodium chloride as much as possible from the food. The restriction of the ingestion of fluid must be subordinated to the task of reducing the sodium chloride and, when this is cut down, thirst becomes less and the amount of water taken is decreased in the natural course of events. A salt-free diet is rarely carried out in its full extent, as it requires persistence and patience more than are usually possessed. In a large number of cases the desired effect can be produced by stimulating renal activity with drugs, which are resorted to instead. This reduction of sodium chloride is especially indicated in the edema of parenchymatous nephritis, but it is also useful in combating some of the symptoms of contracted kidney, such as headache, uremic asthma, angina pectoris. It is wrong to allow patients who have been relieved of dropsy and other chief symptoms to return to their ordinary salty diet, and especially patients with diabetes insipidus must permanently refrain from such diet, as it is impossible to make a diseased kidney do the work required for excreting concentrated urine. A diet poor in proteins probably acts favorably, besides its effect on the compensation, in other directions. It is particularly to be recommended also in cardiac patients who have been also previously high livers, and in the later stages of interstitial nephritis when more or less severe uremic manifestations appear. The author thinks it is better to allow a certain reduction of weight by a scanty protein diet than to allow such symptoms to continue. As regards treatment of individual cases, in proper cases one may attempt to carry out each one of the three treatments mentioned according to the directions of their originators. In the Karell milk treatment he thinks it specially important to adhere to the four-hour intervals between the separate portions allowed the patient. The salt-free diet of Widal is theoretically easy to administer, but one is apt to encounter the opposition or lack of comprehension of the cook. No article of food need necessarily be forbidden if given without any artificial addition of salt, either before or after cooking it. Milk also can be permitted only in small amounts, as it contains about two grams of sodium chloride to the liter. If a patient, after having been on a salt-free diet, is to be allowed any amount of salt, the directions should not be general, but should prescribe the exact amount he should use. The author manages by ordering a salt-free diet, to which the patient adds a small, accurately measured amount, as he pleases, during the twenty-four hours. These dietetic measures are just as important in the treatment of circulatory and renal disorders as in the treatment of the glycosurias.

House Quarantine.—H. Cohen insists on the importance of house quarantine in safeguarding the public from the dangers of existing foci of infection.

Treatment of Wounds.—A. Carrel states that with asepsis we have not the right to believe that we have reached the last step in the treatment of wounds. He asks if it would not be feasible to act on the processes of repair themselves and expedite them. One might thus greatly improve the therapeutics of wounds and fractures, and one must therefore analyze the mechanisms which are instrumental in cicatrization of wounds, the factors which modify their functions, the stimuli by which they are started, and the causes of their reciprocal action in the common work.

Vapor Anesthesia Apparatus.—J. T. Gwathmey describes his improved three-bottle apparatus for the administration of ether and chloroform.

Eye-Strain and Exophthalmic Goiter.—G. M. Gould and A. C. Durand believe that eye-strain may cause exophthalmic goiter, and report a case which seems to them a proof of this. The eye-strain of ametropia often causes tachycardia or tremor, and frequently both combined. How exophthalmos is produced by eye-strain is not so readily understood and still less the cause of the goiter. The conclusion is suggested that as multitudes of goiterous patients have no tachycardia or exophthalmos the goiter symptom is somewhat independent or secondary. Probably the tachycardia is the first of the ocular reflexes instituted, followed by the exophthalmos as chiefly a secondary vascular phenomenon. In the case reported the exophthalmos disappeared during mydriasis and returned with its disappearance.

Elephantiasis of Scrotum and Penis.—R. Russ reports a case of this condition successfully operated upon.

Chronic Appendicitis.—W. H. Boese reports a case of this condition simulating neoplasm. There was an unusually large circumscribed development of inflammatory tissue.

The Lancet.

December 10, 1910.

Cancer. Sir Alfred P. Gould.
The Results of Bronchial Obstruction. G. N. Pitt.
The Theory and Practice of the Treatment of Syphilis with Ehrlich's New Specific 606. J. McIntosh and P. Fildes.
A Pedigree Showing Biparental Inheritance of Webbed Toes. H. P. Newsholme.
Note on an Obscure Case of Peritonitis. R. H. Norman.
Uterine Cervical Polypus Undergoing Malignant Degeneration. H. Macnaughton-Jones.

Cancer.—See abstracts of articles in the *British Medical Journal*.

Results of Bronchial Obstruction.—G. N. Pitt states that the results of compression of a bronchus may be the following: The lung may be slightly reduced in size with definite diminution in the entry of air; the chest may be

hyperresonant, the lung overdistended, and the diaphragm displaced down abnormally. The lung may be reduced in size, airless and solid from collapse, and the chest dull on percussion, when the obstruction to the tube is complete, or when respiration is feeble. The bronchi become filled with retained secretions. A retention pneumonia ensues, with a resulting pyrexia. These changes may all pass away; but if the obstruction persist there occur a general fibrosis of the lung beyond the obstruction and a bronchiectasis. Dilatation of the tubes occurs. Fibroid thickening of the lung results from the retention of the secretions, the prolonged collapse of the alveoli, the bronchopneumonia, the peribronchial changes following on the destruction of the bronchial epithelium, and the interference with the pulmonary and lymphatic circulation. Secondary infections may produce a septic pneumonia, gangrene may occur, especially with malignant disease and when the pulmonary artery is occluded. There may be putrefactive changes, and as a secondary result of the bronchiectasis there may be a pleurisy or an empyema. The causes of bronchial obstruction may arise from without or within the bronchus. Usually only one bronchus is affected, but in some cases the trachea is involved, as well as one or both bronchi. The external causes producing compression are: 1. Aneurysm of the aorta. 2. Malignant disease of: (*a*) Esophagus, epithelioma; (*b*) Bronchial glands—(1) primary, usually sarcoma (2) secondary to growth at a distance. 3. Enlarged caseous or suppurating glands. 4. Gummata. 5. Abscess. 6. Dilated left auricle. The internal causes are: 1. Bronchiolitis. 2. Syphilitic ulceration with scarring. 3. Primary malignant disease of a bronchus (usually columnar celled carcinoma). 4. Foreign bodies in the bronchus. The most important evidence suggesting a foreign body in a bronchus is (1) the history of swallowing something, immediately before the onset of an acute attack of severe dyspnea and cough. (2) Not infrequently a whistling or wheezing sound which the patient can localize to one side, varying in quality if the object is not fixed in the bronchus. (3) Great distress, with not infrequently a constricting pain behind the sternum, made worse by movement. (4) Dyspnea, with varying exacerbations, often intense and made worse by cough, but it may be elicited only by exertion. After a time there may be no distress. (5) Absent or, rarely, very noisy breath sounds, with some slight diminution of voice and tactile vocal fremitus limited to one side of the chest. (6) At first resonance on the affected side, soon consolidation with dullness, and, after a time, the signs of cavities, and the simulation of phthisis; query occasionally hyperresonance. The physical signs sometimes vary from time to time. (7) With *x*-rays, the defective movement of the diaphragm and of the thorax, the alteration in the density of the lung, and not infrequently the outline of the foreign body itself, may be clearly made out. (8) Delay in the commencement of inspiration as compared with that on the other side. (9) Defective movement with consequent diminution in the size of the affected side. (10) Violent, paroxysmal, persistent cough, which is apparently most marked when the object is at the bifurcation, as the sensibility of the mucous membrane is greatest here, as can be noticed when passing a bronchoscope. (11) Early pyrexia, which later becomes hectic, associated with chills. (12) After a short time an expectoration more or less profuse, purulent, often bloody, and later often fetid. (13) In some there are nausea and vomiting, which may be very troublesome. (14) Pneumonia often develops in forty-eight hours: this may be septic and may be followed by gangrene.

Ehrlich-Hata Preparation.—J. McIntosh and P. Fildes report favorable results following the use of this remedy in sixteen cases. They believe that the importance of 606 as a destroyer of spirochetes cannot be overestimated, even apart from the beneficial effect upon the patient. In those cases in which spirochetes were demonstrable in very large numbers before inoculation, none were found in less than twenty-four hours, even after prolonged search. This fact has already been fully established. The importance of the observation lies in the probability that cases of syphilis can be rendered practically noninfective in a day or two. If this be true, Ehrlich will have swept away the scourge of 2,000 years and given into the hands of any State which will avail itself of it a weapon for the forcible suppression of syphilis.

Biparental Inheritance of Webbed Toes.—H. P. Newsholme reports a case of webbed toes in which inquiry elicited the fact that this deformity occurred through three generations and involved twenty-two members of a family of twenty-nine. Three members of this family had diabetes.

An Obscure Case of Peritonitis.—R. H. Norman reports a fatal case of peritonitis in which post-mortem examination revealed the following: A mass of inflamed tissue was found behind the stomach, in which were several broken-down caseous glands. There was a cavity in this mass, and from it one sinus led into the stomach. The ulcer in the stomach was not a recent one. Another sinus led to a caseous mesenteric gland, and two others led into the peritoneum. The openings into the peritoneum were apparently recent. There were a number of caseous mesenteric glands, and acute peritonitis was present. The right lung was bound down by old adhesions.

Uterine Cervical Polypus.—H. Macnaughton-Jones reports a case and presents a drawing of the sagittal section of an entire uterus, the cervix of which was destroyed by a carcinomatous crater, and in the fundus, growing from its summit, a mucous polypus. Section of the latter showed a solid carcinoma. There was no connection whatever between the polypus and the carcinoma of the cervix, the mucosa of the fundus and body being quite free from carcinoma. The patient was a woman aged fifty-seven years.

British Medical Journal.

December 10, 1910.

Surgical Versus the Expectant Treatment of Intracranial Tumor. Sir Victor Horsley.
Cancer. Sir Alfred P. Gould.
The Results of Bronchial Obstruction. G. N. Pitt.

Treatment of Intracranial Tumor.—See page 1190.

Cancer.—Sir Alfred P. Gould enumerates the latest results of cancer research in the effort to unravel what has hitherto been a tangled skein. Cancer occurs in all races of men, but they are not all equally liable to cancer. It is a disease that occurs in all vertebrate animals. It can be transferred from host to host but cannot be transferred to an animal of another species. The essential part of every cancerous growth is the living cancer cell. This possesses a great power of continuous multiplication. It retains the inherited limitations to type of the cells among which it first appears. Cancer cells develop and differentiate but little and irregularly. The development of the cancer cell is neither purposeful nor effective. Cancer cells exhibit periodicity in their growth. The study of the form of cancer cells and the attempt to find in it some index of their nature has yielded but little that is positive. One knows but little of the intracellular metabolism of the cancer cell. It seems to beget no toxin, to generate no new substance, and to depart but little from the chemistry of health. Regarding the cancer cells as members of a community and in relation to neighboring cells, one notes first the disproportionate growth of the cancer cells. The multiplication of the cancer cells causes not only complicated infoldings of the cancer itself but flattening and distortion of the adjacent soft tissues. The cancer cells not only compress but also invade the adjacent tissues, and

compel them to form a supporting and vascular stroma of a type governed by the cancer cell and not by the stroma-yielding mesoblastic cells. The facts about cancer may be summarized in the disproportionate multiplication of certain cells, their imperfect, irregular, and useless differentiation, their failure to form Altmann's granules, their excessive affinity for and need for potassium, their insistent intrusion into surrounding tissues, their imperfect cooperation with the other cells, and, finally, their selfish greed which enables them to live when other cells are failing and perishing for lack of nourishment—what is it all but a failure of, or a revolt against, that great cytological law or impulse which first manifests itself in the primary division of the ovum, and lasts on till the death of the organism? Cancer is not a disease attacking the body from without, it is the result of a breach or failure of fundamental cell law—a law of which one knows only the results; a law so majestic that obedience to it results in perfect development, perfect health, the full measure of days, and disobedience to it may slowly spell out all the inscrutable woes of cancer. The various etiological factors that are known to exert an influence on cancer lend support to this view of its nature. Cancer arises in cells that are growing or have grown old. It is because of the fact that the breast and the uterus are specially prone to cancer as they get old, before the rest of the woman ages, that cancer is more frequent in women than men, and that its age incidence differs in the two sexes. Chronic irritation, by adding to the frequency of cell division, is producing the special condition of cellular old age; it is equivalent to the ageing of a tissue. The *x*-rays and alcohol have a similar effect. One must not look for immunity from this disease along the lines in which it is found for infections. Cancer immunity might be evidenced in one or more of the following ways: 1. The power of living cells to conform to the law of normal development and to avoid that increased multiplication, defective differentiation, and tendency to intrude themselves into, and grow in, neighboring cell territories, which together connote cancer. 2. Opposition to the intrusion of cancer cells into, and their development in heterologous tissue. 3. Inhibition of the growth of cancer or destruction of living cancer cells. When the biologist shall know the laws that govern cell-growth, with a knowledge akin in its sweep and accuracy to that of the astronomer, he will have the power to prevent, to control, and to cure cancer.

Results of Bronchial Obstruction.—See abstracts of articles in *The Lancet*.

Berliner klinische Wochenschrift.

December 5, 1910.

Indications for Artificial Termination of Pregnancy.—Hammerschlag gives in detail six indications for interrupting gestation. These do not exhaust the subject, but are discussed from the standpoint of extensive personal experience. Hyperemesis gravidarum is first mentioned, and the author appears to regard this as a mere hysteroneurosis of reflex origin, which is largely controllable by treatment. Only in exceptional cases does the condition proceed to a stage of intoxication, as shown by elevation of temperature and pulse, albuminuria, etc. The pregnancy should be terminated as soon as such symptoms appear. Out of nineteen personal cases but two required interruption of gestation and one patient was lost. Second in order come cardiac lesions. Naturally the indication for interruption occurs in broken compensation. Of forty patients with valvular lesion, eighteen had satisfactory compensation. Of the remaining twenty-two cases in which compensation had been compromised, six were sufficiently grave for interruption of pregnancy and three patients died despite the treatment. Interruption should, if possible, be performed early in gestation. The worst prognosis is in cases of associated myocarditis. Third in order is tuberculosis—pulmonary and laryngeal. The latter is an indication for immediate interruption. Pulmonary tuberculosis occurring alone is seldom an indication for interruption and never in very advanced cases. If, during the first or second stage, pregnancy lights up a severe exacerbation such as to threaten death if patient is allowed to go to term abortion should be performed. The fourth condition is nephritis, including the kidney of pregnancy. In cases of the latter which threaten loss of vision or other permanent damage, the pregnancy may be interrupted if other measures fail, although one should seek to save the child by deferring the intervention as long as advisable. Ordinary acute nephritis is not an indication for termination of pregnancy, while chronic nephritis does indicate the latter, as does, exceptionally, pyelitis. The author has personal records of 112 cases of nephritis in pregnancy, chiefly of the ordinary kidney of pregnancy. Gestation was interrupted but ten times, seven of which were for chronic nephritis. In seventeen cases of pyelitis he intervened in one only. The fifth condition for possible interruption is diabetes. This is considered chiefly from the academic standpoint, little personal experience being quoted. Gestation should be interrupted whenever acetonemia develops to ward off coma. Of three cases of the author's one died of coma despite intervention. The sixth and last condition considered is chorea. If this is severe enough to threaten death by exhaustion, acute heart disease, or other complication, the failure of customary remedies constitutes an indication for interruption.

Pathological Ferment Action.—Wohlgemuth concludes his serial article, referring to the part played by enzymes in the production of pigment in malignant growths and in the condition known as ochronosis. Of more practical interest are the results of enzyme action in pancreatic disease. The author was the first to show that amino acids can activate the pancreatic enzymes. Hence, entrance of intestinal matter into the pancreatic duct may be responsible for some cases of autolysis without reference to the presence of activating germs. If isolated foci of necrosis occur we may explain these by the presence of small inflammatory lesions which set up autolysis with formation of low products of proteid cleavage. The part played by enzymes in these pancreatic lesions is not clear from the author's description. One would naturally call to mind the action of the pancreatic digestive enzymes, including the special erepsin of the pancreas, etc. It may be, however, that he refers to the common, intracellular autolytic enzyme which he has assumed to occur in all functionally active organs. That enzymes play a certain rôle in some forms of fatty degeneration—naturally those which are aseptic—seems probable; and phosphorus liver is discussed as a concrete example. This condition is accompanied by total disappearance of the hepatic glycogen, such as might occur from activation of the hepatic diastase. The same phenomenon is seen in obstructive jaundice, and is readily explained by the known property possessed by bile of activation of diastase. The rest of the article deals only with certain post-mortem changes ascribable to enzymes.

Münchener medizinische Wochenschrift.

December 6, 1910.

Treatment of Dysentery Bacilli Carriers.—Mayer states that previous attempts to dispossess these bacilli by internal medication have failed. The only resource left is isolation until the germs disappear from the stools. This has been found to require from three to seven months at the outside. In the present paper the author has reference chiefly to cases in troops where sanitary measures are more available than in civil practice, and where the danger of lighting up new epidemics is much more marked. In ad-

dition to isolation the stools require immediate disinfection. It has been found that if the period of isolation is too short bacilli which have disappeared from the feces *pro tem.* may reappear. In the meantime every effort should be made to prevent acute dysentery from becoming chronic.

Sequelæ and Repeated Attacks of Diphtheria.—Kayser emphasizes several practical points in this paper. Postdiphtheritic paralysis is hardly a family malady. Only a single case of family incidence was known to the writer before the one reported below. The evidence is still in favor of the view that serum is unable to prevent paralysis, which the author might have termed metadiphtheritic lesions from certain analogies with other diseases. These paralyses are usually treated in dispensaries, as they do not develop during the hospital period. The author saw apparently diphtheritic paralysis in three children of one father, but thinks this may have become possible through a history of paternal alcoholism, coupled with the fact that the children also used alcohol. This was not prescribed at the dispensary, but the father, who was an innkeeper, was responsible, the physician concurring for a time. In cases of this sort paralysis from alcoholic neuritis is not always easy to exclude. These cases were treated in the dispensary and a history of frank diphtheria was not obtainable for the patients, although the disease had been epidemic in the vicinity. Another patient with intraocular paralysis of apparently diphtheritic origin was the son of a wine merchant and accustomed to the use of wine. In none of the patients were bacilli found. The last named patient had three successive attacks of paralysis of accommodation. A history of diphtheria for each attack was imperfect, and even for the primary attack was doubtful. Repeated attacks of diphtheria are now known to be so infrequent that a single attack must be regarded as conferring at least as high a degree of immunity as holds in the case of other infectious diseases. In prebacillary days repeated attacks of the malady must have been largely streptococcic. A certain distinction must be made between reinfection and relapse. The latter should occur in carriers only, and is naturally very rare, as the mere presence of the bacilli without disease implies immunity. True reinfection would, in theory, occur most likely during severe epidemics, and only after years of immunity. A supersensitiveness to diphtheria toxin is doubtless the explanation of postdiphtheritic lesions, and to recurrence of diphtheria under any conditions.

Toxic Action of Milk-Sugar in Infant Feeding.—Braunmüller refers to Finkelstein's claim as to the toxicity of milk-sugar in infants with a tendency to pedatrophy and the use of whey-free milk in this connection. In a series of infants treated with the latter it appeared that babies developed sugar intolerance in the course of treatment. The symptoms were not toxic but merely those of mild indigestion, sufficient, however, to influence the nutrition very unfavorably. Such infants could utilize only a definite amount of sugar. It occurred to the author to substitute carbohydrates (barley water) for sugar, beginning with small quantities and gradually increasing, and this promises well. The author appears to give full credit to whey-free milk as a form of alimentotherapy, but does not regard the cutting down of carbohydrates as salutary. If sugar intolerance is present he would advocate the substitution of barley as already stated.

Deutsche medizinische Wochenschrift.

December 8, 1910.

Surgery of Brain Tumors.—Hildebrand, in a brief article—chiefly conclusions from a case history—emphasizes certain points as follows: We are seldom able to make a diagnosis as to the nature of a tumor or even to say whether it is benign or malignant. The latter occurs with much greater frequency. He has heretofore been very pessimistic as to ultimate recovery from the malignant form. But he believes that in certain cases of exact localization operative removal is attended with a better prognosis. This is even more the case with benign tumors. A serous meningitis may be indistinguishable clinically from a tumor. Diagnostic and operative technique have been improved so greatly in recent years that it is now a reproach to fail to operate for benign tumor (always supposing, of course, that it is operable). Operation may not prevent choked disk and optic atrophy; hence, when such symptoms appear a palliative trepanation should be done, as a first stage, extirpation to follow if indicated.

Atoxyl and Its Derivatives.—From Blumenthal's article on this subject we may quote his optimistic belief that atoxyl will continue to be a source of new therapeutic synthetics produced by further additions to, and mutations in, its molecule. He believes that incorporation of iodine and bromine into the latter will accentuate the organotropic properties of atoxyl. In addition to 606 there is a new substance, a benzosulfo atoxyl known for short as hectin, which is said to be far superior to atoxyl when the latter is indicated. It has been used chiefly in France. Uhlenhuth has introduced Hg. into the atoxyl molecule, and Lesser has used this derivative with remarkable results in syphilis maligna. Silver incorporated in the atoxyl molecule appears to give a substance which intensifies its therapeutic value. Jacoby appears to believe that atoxyl derivatives may furnish in time an anticancerous remedy. In regard to the selective action of atoxyl on the optic nerve the author believes that this will be eliminated in its derivatives, and by special technique in regard to size and frequency of dosage. The good results of atoxyl in trypanosomiasis have been obtained largely by pushing the remedy. It is desirable to find derivatives which will act in small, perhaps single, doses.

Operative Treatment of Hay Fever.—Blos, who has already written on this subject, publishes a brief résumé of the latter. Other authorities are barely mentioned by the writer, so that we may understand that his intervention, which consists of resection of the anterior ethmoidal nerve, originated with him as far as its application to hay fever is concerned. The technique of the operation is not new, as it appears in Kocher's Operative Surgery, (fifth edition). Killian has recently alluded to the operation in connection with reflex neuroses of nasal origin, chiefly such as proceed from sinus disease. The nerve is exposed through the inner wall of the orbit and while the operation is practicable under local anesthesia the intervention is relatively severe in character, as the surgeon is obliged to work behind the lacrymal structures, and there is danger of compromising these. The orbital periosteum must be removed, whereupon the nerve is rendered visible as it emerges from the anterior ethmoidal foramen. The present article was written in response to numerous queries in reference to technique and permanence of results. The author seems to have operated but three times. The cases were of unusual severity and chronicity and the recovery or near-recovery seems to have been permanent.

Chills Following Adrenalin and Saline Infusion.—C. Haeberlin reports a case of peritonitis following perforative appendicitis. Three days after the operation, owing to the bad condition of the patient, the latter received an intravenous infusion of saline solution containing adrenalin. One hour later he had a severe chill, followed by a rise of temperature and increase of pulse rate. Death occurred the next day. The author explains the chill as analogous to that which occurs in puerperal fever as the result of a sudden increase of absorption of toxins by the blood. The injection of adrenalin causes a rapid rise of blood pressure, which is similarly followed by an increased absorption of toxins.—*Zentralblatt für Chirurgie.*

Book Reviews.

THE PRINCIPLES OF PATHOLOGY. By J. GEORGE ADAMI, M.A., M.D., LL.D., F.R.S., Professor of Pathology in McGill University, and Pathologist-in-Chief to the Royal Victoria Hospital, Montreal; late Fellow of Jesus College, Cambridge, England. Volume I: General Pathology. Second edition, revised and enlarged, with 329 engravings and 18 plates. Philadelphia and New York: Lea & Febiger, 1910.

IT is a pleasure to welcome again this unique volume of Adami's on General Pathology, and to note that the scientific events of the past two years have necessitated an hyperplasia of seventy-nine pages. Even the preface has been remodeled, and from it, to the reviewer's regret, certain pleasant personalities have been omitted. It seems a pity to alter one of the best prefaces in any book; most of them are so formal, if not bombastic.

The table of contents has been remodeled so as to give more detailed information of the chapter contents. The index has been altered, some heads being omitted and others added, the omissions evidently being necessary to save space since the subjects referred to have not been deleted from the text. The excellent system of employing heavy-faced type for the chief page reference has been adopted in the index.

To turn to less mechanical matters, it is not possible in the limited space at command to discuss all of the new substance which has been introduced. The first part of the volume seems to be largely rewritten. New matter is introduced in the chapters on the physiology of the cell, on the chemistry of the phosphorized fats, and on Mendelean heredity. The section on the methods and diagnostic results of complement fixation has been remodeled to include the later views on the relationships between the lipoids and the fixation of complement, it being very properly pointed out that we are dealing with a non-specific Bordet-Gengou phenomenon. Slight additions have been made to the section on tumors. It is to be regretted that the borrowed cuts could not have been redrawn in this edition, the mechanical reproduction in many being quite unsatisfactory. Yet despite this defect the volume still remains, in the opinion of the reviewer, one of the best presentations of general pathology in any language.

PULMONARY TUBERCULOSIS AND SANATORIUM TREATMENT. A Record of Ten Years' Observation and Work in Open-air Sanatoria. By C. MUTHU, M.D., M.R.C.S., L.R.C.P., Associate of King's College, London; Physician Mendip Hills Sanatorium, Wells, Somerset; late Physician, Inglewood Sanatorium, Isle of Wight; author of "Some Results of Sanatorium Treatment of Phthisis," "The Inhalation of Formic Aldehyde in the Treatment of Pulmonary Tuberculosis," "The Diagnostic Value of Tubercle Bacilli in the Treatment of Phthisis," "A Short Account of the Aryan System of Medicine," etc. New York: William Wood & Company, 1910.

THIS admirable book of 200 pages differs from all of the other recent works on the same subject, in this respect, namely, while presenting the current accepted views as to the nature and management of tuberculosis, it also embodies the author's original conceptions of the etiology and treatment of this disease. The work is divided into three parts: the first, dealing with the scientific aspect; the second, the sanatorium; and the third, the social aspect of tuberculosis. In the introduction the author shows how the best results in this disease are obtained by closely following Nature's own method of cure. He speculates that the tubercle bacilli may originally have been innocuous organisms, and that some of their types may be so still; and that they have become, and may still become, pathogenic by a change of environment and nutrition. He concludes that predisposing factors alone cannot produce tuberculosis, that the unknown personal factor predominates, and that this, which is outside the pale of environment or microorganisms, determines whether or not infection should occur. This view is certainly an original one and suggestive of much thought. The author emphasizes the value of clinical experience as more reliable than either statistical or experimental evidence. The discussion of early diagnosis is masterly. In the section on the principles of open-air treatment are given in detail all the measures and routine adopted in a modern sanatorium, including rest, diet, breathing and singing exercises, manual work, inhalations, and recreations. There are special chapters on the treatment of hemoptysis, on the treatment of laryngeal tuberculosis chiefly with the aid of vocal rest and medicated inhalations, on the use of formaldehyde inhalations, and of static electricity in the treatment of pulmonary tuberculosis. The section on the social and economic factors of tuberculosis presents this subject concisely and fully, and includes an elaborate plan of remedial and preventive measures by means of which the nation may hope to overcome the disease.

THE EAR AND ITS DISEASES. By ALBERT A. GRAY, M.D., Laureate of the Lenval Prize in Otology, International Medical Congress, 1909; Fellow of the Royal Society of Edinburgh; Surgeon for Diseases of the Ear, Victoria Infirmary, Glasgow; Surgeon for Diseases of the Ear and Throat, Glasgow Cancer Hospital; Author of "The Labyrinth of Animals." With Steoroscope and 123 Illustrations, of which 37 are Steoroscopic. New York: William Wood & Company, 1910.

THE author in preparing this work has tried to keep in view the interests of the student, the practitioner, and the aurist. The first chapter is devoted to the subject of acoustics. The difficult subject of the anatomy of the ear is treated in considerable detail. By means of stereoscopic illustrations and special methods of preparation, the mastering of this subject is greatly facilitated. The inclusion of a small but accurate stereoscope with this book furnishes the ready means of studying these illustrations. One notes the admirable manner in which the author associates the clinical phenomena with the pathological conditions present. The work is an eminently practical one for both specialist and general practitioner, and in its clearness and freedom from controversial details, it is well adapted to the needs of the student. The illustrations leave nothing to be desired on this point. They are of exceptional beauty and clearness, and add an incalculable value to the work. The series of eighteen illustrations representing the appearances of the tympanic membrane in normal and pathological conditions cannot be improved upon. The author is to be congratulated upon the general accuracy, completeness and at the same time compactness of his work, which represents the best in modern otology. As an example of consummate book making, bringing all the resources of perfect typography and illustration, together with the happy mechanical aid of stereoscopy, within the compact limits of a manual at moderate cost, this work may be said to be unique.

L'HOMOSEXUALITÉ ET LES TYPES HOMOSEXUELS. Par le Docteur LAUPTS (G. Saint-Paul). Nouvelle Edition de "Perversion et Perversité Sexuelles." Preface d' Émile Zola. Paris: Vigot Frères, 1910.

To those who are interested in the literature of sexual perversion for which the demand abroad has been much greater than in this country, the mere statement of the title of this book is sufficient to describe its purport. To the psychiatrist this subject presents problems connected with phases of his daily work, but the general practitioner can find but little of value in a topic that has already been exploited to the point of nausea.

A MANUAL OF TOXICOLOGY. A concise presentation of the principal facts relating to poisons, with detailed directions for the treatment of poisoning. Also a table of doses of the principal and many new remedies. By ALBERT H. BRUNDAGE, A.M., M.D., Phar.D., M.S., Professor of Toxicology and Physiology in the Departments of Medicine, Dentistry, and Pharmacy of Marquette University; formerly President of the Board of Pharmacy of the State of New York and Examiner in Toxicology in same: etc.; Honorary member of the Brooklyn (N.Y.) Medical Society; Life Member of the New York State Pharmaceutical Association; Member of the American Medical Association, the American Pharmaceutical Association, the American Microscopical Society, the American Association for the Advancement of Science, etc. Seventh edition revised and profusely illustrated. New York: The Henry Harrison Co.; London: Ballière, Tindall & Cox, 1910.

THE seventh edition of this useful work contains two new sections: (1) on simulation of poisoning by disease, autointoxication and disease, action and elimination of poisons; and (2) on pharmacological toxicology. The book contains an immense amount of information on a most important topic; and, as a rule, the author has been successful in eliminating the non-essentials of the subject. A book on toxicology should be of easy reference, for if it is wanted at all it is apt to be wanted in a hurry. Under the heading Morphine in the index we find 14 entries, but it is the sixth one that gives the main information. Similarly under Aconite there are 12 entries; under Arsenic 15; under Mercury 9; under Strychnine 12; and in no case is there any indication as to which entry gives the desired information, and in no case is it the first entry. We would suggest that in the next edition thick type or black figures be used to indicate the page upon which the subject is chiefly considered.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

North Carolina Board of Medical Examiners.

June, 1910.

ANATOMY AND HISTOLOGY.

1. Name the bones of the foot, and describe the inferior extremity of the tibia.
2. Name and describe the salivary glands.
3. Locate and describe the gall-bladder.
4. (*a*) With what bones does the radius articulate? (*b*) Name the ligaments of wrist-joint.
5. Give origin, insertion, function and nerve supply of the following muscles: Sartorius, sternocleidomastoid and the sphincter ani externus.
6. What constitutes the brachial plexus? and describe the musculospiral nerve.
7. (*a*) Name arteries which supply the heart with blood and where they originate; (*b*) name branches of subclavian artery.
8. (*a*) Name the abdominal viscera wholly covered with peritoneum; (*b*) those partially covered.
9. Describe the broad ligaments of the uterus and their anatomic relations.
10. Describe the structure of the prostate gland and give its anatomic relations.
11. Describe the medulla oblongata.
12. Describe the portal system.

PHYSIOLOGY AND HYGIENE.

1. Enumerate the changes, degenerative and regenerative, that take place in a neuron whose nerve fiber has been severed from its cell.
2. Define metabolism, and mention the manifestations of cell life.
3. Discuss the hydrochloric acid of the gastric juice—(*a*) its functions, (*b*) the probable histological elements concerned in its secretion, (*c*) its origin, or probable nature of the chemical reaction or reactions by which it is produced.
4. What facts are suggested by clinical observation and animal experimentation as to the importance to health of the thyroids and parathyroids?
5. Discuss the phenomena of heart action—(*a*) as to the cause or causes of its beat, (*b*) as to the probable nature of its *inner stimulus* to automatic rhythmical contractions, (*c*) as to the control of the rate and force of its beat.
6. What means of defence is afforded by the constituents of the blood against invasion of the organism by pathogenic germs?
7. What is uric acid, what its properties, and what its origin?
8. Define and state the significance or use, as the case may be, of (*a*) indican, (*b*) creatin, (*c*) glycogen, (*d*) collagen, (*e*) lipase.
9. Define or describe diffusion, dialysis, and osmosis, and suggest certain physiological phenomena due more or less to these processes.
10. Of what food value are commercial meat extracts?
11. Suggest the prophylaxis of gastroenteric toxemias of bottle-fed infants.
12. Point out the measures necessary to prevent the spread of infection from a case of typhoid fever, a case of scarlet fever, a case of diphtheria, a case of yellow fever.

CHEMISTRY.

1. Define (*a*) chemical affinity; (*b*) the difference between an atom and a molecule; (*c*) an element and a compound.
2. Give the chemical names of the following formulæ: (1) HCl; (2) H_2SO_4; (3) HNO_3; (4) H_2O; (5) H_2O_2; (6) $AgNO_3$; (7) NH_3; (8) HgCl; (9) $HgCl_2$; (10) Na_2SO_4; (11) NaCl; (12) HgO.
3. Describe hydrogen, giving symbol, atomic weight, chemical properties, and express by a chemical equation the reaction which takes place when zinc is acted upon by hydrochloric acid, hydrogen being liberated.
4. Name the chief four elements which enter into the formation of organic compounds.
5. Describe in detail (*a*) the "coagulation by heat" test for albumin in the urine, (*b*) the "nitric acid" test, (*c*) Fehling's test for sugar, (*d*) Boetger's bismuth test for sugar.

DISEASES OF CHILDREN.

1. Describe symptoms and sequelæ of acute atrophic (infantile) paralysis, and designate location of the pathological lesion.
2. Describe treatment (with prescription) of a case of acute gastroenteritis, child two years of age.
3. Treat a case of acute catarrhal croup in a child of three years (with prescription).
4. Give differential diagnosis between measles and scarlet fever.
5. Give the dose of the following drugs for an infant three months old: Tinct. aconite, phenacetin, tinct. opii camphorata, quinine, syrup of ipecac, ammonium chloride, spiritus etheris nitrosi, comp. spts. of ether, sodium bromide.

MATERIA MEDICA AND THERAPEUTICS.

1. What is meant by an official drug?
2. Define a fluid extract, a spirit, an infusion, a decoction.
3. Select four of the following drugs and give their official, botanical and common names, the parts used, their chief official preparations and alkaloids (official alkaloids only), and state very briefly their physiological actions and therapeutic indications—aconite, belladonna, digitalis, ergot, nux vomica, opium. (Answers should not exceed one page of written matter to the drug.)
4. Give the dose of apomorphinæ hydrochloridum, hydrargyri iodidum flavum, cocaina, phosphorus, pilocarpinæ hydrochloridum, resina podophylli, santoninum, tinctura aconiti, tinctura gelsemii.
5. Give official names (Latin or English) of Basham's mixture, carron oil (chief use), Dover's powder (amount of each ingredient), Gray powder, Hoffman's anodyne, Lugol's solution, Monsel's solution, spirit of Mindererus, tartar emetic, Donovan's solution.
6. How would you treat a case of poisoning when the toxic agent was unknown?
7. Name four drugs that are specifics, and the diseases they will cure.
8. State what remedies you would use to relieve pain; give indication and contraindications of each.
9. State what drugs you would use to produce sleep; give indications and contraindications of each.
10. Write a prescription for each of the common complications of typhoid fever.

PRACTICE OF MEDICINE.

1. Differentiate between vesicular and bronchial breathing. What does bronchial breathing denote?
2. What is meant by cardiac compensation? Give symptoms of ruptured or broken compensation.
3. Give differential diagnosis between peptic ulcer and gastralgia.
4. What approximately is the normal amount of urine in twenty-four hours and specific gravity? How affected by acute nephritis, chronic interstitial nephritis, chronic parenchymatous nephritis, diabetes mellitus?
5. In unilateral facial paralysis how would you differentiate a central from a peripheral origin? Give causes. In which does reaction of degeneration follow?
6. Differentiate between follicular tonsillitis and diphtheria.
7. Give etiology and symptoms of arteriosclerosis and state what conditions of heart, brain and kidney are produced by it.
8. Give symptoms of acute intestinal obstruction.
9. Give leading symptoms in leukemia (splenomedullary) and the blood picture.
10. Write one prescription in pill form for anemia, using three or four drugs.

OBSTETRICS AND GYNECOLOGY.

1. Define version. Give the indications and dangers of version.
2. Describe the changes in position the uterus undergoes during pregnancy.
3. Into what stages is labor divided. Give a description of each stage.
4. What are the dangers of ergot in obstetrics? And when should it be given?
5. Define and classify ectopic pregnancy. What are the symptoms of rupture of an ectopic pregnancy? Give the treatment.
6. Give the physical signs of an acute peritonitis.
7. What are the symptoms of cancer of the uterus?
8. What are the relative advantages and disadvantages of the abdominal and vaginal routes in pelvic surgery?

SURGERY.

1. (*a*) What is pyothorax? (*b*) What particular infection is its most frequent cause, and (*c*) what is its treatment? (*d*) If operation, describe it.
2. (*a*) Discuss ascites, and (*b*) give some of the causes and treatment for same.

3. Describe operation for internal strabismus.
4. Describe amputation of lower leg one inch below tubercle of tibia.
5. (*a*) Define hemorrhoids, (*b*) discuss their palliative treatment, and (*c*) describe the ligature operation.
6. Describe operation for resection of six inches of middle of ileum. (This includes preparation of abdomen.)
7. Discuss shock and its treatment. Differentiate between symptoms of shock and hemorrhage.
8. (*a*) Give prominent symptoms of carcinoma of the cervix uteri, (*b*) discuss its treatment (if operative, do not describe operation, simply name it), and (*c*) give the most frequent predisposing cause.
9. What are the causes, symptoms and treatment of intestinal perforation?
10. Discuss briefly the uses of the Röntgen ray in surgery and in the treatment of superficial epithelioma.
11. Mention two kinds of suture material and describe the preparation of each for surgical use.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

NORTH CAROLINA BOARD OF MEDICAL EXAMINERS.

June, 1910.

ANATOMY AND HISTOLOGY.

1. *Bones of foot:* Os calcis, astragalus, cuboid, scaphoid, internal cuneiform, middle cuneiform, external cuneiform, five metatarsals, and fourteen phalanges.

For inferior extremity of tibia see Cunningham's "Anatomy" (1909), page 233; or Gray's "Anatomy" (1908), page 238.

2. Parotid, submaxillary, and sublingual glands. See Cunningham's "Anatomy" (1909), page 1009; or Gray's "Anatomy" (1908), page 1224.

3. See Cunningham's "Anatomy" (1909), page 1118; or Gray's "Anatomy" (1908), page 1350.

4. (*a*) *The radius articulates with:* Humerus, ulna, scaphoid, and semilunar.

(*b*) *Ligaments of wrist joint:* Anterior, posterior, external lateral, and internal lateral.

5. SARTORIUS. *Origin:* Anterior superior spine of ilium, and part of notch below. *Insertion:* Inner side of tibia near tubercle. *Function:* Flexes and crosses legs. *Nerve supply:* Middle cutaneous, or branch from anterior crural.

STERNO-CLEIDO-MASTOID. *Origin:* Upper end of sternum and upper and inner end of clavicle. *Insertion:* Mastoid process of temporal bone and outer half of superior curved line of occipital bone. *Function:* Flexes head on neck and rotates the head. *Nerve supply:* Spinal accessory and cervical plexus.

SPHINCTER ANI EXTERNUS. *Origin:* Tip of coccyx. *Insertion:* Central tendinous raphe of perineum. *Function:* To keep the anal orifice closed. *Nerve supply:* Fourth sacral and internal pudic.

6. The *brachial plexus* is formed by the union and subsequent division of the anterior divisions of the fifth, sixth, seventh, and eighth cervical and the first dorsal nerves. The union of the fifth and sixth makes the upper trunk; the seventh forms the middle trunk, and the eighth cervical and first dorsal make the lower trunk. Each of these trunks is divided into an anterior and a posterior branch. The anterior branches, from the upper and middle trunks, make the upper or outer cord of the plexus; the anterior branch of the lower trunk becomes the lower or inner cord; the three posterior branches unite to form the posterior or middle cord. The plexus lies between the Scalenus anticus and medius.

For musculospiral nerve see Cunningham's "Anatomy" (1909), page 632; or Gray's "Anatomy" (1908), page 1007.

7. (*a*) The right and left coronary arteries from the aorta. (*b*) Vertebral, thyroid axis, internal mammary, and superior intercostal arteries.

8. (*a*) *Viscera wholly covered with peritoneum:* Liver, stomach, spleen, jejunum, ileum, transverse colon, sigmoid flexure, upper part of rectum, uterus, and ovaries.

(*b*) *Viscera partially covered with peritoneum:* Duodenum, ascending and descending colon, middle part of rectum, and bladder.

9. See Cunningham's "Anatomy" (1909), page 1189; or Gray's "Anatomy" (1908), page 1502.

10. For *structure* of prostate see Cunningham's "Anatomy" (1909), page 1175; or Gray's "Anatomy" (1908), page 1462.

RELATIONS OF PROSTATE. *Anteriorly:* Symphysis pubis, anterior ligaments of bladder, branches of dorsal vein of penis. *Posteriorly:* Rectum. *Laterally:* Levator ani. *Base:* Surrounds neck of bladder, seminal vesicles, and vasa deferentia. The *apex* rests on triangular ligament.

11. See Cunningham's "Anatomy" (1909), page 481; or Gray's "Anatomy" (1908), page 874.

12. See Cunningham's "Anatomy" (1909), page 901; or Gray's "Anatomy" (1908), page 768.

PHYSIOLOGY AND HYGIENE.

1. A nerve fiber cut off from the cell from which it comes undergoes degeneration along the whole peripheral cut end at one and the same time. The changes are as follows: (1) The axon dies and withers away; (2) the medullary sheath breaks up into fine fatty drops; (3) the nuclei under the neurilemma proliferate. This change also takes place in the proximal portion of the nerves up to the nearest node of Ranvier. The cell from which the axon comes shows a degeneration which is as follows: (1) Nissl granules become few and smaller, and eventually disappear entirely; (2) the whole cell eventually degenerates and dies, and therefore the whole proximal portion of the nerve fibers now shows Wallerian degeneration. If after section the cut ends be sutured together the axons in the central end will in time grow down the degenerated peripheral end to the parts originally supplied by the cut nerve.

2. *Metabolism* is the entire series of changes that occur in a cell or organism during the processes of nutrition. It is of two kinds: (1) Assimilative or constructive (anabolism), and (2) destructive (katabolism).

The *manifestations of cell life* are: Movement, ingestion, assimilation, excretion, growth, irritability, and reproduction.

3. HYDROCHLORIC ACID. (*a*) *Functions:* (1) To aid in digestion of proteids; (2) protective influence in destroying pathogenic bacteria. (*b*) It is produced by the oxyntic or parietal cells in the mucous coat of the stomach. (*c*) (1) $NaH_2PO_4 + NaCl = Na_2HPO_4 + HCl$; or (2) $2Na_2HPO_4 + 3CaCl_2 = 3Ca_3(PO_4)_2 + 4NaCl + 2HCl$.

4. The *function of the thyroid* is not definitely settled: (1) it has some trophic function, regulating oxidation in the body, and it is supposed to have also a special influence on the vasomotor nerves, the skin, the bones, and on the sexual functions; (2) it is supposed to antagonize toxic substances, and (3) it produces an internal secretion.

Removal of the thyroid gland causes mental and bodily dullness and apathy, tremors, twitchings, overgrowth of the connective tissues, and development of fat; the hairs fall out and the patient becomes unwieldy and clumsy in both body and mind. The complete removal causes death in most animals, and it is not considered justifiable in man. It has been claimed that the parathyroids can to some extent perform the function of the thyroids after extirpation of the latter.

5. (*a*) The cause of the heart beat is unknown. There are two theories: (1) That it originates in the nerve ganglia in the heart (neurogenic theory); (2) that it originates in the muscle cells of the heart (myogenic theory). (*b*) The probable nature of the inner stimulus to automatic rhythmical contractions is *nervous*. (*c*) The control of the rate and force of the heart beat is by: (1) The sympathetic nerve, which quickens it; (2) the pneumogastric nerve, which inhibits or slows it.

6. The white corpuscles, by their phagocytic action; the plasma, by its alkalinity; and the agglutinating action of the blood all serve as a means of defence against bacterial invasion.

7. Uric acid is a dibasic acid, with the formula $C_5H_4N_4O_3$. It occurs chiefly in the urine, as urates of sodium and ammonium. It crystallizes as lozenge-shaped plates or prisms, arranged in bundles; it is without odor or taste, is slightly soluble in water, and is insoluble in alcohol or ether. In man it has a twofold origin, one portion coming from the breaking down of the nuclein containing tissues or cell elements of the body, and the other from the purin compounds in the food.

8. (*a*) *Indican* is indoxyl potassium sulphate; it is found (in excess) in the urine in hypochlorhydria; in hyperchlorhydria of gastric ulcer; in conditions in which there is diminished peristalsis of the small intestines, as in ileus and peritonitis, not in simple constipation; also in conditions in which putrefactive changes occur in the body elsewhere than in the intestine, as in empyema, putrid bronchitis, gangrene of the lungs, etc.—(From Witthaus' *Essentials of Chemistry.*)

(*b*) *Creatin* is a complex amido acid; it is found in muscle tissue, brain, urine, etc.; very little is formed in the body, and it is excreted in the urine as creatinin.

(*c*) *Glycogen* is animal starch, found chiefly in the liver and muscles. It is converted into sugar as it is needed in the body.

(*d*) *Collagen* is a constituent of connective tissues, cartilage, and bone; gelatin can be obtained from it.

(*e*) *Lipase* is an enzyme whose function is to split fats; it is found in the pancreatic juice.

9. "The term *diffusion* has long been applied to the regular mixing of the molecules of two gases when brought into contact in a confined space. More recently it has been applied to the mixing of the molecules of two solutions when brought into contact. If, however, the two solutions are separated by a membrane, permeable to the solutions, diffusion will still occur. To this form of diffusion the term *Osmosis* has been applied in the case of water, and *Dialysis* in the case of diffusible substances. All bodies can be divided into two groups, *crystalloids* and *colloids*. To the former group belong bodies having a crystalline form, which readily go into solution in water. All such bodies are diffusible (dialyzable), their power of dialysis, however, varying considerably. To the second group belong such bodies as have no crystalline form (amorphous). These are generally bodies with a large molecule, which form colloidal suspensions in water, and are only slightly or not at all diffusible. An exception to this second group is hemoglobin, which has a very large molecule but is crystalline and is diffusible."—(Kirkes' *Physiology*.)

Physiological applications: "In the animal body the fluids are separated by delicate membranes across which the constituents of the fluids, inorganic and organic, are continually passing. Thus prepared foods in the intestine pass across the intestinal wall into the blood- and lymph-vessels; the constituents of the blood pass across the wall of the capillary vessel into the tissue spaces, from which they pass (*a*) through the walls of various glands to take part in the formation of their secretion; (*b*) across the sarcolemma into the interior of the muscle fiber; (*c*) across the limiting surface of and into the interior of all tissue cells. The waste products, the results of tissue and food metabolism, pass from the interior of cells across their limiting membranes or surfaces into the tissue spaces; thence across the wall of the capillary vessel and the epithelium of the lung, the kidney, the liver, etc., to take part in the formation of the excretions. These and other processes are believed to be accomplished by the factors, diffusion, osmosis, and filtration."—(Brubaker's *Physiology*.)

10. The food value of commercial meat extracts is very slight; they have a feeble stimulant action, and serve to flavor the water with which they are mixed.

11. See French's "Practice of Medicine" (1907), pages 780 and 781; or Osler's "Practice of Medicine" (1909), page 508.

12. See French's "Practice of Medicine" (1907), pages 107, 324, 194, and 275; or Osler's "Practice of Medicine" (1909), pages 96, 138, 207 and 238.

CHEMISTRY.

1. (*a*) *Chemical affinity* is that force which attracts atoms to each other and causes them to unite to form a molecule. (*b*) An *atom* is the smallest portion of an element which can enter into chemical reaction. A *molecule* is the smallest portion of a substance (element or compound) which can exist free. (*c*) An *element* is a substance out of which we cannot, by any known means, get dissimilar substances. A *compound* is a substance made up of two or more elements, chemically united, in definite proportions.

2. HCl is hydrochloric acid; H_2SO_4 is sulphuric acid; HNO_3 is nitric acid; H_2O is hydrogen monoxide; H_2O_2 is hydrogen dioxide; $AgNO_3$ is silver nitrate; NH_3 is ammonia; HgCl is mercurous chloride; $HgCl_2$ is mercuric chloride; Na_2SO_4 is disodic sulphate; NaCl is sodium chloride; HgO is mercuric oxide.

3. *Hydrogen:* Symbol, H; atomic weight, 1; valence, 1; is a colorless, odorless, tasteless gas, the lightest substance known, the unit of atomic and molecular weights, does not support combustion, but when lit burns with a pale blue flame which gives very little light but intense heat, combines explosively with chlorine in sunlight, is a necessary ingredient in all acids.

$$Zn + 2HCl = ZnCl_2 + H_2$$

4. Carbon, hydrogen, oxygen, and nitrogen.

5. (*a*) *Coagulation test:* The urine must be perfectly clear. If not so, it is to be filtered, and, if this does not render it transparent, it is to be treated with a few drops of magnesia mixture, and again filtered. The reaction is then observed. If it be acid, the urine is simply heated to near the boiling point. If the urine be neutral or alkaline, it is rendered *faintly* acid by the addition of dilute acetic acid, and heated. If albumin be present, a coagulum is formed, varying in quantity from a faint cloudiness to entire solidification, according to the quantity of albumin present. The coagulum is not redissolved upon the addition of HNO_3.

(*b*) *Nitric acid test:* Pour into a clean test tube a layer of HNO_3 about half an inch deep; then with a pipette carefully float on to the surface of this acid a layer of urine, taking care that the liquids do not mix. If albumin is present a cloudy ring, with sharply defined borders, will appear at the point of junction of the two layers.

(*c*) *Fehling's test:* Place in a test-tube a few c.c. of the liquid prepared as stated below, and boil; no reddish tinge should be observable, even after five minutes' repose. Add the liquid under examination gradually, and boil after each addition. In the presence of sugar a yellow or red precipitate is formed. In the presence of *traces* of glucose only a small amount of precipitate is produced, which adheres to the glass, and is best seen when the blue liquid is poured out.

[The reagent must be kept in two solutions, which are to be mixed immediately before use. Solution I consists of 34.653 gms. of crystallized $CuSO_4$, dissolved in water to 500 c.c.; and Solution II of 130 bms. of Rochelle salt dissolved to 500 c.c. in NaHO solution of sp. gr. 1.12. When required for use equal volumes of the two solutions are mixed, and the mixture diluted with four volumes of water.]

(*d*) *Boettger's test:* Render the urine strongly alkaline by addition of Na_2CO_3. Divide about 6 c.c. of the alkaline liquid in two test-tubes. To one test-tube add a very minute quantity of powdered subnitrate of bismuth, to the other as much powdered litharge. Boil the contents of both tubes. The presence of glucose is indicated by a dark or black color of the bismuth powder, the litharge retaining its natural color.—(From Witthaus' *Essentials of Chemistry*.)

DISEASES OF CHILDREN.

1. See French's "Practice of Medicine" (1907), page 1083; or Osler's "Practice of Medicine" (1909), page 915.

2. See French's "Practice of Medicine" (1907), page 781; or Osler's "Practice of Medicine" (1909), page 509.

3. See French's "Practice of Medicine" (1907), page 645; or Osler's "Practice of Medicine" (1909), page 597.

4. *Measles:* Period of incubation, ten to twelve days. Stage of invasion, four days. Character of eruption, small dark red papules with crescentic borders, beginning on face and rapidly spreading over the entire body; desquamation is branny. The eruption is darker, less uniform, more shotty; the temperature is lower, pulse slower, the tongue is not of the "strawberry" type; coryza, coughing, and sneezing may be present; Koplik's spots are present.

Scarlet fever: Period of incubation, from a few hours to seven days. Stage of invasion, twenty-four hours. Character of eruption, a scarlet punctuate rash, beginning on neck and chest, then covering face and body; desquamation is scaly or in flakes. The eruption is brighter, is on a red background, punctiform, and is more uniform; the temperature is higher, the pulse quicker; the tongue is of the "strawberry" type, the lymphatics in the neck may be swollen, and there is sore throat; Koplik's spots are absent.

5. Tinct. aconite, ♏⅛; phenacetin, gr. ¼; tinct. opii camphorata, ♏j; quinine (sulphate), gr. ½; syrup of ipecac, ♏½; ammonium chloride, gr. ⅛; spiritus etheris nitrosi, ♏j; comp. spts. of ether, ♏j; sodium bromide, gr. ½.

MATERIA MEDICA AND THERAPEUTICS

1. An *official drug* is one that is listed in the Pharmacopœia.

2. A *fluidextract* is a solution of a vegetable drug of such strength that 1 c.c. of the fluidextract represents 1 gram of the drug.

A *spirit* is an alcoholic solution of a volatile substance.

An *infusion* is a fluid preparation made by steeping a vegetable substance in boiling water.

A *decoction* is a fluid preparation made by boiling a vegetable substance in water.

3. ACONITE. *Official name.* Aconitum; *botanical name,* Aconitum Napellus; *common name,* Monk's-Hood; *part used,* the root; *official preparations,* fluidextract and tincture; *official alkaloid,* aconitine; *physiological action,* first stimulates and then paralyzes heart and also sensory nerves, lowers blood pressure, dilates peripheral blood-vessels, is a respiratory sedative, reduces body temperature, is a diuretic and diaphoretic.

Therapeutic indications: For fevers, some inflammatory conditions, in high arterial tension, in nervous palpitation of the heart, and congestive dysmenorrhea; also externally for neuralgia, pruritis, herpes, chilblains, etc.

BELLADONNA. *Official name:* Belladonna; *botonical name:* Atropa Belladonna; *common name:* Deadly nightshade;

parts used. leaves and root; *official preparations:* tincture, extract, plaster, and ointment (of the leaves); and fluid-extract and liniment (of the root); *official alkaloid:* atropine; *physiological action:* anodyne, mydriatic, inhibits secretions, depressant of terminations of nerves, accelerates the heart beat, causes rise in blood pressure, but toxic doses cause the blood pressure to fall, stimulates the respiratory center, but large doses depress the same; it may cause vertigo, restlessness, excitement, delirium, or mania.

Therapeutic indications: To relieve pain, relax spasm, check sweating, as a mydriatic for night sweats, to check griping of purgatives; in asthma, to check fevers, in heart disease, shock and collapse, acute coryza, urinary incontinence, chordee, low delirium of fevers, mania, alcoholism; as an antigalactagogue, spasmodic cough.

DIGITALIS. *Official name:* Digitalis; *botanical name:* Digitalis purpurea; *common name:* Purple foxglove; *parts used:* dried leaves; *official preparations:* extract, fluid-extract, tincture, and infusion; *official alkaloids,* none; *physiological action:* it is a gastrointestinal irritant, it slows the rate of the heart, prolongs diastole, increases the force of the heart, it contracts the blood-vessels and causes a rise in blood pressure, it also acts as a diuretic.

Therapeutic indications: In heart diseases (1) when the heart action is rapid and feeble, with low arterial tension; (2) in mitral lesions when compensation has begun to fail; (3) in non-valvular cardiac affections; (4) in irritable heart, due to nerve exhaustion; also cardiac palpitation, irritable heart from nerve exhaustion, cardiac and renal dropsy, and exophthalmic goiter.

ERGOT. *Official name:* Ergota; *botanical name:* Claviceps purpurea; *common name:* Spurred rye; *parts used:* the sclerotium; *official preparations:* extract, fluidextract, and wine; *official alkaloids:* none. *Physiological action:* Ergot stimulates and causes contraction of involuntary muscle fibers, hence it is a vasoconstrictor, hemostatic, and oxytocic. It is also a cardiac sedative, it raises the blood pressure, it increases peristalsis, and is an emmenagogue.

Therapeutic indications: To promote uterine contractions during third stage of labor; fibroids, menorrhagia, post-partum hemorrhage. Some forms of amenorrhea and dysmenorrhea, dysentery, arterial hemorrhage, congestive headache, laxity of sphincters, of bladder or rectum, hemorrhoids, aneurysm diabetes, urinary incontinence, direct paralysis of the sphincter vesicæ, atonic spermatorrhea.

NUX VOMICA. *Official name:* Nux vomica; *botanical name:* Strychnos nux vomica; *common name:* Quaker button, or poison nut; *parts used:* seeds; *official preparations:* extract, fluidextract, tincture, strychnine (with its sulphate and nitrate); *official alkaloid:* strychnin; *physiological action:* It excites the digestive secretions, increases the appetite, increases peristalsis, and improves the digestion; it is a vasoconstrictor, it raises blood pressure, and is a cardiac stimulant; it is also a respiratory stimulant; hearing and sight are rendered more acute.

Therapeutic indications: As a general tonic or bitter; in indigestion, cardiac depression, impaired peristalsis, pneumonia, phthisis, amenorrhea, dysmenorrhea, impotence, some forms of paralysis, chorea, epilepsy, neuralgia, alcoholism, and urinary incontinence.

OPIUM. *Official name:* Opium; *botanical name:* papaver somniferum; *common name:* white poppy; *parts used:* capsule; *official preparations:* powdered, granulated, and deodorized opium; extract, tincture, camphorated tincture, tincture of deodorized opium, tincture of ipecac and opium, pills, wine, vinegar plaster, and powder of ipecac and opium: *official alkaloids:* morphine, codeine. *Physiological action:* It is analgesic, hypnotic, diaphoretic, narcotic, a respiratory and cardiac stimulant (later a depressant), it checks most secretions (not perspiration), it stimulates the brain, and contracts the pupil.

Therapeutic uses: As an anodyne, a hemostatic, in inflammations, as an expectorant, in diarrhea, in alcoholism, manias and diabetes, as an antispasmodic, in insomnia, and as a diaphoretic.

4. *Dose of:* Apomorphinæ hydrochloridum, gr. 1/30 (expectorant), gr. 1/10 (emetic); hydrargyri iodidum flavum, gr. 1/5; cocaina, gr. ss; phosphorus, gr. 1/125; pilocarpinæ hydrochloridum, gr. 1/5; resina podophylli, gr. 1/6; santoninum, gr. j; tinctura aconiti, ♏x; tinctura gelsemii, ♏viij.

5.

	OFFICIAL NAMES.
Basham's mixture...	Liquor ferri et ammonii acetatis; solution of iron and ammonium acetate.
Carron oil.....	Linimentum calcis; lime liniment.
Dover's powder.....	Pulvis ipecacuanhœ et opii; powder of ipecac and opium.
Gray powder.....	Hydrargyrum cum creta; mercury with chalk.
Hoffman's anodyne.	Spiritus ætheris compositus; compound spirit of ether.
Lugol's solution....	Liquor iodi compositus; compound solution of iodine.
Monsel's solution...	Liquor ferri subsulphatis; solution of ferric subsulphate.
Spirit of Mindererus.	Liquor ammonii acetatis; solution of ammonium acetate.
Tartar emetic.....	Antimonii et potassii tartras; antimony and potassium tartrate.
Donovan's solution..	Liquor arseni et hydargyri iodidi; solution of arsenic and mercuric iodide.

Carron oil is chiefly used for burns; Dover's powder contains 10 per cent. each of ipecac and opium.

6. *"General antidotes* have been devised for use when the nature of a poison is unknown, with the object of a 'shot-gun prescription,' intended to hit something. One of the best is *Jeaunel's,* composed as follows: Liquor ferri sulphatis, ʒijss; magnesia calcinat., ʒij; carbo animalis, ʒj; aqua, ʒxx. These ingredients should be kept separate—the solution of the sulphate in one vessel, the others together. When needed, the former should be added to the latter and violently agitated. Dose, ʒiss to ʒiij. This is a perfect antidote for arsenic, zinc, digitalin, etc. It delays the action of the salts of copper, morphine and strychnine, and slightly influences compounds of mercury. It is valueless for cyanide of mercury, tartar emetic, hydrocyanic acid, phosphorus, or the caustic alkalies. If the nature of the poison is entirely unknown, a harmless yet effectual antidote in most cases is one composed of equal parts of magnesia, wood charcoal, and the hydrated ferric oxide, given freely in plenty of water."—(Potter's *Materia Medica,* etc.)

7. *Four specifics:* Quinine, for malaria; diphtheria antitoxin, for diphtheria; mercury, for syphilis; colchicum, for gout.

8. *Opium* has the power of relieving pain arising from almost any cause, it is especially useful in pain occasioned by gross lesions—inflammation, traumatism, and morbid growths. In the various so-called functional pains, such as headache and neuralgia, the coal-tar derivatives—*antipyrin, phenacetin,* and *acetanilid*—are more serviceable analgesics. *Cannabis indica* somewhat resembles opium in its action as an analgesic, but it is far less powerful. It is especially useful in neuralgia and migraine. The *bromids,* by depressing the cerebral cortex, often afford relief in headache, but in other forms of pain they usually fail. Some drugs seem to have an affinity for certain nerves; thus *gelsemium* and *butyl chloral hydrate* are often distinctly valuable in trifacial neuralgia."—(Stevens' *Materia Medica.*)

9. CHLORAL, SULPHONAL, and TRIONAL: *Chloral hydrate* produces a natural sleep, acts promptly, but is of no service if pain is present; it also lowers the body temperature. It can be given for a long time without deleterious effect, but it may irritate the tissues and weaken the heart. *Sulphonal* produces a natural sleep, but is of slow action, requiring three or four hours to take effect; it is of no use if pain is present, does not irritate the tissues and weaken the heart, but is probably not so good for continuous use as chloral hydrate, though the two may replace each other for a time. *Trional* is very similar to sulphonal, but is more soluble, and acts quicker. Both sulphonal and trional are supposed to be safer than chloral.

10. See French's "Practice of Medicine" (1907), page 116; or Osler's "Practice of Medicine" (1909), page 103.

PRACTICE OF MEDICINE.

1. *Vesicular breathing* is that which is heard normally over the air vesicles of the lungs; *bronchial breathing* is that which is heard normally over the trachea and bronchi. Bronchial breathing, elsewhere, denotes consolidation of the lung, phthisis, pneumonia, pleuritic effusion, hemorrhagic infarction or syphilis of lung.

2. By *cardiac compensation* is meant the changes in the heart muscle (hypertrophy, etc.), due to effort on the part of the heart to meet the increased work thrown upon it in case of valvular lesions. *Symptoms of broken compensation* are: Dyspnea cyanosis, edema, cough, hemoptysis, and disturbances of stomach, liver, or kidney.

3. See French's "Practice of Medicine" (1907), page 750.

4.

	AMOUNT IN 24 HOURS.	SPECIFIC GRAVITY.
Normal	About 40 to 50 ounces.	About 1015 to 1025.
Acute nephritis.	Diminished.	About 1025 to 1030+.
Chronic interstitial nephritis	Greatly increased.	1010, 1005, or less.
Chronic parenchymatous nephritis.....	Diminished.	High or low.
Diabetes mellitus.....	Greatly increased.	1030 to 1045.

5. See French's "Practice of Medicine" (1907), page 1008; or Osler's "Practice of Medicine" (1909), page 1020.

6. In *diphtheria* the onset is more gradual; the temperature rises to about 101° F.; the tonsils are not much enlarged; there is an exudate of a thick, grayish membrane which is very adherent is removed only with difficulty, and leaves a bleeding surface; this membrane soon reforms and may be found on the fauces and pharynx as well as on the tonsils; in the exudate the Klebs-Loeffler bacilli may be found. In *follicular tonsillitis* the onset is more sudden; the temperature may be a little higher than that of diphtheria; there is no membrane, but the tonsils are red and swollen, and in the crypts are seen white, cheesy spots or plugs, which consist of broken-down epithelium, and are easily brushed away; Klebs-Loeffler bacilli are never found.

7. See French's "Practice of Medicine" (1907), page 623; or Osler's "Practice of Medicine" (1909), page 848.

8. See French's "Practice of Medicine" (1907), page 801; or Osler's "Practice of Medicine" (1909), page 522.

9. See French's "Practice of Medicine" (1907), page 519; or Osler's "Practice of Medicine" (1909), page 734.

10. *For anemia:*

℞. Massæ ferri carbonatis, 5j.
Arseni trioxidi, gr. j.
Quininæ sulphatis, gr. xxx.
Misce et fiat massa in pilulas no. xxx dividenda.
Signa: Take one three times a day.

OBSTETRICS AND GYNECOLOGY.

1. See Williams' "Obstetrics" (1909), page 432; or Hirst's "Obstetrics" (1909), page 827.

2. See Williams' "Obstetrics" (1909), page 168; or Hirst's "Obstetrics" (1909), page 182.

3. See Williams' "Obstetrics" (1909), page 226; or Hirst's "Obstetrics" (1909), page 320.

4. See Williams' "Obstetrics" (1909), pages 324 and 661.

5. See Williams' "Obstetrics" (1909), pages 623, 648, and 649; or Hirst's "Obstetrics" (1909), pages 284, 303, and 306.

6. See Rose and Carless' "Surgery" (1908), page 974; or Da Costa's "Surgery" (1908), page 868.

7. See Rose and Carless' "Surgery" (1908), page 1286.

8. The relative advantages and disadvantages of the abdominal and vaginal routes in pelvic surgery are thus summarized by Dudley (*Diseases of Women*):

Advantages of the abdominal route: (1) A large field is open for operation; (2) the operator may see what he is doing instead of depending largely on touch; (3) diagnosis of unsuspected conditions and complications is much easier; (4) the abdominal section is adapted to large tumors and pus sacs, and to conditions high in the pelvis; (5) the appendages may be removed with better chance of avoiding rupture of a pus sac; (6) there is less danger of wounding intestines, bladder, or ureters and greater facility in the control of hemorrhage; (7) the frequent concurrence of appendicitis and other abdominal lesions with pelvic disease and the impossibility of reaching them by the vagina; (8) it gives more light and more space for conservative work.

Advantages of the vaginal route: (1) It gives better drainage, and is therefore specially adapted to cases of vesical or intestinal fistulæ; (2) it avoids abdominal scar and risk of ventral hernia; (3) it is suitable for cases of small tumors without high adhesions; (4) when properly performed it lessens the danger from shock, and is therefore suitable to cases of extreme pelvic infiltration which are inoperable, because too dangerous, by the abdominal route; (5) it involves less handling of the intestines, and therefore less consequent danger of intestinal adhesions; (6) recovery is less complicated and more rapid.

Unfortunately, the vaginal route is, for at least a very large proportion of cases, impracticable. The long, narrow virgin vagina or the vagina which has become contracted from senile atrophy may render the field of operation almost inaccessible. A very large uterus with exceptionally short, thick, broad ligaments and greatly enlarged appendages, with adhesions extending beyond the reach of the finger, may also be difficult or impossible to manipulate through the vagina. Under such conditions the abdominal route is much safer.

SURGERY.

1. Pyothorax is empyema. See Rose and Carless' "Surgery" (1908), page 926; or Da Costa's "Surgery" (1908), page 773.

2. See Rose and Carless' "Surgery" (1908), page 983.

3. *Tenotomy of internal rectus:* "The speculum is introduced and the eyeball drawn outward, if necessary, by an assistant. The conjunctiva over the lowest portion of the insertion of the muscle, together with the subconjunctival tissue and Tenon's capsule, is seized with a pair of fixation forceps, raised and divided with scissors; the first cut divides the conjunctiva, the second Tenon's capsule. Keeping the fold raised with the forceps, a strabismus hook is introduced through the opening, passed beneath the tendon, and pushed upward until its point is seen through the conjunctiva at the upper border of the muscle. The hook is transferred to the left hand and raised so as to lift the tendon. The scissors are taken in the right hand and introduced, one branch between the tendon and conjuctiva, and the other between the tendon and sclera; the tendon is divided close to the sclera by two or more small cuts. The hook is reintroduced to make sure that no portion of the tendon has been left undivided. If the tendon has been completely divided, the hook can be advanced to the cornea without resistance; if not, the undivided fibers must be cut with scissors. The hook is again introduced and swept from behind forward, above, and below, to ascertain whether there are any uncut fibers of attachment to the sclera which, if found, must be severed. The conjunctival wound is closed with one or two vertical sutures."—(May's *Diseases of the Eye.*)

4. See Rose and Carless' "Surgery" (1908), page 1313; or Da Costa's "Surgery" (1908), page 1220.

5. See Rose and Carless' "Surgery" (1908), pages 1148, 1151, and 1152; or Da Costa's "Surgery" (1908), pages 1012, 1014, and 1017.

6. See Rose and Carless' "Surgery" (1908), pages 271 and 1030; or Da Costa's "Surgery" (1908), pages 61 and 946.

7. See Rose and Carless' "Surgery" (1908), pages 257 and 259; or Da Costa's "Surgery" (1908), pages 239 and 240.

8. See Rose and Carless' "Surgery" (1908), page 1285.

9. See Rose and Carless' "Surgery" (1908), page 1013.

10. See Rose and Carless' "Surgery" (1908), page 1364; or Da Costa's "Surgery" (1908), pages 1248 and 1253.

11. See Rose and Carless' "Surgery" (1908), page 270; or Da Costa's "Surgery" (1908), pages 64 and 67.

BULLETIN OF APPROACHING EXAMINATIONS.

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION
Alabama*.....	W. H. Sanders, Montgomery..	Montgomery....Jan. 10
Arizona*.....	Ancil Martin, Phoenix.....	Phoenix.....Jan. 3
Arkansas.....	F. T. Murphy, Brinkley.....	Little Rock.....May 9
California*.....	Chas. L. Tisdale, 929 Butler Building, San Francisco....	Los Angeles.....
Colorado.....	S. D. Van Meter, 1723 Tremont Street, Denver.....	Denver.....Jan. 3
Connecticut*...	Chas. A. Tuttle, New Haven..	New Haven.....Mar. 14
Delaware.....	J. H. Wilson, Dover.....	Dover.....
Dist. of Col'ba..	Geo. C. Ober, Washington.....	Washington.....Jan. 10
Florida*.....	J. D. Fernandez, Jacksonville..	Tallahassee.....May 8
Georgia.....	T. H. Goss, Athens.....	Atlanta.....May —
Idaho*.....	W. F. Howard, Pocatello.....	Boise.....April 4
Illinois.....	J. A. Egan, Springfield.....	Chicago.....Jan. 11
Indiana.....	Crawfordsville.....	Indianapolis ....Jan. 10
Iowa.....	Louis A. Thomas, Des Moines	Des Moines.....
Kansas	H. A. Dykes, Lebanon	Topeka .....Feb. 14
Kentucky.....	J. N. McCormack, Bowling Green.....	Louisville.....
Louisiana.....	A. B. Brown, 108 Baronne St..	New Orleans.....May 18
Maine.....	F. W. Searle, Portland.....	Portland .....Mar. 14
Maryland.....	J. McP. Scott, Hagerstown....	Baltimore.....
Massachusetts*	E. B. Harvey, State House. Boston.....	Boston.....Mar. 14
Michigan.....	B. D. Harrison, 205 Whitney Building, Detroit.....	Ann Arbor.....June 13
Minnesota	W. S. Fullerton, St. Paul....	St. Paul ..... Jan. 3
Mississippi.....	S. H. McLean, Jackson.....	Jackson.....May 9
Missouri	Frank B. Hiller, Jefferson City.	Jefferson City...
Montana*.....	Wm. C. Riddell, Helena.....	Helena .....April 4
Nebraska.....	C. A. Carr, Lincoln.....	Lincoln.....Feb. 7
Nevada.....	S. L. Lee, Carson City.....	Carson City.....May 1
N. Hampshire..	Henry C. Morrison, State Library, Concord.....	Concord.....Jan. 3
New Jersey....	H. G. Norton, Trenton.....	Trenton.....June 20
New Mexico....	J. A. Massie, Santa Fe.....	Santa Fe.....Jan. 9
New York.	C. F. Wheelock, Univ. of State of New York, Albany....	New York.... / Albany..... / Syracuse..... / Buffalo..... Jan. 31
N. Carolina	B. K. Hays, Oxford.....	Charlotte.....June 14
N. Dakota	H. M. Wheeler, Grand Forks.	Grand Forks....Jan. 3

Ohio	Geo. H. Matson Columbus	Columbus		
Oklahoma*	F. P. Davis, Enid	McAlester	Jan.	3
Oregon	B. E. Miller, Portland	Portland	Jan.	3
Pennsylvania*	A. R. Allen, Carlisle	Philadelphia Pittsburg	June	27
Rhode Island*	G. T. Swarts, Providence	Providence	Jan.	5
S. Carolina	H. H. Wyman, Aiken	Columbus	June	13
S. Dakota	F. W. Freyberg, Mitchell	Aberdeen	Jan.	11
Tennessee	C. A. Abernathy, Pulaski	Memphis Nashville Knoxville	May	28
Texas	R. H. McLeod, Palestine	Palestine		
Utah	R. W. Fisher, Salt Lake City	Salt Lake City	Jan.	9
Vermont	W. Scott Nay, Underhill	Montpelier	Jan.	10
Virginia	R. S. Martin, Stuart	Lynchburg	Dec.	20
Washington*	T. C. McFadden, Seattle	Spokane	Jan.	3
W. Virginia	H. A. Barbee, Point Pleasant	Morgantown		
Wisconsin	J. M. Beffel, Milwaukee	Milwaukee	Jan.	10
Wyoming	S. B. Miller, Laramie	Laramie	Mar.	7

*No reciprocity recognized by these States.
†Applicants should in every case write to the secretary for all the details regarding the examination in any particular State.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held December 1, 1910.

THE PRESIDENT, DR. JOHN A. WYETH, IN THE CHAIR.

THIS meeting was held under the auspices of the Section on Surgery, and was devoted to a symposium on hyperthyroidism.

The Therapeutic Application of a Theory for the Pathological Physiology Involved in Disease of the Thyroid Gland.—Dr. JOHN ROGERS described a theory to account for the normal and pathological physiology of the thyroid gland and its application to the management of cases showing disease of this organ. He first presented several cases as follows: The *first*, a typical and rather severe myxedema of fifteen years' duration. Commercial thyroid at first was beneficial and later failed entirely by causing hyperthyroidism; a substitution of 1/10 gr. of the pure thyroid proteids proved helpful, but the dose had to be steadily increased until thyroidism again appeared. Then a combination of the thyroid pure proteids with the pancreas nucleoproteid relieved all symptoms. The pancreatic enzymes were injurious. The *second* case, also one of myxedema, but with a goiter and with high blood-pressure and severe gastroenteric disturbance, was relieved entirely by feeding with the adrenal nucleoproteid. The *third* case, again one of myxedema, could be relieved only by a combination of the thyroid pure proteids and enterokinase. The *fourth* case, one of severe typical exophthalmic goiter, was at first made worse by the antithyroid serum, but cured entirely within three months by the subcutaneous administration of thyroid globulin. The *fifth* case, likewise one of severe typical exophthalmic goiter, after improving under the antithyroid serum developed glycosuria. Partial thyroidectomy was then performed, with complete cure of both the thyroidism and the glycosuria. The glycosuria and hypertrophy of the left lobe did not disappear entirely until trypsin was given by rectum. The *sixth* case, one of severe exophthalmic goiter, was improved at first by the antithyroid serum, but this finally became ineffective. All four of the different thyroid vessels were then tied at intervals of two or three weeks, but no appreciable gain resulted until adrenal nucleoproteid feeding was begun. This had resulted in an almost perfect cure.

Dr. Rogers next proceeded to his theory of thyroid disease, based upon the chemistry of the gland, and the above clinical observations which had many times been repeated. The thyroid of untreated Graves' disease contained less iodine per gram of gland substance than the normal organ, and the quantity seemed to diminish in proportion to the severity of the disease. Two active substances could be isolated, one a nucleoproteid, the other a globulin. The globulin product decreased in abundance and the nucleoproteid increased in direct proportion to the cellular hyperplasia and disintegration characteristic of the thyroid changes in a typical Graves' disease. In primary acute toxemic Graves' disease the thyroid contained little or no colloid (the equivalent of the globulin constituent) and a great abundance of nucleoproteid; and in cases which had not previously been given iodine this element was much less than normal in each gram of gland substance. The reverse was true of the normal thyroid. From experiments and from clinical observation, it was probable that the thyroid nucleoproteid was limited in its effects to stimulation of the chromaffin or sympathetic-adrenal system, and so by stimulation of the cardioaccelerator nerve produced tachycardia. The thyroid globulin, or colloid, on the other hand, was assumed to have a universally activating effect upon every organ and tissue in the body. As the thyroid, adrenals, pancreas, liver, and duodenum seemed closely allied in diseased states of the thyroid, these organs were singled out for a diagrammatic representation of thyroid physiology. The thyroid globulin was thus supposed to activate the adrenals, pancreas, duodenum, and liver directly, and aid in the production of an "internal" secretion from the adrenals and pancreas, which, with the thyroid globulin and the absorbed intestinal enzymes, in turn passed through the circulation to the liver and were thus a necessity for its normal chemical processes. In Graves' disease there was a deficiency of thyroid globulin (qualitative at first more than quantitative) and an excess of nucleoproteid, and this excess unduly stimulated the chromaffin system which, through the adrenal portion of the system, inhibited the pancreatic and duodenal chemistry, while it stimulated the heart. The deficiency of thyroid globulin, on the other hand, led directly to an imperfect liver activation, and indirectly added to the damage to the liver by an imperfect or deficient internal secretion from the adrenals and pancreas, which also were necessary in the liver chemistry.

The primary cause of all thyroid disease seemed to be glandular fatigue, and the thyroid with its assumed universally activating properties, was, of course, exposed to excessive demands upon its product. In myxedema, the fatigue led to atrophy of the thyroid epithelium. In Graves' disease, a compensatory hypertrophy took place in response to the demands upon the thyroid, but the fatigued epithelium was unable to perform its biochemical duties and multiplied so rapidly in its attempt to metabolize iodine, that it disintegrated and thus formed an imperfect or actually deficient amount of colloid or globulin, and an undue excess of nucleoproteid. As the thyroid globulin was supposed to be universally activating, it must, when in excess, activate the thyroid itself; and as the gland was supplied by the sympathetic nervous system, and excess of thyroid nucleoproteid in its stimulation of these nerves, must likewise stimulate the activity of the thyroid epithelium. Hence, in the activation of the thyroid by its own globulin and nucleoproteid products, there arose, in overactivity of the gland, a double vicious circle and a self-perpetuation of a fatigue phenomenon which involved not only the thyroid, but also the liver, duodenum, pancreas, and adrenals. The latter were part of another apparently autoactivated system, as their only known product, adrenalin, seemed to be limited in effect to the terminal filaments of the sympathetic nervous system; and if the adrenals were capable of functional overactivity like the thyroid, the sympathetic might unduly stimulate the thyroid and so cause a hyperthyroidism, which was a secondary and not a primary disease of the gland.

The therapeutic problem was first to rest the thyroid and allow the epithelium time to regain its ability properly to metabolize iodine; and next to cut off the superabundant thyroid nucleoproteid (and also the globulin)

which possessed the power, through the sympathetic or chromaffin system, of stimulating the thyroid and the heart, and of inhibiting the pancreas and duodenum. The primary, acute toxemic cases could be cured by the antithyroid serum, which, by its cytotoxic and antitoxic components, neutralized the thyroid products, but after the subsidence of the acute symptoms rest was necessary. The chronic cases required a preliminary ligation of the thyroid vessels always under local anesthesia, to obtain rest for the gland. Afterwards the antiserum or supporting organ therapy should be employed. In the toxemic exacerbations of chronic thyroidism, the antiserum must be used with great caution. Partial thyroidectomy was of advantage in cases showing constitutional symptoms, but having only a circumscribed or unilateral enlargement of the gland. The portion of the gland allowed to remain should be in reasonably good condition and of better character than the part removed, or relapse would follow. But the possibility of a primary cause for the disease in a chromaffin system or adrenal disorder must always be borne in mind. The thyroid was only one of several glands which seemed closely associated in the maintenance of a normal nutritional chemistry. A functional disturbance in any one of these organs, among which the pituitary must be included, seemed often to cause a compensatory hypertrophy, and frequently overactivity of the thyroid and therefore radical operation upon the thyroid should be undertaken only after due consideration of the associated conditions.

A Consideration of Surgical Methods of Treating Hyperthyroidism.—Dr. Charles H. Mayo of Rochester, Minnesota, read this paper. (See page 1173.)

Dr. Arpad G. Gerster said it was like carrying coals to Newcastle for one to attempt to add anything. He thought he voiced the sentiments of all present in saying that they should be congratulated in having such an intricate and difficult subject presented to them in such a clear way. Nothing was left untold either chemical, physiological, or surgical, and yet the subject had been treated purely from the medical standpoint and by two well-known surgeons. They had heard in the presentation of their colleague from the West the matter treated in its pathological and in its histological aspect, and also some of the essential facts which brought forth the disease.

Dr. Howard Lilienthal said he had operated upon a few of these cases of exophthalmic goiter, but he did not believe he had any right to an opinion in the face of what they had heard. They should remember that the thyroid gland was something more than just a gland in the neck, for they heard of its enormous influence on remote parts of the body; in it they looked for causes of disorders hitherto obscure. In New York the medical men were not yet in a position to send these cases to the surgeon. All the cases he had operated upon had been such as Dr. Mayo called the advanced cases; the result had been an improvement as a rule in most of the symptoms. They were assuming an attitude toward the thyroid gland that they formerly assumed toward the prostate; they formerly were afraid to touch this organ, whereas now they operated upon it often.

Dr. S. P. Beebe said that in exophthalmic goiter the thyroid gland was not alone involved; there were other glands which showed pathological changes. In the cases that died from so-called medical death, as well as those that died after operation, the autopsy would reveal the thymus gland in a large percentage of the cases hypertrophied. He doubted whether they were in a position to formulate any theory to explain the interrelation of the ductless glands with this disease. With regard to the treatment Dr. Beebe thought there was a very distinct field for it; the disease as it occurred in young women responded to medical treatment. These young women got well and they remained well as though they had been subjected to surgical treatment. He was referring to the mild cases.

Dr. John Rogers said he regarded this disease as a serious one and with a large mortality; he saw but very few get well spontaneously. He urged his hearers to consider this disease as one of fatigue, one of overstrain. Fatigue was at the bottom of this malady and much he believed could be done in the way of prevention.

Dr. Mayo said that they must consider among the causes of this disease septic tonsils, measles, diphtheria, scarlet fever, etc. A great many of the cases of exophthalmic goiter experienced some shock, usually mental.

Election of officers: *President,* Dr. William M. Polk; *Vice-President,* Dr. Glentworth R. Butler; *Trustee,* Dr. A. Alexander Smith; *Committee on Admission* (for 3 years), Dr. H. Seymour Houghton; *Committee on Admission* (for 5 years), Dr. William Kelly Simpson; *Committee on Library,* Dr. Thomas L. Stedman; *Corresponding Secretary,* Dr. Egbert Le Fevre.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held November 25, 1910.

Dr. S. M. Brickner in the Chair.

Specimen of Primary Ovarian Pregnancy.—Dr. I. C. Rubin said that the first genuine case of primary ovarian pregnancy was demonstrated in 1899; since then there had been eighteen or nineteen authentic cases reported in the literature. The majority of the authentic cases had been early cases, the gestation having proceeded to the sixth or eighth week. The specimen he presented was removed from a patient during July, 1910. She was twenty-four years old. She had been married three years, had one child who was two years old, and she had never had any abortions or miscarriages. Her marital relations were unhappy. her last menstrual period was seven weeks before admission to the hospital. Two months before her admission she had sharp pain in the lower abdomen, especially on the right side, radiating to the back and down the thighs; she then first noticed a profuse yellowish vaginal discharge which was associated with frequent and burning urination. This had since subsided. She came to the hospital because of sharp radiating pains, especially on the right side, chilly sensations and fever, weakness and leucorrhea. Her abdomen was found to be greatly tympanitic, and no palpable masses or rigidity were present. Tenderness was present over the lower half of the abdomen, more marked on the left side. The uterus was found to be somewhat enlarged and in good position. On the left side, close to the uterus, was a mass about the size of an average sized ovary; this was exceedingly tender to the touch. This mass seemed to be fixed and was regarded as an enlarged ovary without, however, having the usual hardness of an ovary. The tubes could not be palpated. On July 28, 1910, an exploratory laparotomy was performed for a possible ectopic gestation. The uterus was found to be the size of the non-pregnant organ. The left tube was bent upon itself and attached to an enlarged ovarian mass. This mass was fixed by soft adhesions to the broad ligament close to the uterus. The left ovary looked edematous and presented at one portion a dark chocolate brown irregular protruding surface; this was thought to be a degenerated corpus luteum verum. On trying to deliver the left adnexa a small plum-colored mass, about the size of a hazel nut, was brought into view. This had apparently been free in the pelvis and suggested a ruptured ectopic pregnancy. The tube on either side was neither macroscopically enlarged nor ruptured. The left ovary still attached to the uterus by its proper ligaments

was, therefore, regarded as the probable seat of the pregnancy. After describing what appeared in the pathological and microscopical examinations of the specimen, Dr. Rubin said that this case satisfied all the requirements of a primary ovarian pregnancy. 1. There were positive evidences of pregnancy. 2. These evidences were within ovarian stroma. 3. The tube on the same side was separate, distinct and showed no gross microscopical signs of pregnancy. 4. The ovary was connected to the uterus by its proper ligament. To be more specific he said that the case really presented an ovarian abortion. The mole could not be shown because it was lost. The uterus was not the seat of pregnancy, nor was there any evidence of a decidual formation within the uterine cavity.

Dr. Robert Tilden Frank said that he had had an opportunity to examine the specimen presented by Dr. Rubin and there was no doubt but that the findings were quite unmistakable, both macroscopically and microscopically. He thought it possible that the cells thought to be decidual cells might be interpreted as stroma cells, the result of the hemorrhagic condition. That was the only point on which there might appear a difference of opinion.

Dr. Knipe referred to the monograph of Bryson and Teacher on ovarian pregnancy in which was brought out the rarity of this condition.

Pubiotomy for Dystocia.—Dr. Frederick C. Holden reported this case. The patient was thirty-eight years old, brought to the hospital in labor at term. Prior to admission the repeated application of the forceps to bring the head into the pelvis failed. On admission the fetal pulse was to the left and below the umbilicus. There was a longitudinal presentation, with the vertex above the brim of the pelvis, dorsum anterior position. The uterus was tense. It was decided to do a pubiotomy operation rather than an abdominal section. This was done by the method of Döderlein. The bone was sawn through, moderate pressure was made upon the fundus, and the child glided into the pelvis. An easy delivery was accomplished by means of forceps. The child weighed seven pounds and eleven ounces. The occipitomental diameter was 13 cm.; the occipitofrontal was 11 cm.; the suboccipitobregmatic was 10 cm. and the biparietal 10 cm. Fowler's posture was at once instituted after the operation and ergot was given. She was discharged from the hospital on the thirty-third day in good condition. Her walking gait was almost normal. She remained in good health and attended to her household duties since her return home.

Cesarean Section for Contraction Ring.—Dr. Frederick C. Holden reported this case. The patient was a primipara, twenty-two years old. When admitted to the hospital she had been in labor twenty hours, with the membranes ruptured and with complete dilatation for hours. The labor pains were strong and regular. The examination showed a full term uterus with a live child. The fetus was found to be in left mental posterior position. There was a firm contraction ring around the child's neck and shoulders, completely preventing flexion of the head. Twenty-two hours after the onset of labor, seven and a half after the membranes had ruptured, and six hours after the collar was found, a cesarean section was performed. There was delivered a normal child weighing six pounds and ten ounces. An uninterrupted convalescence followed.

Dr. John O. Polak referred to the ease with which the child's head fell into the pelvis after the bone had been severed in the first case reported by Dr. Holden. In those trying cases of prolonged labor he did not consider pubiotomy an elective procedure; in such cases he favored section. With regard to the second case reported by Dr. Holden, it was a very interesting one. He recalled one case in which the contraction ring had been pulled so tightly that there was practically nothing but membrane over the head of the child, thus preventing the head from engaging. After making an incision through the ring the child was readily delivered.

Dr. Sidney D. Jacobson, in discussing the pubiotomy case, recommended the open method, the hemorrhage being his objection to the closed method. In four of the seven cases he had had, there practically had been no hemorrhage by the open method. Seven mothers and six babies recovered.

Dr. Holden just sawed through the bone and was careful not to go beyond it. If care was used he saw no reason why one should be bothered with hemorrhage.

Multiple Puerperal Abscesses of the Uterus.—Dr. William H. W. Knipe reported this case. Besides multiple abscesses in the uterus, several foci of pus were found in the broad ligament. He stated that a detailed report of this interesting case would be given later.

When Shall We Operate in Puerperal Septic Infection?—Dr. John Osborn Polak read this paper and offered the following summary: (1) Each case of postpartum or post-abortal infection must be studied individually and an accurate diagnosis made on the clinical, bacteriological, and blood findings before any treatment was instituted. (2) Nature was competent in the majority of instances to localize and circumscribe the infection. (3) Curettage, douches, and examinations during the acute stage broke down barriers, and opened avenues for the further dissemination of sepsis to the endometrium, parametrium, and adjacent tissues; the danger from curettage increased with each month of pregnancy. (4) Enormous pelvic and abdominal exudates might disappear without operation, and in time enlarged ovaries, tubes, etc., might assume their proper size and function; further, as long as the patient's general condition improved, no surgery was advisable. (5) All operations were attended with less risk after the acute stage of the infection had subsided, and an exact diagnosis was more easily made at this time. (6) After the uterus was thoroughly emptied, the pelvis should be left absolutely alone, and they should make every effort to support the patient and increase her natural blood resistance. (7) Vaccine therapy had a definite but limited field in the treatment of puerperal septic infection. Inoculating with the autogenous vaccines would promise prompt results in staphylococcus and colon bacillus infections, but in streptococcus poisoning the vacine treatment was unreliable. This was of value only when the virulence of the germ was attenuated, or when Nature had already developed a phagocytic defence. (8) Extraperitoneal drainage of local foci should be selected when possible, either by incision just above Poupart's ligament, or by posterior vaginal section; when this was impossible, because of an inability to determine the exact antomical relations of the local foci, an exploratory laparotomy was justifiable in order to make an exact diagnosis and determine upon the safest route for drainage. (9) Operative interference in the acute stage of sepsis was only indicated in general purulent peritonitis, post-abortal peritonitis, infected tumors in or near the genital tract, and uterine rupture when said rupture had occurred in the course of labor, and had been handled outside of a well managed maternity. (10) Thrombophlebitis was a conservative process on the part of Nature to limit the infection, and any form of pelvic manipulation only tended to break down and separate parts of these thrombi, extending the infection to the more remote parts, thus jeopardizing the patient's life.

Dr. Herman J. Boldt was unable to find any flaw in Dr. Polak's paper. Too much emphasis could not be laid upon the injurious effects of the traumatism these women received in the early stages of labor and before they were brought to the hospital.

Dr. Joseph Brettauer said he made the statement ten or fifteen years ago, which could not be repeated too often, that the curette killed more women in the puerperium than any disease or complication of childbirth. These local affections should be left alone, for they could care for themselves; when the curette was used the endometrium became infected by the germs from the localized infection.

Dr. F. C. Holden said that young men should be properly qualified before they attempted the use of the curette and that it was up to the teachers in the medical schools to speak against the frequent use of this instrument.

Dr. William H. W. Knipe believed that the less they attempted to do for these cases of puerperal sepsis the better; leave them alone.

Dr. Ross McPherson said that the majority of these patients were very much run down; their resisting powers should be raised, and this could be accomplished, at least in a measure, by treating them more in the open and fresh air, by attention to their diet, etc. The curette had killed more people than any instrument used in surgery.

Dr. George G. Ward, Jr., said that the dangers attending the use of the curette should be emphasized more by all teachers in medical schools, not only in the puerperal cases, but in the gonorrheal as well.

Dr. William S. Stone said he had never seen a case of puerperal sepsis unless a physician had been in attendance and the curette used. He also said that he had not seen a single case that had been attended by a midwife; if the case ended fatally it was because of what the doctor who was called in had done. These statements he considered to be nearly true.

Dr. Samuel W. Bandler emphasized the importance of the diagnosis of these cases of puerperal sepsis, especially during the early days where there was practically no discharge, but a rapid pulse, etc. These cases were best diagnosed by bimanual examination. On several occasions he had evacuated the cellular exudate, which looked like beef extract, and with good results.

Dr. Herman M. Collyer believed that the abscesses should be opened and iodine injections employed.

Dr. John O. Polak said that he had very definite ideas regarding thrombophlebitis. They had not seen many typical cases, with the chills, temperature, foci, etc. Only one case they had got well without interference. It was, in fact, a case of true pyemia. Subsequently she developed an abscess in the lungs, a staphylococcus infection. The other cases, eighteen in all, involved the femoral veins and the pelvic veins; all were self-limited and all recovered. Incising the exudates was a very unsatisfactory procedure in his hands. In those instances in which there were no localized foci of pus, he thought it was better to leave them alone, especially if the Fowler position was maintained.

Dr. C. Clarence Sichel asked why Dr. Polak left gauze in the cavity eight days.

Dr. Polak replied that six or eight rolls of gauze were used. On the fourth day the central roll was withdrawn, another on the fifth day, and so on, thus allowing the cavity gradually to come down. They never had been called upon to reopen a cavity thus treated.

Election of Officers.—*Chairman*, Dr. H. D. Furniss; *Secretary*, Dr. Frank A. Dorman.

Symptom Complex of Scarlatina Vaccination.—G. Vladimiroff describes the effects of prophylactic injections of Gabritschewsky's scarlatina vaccine (a streptococcus bouillon culture heated to 60° C. and preserved with carbolic acid), administered hypodermically in three doses of 0.3 to 1 c.c., at eight-day intervals. There results a rash strikingly resembling that of scarlet fever, lasting from three to four days, and spreading over the entire body in twelve hours. The strawberry tongue appears on the second day. Desquamation frequently succeeds the attack. —*Archiv für Kinderheilkunde.*

Medicolegal Notes.

Exclamations of Pain and Suffering Do Not Bar Testimony of Physician's Examination, Though Not for Treatment.—In an action for personal injuries the evidence of physicians who examined the plaintiff for purposes of testimony and not for treatment was objected to because exclamations and complaints of pain and suffering and the flinching and wincing of the plaintiff are inadmissible in evidence and because these things occurred in the examination. His regular attending physician, whose testimony was also objected to, testified that when he pressed the plaintiff's spine at particular points he evinced points of tenderness about the spine, and would call out "Quit!" or "Stop!" and would wince. He explained that at the point of soreness, when pressed, there was a convulsive action of the muscles, simultaneous with the exclamations and wincing. The testimony of the other two physicians as to their examination of the plaintiff by pressing along the spine was practically the same. "When I came to a place where he would flinch or jump quickly as if in pain I marked that point with a pencil, and at every point where he would flinch I would mark it. I would go along on different parts of the body, and whenever I would find such places I would mark them. Again, I would go over them a second or third time to prove or to find out whether the pain occurred at the same point or not. When the pain occurs at the same point after several examinations we infer from that there is a point of pain there. A man flinches or makes an outcry. * * * I ran a cambric needle, I guess, three-fourths of an inch deep in and around the back part of the thigh and over the back where it joins the frame. It did not make any impression on him, and he did not jump, and if it hurt he did not say so or make any movement. During this examination he would complain of pain; that is, he didn't say anything, but he would jump when I would stick him where it hurt him. He would wince or flinch." They also testified that from their experience the plaintiff could not have located the exact spot of pain if he did not in fact feel the pain. It was held that the evidence was admissible.—Ft. Worth & D. C. Ry. Co. v. Hays, Texas Court of Civil Appeals, 131 S. W. 416.

Opinions of Witnesses as to Value of Physician's Services Not Conclusive.—In an action by a physician for professional services the opinions of witnesses as to the value thereof are not conclusive. The jury may exercise its own judgment, and it is error to direct them to return a verdict in accordance with such opinions.—Marsh v. Richer, Onondaga County Court, New York, 125 N. Y. Supp. 245.

Physician Cannot Give Expert Opinion on Matter Outside of Medical Science.—In an action for damages for personal injuries to a railroad passenger it was held that a physician was not competent to express his opinion on the question whether the passenger sustained an injury to his arm while it was inside or outside an open car window. This was a matter of mechanics rather than of medical science, and the rule is that opinions of experts are inadmissable except as to those matters of which they have knowledge not acquired by ordinary persons. —Kuttner v. Central Railroad of New Jersey, New Jersey Supreme Court, 77 Atl. 470.

Evidence of Symptoms of Fracture of Skull Erroneously Excluded.—In an action for personal injuries it was held that the evidence of a physician who had attended the plaintiff immediately after the injury and for about three weeks after as to whether the symptoms present would show that the plaintiff had sustained a fracture of the skull was erroneously excluded. The evidence was excluded apparently on the ground that whether or not the skull was fractured was a matter of fact which a physical examination would show.—Charron v. Northwestern Fuel Co., Wisconsin Supreme Court, 1128 N. W. 75.

Right to License to Practise in Washington—Necessity for Diploma.—A number of cases were decided together in the Washington Supreme Court involving the construction of chapter 192, Wash. Laws 1909, relating to the practice of medicine. Each of several applicants filed with the board of medical examiners an application for a license to practise, claiming the right to a license under the provision of this law relating to the licensing of persons who were engaged in practice prior to its passage. The board refused to issue licenses. The applicants appealed to the superior court, which reversed the decisions of the board and directed licenses to be issued. The superior court's decision was, on appeal by the board,

affirmed by the supreme court. The statute provides (Section 4) that any person who treats the sick or affected may register his or her diploma with the board of medical examiners, and receive a license to practise by paying a specified fee, provided that he or she shows the board that he or she has been legally engaged in such practice prior to the passage of the act within the State, and is a graduate of a legally incorporated school or college, or by having been in continuous practice in one locality in the State for the past two years. Each of the applicants had been for more than two years prior to the date of approval of the act in such continuous practice. It was contended on behalf of the board that an applicant must, in addition to showing two years' practice in one locality, have a diploma and register the same with the board before he is entitled to a license under the provisions of the last clause of section 4. The applicants, who did not have, and never had, diplomas, contended that a diploma was not a prerequisite to their right to licenses under that clause. The court said that it must be conceded that the provisions of the law are somewhat involved, and that the question of its meaning is not free from doubt. It was, however, of the opinion that one who had been in continuous practice in one locality in the State for two years prior to the enactment of the law is not required to furnish further evidence of his qualifications by a diploma, and that such a person would be entitled to a license, regardless of the fact of his ever having a diploma. In some of the cases it appeared that the applicants were engaged in the practice of medicine and surgery for the two years prior to the passage of the act without having a license required by the law as then existing, Laws 1901, p. 50. This, it was contended, excluded such a person from the right to a license, because it was argued that such a person was not legally engaged in practise and therefore was not engaged in practise at all within the meaning of the section. The court held, however, that the clause of the section referred to two classes who may receive licenses: those who have been "legally engaged in such practice prior to the passage of this act" and those who have been in "continuous practice" in one locality for two years. The use of the word "legally" in referring to one class and omitting it in referring to the other clearly indicated the legislative intent to give the license privilege to the second class, even though they had violated a previously existing license law.—*In re* Christensen, Washington Supreme Court, 109 Pac. 1040.

Practising Without License Is Not Being "Legally Engaged in Practice."—In another case under the same statute it appeared that the applicant became a resident of the State January 1, 1909, and since then until after the enactment of the law, March 18, 1909, was engaged in the practice of medicine and surgery in the State without the license required by the then existing law. (Laws 1901, p. 50, c. 42.) It was held that he was not "legally engaged in such practice prior to the passage of this act" as required by section 4, and that a license was properly denied by the board.—*In re* Harold, Washington Supreme Court, 109 Pac. 1043.

Member of County Board Cannot Bind County for Physician's Services.—One member of a board of county commissioners cannot bind the county to pay for the services of a physician in attending upon the poor without first having been authorized thereto by a majority of said board while in session.—Mahr v. Board of County Comrs. of Pottawatomie County, Supreme Court of Oklahoma, 110 Pac. 751.

Release from Damages for Injuries by Poison in Drug Not Invalidated by Inability to Read.—A young woman who had sustained injuries from taking a quantity of belladonna which had become mixed with licorice powder sold by a wholesale druggist to the retail druggist from whom she purchased sued the wholesale druggists for damages. A release of her claim of damages presented to her for her signature in the presence of her father, mother, and sister was signed by her unread. She claimed that she was unable to read it on account of the effect of the belladonna on her eyes, and because she was hurried by her father and signed it under the impression that it was merely a receipt to the druggist for her loss of time sustained by the poisoning. It was held that this did not invalidate the release, since her mother was present when it was signed and was able to read it to her. The evidence showed that the plaintiff when she signed the release was not in such a stupid condition that she could not understand it if it had been read to her. When it was shown that the release was not obtained by fraud, mere inadequacy of consideration was not ground for annulling it. —St. Louis Court of Appeals, Missouri, 130 S. W. 829.

Medical Items.

Contagious Diseases, Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City for the week of December 24, 1910.

	Cases	Deaths
Tuberculosis Pulmonalis	540	195
Diphtheria	236	27
Measles	167	4
Scarlet Fever	268	8
Smallpox	—	—
Varicella	127	—
Typhoid Fever	48	12
Whooping Cough	64	8
Cerebrospinal Meningitis	4	4
Malarial Fever	—	—
Totals	1,454	258

Health Reports.—The following cases of and deaths from smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health, and Marine Hospital Service, during the week ended December 25, 1910.

CHOLERA

Place	Date	Cases	Deaths
Arabia: Mascot	Nov. 6–12	23	22
India: Bombay	Nov. 9–15	..	1
Italy		..	..
Total for Italy, Dec. 7-13, 30 cases; 12 deaths.			
Provinces—Caltanisetta	Nov. 20–26	3	1
Caserta	Nov. 20–26	7	..
Rome	Nov. 20–26	18	1
Japan: Aichi	Oct. 16–Nov. 19	3	..
Deaths not reported.			
Ehime	Sept. 23–Nov. 19	24	..
Fuknoka	Sept. 30–Nov. 19	166	..
Hiroshima	Sept. 25–Nov. 19	57	..
Kagawa	Oct. 2–Nov. 19	380	..
Kagoshima	Oct. 28–Nov. 19	3	..
Kochi	Oct. 18–Nov. 19	69	..
Kumamoto	Oct. 18–Nov. 19	10	..
Kyoto	Sept. 30–Nov. 19	141	..
Hyogo	Sept. 14–Nov. 19	534	..
Including Kobe, previously reported.			
Miye	Oct. 4–Nov. 19	8	..
Nagasaki	Oct. 16–Nov. 20	17	..
Nara	Oct. 3–Nov. 19	29	..
Okayama	Sept. 29–Nov. 19	68	..
Oita	Oct. 10–Nov. 19	2	..
Osaka	Sept. 17–Nov. 19	939	..
Including cases previously reported.			
Saga	Oct. 4–Nov. 19	45	..
Shimane	Oct. 24–Nov. 19	5	..
Tokushima	Oct. 3–Nov. 19	59	..
Tokyo	Oct. 18	1	1
Wakayama	Oct. 6–Nov. 19	21	..
Yamaguchi	Oct. 12–Nov. 19	37	..
Java: Batavia	Oct. 30–Nov. 5	5	2
Manchuria: Dalny	Nov. 6–12	2	..
Nov. 3, one case on s.s. Sainan Maru from Osaka.			
Philippine Islands: Manila	Oct. 30–Nov. 5	7	3
Provinces—Ambos Camarines	Oct. 30–Nov. 5	10	6
Batangas	Oct. 30–Nov. 5	2	1
Bulacan	Oct. 30–Nov. 5	19	16
Cavite	Oct. 30–Nov. 5	2	3
Rizal	Oct. 30–Nov. 5	6	4
Turkey: Adrianople	Nov. 2–21	94	34
Constantinople	Nov. 1–21	368	201
Turkey in Asia: Basra	Oct. 25–Nov. 13	221	170
Erzeroum, Vilayet	Oct. 27–Nov. 21	29	24
Samsoun	Nov. 13–20	12	12
Trebizond	Oct. 31–Nov. 19	112	60
Zongouldac	Oct. 31–Nov. 19	16	7

YELLOW FEVER

Brazil: Manaos	Nov. 13–26	..	6
Para	Nov. 20–26	37	14
Venezuela: Caracas	Oct. 22–Nov. 21	12	..
Three cases previously reported.			

PLAGUE

India: Bombay	Nov. 9–15	..	11
Kurrachee	Nov. 6–12	3	3
Madras	Nov. 6–12	6	1
Rangoon	Dec. 26–Nov. 5	..	2
Indo-China: Saigon	Oct. 24–30	1	1
Manchuria: Manchuria Station	Oct. 25–Dec. 2	335	321
Including cases and deaths previously reported.			

SMALLPOX

Brazil: Para	Nov. 20–26	8	..
Canada: Louisburg	Dec. 4–10	1	..
Quebec	Dec. 4–10	1	..
New Castle	Dec. 4–10	3	..
Sydney	Dec. 4–10	4	..
Victoria	Nov. 26–Dec. 3	2	..
China: Shanghai	Nov. 6–20	..	6
Colombia: Cartagena	Nov. 13–21	25	..
Including 8 cases previously reported.			
France: Paris	Nov. 13–19	5	..
Germany, general	Nov. 14–Dec. 3	3	1
India: Madras	Nov. 6–12	..	6
Indo-China: Saigon	Oct. 24–30	4	3
Italy: Naples	Nov. 20–26	8	..
Java: Batavia	Oct 30–Nov. 5	2	..
Mexico: Monterey	Nov. 26–Dec. 4	..	1
San Luis Potosi	Oct. 30–Nov. 12	3	3

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